



SR 519 (FISKE BOULEVARD) CORRIDOR PLANNING STUDY ALTERNATIVES AND STRATEGIES REPORT

FINANCIAL PROJECT NO. 437241-1-12-01





Table of Contents

Introduction	4
Existing and Future Conditions	7
2.1 Existing Physical Features	7
2.2 Land Use Considerations.....	23
2.3 Existing Traffic Conditions.....	28
2.4 Future Traffic Conditions	38
Public Involvement – A Collaborative Effort	49
3.1 The Public Involvement Plan.....	49
3.2 The Project Visioning Team.....	49
3.3 Public Meetings.....	50
3.4 Small Group Meetings.....	52
Understanding the Problem	53
4.1 Issues & Opportunities.....	53
4.2 Guiding Principles	55
4.3 Purpose & Need	56
4.4 Measures of Success	57
Recommended Improvement Strategies	58
5.1 Screening of Candidate Recommendations.....	58
5.2 Improvement Strategy 1 – Typical Cross Section.....	61
5.3 Improvement Strategy 2 – Barnes Boulevard / I-95	62
5.4 Improvement Strategy 3 – Roy Wall Boulevard Intersection	63
5.5 Improvement Strategy 4 – Hans Christian Andersen Elementary School	63
5.6 Improvement Strategy 5 – Levitt Parkway.....	65
5.7 Improvement Strategy 6 – Pluckebaum Road Intersection.....	66
5.8 Improvement Strategy 7 – Provost Park / Stone Street / Barbara Jenkins Street.....	67
5.9 Right-of-Way Acquisitions.....	67
5.10 Estimated Costs.....	69
Next Steps	70



LIST OF FIGURES

Figure 1: Study Area Map.....	6
Figure 2: SR 519 Typical Section – South of Roy Wall Boulevard.....	8
Figure 3: SR 519 Typical Section – North of Hans Christian Andersen Elementary School	8
Figure 4: SR 519 Typical Section – South of Barbara Jenkins Street	9
Figure 5: Access Management – Driveway Spacing	10
Figure 6: Access Management – Driveway Spacing	11
Figure 7: Access Management – Driveway Spacing	12
Figure 8: Access Management – Driveway Spacing	13
Figure 9: Access Management – Driveway Spacing	14
Figure 10: Access Management – Signalized Intersection and Median Spacing	15
Figure 11: Access Management – Signalized Intersection and Median Spacing	16
Figure 12: Access Management – Signalized Intersection and Median Spacing	17
Figure 13: Sidewalk Gaps / Marked Crosswalks / Existing and Proposed Trails	19
Figure 14: Sidewalk Gaps / Marked Crosswalks / Existing and Proposed Trails	20
Figure 15: Sidewalk Gaps / Marked Crosswalks / Existing and Proposed Trails	21
Figure 16: Transit Routes and Facilities	22
Figure 17: Existing Land Use Map	26
Figure 18: Future Land Use Map.....	27
Figure 19: Existing Intersection Geometry	29
Figure 20: Existing Turning Movement Volumes and Level of Service Map.....	34
Figure 21: Crash Type by Roadway Segment.....	36
Figure 22: Crash Type by Intersection	37
Figure 23: 2020 Future Turning Movement Volumes and Level of Service Map	43
Figure 24: 2040 Future Turning Movement Volumes and Level of Service Map	48
Figure 25: Existing Typical Cross Section	61
Figure 26: Proposed Typical Cross Section	61
Figure 27: Barnes Boulevard/I-95 Ramps Concept Layout	62
Figure 28: Fiske Boulevard/Roy Wall Boulevard Concept Layout.....	64
Figure 29: Fiske Boulevard/Levitt Parkway Concept Layout.....	65
Figure 30: Fiske Boulevard/Pluckebaum Road Intersection Concept Layout.....	66
Figure 31: Provost Park/Stone Street/Barbara Jenkins Street Concept Layout.....	68



LIST OF TABLES

Table 1: SCAT Study Area Route Summary	23
Table 2: Existing Land Use.....	24
Table 3: Future Land Use	25
Table 4: Existing Roadway Level of Service.....	31
Table 5: Existing Bicycle Level of Service	32
Table 6: Existing Pedestrian Level of Service	32
Table 7: Existing Intersection Level of Service	33
Table 8: Crash Data Summary by Year	35
Table 9: Growth Rate Comparison.....	38
Table 10: 2020 Projected Roadway Level of Service	39
Table 11: 2020 Bicycle Mode Level of Service	40
Table 12: 2020 Pedestrian Mode Level of Service	41
Table 13: 2020 Projected Intersection Level of Service.....	42
Table 14: 2040 Projected Roadway Level of Service	44
Table 15: 2040 Bicycle Mode Level of Service	45
Table 16: 2040 Pedestrian Mode Level of Service	46
Table 17: 2040 Projected Intersection Level of Service.....	47
Table 18: Measures of Success	57
Table 19: Corridor Wide and Spot Improvements Eliminated from Further Consideration	60
Table 20: Estimated Costs.....	69

LIST OF APPENDICES

- Appendix A – Synchro Reports
- Appendix B – Comments & Coordination Summary
- Appendix C – SIDRA Reports & Screening Checklist



1

Introduction

The Florida Department of Transportation (FDOT) initiated a Corridor Planning Study in January 2015 for the State Road (SR) 519 (Fiske Boulevard) corridor, from the Barnes Boulevard / I-95 northbound ramps to SR 520 in Brevard County, Florida. The 4.2-mile section of Fiske Boulevard is depicted in Figure 1.

This project was requested by the Cities of Cocoa and Rockledge to coordinate and develop a multimodal vision for the Fiske Boulevard study corridor. The study involved a community based evaluation to determine how best to meet the needs of the current and future users, and to establish a long-term plan that guides the evolution of the corridor; appropriately balancing both land use and transportation planning. This project was coordinated with local and regional agency partners, such as Space Coast Transportation Planning Organization (SCTPO), Brevard County, the Cities of Cocoa and Rockledge, Space Coast Area Transit (SCAT), the Brevard County School Board, and the City of Cocoa Diamond Square Community Redevelopment Agency (CRA) to develop improvement strategies that establish a multimodal urban environment, utilizing a context-sensitive approach.

Fiske Boulevard is generally a five lane arterial with varying cross-sections, including paved shoulders with curb and gutter, or open swale drainage. Travel lanes are generally separated by a bidirectional center left-turn lane. There are eight signalized intersections along the corridor study area limits.

The character of the corridor is transitional and is primarily characterized by residential land uses, followed by institutional and commercial uses. The residential uses generally consist of subdivisions with primary access consolidated along Fiske Boulevard. The institutional uses include three public schools that directly access Fiske Boulevard including Hans Christian Andersen Elementary, John F. Kennedy Middle and Golfview Elementary Magnet Schools, and the nearby Ronald McNair Magnet Middle School and Emma Jewel Charter Academy. There are also several churches, parks and recreational areas located along the corridor.

In terms of multi-modal facilities, in general, there are continuous sidewalks along both sides of the corridor with gaps interspersed throughout, and no marked bicycle lanes. Transit is managed by SCAT, which operates two routes along this corridor, with an additional two routes that serve the overall study area. Transit stops are typically marked with signage, and in many cases, include benches. Many of the transit stops along Fiske Boulevard have accessibility challenges.



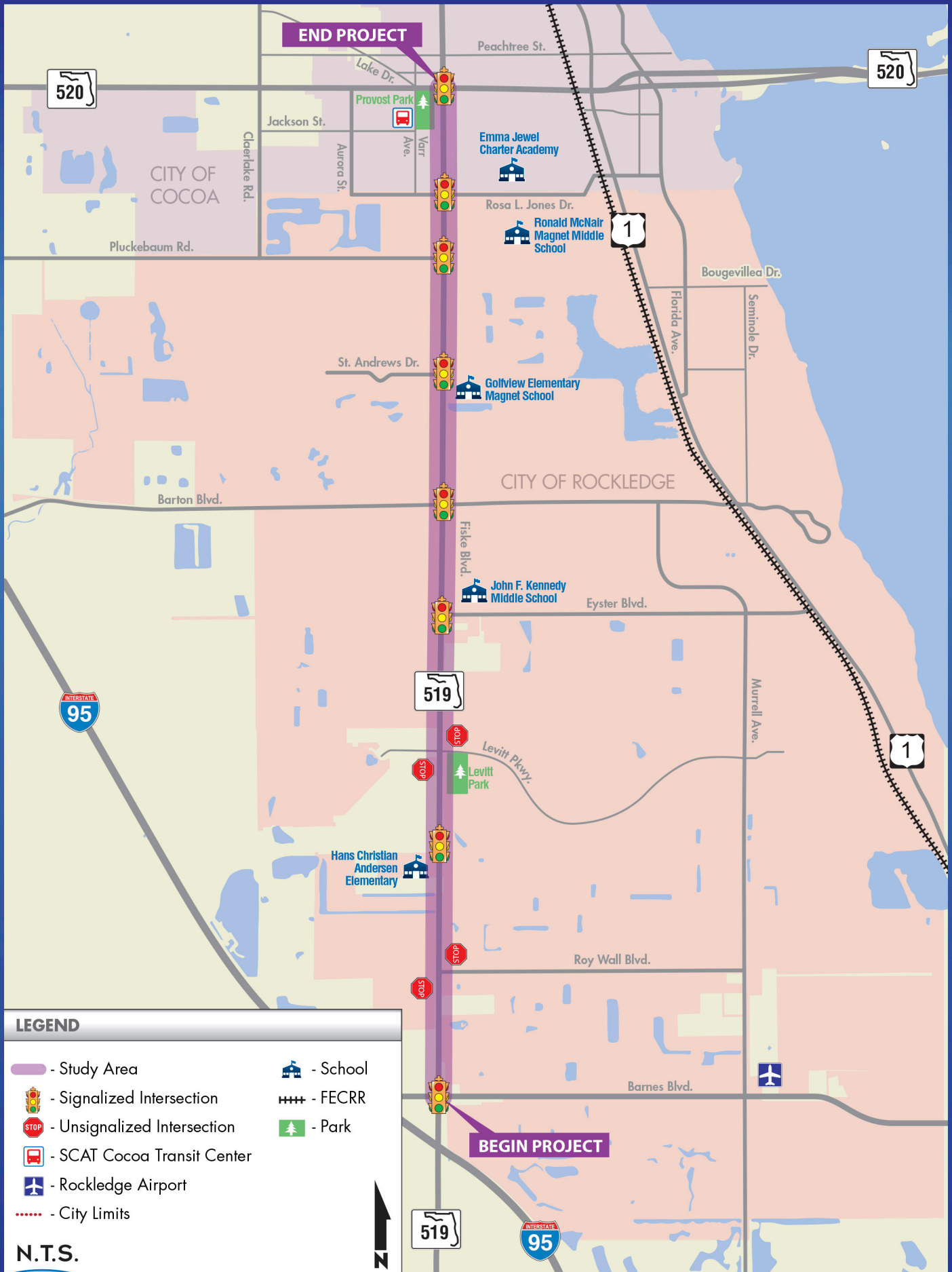
Guiding principles for this study were identified based on existing conditions data as well as public and agency input solicited from the Project Visioning Team (PVT) and public workshops. The following principles were recommended to provide a basis for developing corridor alternatives:

- Safety
- Bike/Pedestrian Mobility
- Design Consistency
- Aesthetics
- Transit

Once the issues and opportunities, guiding principles, purpose and need, and measures of success were identified, the following improvement strategies were developed to enhance the corridor:

- Provide a consistent cross section along the entire study corridor, including designated bike lanes
- Improve the operation of the I-95 ramps at Barnes Boulevard by implementing lane modifications
- Improve the operations at the Roy Wall Boulevard intersection by constructing a roundabout
- Improve vehicle queuing along Fiske Boulevard during the drop-of and pick-up times for students at Hans Christian Anderson Elementary School with on-site improvements, in coordination with the Brevard County School Board
- Improve the operations of the Levitt Parkway intersection by constructing a roundabout
- Improve the operations along Fiske Boulevard between Barbara Jenkins Street and SR 520 by implementing a raised median with directional left-turn lanes

The following sections summarize the planning process used to develop the final recommendations for this corridor planning study.



LEGEND

- Study Area
- Signalized Intersection
- Unsignalized Intersection
- SCAT Cocoa Transit Center
- Rockledge Airport
- City Limits
- School
- FECRR
- Park

N.T.S.





2

Existing and Future Conditions

2.1 Existing Physical Features

This section of the report provides an overview of the data collected to establish baseline, or existing conditions of the roadway and surrounding area. This information was utilized to establish the Purpose & Need and goals and objectives for the study. For detailed information on the existing conditions, refer to the *Existing Conditions Report*, under separate cover.

Introduction to the Corridor

The Fiske Boulevard Corridor Planning Study is a 4.2 mile-section that begins at the intersection of Fiske Boulevard and Barnes Boulevard / I-95 Northbound Ramps at the southern end, and terminates at the SR 520 / King Street intersection to the north. It passes through the Cities of Rockledge and Coco; the segment south of Rosa L. Jones Boulevard is within the City of Rockledge, and the remaining segment north of Rosa L. Jones is within the City of Cocoa and the City of Cocoa Diamond Square CRA. The City of Rockledge has identified Fiske Boulevard as a hurricane evacuation route.

Unless otherwise noted, the Fiske Boulevard study area is defined as a half-mile buffer east and west of the study corridor.

Roadway Classification, Jurisdiction, and Posted Speed

The Fiske Boulevard study corridor is classified as an “urban principal arterial other” roadway and is owned and maintained by FDOT. The posted speed on the corridor from the Barnes Boulevard / I-95 Northbound Ramps to south of Cardinal Avenue is 45 mph. The remainder of the study corridor is posted as 40 mph.

Right-of-Way

There is no existing right-of-way data available for this corridor. The roadway right-of-way (ROW) was inventoried for the study corridor using available property appraisal parcel data. The ROW along the study corridor was found to range from 100 feet to 310 feet in width.

Typical Sections

The Fiske Boulevard study corridor can be grouped into three typical sections, as illustrated in Figure 2 through Figure 4.

Figure 2: SR 519 Typical Section – South of Roy Wall Boulevard



Figure 2 shows the typical section along Fiske Boulevard just south of Roy Wall Boulevard. This section consists of a varying median widths (40 feet at Barnes Boulevard, 18 feet at Tuckaway Drive and 17 feet at Roy Wall Boulevard). There are directional left turns between Tuckaway Drive and Barnes Boulevard. The median transitions from a grass median to a raised concrete median approximately 345 feet south of Tuckaway Drive. Between Tuckaway Drive and Roy Wall Boulevard, the median becomes a continuous bidirectional center left-turn lane.

Figure 3: SR 519 Typical Section – North of Hans Christian Andersen Elementary School



Figure 3 shows the typical section north of Hans Christian Andersen Elementary School. There are slight exceptions to the typical section between Roy Wall Boulevard and Genevieve Avenue. The median type is a 17-foot continuous bidirectional center left-turn lane, with curb and gutter along

both sides of Fiske Boulevard. North of Swiss Pointe Boulevard to Rosa L. Jones Boulevard, the typical section slightly varies with a 14 to 15-foot continuous bidirectional center left-turn lane and curb and gutter.

Figure 4: SR 519 Typical Section – South of Barbara Jenkins Street



Figure 4 shows the typical section south of Barbara Jenkins Street. There are slight exceptions to the typical section between Rosa L. Jones Boulevard and SR 520. The median type is a 12-foot bidirectional center left-turn lane, without curb and gutter. The shoulder varies between paved and unpaved with various widths between 4 and 12-feet.

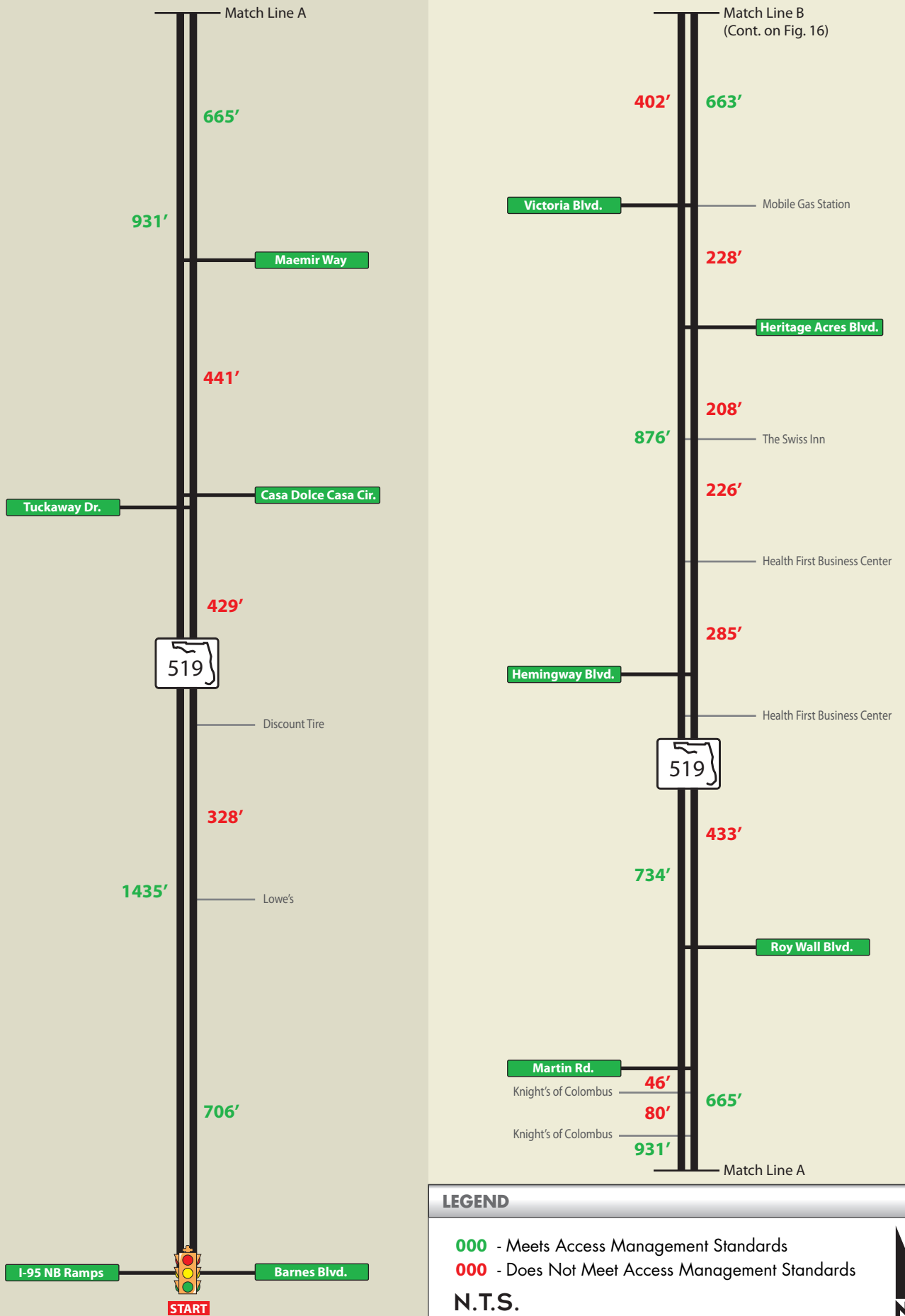
[Access Management](#)

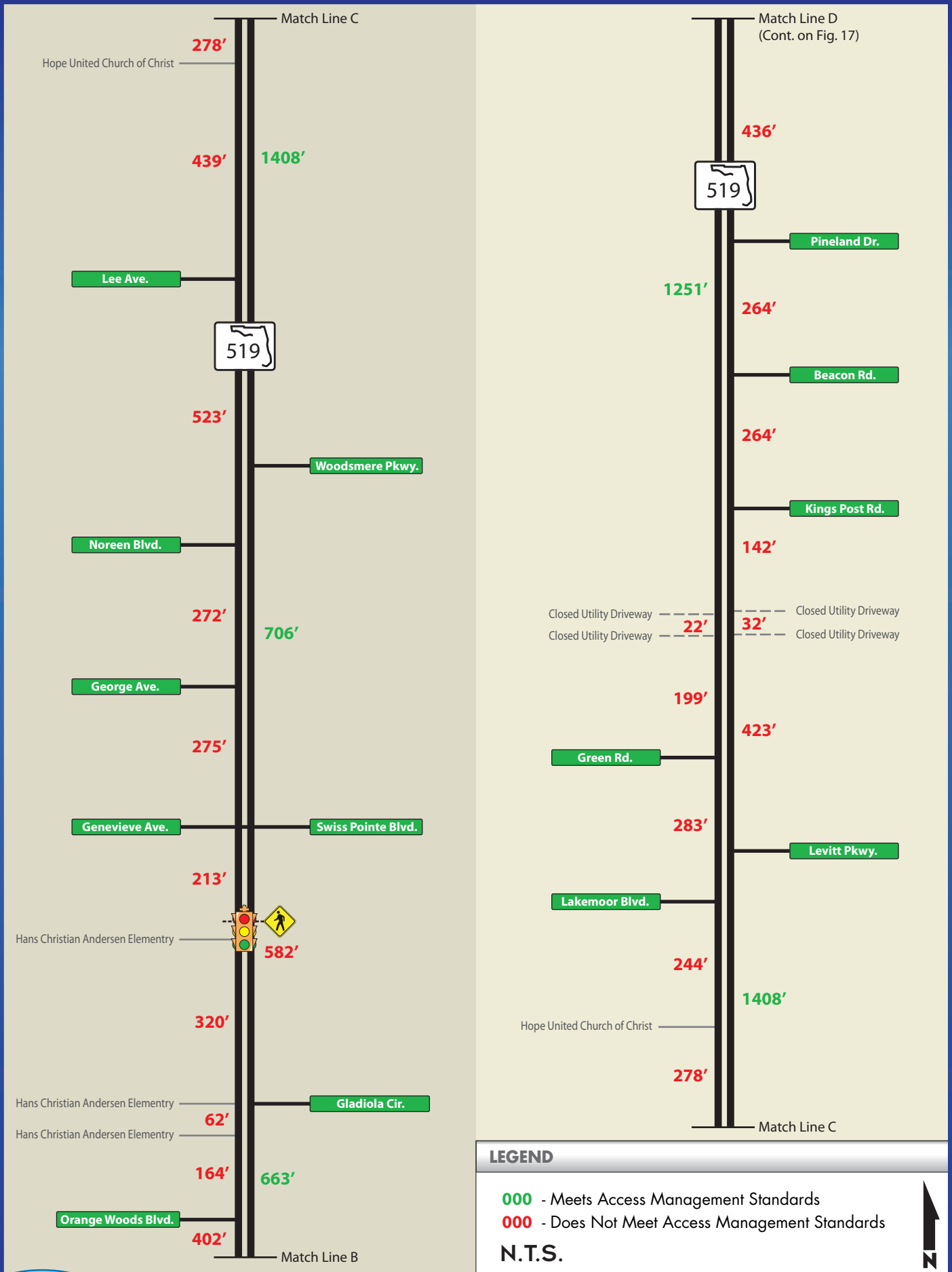
Fiske Boulevard is classified as an Access Class 4 roadway throughout the study area. An Access Class 4 roadway has a minimum spacing criteria of 660 feet between intersections for speeds greater than 45 miles per hour (mph), and 440 feet for speeds less than or equal to 45 MPH.

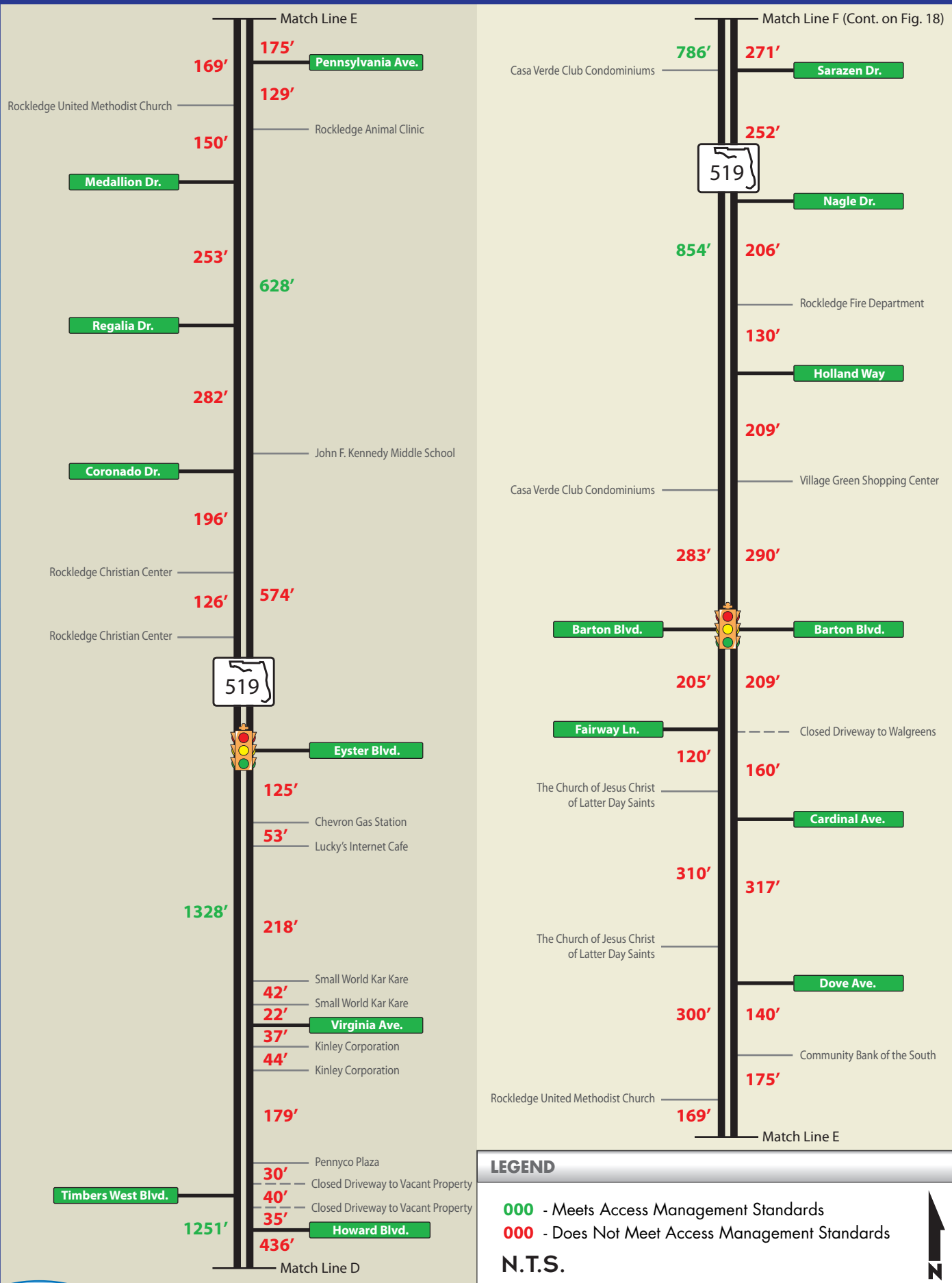
The study corridor serves many abutting residential and commercial land uses, with areas along the corridor where the spacing is deficient, especially between driveways. In general, the portions of the corridor between Howard Boulevard and Eyster Boulevard and north of Pluckebaum Road consist of more closely spaced driveways. Figures 5 through 12 illustrate the existing access management and whether or not the median, connection, and signal spacing's are currently satisfying access management standards.

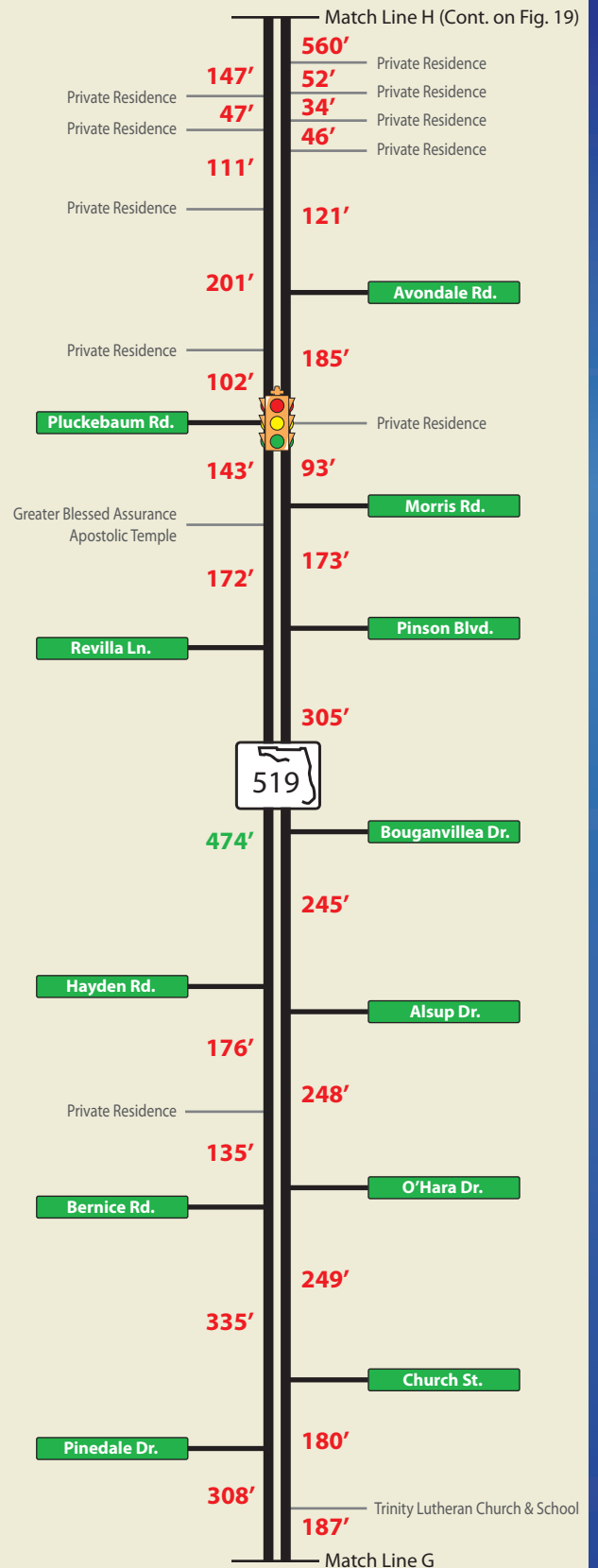
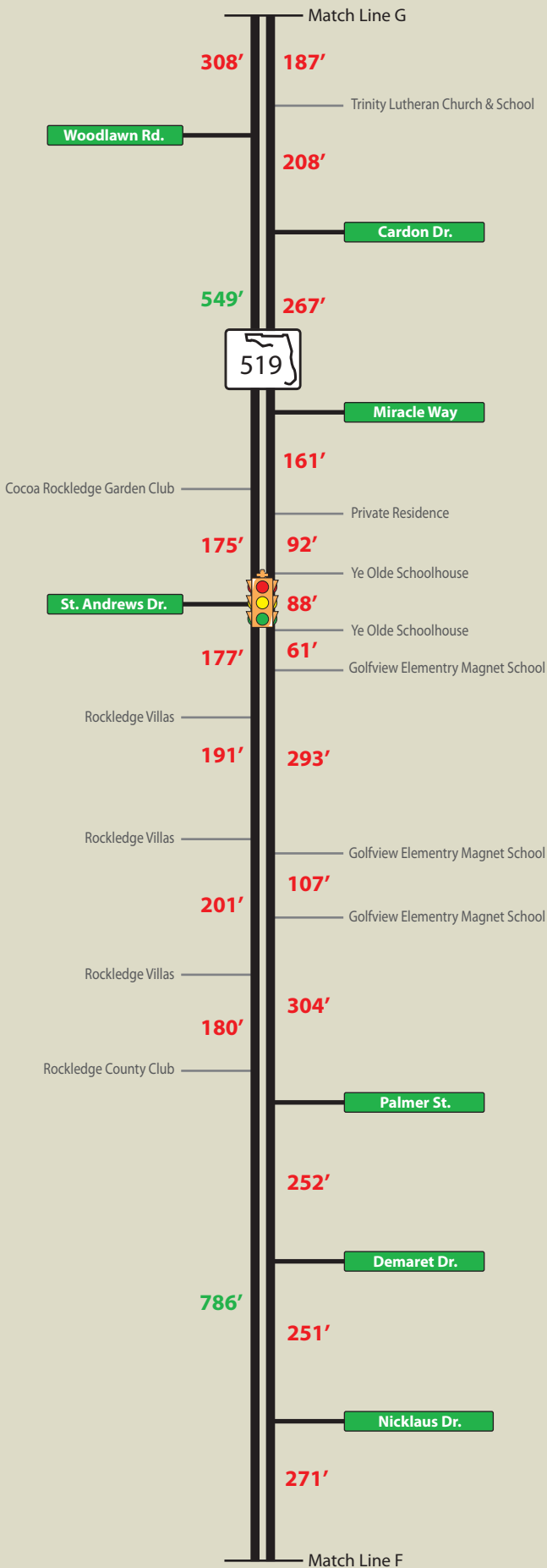
[Intelligent Transportation Systems](#)

Brevard County currently operates an unofficial Traffic Management Center (TMC) at the Viera Government Center, where the County can remotely monitor and communicate with all signals connected to the existing fiber optic network using a signal management software (Naztec's ATMS.now). Fiske Boulevard currently has 2.22 miles of fiber optics installed between SR 520 and Eyster Boulevard along the northern section of the study corridor, which also includes one Advance Dynamic Message Sign and three signals connected to the existing fiber optic network.





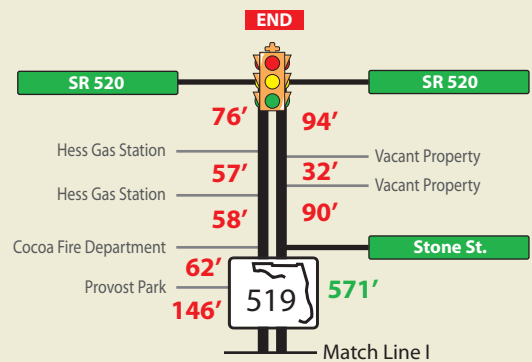
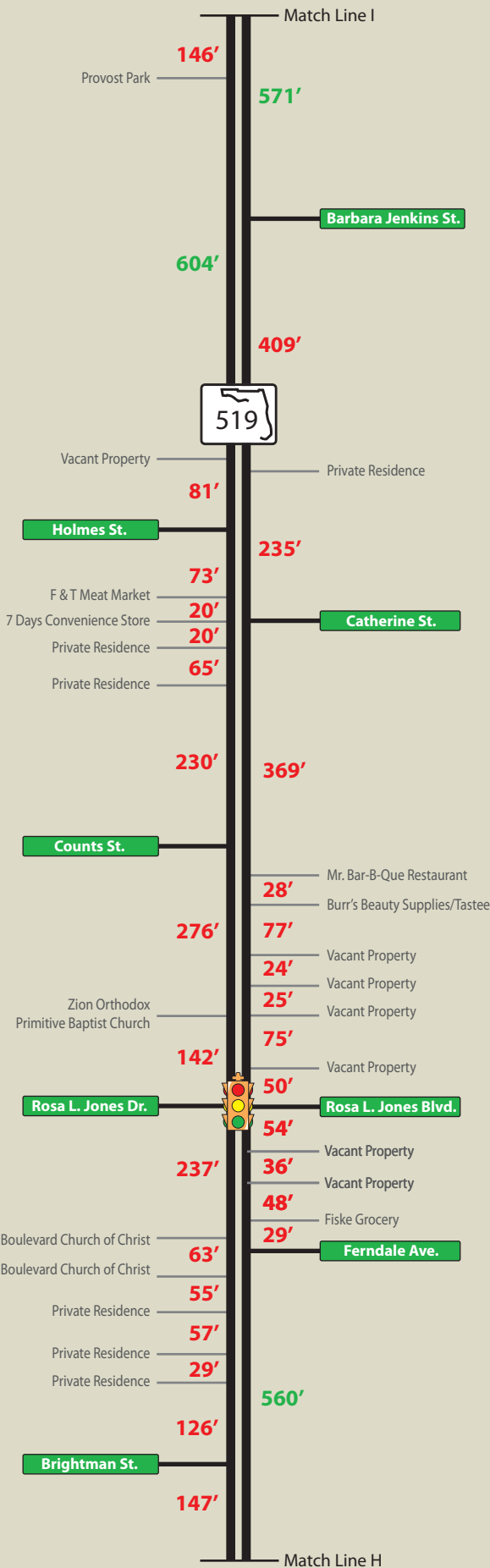




LEGEND

- 000 - Meets Access Management Standards
- 000 - Does Not Meet Access Management Standards
- N.T.S.

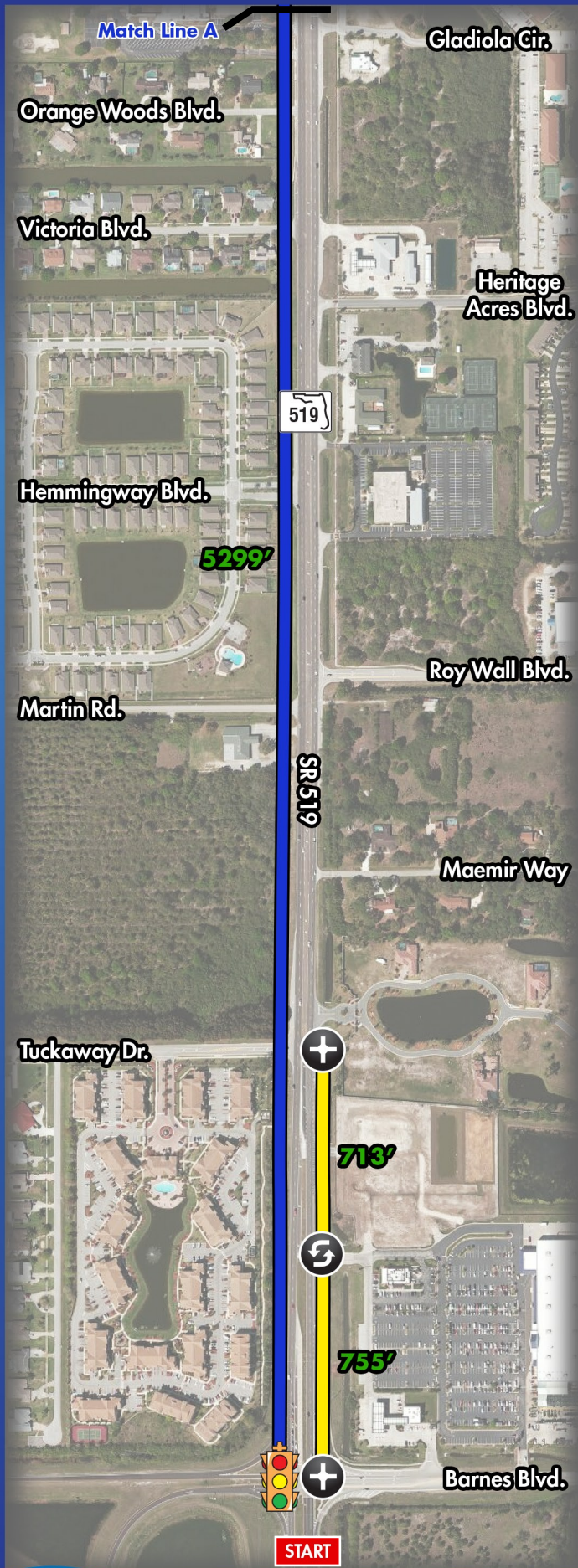




LEGEND

- 000 - Meets Access Management Standards
- 000 - Does Not Meet Access Management Standards
- N.T.S.





LEGEND

- Full Median Opening

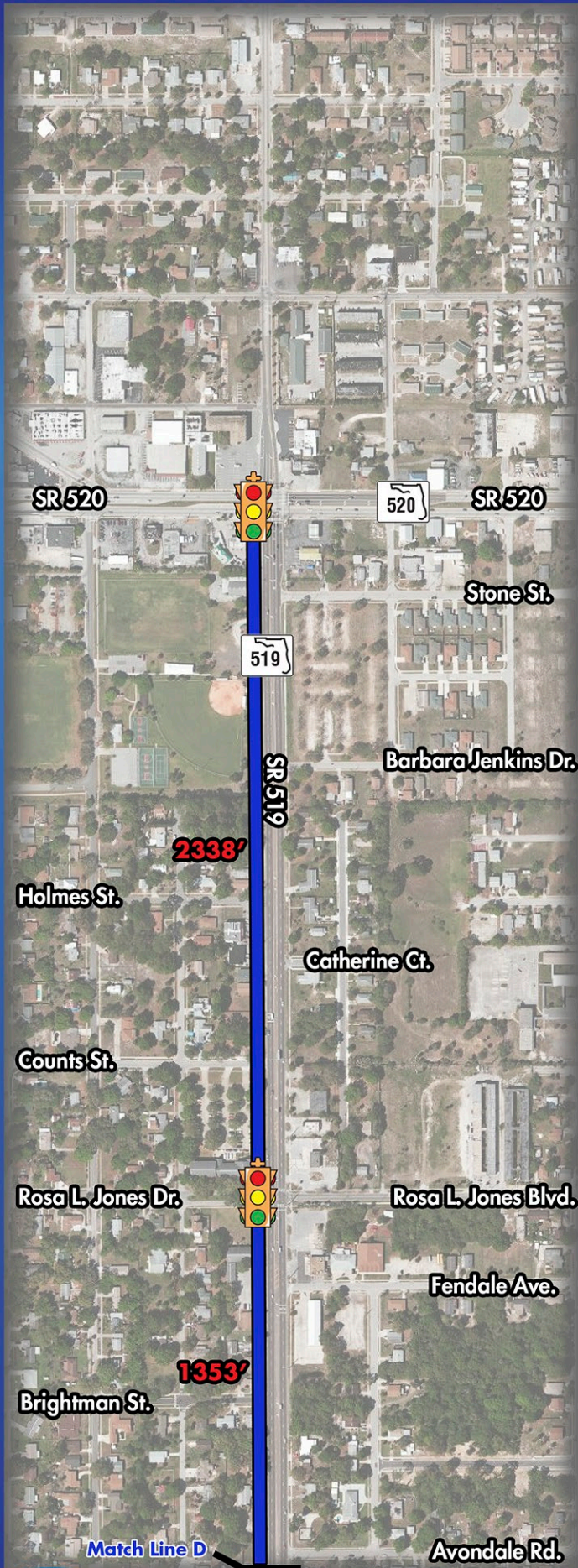
- Directional Median Opening

- Signalized Intersection

- Meets Access Management Standards

- Does Not Meet Access Management Standards





LEGEND

-  - Full Median Opening
-  - Directional Median Opening
-  - Signalized Intersection
-  - Meets Access Management Standards
-  - Does Not Meet Access Management Standards





Parking

There are no on-street parking or park and ride lots within the Fiske Boulevard study area.

Lighting

A lighting inventory was conducted based on field reviews and Google Earth. There are both freestanding and utility pole lights located on both sides of the roadway throughout most of the study area, with the exception of a half-mile gap between Barnes Boulevard to Roy Wall Boulevard.

Bicycle and Pedestrian Infrastructure

Fiske Boulevard has sidewalks present on both sides of the road, except for a few small segments where gaps are present. Approximately half of the side streets do not have sidewalk connections to Fiske Boulevard. In general, where sidewalks are provided, curb ramps are also provided. Crosswalks exist at all signalized intersections, with a signalized mid-block crosswalk near the Hans Christian Andersen Elementary School just south of Genevieve Avenue.

No bicycle lanes were identified along the corridor. Undesignated bicycle lanes were identified along SR 520 (crossing through the intersection of Fiske Boulevard).

There is one trail (the Brevard Zoo Trail) within the study area. The majority of this trail has been constructed, with the exception of a missing segment between Barnes Boulevard and Roy Wall Boulevard.

Figures 13 through 15 depict the gaps in sidewalk coverage, designated crosswalks, and the Brevard Zoo Trail within the study area.

School Bus Routes

There are three public schools with direct access to Fiske Boulevard, including the following:

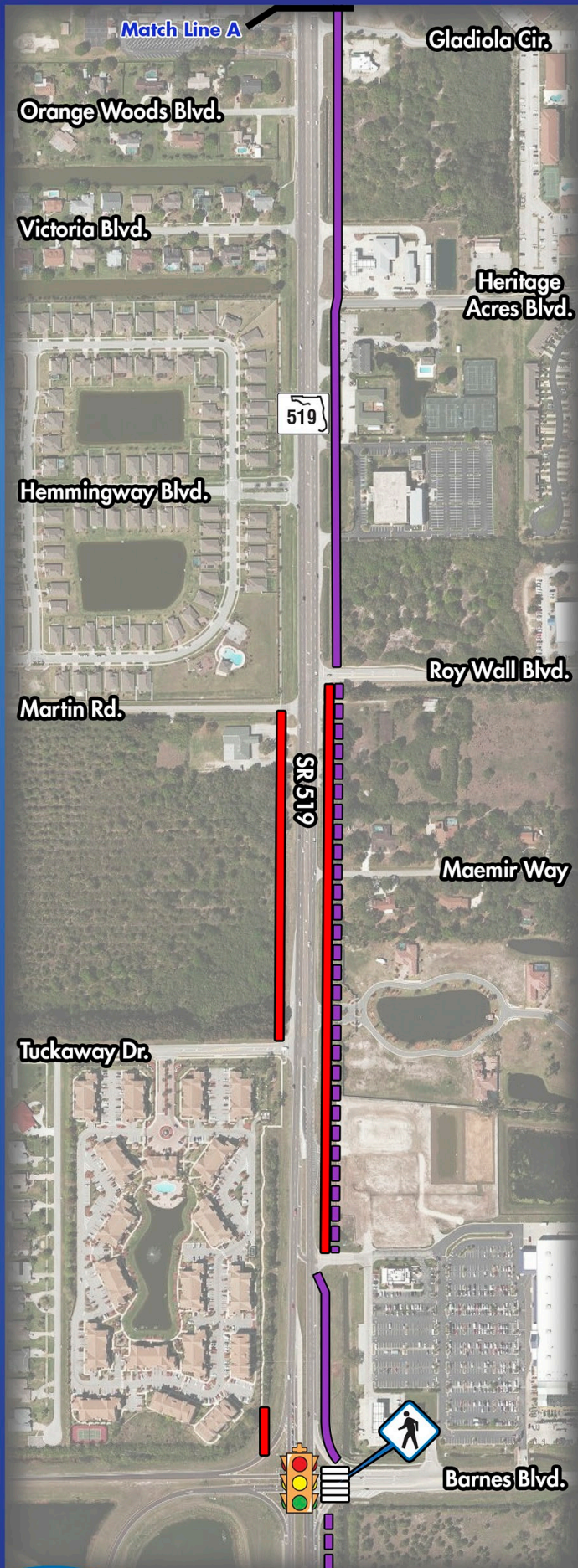
- Hans Christian Andersen Elementary School
- John F. Kennedy Middle School
- Golfview Elementary Magnet School

There is also one public school, Ronald McNair Magnet Middle School, located east of Fiske Boulevard along Rosa L. Jones Boulevard and one private school, Emma Jewel Charter Academy, south of Barbara Jenkins Street along Blake Avenue.

Brevard Public Schools generally utilizes a two-mile walking radius within a School Attendance Boundary to determine the eligibility for bussing. Hans Christian Andersen Elementary School has two bus routes serving approximately 71 eligible students; John F. Kennedy Middle School has 13 bus routes serving approximately 288 eligible students; and Golfview Elementary Magnet School has three bus routes serving approximately 26 eligible students.

Transit Service and Infrastructure

Existing transit services in the study area is operated by SCAT. SCAT currently provides fixed-route service via Routes 1, 4, 6 and 8, shown in Figure 16. Route 4 is the only route that provides service along the entire length of the Fiske Boulevard study corridor. SCAT also provides paratransit service and commuter assistance vanpools within the study area.



LEGEND



- Signalized Intersection



- Marked Crosswalks

- Existing Brevard Zoo Trail

- Planned Brevard Zoo Trail

- Sidewalk Gaps





LEGEND



- Signalized Intersection



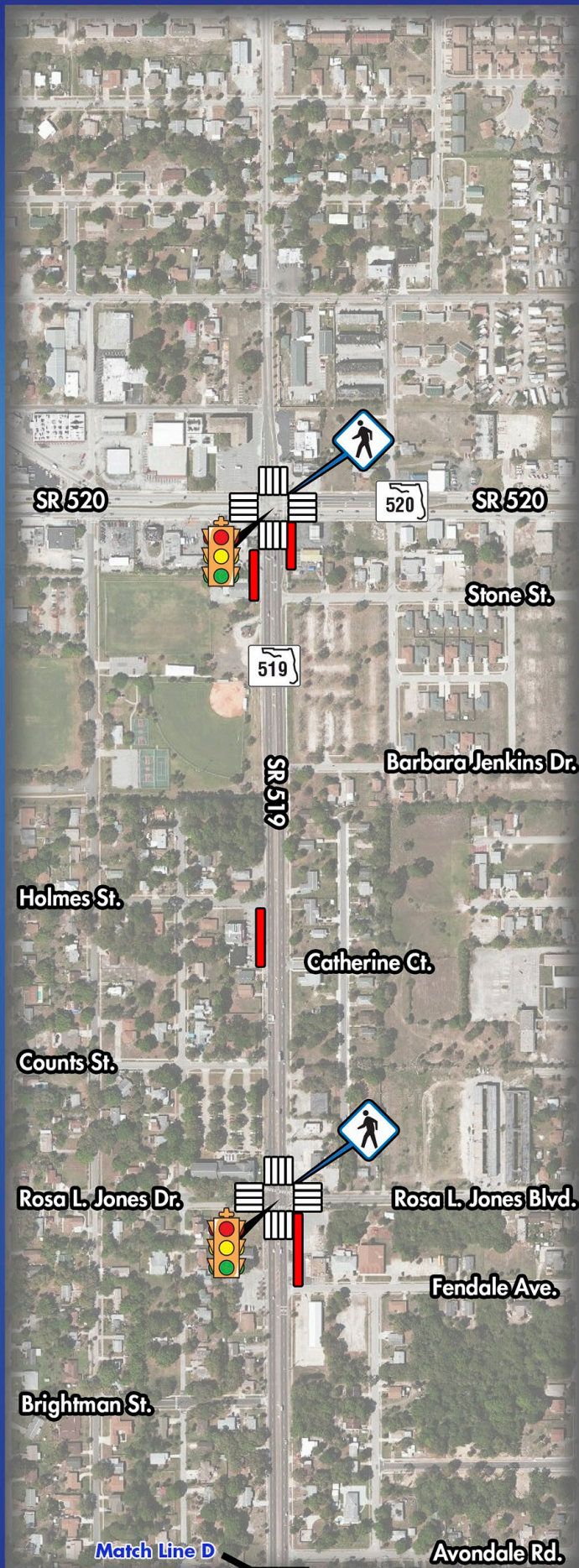
- Marked Crosswalks

- Existing Brevard Zoo Trail

- Planned Brevard Zoo Trail

- Sidewalk Gaps





LEGEND



- Signalized Intersection



- Marked Crosswalks



- Existing Brevard Zoo Trail



- Planned Brevard Zoo Trail



- Sidewalk Gaps



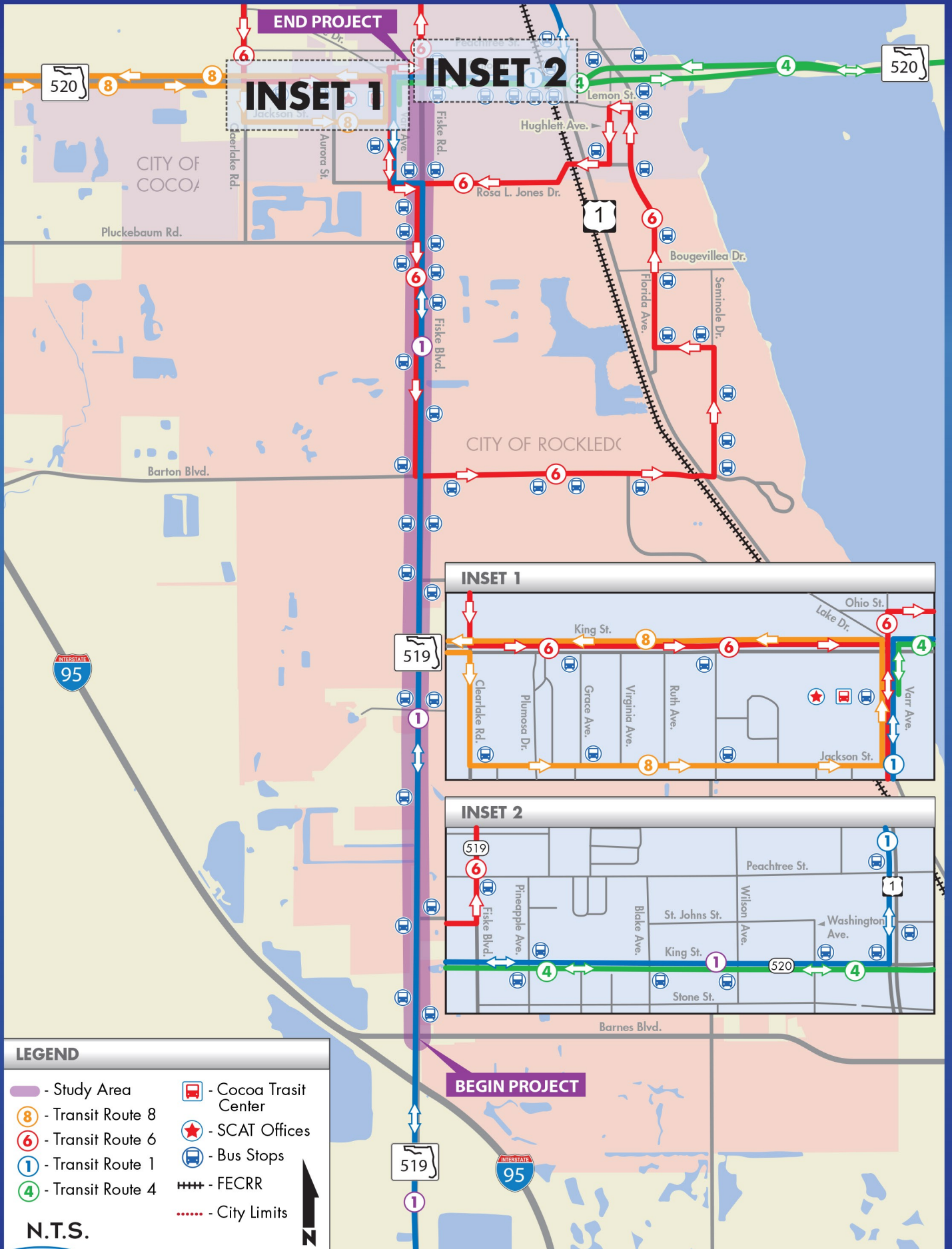




Table 1 presents the span of service, frequency, and ridership for each of the routes in the study area. The frequency shown in the table represents the typical range for the service.

Table 1: SCAT Study Area Route Summary

Route	Route Description	Span of Service	Service Frequency	Flag Stop Route?	FY 2014 Annual Ridership
1	Melbourne/Titusville (North Loop)	5:15 AM to 8:30 PM Monday – Friday 7:30 AM to 6:30 PM Saturday	30/60 Min 120 Min	No	237,209
4	520 Connector	5:45 AM to 11:30 PM Monday – Friday 5:45 AM to 11:30 PM Saturday 8:00 AM to 6:00 PM Sunday	15/60/15/60 Min 15/60/15/60 Min 60 Min	No	338,214
6	Cocoa/Rockledge	5:45 AM to 8:15 PM Monday – Friday 7:15 AM to 6:15 PM Saturday	15/30/60 Min 60 Min	No	261,626
8	West Cocoa	6:45 AM to 5:45 PM Monday – Friday	Varies from 90 to 150 min	Yes	17,494

Source: SCAT Posted Timetables (Effective 05/31/14), SCAT 2013 Transit Development Plan, FY 2014 ridership provided by SCAT

In general, bus stops along Fiske Boulevard are located in areas where there is an existing sidewalk and have a bus stop sign and bench for seating. The majority of the stops lack landing pads which provide a connection from the sidewalk to the bus doors. One bus stop (intersection of Fiske Boulevard and Barton Boulevard) includes a shelter. Routes 1 and 8 also allow “flag stops” where passengers flag down a SCAT bus at areas where there is no fixed stop along the route.

2.2 Land Use Considerations

This section of the report provides an overview of the land uses along and adjacent to the study corridor.

Existing Land Use

Land use data was compiled from the Brevard County Property Appraiser parcel data, 2010 US Census and FDOT District 5 Generalized Land Use Data. This data was used to identify existing land uses around the study corridor, summarized in Figure 17 and Table 2.



Table 2: Existing Land Use

Land Use	Percent of Study Area
Residential	40.6%
Commercial	7.5%
Office	0.6%
Industrial	1.1%
Public/Institutional	9.5%
Agricultural	4.6%
Vacant	26.9%

Source: Brevard County Property Appraiser parcel data, 2010 US Census, and FDOT District 5 Generalized Land Use Data

The existing character of the corridor is residential in nature, with key institutional and pockets of commercial uses. Vacant land use makes up 26.9% of the study area, mostly located east of Fiske Boulevard within the City of Cocoa Diamond Square CRA. The Housing Authority of the City of Cocoa (HACoC) owns many of the undeveloped parcels within the Diamond Square CRA. No new construction has occurred since July 2010, when the HACoC experienced major financial difficulties and the effects of a downturn in the economy.

As previously mentioned, there are three schools with direct access to Fiske Boulevard, and two more schools within the study area. Commercial parcels exist primarily at the northern and southern termini of the study corridor. There are also two parks, Provost and Levitt Park, located along the corridor. The existing land use data is summarized in



Table .

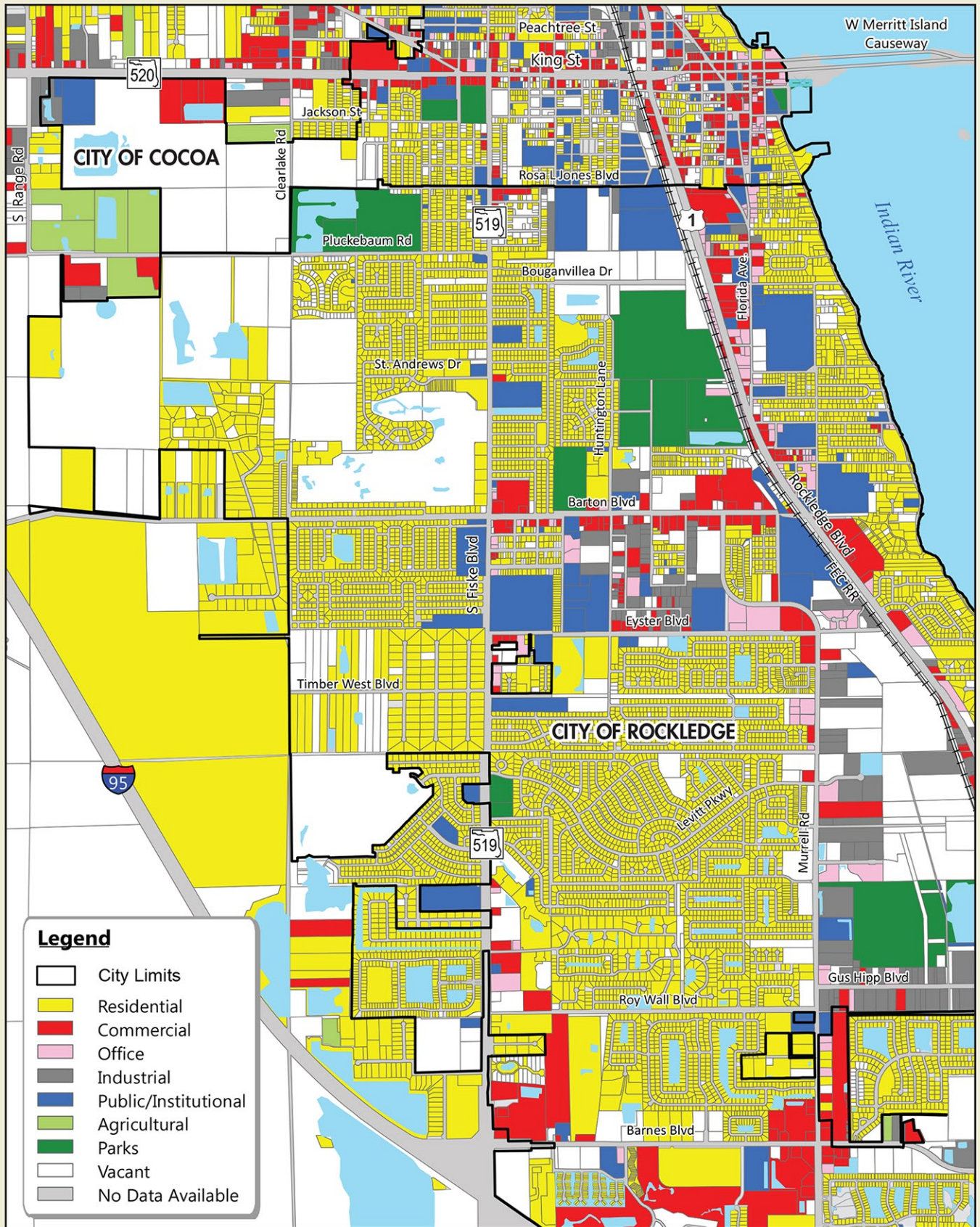
Future Land Use

The Future Land Use designations along the study corridor are generally consistent with the existing land uses and are summarized in Table and illustrated in Figure 18. Residential uses, specifically medium density residential, are the primary future land uses, with some commercial designations at the northern and southern termini of the study corridor. There are designated mixed-use areas within the City of Rockledge that include both residential and commercial uses. The parcels designated institutional and open space along the corridor are generally consistent with the existing uses.

Table 3: Future Land Use

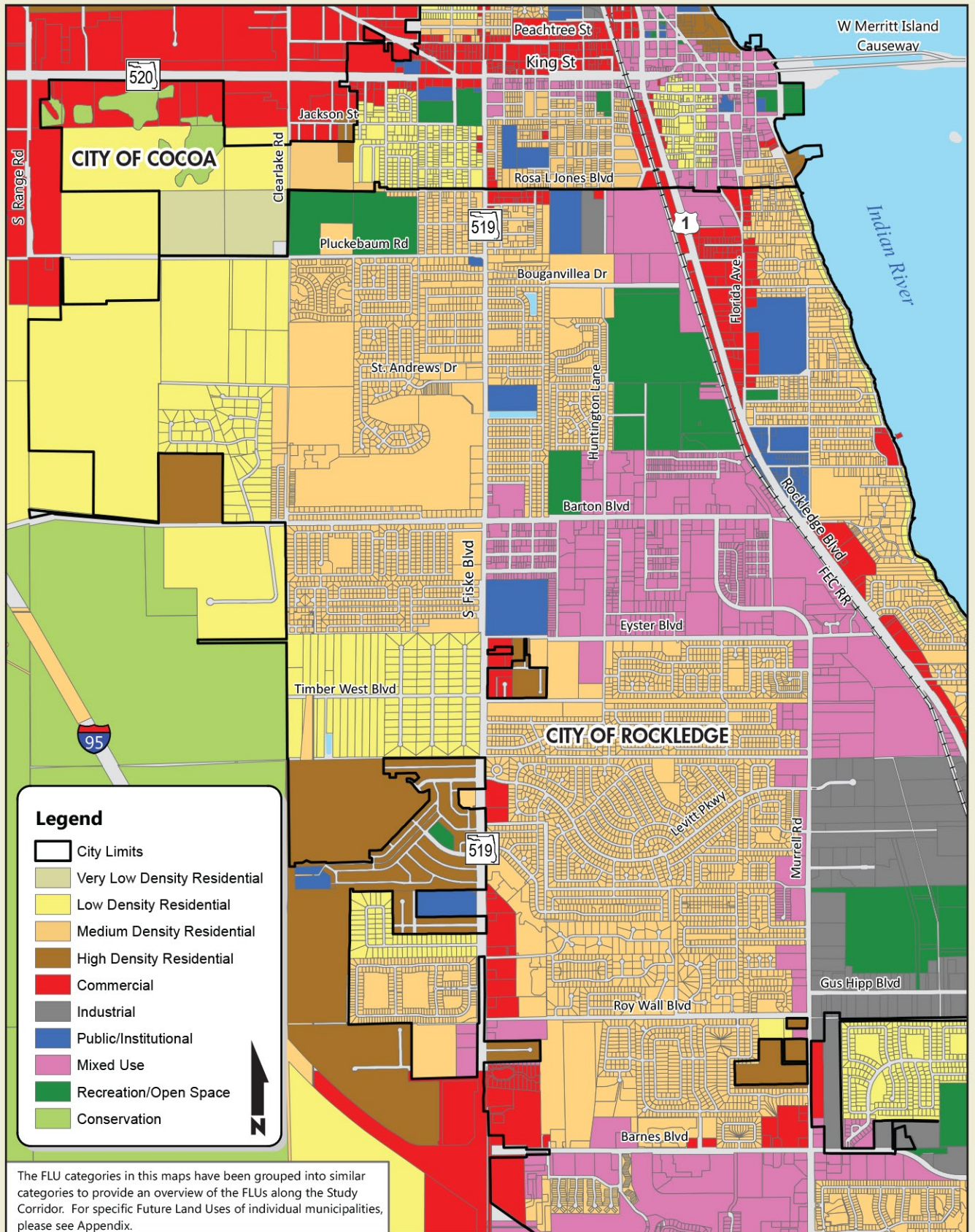
Land Use	Percent of Study Area (1/2-Mile Buffer)
Residential- Low Density	16.9%
Residential- Medium Density	51.8%
Commercial	12.3%
Mixed Use	5.4%
Public/Institutional	5.0%
Open Space/Recreational	8.6%

Source: Brevard County GIS data; City of Cocoa GIS data; City of Rockledge GIS data



N.T.S.





N.T.S.





2.3 Existing Traffic Conditions

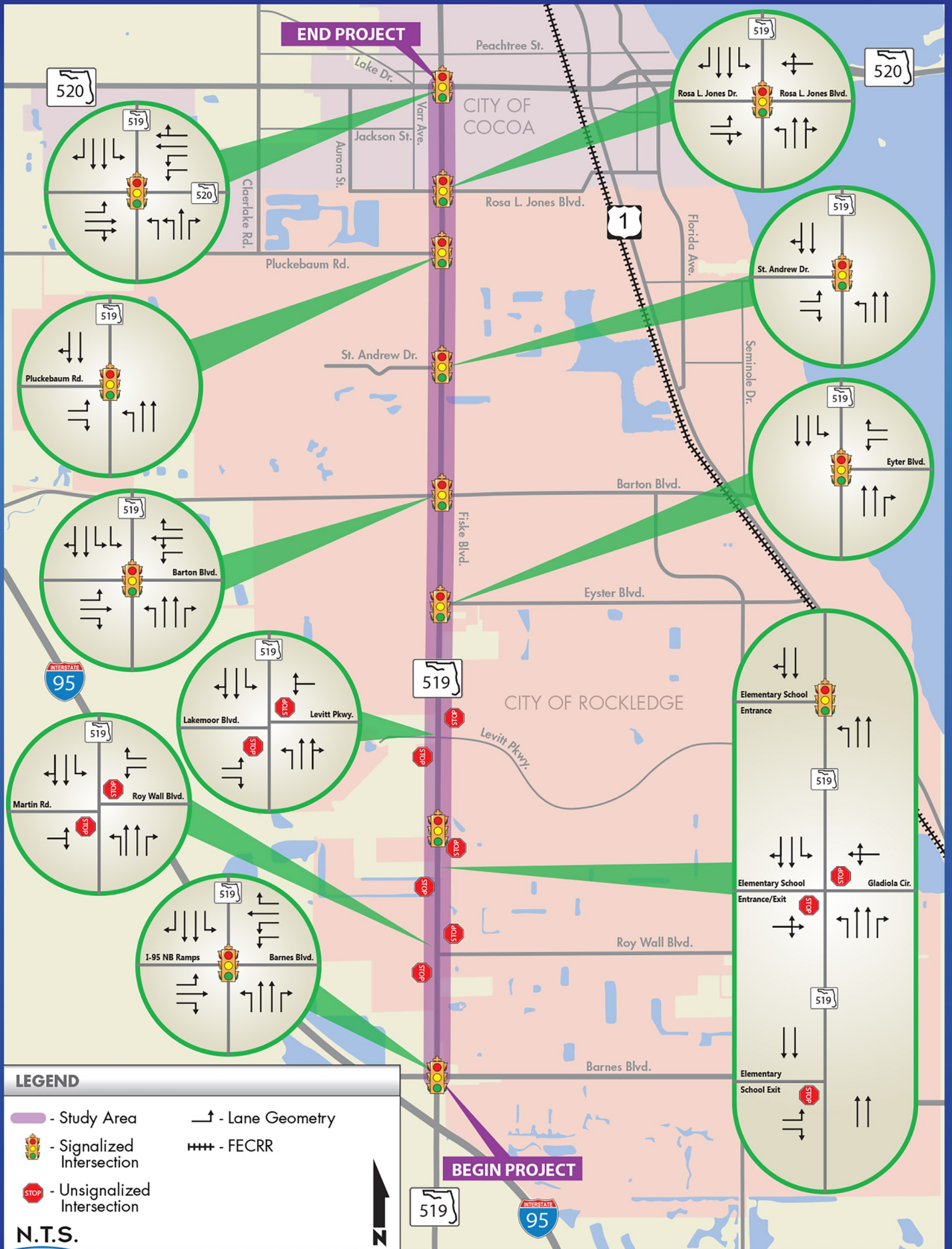
The following section summarizes the existing traffic conditions along the study corridor.

Existing Intersection Geometry

Figure 19 illustrates the existing intersection geometries for the following study intersections:

- Fiske Boulevard/Barnes Boulevard I-95 Northbound Ramps
- Fiske Boulevard/Roy Wall Boulevard (un-signalized)
- Fiske Boulevard/Hans Christian Anderson Elementary School (pedestrian signal and un-signalized school entrance/exit)
- Fiske Boulevard/Levitt Parkway & Lakemoor Boulevard (unsignalized)
- Fiske Boulevard/Eyster Boulevard
- Fiske Boulevard/Barton Boulevard
- Fiske Boulevard/St. Andrews Drive
- Fiske Boulevard/Pluckebaum Road
- Fiske Boulevard/Rosa L. Jones Drive & Rose L. Jones Boulevard
- Fiske Boulevard/SR 520

Turn lanes are generally provided along Fiske Boulevard approaching major intersections. Brevard County is responsible for the operation and maintenance of the eight traffic signals within the study area.



LEGEND

- Study Area
- Signalized Intersection
- Unsignalized Intersection
- Lane Geometry
- FECRR

N.T.S.





Traffic Counts

Weekday daily and hourly traffic volumes along the study area roadway segments and intersections were collected from various sources such as the FDOT Florida Transportation Information (FTI) and the SCTPO's annual traffic counts program. These counts were supplemented by 24-hour tube counts, 4-hour (7:00 – 9:00 AM and 4:00 – 6:00 PM) manual turning movement counts, and 24-hour pedestrian mid-block crossing counts conducted in March and April 2015 at the following locations:

Intersection Turning Movement Counts

1. Barnes Boulevard (east of Fiske Boulevard)
2. Fiske Boulevard at Barnes Boulevard/I-95 NB Ramps
3. Fiske Boulevard at Roy Wall Boulevard (Unsignalized)
4. Fiske Boulevard at Hans Christian Anderson Elementary School
5. Fiske Boulevard (north of Lee Avenue)
6. Fiske Boulevard at Levitt Parkway/Lakemoor Boulevard (Unsignalized)
7. Fiske Boulevard at Eyster Boulevard
8. Fiske Boulevard (south of Barton Boulevard)
9. Fiske Boulevard at Barton Boulevard
10. Barton Boulevard (east of Fiske Boulevard)
11. Fiske Boulevard (north of Barton Boulevard)
12. Fiske Boulevard (south of St Andrews Drive)
13. Fiske Boulevard at St. Andrews Drive
14. Fiske Boulevard (south of Pluckebaum Road)
15. Fiske Boulevard at Pluckebaum Road
16. Pluckebaum Rd. (west of Fiske Boulevard)
17. Fiske Boulevard (south of Rosa L Jones Boulevard)
18. Fiske Boulevard at Rosa L. Jones Boulevard
19. Fiske Boulevard (south of Barbara Jenkins Street)
20. Fiske Boulevard (south of SR 520)
21. SR 520 (west of Fiske Boulevard)
22. SR 520 (east of Fiske Boulevard)
23. Fiske Boulevard at SR 520

24-hr Continuous Volume (Tube) Count Locations

1. Fiske Boulevard (south of Barnes Boulevard)
2. Fiske Boulevard (north of Barnes Boulevard)
3. Fiske Boulevard (south of Levitt Parkway)
4. Fiske Boulevard (south of Eyster Boulevard)
5. Eyster Blvd. (east of Fiske Boulevard)

24-hr Pedestrian Mid-Block Crossing

1. Fiske Boulevard near Hans Christian Andersen Elementary School
2. Fiske Boulevard north of Barton Boulevard
3. Fiske Boulevard near Provost Park



All traffic count data collected was adjusted utilizing the latest (2013) FDOT axle (where applicable) and seasonal adjustment factors for Brevard County to provide 2015 annual average conditions. All collected traffic counts and seasonal factors are provided in Appendix A.

Arterial/Roadway Segment Level of Service Analysis

Fiske Boulevard has an adopted Level of Service (LOS) of “D”. A summary of the LOS analysis for the study area roadway segments is included in Table 4. The table shows that Fiske Boulevard currently operates at an acceptable LOS “C”. The detailed LOS analysis is included in Appendix A.

Table 4: Existing Roadway Level of Service

Roadway / Segment	Adopted LOS ¹	Daily LOS ²	V/C Ratio
I-95 NB interchange to Barnes Boulevard	D	C	0.53
Barnes Boulevard to Gladiola Circle	D	C	0.50
Gladiola Circle to Levitt Parkway	D	C	0.52
Levitt Parkway to Eyster Boulevard	D	C	0.53
Eyster Boulevard to Barton Boulevard	D	C	0.60
Barton Boulevard to St. Andrews Drive	D	C	0.61
St. Andrews Drive to Pluckebaum Road	D	C	0.63
Pluckebaum Road to Rosa L. Jones Drive	D	C	0.48
Rosa L. Jones Drive to SR 520	D	C	0.45

Source: Compiled by VHB.

1 2012 FDOT Quality/Level of Service Handbook

2 FDOT FTI, SCPTOP, and supplemental daily counts

The LOS for bicycle, pedestrian, and transit modes was also evaluated by roadway segment. The LOS for the bicycle and pedestrian modes are based on the number of vehicles traveling on the roadway and the coverage of available bicycle lanes and sidewalks provided along the corridor. The LOS for transit is based on the frequency of buses in peak hour-peak direction, and the sidewalk coverage available along the corridor. As shown in Table 5, the LOS for bicycles along the corridor is “E” due to the lack of bicycle lanes along the corridor. Table 6 indicates that the pedestrian LOS along the corridor is “D” or better. The detailed bicycle and pedestrian LOS analysis is included in Appendix A.



Table 5: Existing Bicycle Level of Service

Roadway / Segment	No. of Lanes ¹	Bike Lane Coverage ¹	Daily Bicycle LOS ²
I-95 NB interchange to Barnes Boulevard	4LD	0-49%	E
Barnes Boulevard to Gladiola Circle	4LD	0-49%	E
Gladiola Circle to Levitt Parkway	4LD	0-49%	E
Levitt Parkway to Eyster Boulevard	4LD	0-49%	E
Eyster Boulevard to Barton Boulevard	4LD	0-49%	E
Barton Boulevard to St. Andrews Drive	4LD	0-49%	E
St. Andrews Drive to Pluckebaum Road	4LD	0-49%	E
Pluckebaum Road to Rosa L. Jones Drive	4LD	0-49%	E
Rosa L. Jones Drive to SR 520	4LD	0-49%	E

Source: Compiled by VHB.

- 1 FDOT Straight Line Diagrams (SLD)
- 2 FDOT FTI, SCPTOP, and supplemental daily counts

Table 6: Existing Pedestrian Level of Service

Roadway / Segment	No. of Lanes ¹	Sidewalk Coverage ¹	Daily Pedestrian LOS ²
I-95 NB interchange to Barnes Boulevard	4LD	85-100%	D
Barnes Boulevard to Gladiola Circle	4LD	85-100%	C
Gladiola Circle to Levitt Parkway	4LD	85-100%	C
Levitt Parkway to Eyster Boulevard	4LD	85-100%	C
Eyster Boulevard to Barton Boulevard	4LD	85-100%	D
Barton Boulevard to St. Andrews Drive	4LD	85-100%	D
St. Andrews Drive to Pluckebaum Road	4LD	85-100%	D
Pluckebaum Road to Rosa L. Jones Drive	4LD	85-100%	C
Rosa L. Jones Drive to SR 520	4LD	85-100%	C

Source: Compiled by VHB.

- 1 FDOT Straight Line Diagrams (SLD)
- 2 FDOT FTI, SCPTOP, and supplemental daily counts

Based on the SCAT bus service frequency presented in an earlier section, SCAT Route 1 has a service frequency of 30 minutes during the morning peak hour period, which results in two bus services during the peak hour. Based on the evaluation criteria in Tables 1 and 7 of the 2012 FDOT Quality/Level of Service Handbook, the buses along the corridor are operating at LOS “E”. SCAT Route 6 operates with a service frequency of 15 minutes during the morning peak hour, which results in four buses during the peak hour at an acceptable LOS “D”.



Intersection Level of Service Analysis

The existing intersection LOS was obtained by applying the seasonally adjusted field turning movement counts to the existing intersection geometries. A summary of the LOS analysis for the study intersections is included in Table 7.

Table 7: Existing Intersection Level of Service

Intersection	Control	AM Peak		PM Peak	
		Delay ¹	LOS ²	Delay	LOS
SR 519 at I-95 NB Ramps	Signalized	67.2	E	150.8	F
SR 519 at Roy Wall Boulevard	Un-Signalized*	10.0/15.3	A/C	12.8/20.1	B/C
SR 519 at Hans Christian Anderson Elementary Loop South	Un-Signalized*	9.7/23.5	A/C	9.7/16.0	A/C
SR 519 at Hans Christian Anderson Elementary Loop North	Signalized	12.4	B	12.2	B
SR 519 at Levitt Parkway/Lakemoor Boulevard	Un-Signalized*	9.6/26.0	A/D	10.2/28.1	B/D
SR 519 at Eyster Boulevard	Signalized	13.6	B	16.4	B
SR 519 at Barton Boulevard	Signalized	30.7	C	33.9	C
SR 519 at St. Andrews Drive	Signalized	8.1	A	8.8	A
SR 519 at Pluckebaum Road	Signalized	12.5	B	13.7	B
SR 519 at Rosa L. Jones Boulevard	Signalized	10.8	B	12.1	B
SR 519 at SR 520	Signalized	38.9	D	43.9	D

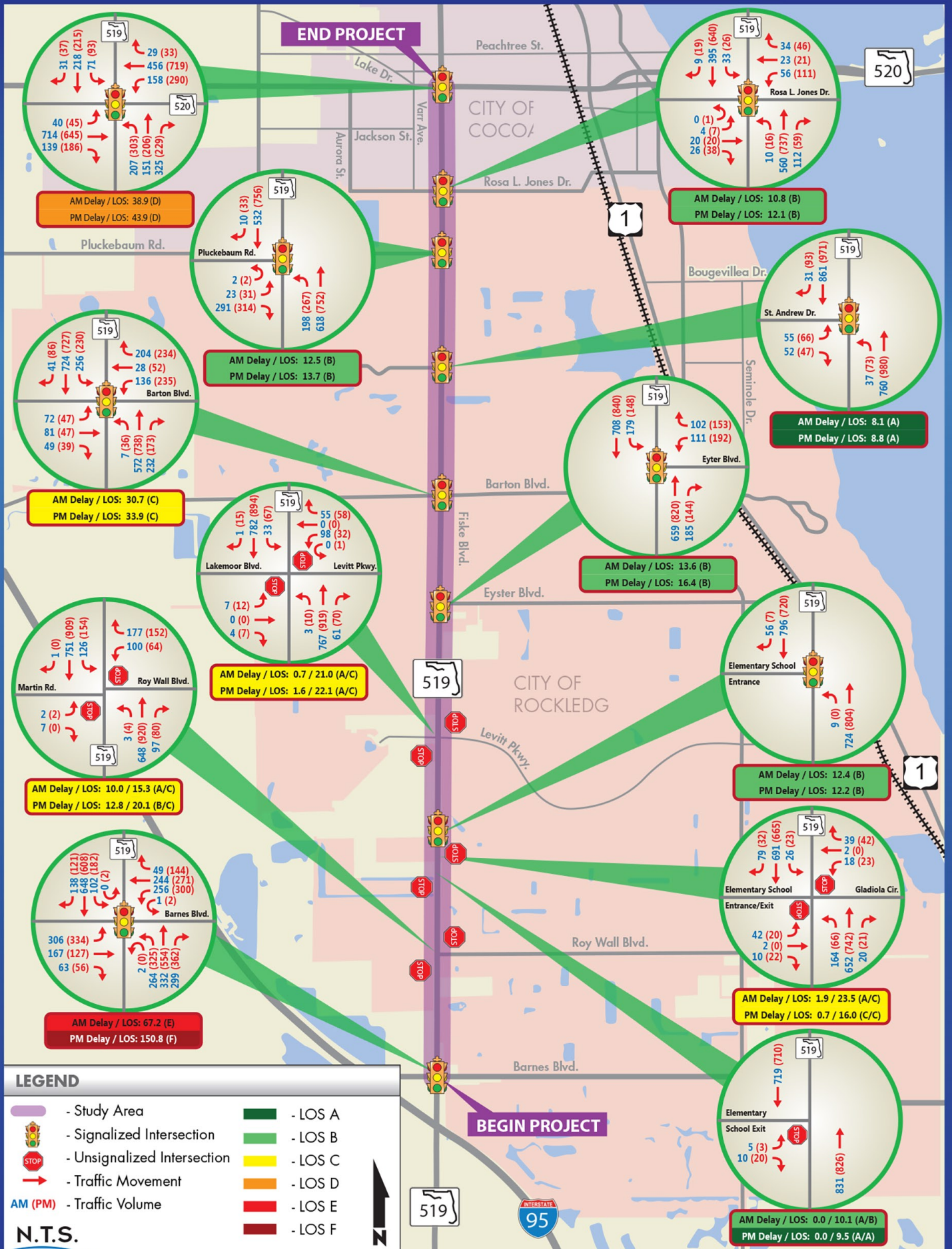
Source: VHB using Synchro 8 software.

- 1 Overall intersection average delay in seconds per vehicle
- 2 Overall intersection level of service
- 3 Mainline/side street delay and level of service for un-signalized intersection

As shown in Table 7, the Fiske Boulevard study area intersections currently operate at an acceptable LOS during the AM and PM peak hours except at the intersection of Fiske Boulevard and Barnes Boulevard, which operates at LOS “E” and LOS “F” during the AM and PM peak hours, respectively. The existing intersection LOS conditions are graphically shown in Figure 20. The Synchro summary sheets are provided in Appendix A.

It was observed in the field that the Hans Christian Elementary School operations during dismissal interrupted and/or restricted traffic flow along Fiske Boulevard, and resulted in long queues that extend beyond Heritage Acres Boulevard on the northbound direction and Noreen Boulevard on the southbound direction. The northbound queues (left-turning traffic into the school) were stacked along the center turn lane without blocking the two northbound through lanes. However, the southbound queues (right-turn traffic into the school) were stacked on the right lane shoulder, spilling out onto the through lane. In addition to school crossing guards controlling traffic at the signalized crosswalk and at the intersection of Gladiola Circle/School Driveway, a police cruiser is parked in the center turn lane to allow traffic to exist out of Gladiola Circle and the School Driveway.

At a lesser degree, the Golfview Elementary school operations during dismissal also interrupted and/or restricted traffic flow along Fiske Boulevard.





Safety and Crash Analysis

A multi-modal safety analysis was completed for the Fiske Boulevard study area roadways and intersections to determine if the traffic demands combined with geometric conditions pose potential safety concerns. A total of 371 crashes resulted in 288 injuries and four fatalities over the five-year period (January 01, 2009 to December 31, 2013), along Fiske Boulevard within the study area. The crash data is summarized in Table 8.

Table 8: Crash Data Summary by Year

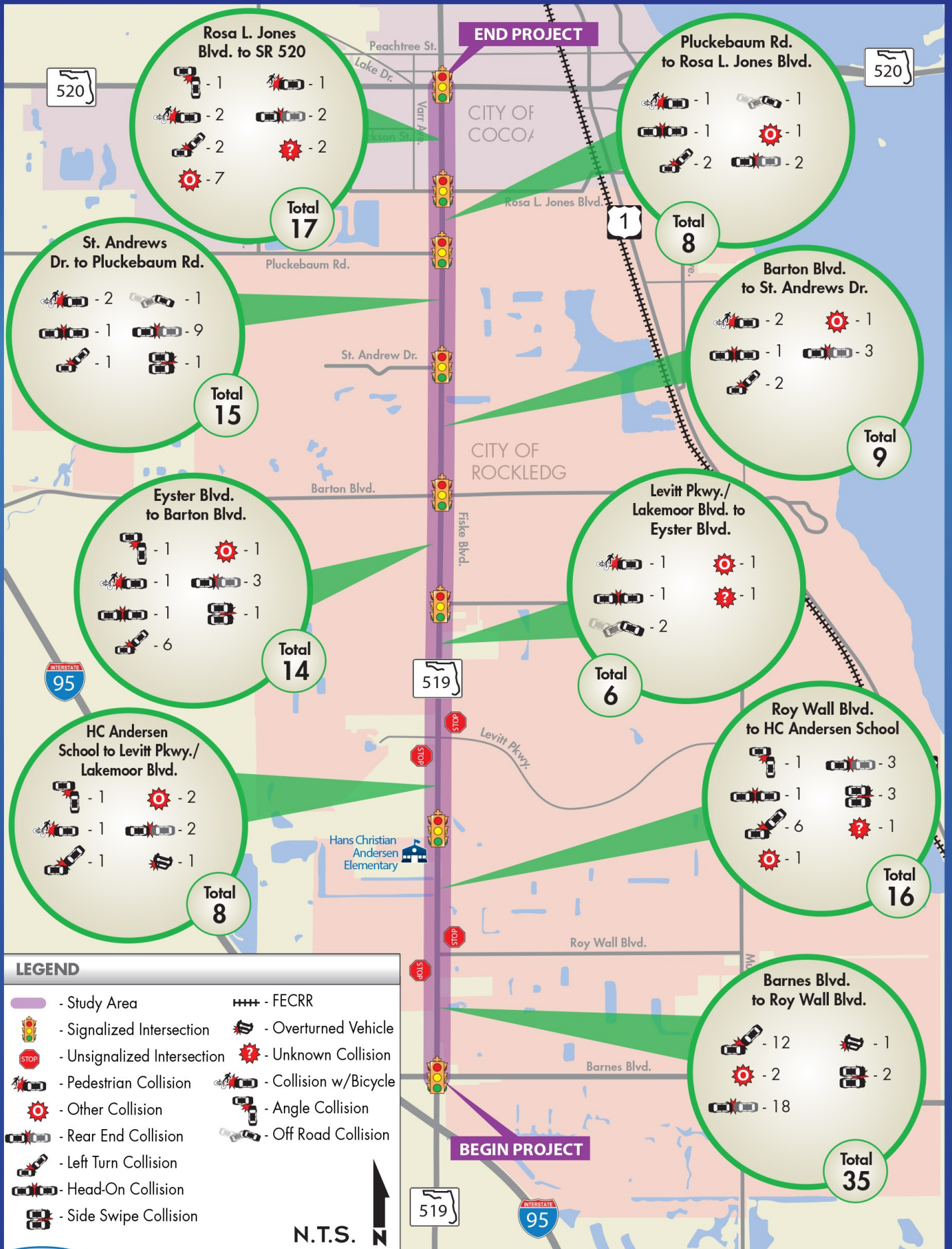
Year	Total Number of Crashes	Number of Injury Crashes	Number of Injuries	Number of Fatal Crashes	Number of Fatalities	Number of Night Crashes	Number of Wet Crashes
Roadway: Fiske Boulevard (S Fiske Boulevard)							
Roadway ID: 70014000							
2009	66	43	62	1	2	16	9
2010	64	40	58	1	1	16	5
2011	44	24	32	1	1	11	6
2012	83	38	59	0	0	22	8
2013	114	51	77	0	0	20	8
2009-2013	371	196	288	3	4	85	36
Annual Avg	74.2	39.2	57.6	0.6	0.8	17	7.2
Percent	-	52.8%	-	0.8%	-	22.9%	9.7%

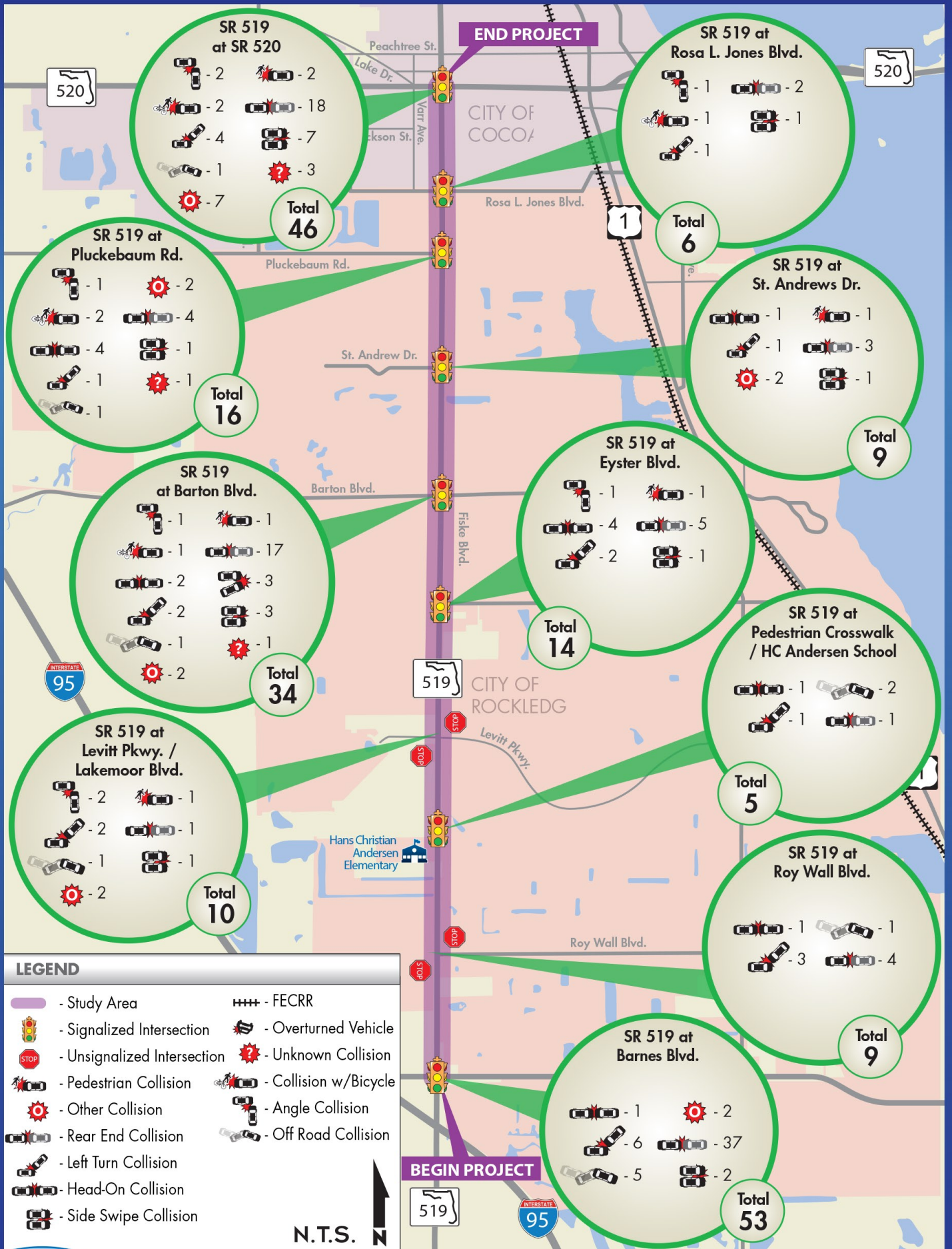
Source: FDOT's CARS and Signal Four

The average crash rates for the roadway segments within the study area were lower than the average crash rates for similar facilities. Four of the 10 study area intersections experienced a higher average crash rate for similar facilities. These statistics indicate that there are areas of Fiske Boulevard that need further review and evaluation for safety improvements during the concept development phase of this study.

The number of crashes involving pedestrians and bicyclists total seven pedestrian and 17 bicycle crashes on Fiske Boulevard within the study area over the same five-year period. A high concentration of these crashes occurred on the northern section of the corridor near the SCAT Cocoa Transit Center and Provost Park.

Crashes by type are displayed by roadway segment and intersection on Figures 21 and 22, respectively.







2.4 Future Traffic Conditions

The following section summarizes the future traffic conditions along the study corridor.

Growth Projections and Assumptions

In order to determine an acceptable growth rate for the Fiske Boulevard study area, traffic projections from various available sources were considered. This included the latest year Central Florida Regional Planning Model, Version 5.1 (CFRPM 5.1) released in 2012, FDOT and SCTPO historical Average Annual Daily Traffic (AADT) growth trends, and Brevard County population projections from the Bureau of Economic and Business Research (BEBR). Table 9 below presents the comparison of resulting growth rates.

Table 9: Growth Rate Comparison

Growth Method	2020 Growth Rate	2040 Growth Rate
Historic Trends Analysis Model	-0.91%	-0.91%
Growth Analysis	0.66%	0.89%
BEBR Growth Analysis ...		
Brevard County (Medium)	1.06%	0.87%
Average Growth Rate Growth	0.57%	0.59%
Rate used in study	0.80%	0.80%

Source: Compiled by VHB

The historic growth trends were not applied due to the negative value as illustrated in Table 9. The model growth analysis identified an annual growth rate of 0.66% between 2015 and 2040. The BEBR growth analysis projects the growth for Brevard County to be 1.06% between 2013 and 2020. The average of these three growths (assuming 0.0% growth for the negative value) was found to be 0.57%. This average was rounded to 0.80% to provide a conservative estimate to develop the 2020 future traffic volumes. Figure 3 illustrates the projected 2020 traffic volumes.

The same growth rate methodology was used to project the 2040 long-term traffic forecasts. The model growth analysis identified an annual growth rate of 0.89% between 2015 and 2040. The BEBR growth analysis projects the growth for Brevard County to be 0.87% between 2013 and 2040. The average of these three growths (assuming 0.0% growth for the negative value) was found to be 0.59%. This average was rounded to 0.80% to develop the 2040 future traffic volumes.

2020 Short Term Scenario – Roadway Operations

An operational analysis was conducted to determine the LOS for the roadway segments for the short-term analysis year 2020. The 2020 projected Roadway operations are provided in Table 10 in daily, AM peak hour, and PM peak hour conditions. As shown in Table 10, the Fiske Boulevard corridor is projected to operate within the adopted LOS standard, with an expected LOS of “C”.



Table 10: 2020 Projected Roadway Level of Service

Roadway / Segment	No. of Lanes ¹	Speed Limit (mph) ¹	Adopted LOS ²	Maximum Service Volumes ²		Daily ³		AM Peak Hour Directional Traffic ⁴			PM Peak Hour Directional Traffic ⁴		
				Daily	Peak	AA DT	LOS	Volume	Dir	LOS	Volume	Dir	LOS
SR 519/Fiske Boulevard													
I-95 NB interchange to Barnes Boulevard	4LD	45	D	41,790	2,100	23,100	C	1,020	SB	C	1,100	NB	C
Barnes Boulevard to Gladiola Circle	4LD	45	D	41,790	2,100	21,600	C	980	SB	C	980	NB	C
Gladiola Circle to Levitt Parkway	4LD	45	D	39,800	2,000	21,600	C	860	SB	C	920	NB	C
Levitt Parkway to Eyster Boulevard	4LD	45	D	39,800	2,000	22,000	C	870	NB	C	960	SB	C
Eyster Boulevard to Barton Boulevard	4LD	45	D	39,800	2,000	25,000	C	1,060	SB	C	1,080	SB	C
Barton Boulevard to St Andrews Drive	4LD	40	D	39,800	2,000	25,400	C	940	SB	C	1,110	SB	C
St Andrews Drive to Pluckebaum Road	4LD	40	D	39,800	2,000	25,900	C	950	SB	C	1,100	NB	C
Pluckebaum Road to Rosa L. Jones Drive	4LD	40	D	39,800	2,000	20,000	C	860	SB	C	1,110	SB	C
Rosa L. Jones Drive to SR 520	4LD	40	D	39,800	2,000	18,400	C	710	NB	C	840	NB	C

Source: Compiled by VHB.

- 1 FDOT Straight Line Diagrams (SLD)
- 2 2012 FDOT Quality/Level of Service Handbook
- 3 FDOT FTI, SCTPO, and supplemental daily counts
- 4 Turning movement counts within the roadway segment

2020 Short Term Scenario – Bicycle Operations

Table 11 provides an overview of the bicycle LOS projections in 2020. As shown in Table 11, bicycles traveling along the corridor will operate at LOS “E” due to the lack of bicycle lanes along the corridor. The only exception is the segment of Fiske Boulevard from Rosa L. Jones Drive to SR 520 in the AM peak hour, which will operate at LOS “D” because of the relatively lower peak hour directional volumes.



Table 11: 2020 Bicycle Mode Level of Service

Roadway / Segment	No. of Lanes ¹	Bike Lane Coverage ¹	Maximum Service Volumes ²		Daily ³		AM Peak Hour Directional Traffic ⁴			PM Peak Hour Directional Traffic ⁴		
			Daily	Peak	AA DT	LOS	Volume	Dir	LOS	Volume	Dir	LOS
SR 519/Fiske Boulevard												
I-95 NB interchange to Barnes Boulevard	4LD	0-49%	39,400	2,000	23,100	E	1,020	SB	E	1,100	NB	E
Barnes Boulevard to Gladiola Circle	4LD	0-49%	39,400	2,000	21,600	E	980	SB	E	980	NB	E
Gladiola Circle to Levitt Parkway	4LD	0-49%	39,400	2,000	21,600	E	860	SB	E	920	NB	E
Levitt Parkway to Eyster Boulevard	4LD	0-49%	39,400	2,000	22,000	E	870	NB	E	960	SB	E
Eyster Boulevard to Barton Boulevard	4LD	0-49%	39,400	2,000	25,000	E	1,060	SB	E	1,080	SB	E
Barton Boulevard to St Andrews Drive	4LD	0-49%	39,400	2,000	25,400	E	940	SB	E	1,110	SB	E
St Andrews Drive to Pluckebaum Road	4LD	0-49%	39,400	2,000	25,900	E	950	SB	E	1,100	NB	E
Pluckebaum Road to Rosa L. Jones Drive	4LD	0-49%	39,400	2,000	20,000	E	860	SB	E	1,110	SB	E
Rosa L. Jones Drive to SR 520	4LD	0-49%	39,400	2,000	18,400	E	710	NB	D	840	NB	E

Source: Compiled by VHB.

- 1 FDOT Straight Line Diagrams (SLD)
- 2 2012 FDOT Quality/Level of Service Handbook
- 3 FDOT FTI, SCTPO, and supplemental daily counts
- 4 Turning movement counts within the roadway segment

Note: Level of service for the bicycle mode in this table is based on number of motorized vehicles, not number of bicyclists using the facility. Although there are no specific level of service standards established for bicycle mode or other non-motorized vehicle modes, the maximum service volumes for LOS E are used for comparison purposes.

2020 Short Term Scenario – Pedestrian Operations

Table 12 provides an overview of the pedestrian LOS projections in 2020. As shown in Table 12, pedestrians traveling along the corridor will experience the same LOS as in the existing conditions, which is LOS “D” or better.



Table 12: 2020 Pedestrian Mode Level of Service

Roadway / Segment	No. of Lanes ¹	Sidewalk Coverage ¹	Maximum Service Volumes ²		Daily ³		AM Peak Hour Directional Traffic ⁴			PM Peak Hour Directional Traffic ⁴		
			Daily	Peak	AAVT	LOS	Volume	Dir	LOS	Volume	Dir	LOS
SR 519/Fiske Boulevard												
I-95 NB interchange to Barnes Boulevard	4LD	85-100%	34,800	1,760	23,100	D	1,020	SB	C	1,100	NB	D
Barnes Boulevard to Gladiola Circle	4LD	85-100%	34,800	1,760	21,600	D	980	SB	C	980	NB	C
Gladiola Circle to Levitt Parkway	4LD	85-100%	34,800	1,760	21,600	D	860	SB	C	920	NB	C
Levitt Parkway to Eyster Boulevard	4LD	85-100%	34,800	1,760	22,000	D	870	NB	C	960	SB	C
Eyster Boulevard to Barton Boulevard	4LD	85-100%	34,800	1,760	25,000	D	1,060	SB	C	1,080	SB	D
Barton Boulevard to St Andrews Drive	4LD	85-100%	34,800	1,760	25,400	D	940	SB	C	1,110	SB	D
St Andrews Drive to Pluckebaum Road	4LD	85-100%	34,800	1,760	25,900	D	950	SB	C	1,100	NB	D
Pluckebaum Road to Rosa L. Jones Drive	4LD	85-100%	34,800	1,760	20,000	C	860	SB	C	1,110	SB	D
Rosa L. Jones Drive to SR 520	4LD	85-100%	34,800	1,760	18,400	C	710	NB	C	840	NB	C

Source: Compiled by VHB.

- 1 FDOT Straight Line Diagrams (SLD)
- 2 2012 FDOT Quality/Level of Service Handbook
- 3 FDOT FTI, SCTPO, and supplemental daily counts
- 4 Turning movement counts within the roadway segment

Note: Level of service for the pedestrian mode in this table is based on number of motorized vehicles, not number of pedestrians using the facility. Although there are no specific level of service standards established for pedestrian mode or other non-motorized vehicle modes, the maximum service volumes for LOS D are used for comparison purposes.

2020 Short Term Scenario – Transit Operations

While SCAT currently has planned improvements for the transit routes within the study area, none of the improvements are currently funded. Therefore, transit patrons will continue to operate at the same LOS “E” and LOS “D” based on the existing frequency of SCAT buses operating during the peak hour and sidewalk coverage available along the corridor for Route 4 and Route 6, respectively.

2020 Short Term Scenario - Intersection Operations

A summary of the 2020 projected operations for all study intersections is provided in Table 13 for the AM and PM peak hours. An additional scenario was analyzed with optimized signal timings at key intersections that experienced long delays and queues. This scenario evaluates alternate signal timings that may better serve future traffic volumes that reflect changes in travel patterns. The results of this scenario are also summarized in Table 13. The Synchro reports are provided in Appendix A.



Table 13: 2020 Projected Intersection Level of Service

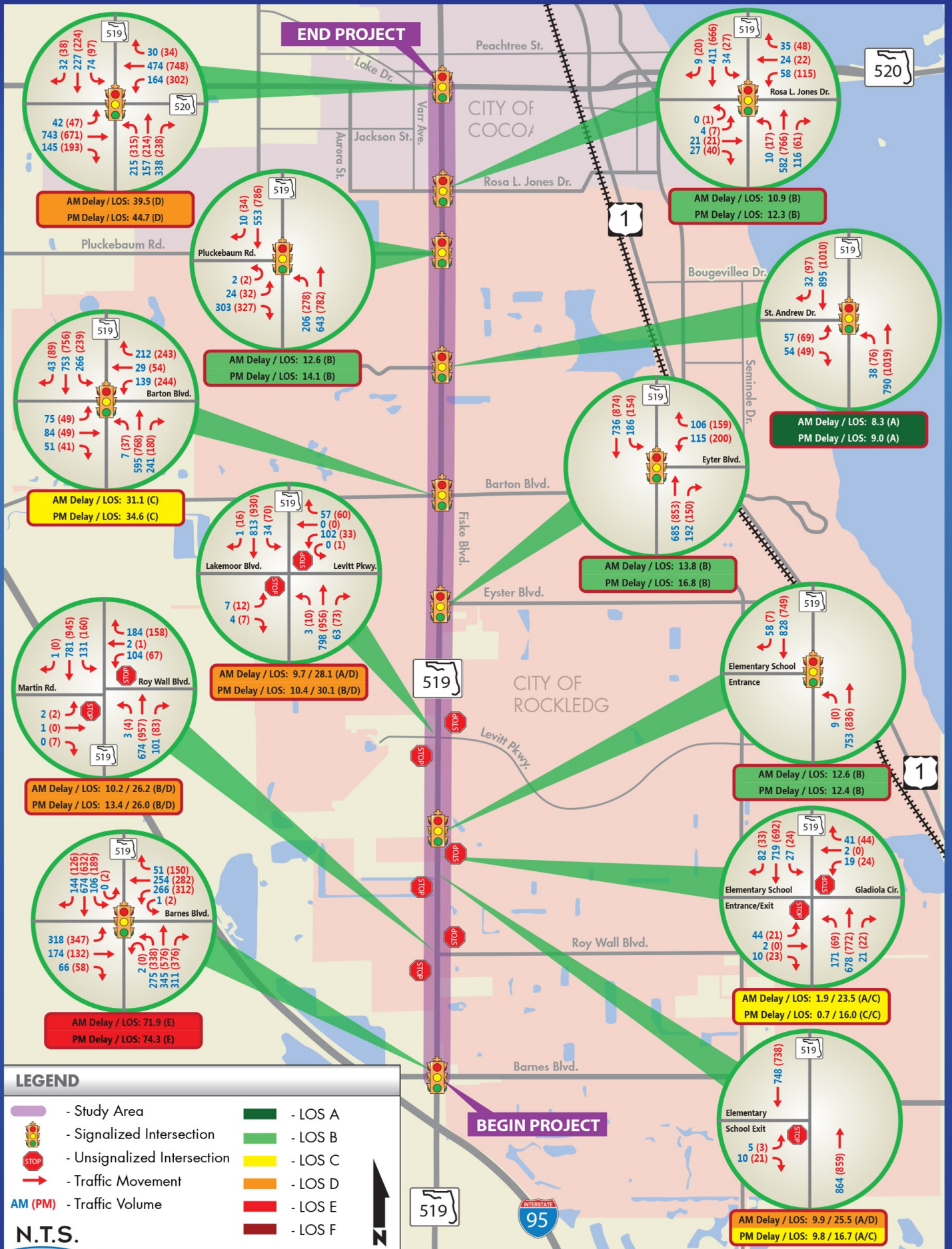
Intersection	Control	With Existing Signal Timings				With Optimized Signal Timings			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²
Fiske Boulevard at I-95 NB Ramps	Signalized	71.9	E	74.3	E	67.3	E	71.2	E
Fiske Boulevard at Roy Wall Boulevard	Un-signalized	10.2/26.2	B/D	13.4/26.0	B/D	N/A	N/A	N/A	N/A
Fiske Boulevard at Hans Christian Anderson Elementary Loop South	Un-signalized	9.9/25.5	A/D	9.8/16.7	A/C	N/A	N/A	N/A	N/A
Fiske Boulevard at Hans Christian Anderson Elementary Loop North	Signalized	12.6	B	12.4	B	N/A	N/A	N/A	N/A
Fiske Boulevard at Levitt Parkway/Lakemoor Boulevard	Un-Signalized	9.7/28.1	A/D	10.4/30.1	B/D	N/A	N/A	N/A	N/A
Fiske Boulevard at Eyster Boulevard	Signalized	13.8	B	16.8	B	N/A	N/A	N/A	N/A
Fiske Boulevard at Barton Boulevard	Signalized	31.1	C	34.6	C	N/A	N/A	N/A	N/A
Fiske Boulevard at St Andrews Drive	Signalized	8.3	A	9.0	A	N/A	N/A	N/A	N/A
Fiske Boulevard at Pluckebaum Road	Signalized	12.6	B	14.1	B	N/A	N/A	13.3	B
Fiske Boulevard at Rosa L. Jones Boulevard	Signalized	10.9	B	12.3	B	N/A	N/A	N/A	N/A
Fiske Boulevard at SR 520	Signalized	39.5	D	44.7	D	N/A	N/A	44.6	D

Source: Compiled by VHB using Synchro 8 software.

- 1 Overall intersection average delay in seconds per vehicle
- 2 Overall intersection level of service
- 3 Mainline/side street delay and level of service for un-signalized intersection

As presented in Table 13, all of the signalized study area intersections are anticipated to operate at LOS “D” or better in 2020, which is within acceptable LOS standards. The only exception is the signalized intersection at Fiske Boulevard and the I-95 northbound ramps, which is expected to operate at LOS “E” in the AM and PM peak hours. The unsignalized intersections are anticipated to have minimal impacts to the mainline street operations, thus meeting LOS standards. The 2020 future intersection operations are presented in Figure 23 for the AM and PM peak hours.

In general, the overall traffic operations under the optimized signal timings scenario are expected to be comparable to the traffic operations under the existing signal timings. Most of the movements at the intersection of Fiske Boulevard and Barnes Boulevard would continue to operate at LOS “E” and LOS “F”. Although the unsignalized and signalized intersections of Fiske Boulevard and the Hans Christian Anderson Elementary School indicate that the area operates at LOS “D” or better, the analysis understates the actual intersection operations as it did not take into account the disruptions of vehicles queuing onto Fiske Boulevard, as well as the police and school crossing guards, during the school arrival and dismissal times (which occur during the AM peak hour, and just before the PM peak hour).





2040 Long Term Scenario - Roadway Operations

Similar to the 2020 future conditions, the traffic operations were projected for 2040 future year and analyzed. The 2040 future roadway operations are provided in Table 14 for daily, AM peak hour, and PM peak hour.

Table 14: 2040 Projected Roadway Level of Service

Roadway / Segment	No. of Lanes ¹	Speed Limit (mph) ¹	Adopted LOS ²	Maximum Service Volumes ²		Daily ³		AM Peak Hour Directional Traffic ⁴			PM Peak Hour Directional Traffic ⁴		
				Daily	Peak	AADT	LOS	Volume	Dir	LOS	Volume	Dir	LOS
SR 519/Fiske Boulevard													
I-95 NB interchange to Barnes Boulevard	4LD	45	D	41,790	2,100	26,700	C	1,170	SB	C	1,270	NB	C
Barnes Boulevard to Gladiola Circle	4LD	45	D	41,790	2,100	24,900	C	1,130	SB	C	1,130	NB	C
Gladiola Circle to Levitt Parkway	4LD	45	D	39,800	2,000	25,000	C	990	SB	C	1,060	NB	C
Levitt Parkway to Eyster Boulevard	4LD	45	D	39,800	2,000	25,400	C	1,000	NB	C	1,110	SB	C
Eyster Boulevard to Barton Boulevard	4LD	45	D	39,800	2,000	28,800	C	1,230	SB	C	1,250	SB	C
Barton Boulevard to St Andrews Drive	4LD	40	D	39,800	2,000	29,300	C	1,090	SB	C	1,280	SB	C
St Andrews Drive to Pluckebaum Road	4LD	40	D	39,800	2,000	29,900	C	1,100	SB	C	1,260	NB	C
Pluckebaum Road to Rosa L. Jones Drive	4LD	40	D	39,800	2,000	23,100	C	990	SB	C	1,280	SB	C
Rosa L. Jones Drive to SR 520	4LD	40	D	39,800	2,000	21,300	C	820	NB	C	970	NB	C

Source: Compiled by VHB.

- 1 FDOT Straight Line Diagrams (SLD)
- 2 2012 FDOT Quality/Level of Service Handbook
- 3 FDOT FTI, SCTPO, and supplemental daily counts
- 4 Turning movement counts within the roadway segment

As shown in Table 14, the Fiske Boulevard corridor is projected to operate within acceptable LOS standards. All of the roadway segments are expected to operate at LOS "C".

2040 Long Term Scenario - Bicycle Operations

According to the SCTPO 2040 LRTP, Fiske Boulevard between the I-95 northbound ramps and SR 520 is designated as a multi-modal corridor; however, improvements to the corridor have not been identified. For the 2040 analysis, it was assumed that no additional bicycle improvements will be made to the corridor. As shown in Table 15, bicyclists traveling along the corridor will experience LOS "E" due to the lack of bike lanes along the Fiske Boulevard.



Table 15: 2040 Bicycle Mode Level of Service

Roadway / Segment	No. of Lanes ¹	Bike Lane Coverage ¹	Maximum Service Volumes ²		Daily ³		AM Peak Hour Directional Traffic ⁴			PM Peak Hour Directional Traffic ⁴		
			Daily	Peak	AAVT	LOS	Volume	Dir	LOS	Volume	Dir	LOS
SR 519/Fiske Boulevard												
I-95 NB interchange to Barnes Boulevard	4LD	0-49%	39,400	2000	26,700	E	1,170	SB	E	1,270	NB	E
Barnes Boulevard to Gladiola Circle	4LD	0-49%	39,400	2000	24,900	E	1,130	SB	E	1,130	NB	E
Gladiola Circle to Levitt Parkway	4LD	0-49%	39,400	2000	25,000	E	990	SB	E	1,060	NB	E
Levitt Parkway to Eyster Boulevard	4LD	0-49%	39,400	2000	25,400	E	1,000	NB	E	1,110	SB	E
Eyster Boulevard to Barton Boulevard	4LD	0-49%	39,400	2000	28,800	E	1,230	SB	E	1,250	SB	E
Barton Boulevard to St Andrews Drive	4LD	0-49%	39,400	2000	29,300	E	1,090	SB	E	1,280	SB	E
St Andrews Drive to Pluckebaum Road	4LD	0-49%	39,400	2000	29,900	E	1,100	SB	E	1,260	NB	E
Pluckebaum Road to Rosa L. Jones Drive	4LD	0-49%	39,400	2000	23,100	E	990	SB	E	1,280	SB	E
Rosa L. Jones Drive to SR 520	4LD	0-49%	39,400	2000	21,300	E	820	NB	E	970	NB	E

Source: Compiled by VHB.

- 1 FDOT Straight Line Diagrams (SLD)
- 2 2012 FDOT Quality/Level of Service Handbook
- 3 FDOT FTI, SCTPO, and supplemental daily counts
- 4 Turning movement counts within the roadway segment

Note: Level of service for the bicycle mode in this table is based on number of motorized vehicles, not number of bicyclists using the facility. Although there are no specific level of service standards established for bicycle mode or other non-motorized vehicle modes, the maximum service volumes for LOS E are used for comparison purposes.

2040 Long Term Scenario - Pedestrian Operations

Presented in Table 16, pedestrians traveling along Fiske Boulevard will continue to experience LOS “D” or better, similar to 2020 projected conditions. Due to the increase in traffic volumes between 2020 and 2040, pedestrians traveling along several of the roadway segments will experience a decrease in LOS from LOS “C” to LOS “D” in the AM and PM peak hour.



Table 16: 2040 Pedestrian Mode Level of Service

Roadway / Segment	No. of Lanes ¹	Sidewalk Coverage ¹	Maximum Service Volumes ²		Daily ³		AM Peak Hour Directional Traffic ⁴			PM Peak Hour Directional Traffic ⁴		
			Daily	Peak	AAADT	LOS	Volume	Dir	LOS	Volume	Dir	LOS
SR 519/Fiske Boulevard												
I-95 NB interchange to Barnes Boulevard	4LD	85-100%	34,800	1,760	26,700	D	1,170	SB	D	1,270	NB	D
Barnes Boulevard to Gladiola Circle	4LD	85-100%	34,800	1,760	24,900	D	1,130	SB	D	1,130	NB	D
Gladiola Circle to Levitt Parkway	4LD	85-100%	34,800	1,760	25,000	D	990	SB	C	1,060	NB	C
Levitt Parkway to Eyster Boulevard	4LD	85-100%	34,800	1,760	25,400	D	1,000	NB	C	1,110	SB	D
Eyster Boulevard to Barton Boulevard	4LD	85-100%	34,800	1,760	28,800	D	1,230	SB	D	1,250	SB	D
Barton Boulevard to St Andrews Drive	4LD	85-100%	34,800	1,760	29,300	D	1,090	SB	D	1,280	SB	D
St Andrews Drive to Pluckebaum Road	4LD	85-100%	34,800	1,760	29,900	D	1,100	SB	D	1,260	NB	D
Pluckebaum Road to Rosa L. Jones Drive	4LD	85-100%	34,800	1,760	23,100	D	990	SB	C	1,280	SB	D
Rosa L. Jones Drive to SR 520	4LD	85-100%	34,800	1,760	21,300	C	820	NB	C	970	NB	C

Source: Compiled by VHB.

- 1 FDOT Straight Line Diagrams (SLD)
- 2 2012 FDOT Quality/Level of Service Handbook
- 3 FDOT FTI, SCTPO, and supplemental daily counts
- 4 Turning movement counts within the roadway segment

Note: Level of service for the pedestrian mode in this table is based on number of motorized vehicles, not number of pedestrians using the facility. Although there are no specific level of service standards established for pedestrian mode or other non-motorized vehicle modes, the maximum service volumes for LOS D are used for comparison purposes.

2040 Long Term Scenario - Transit Operations

Similar to the 2020 projected transit operations, all of the identified transit improvements are not currently funded. Therefore, transit patrons will continue to operate at the same LOS “E” and LOS “D” based on the existing frequency of SCAT buses operating during the peak hour and the sidewalk coverage available along the corridor for Route 4 and Route 6, respectively.

2040 Long Term Scenario - Intersection Operations

A summary of the 2040 projected intersection operations for all study intersections is provided in Table 17 for the AM and PM peak hours.



Table 17: 2040 Projected Intersection Level of Service

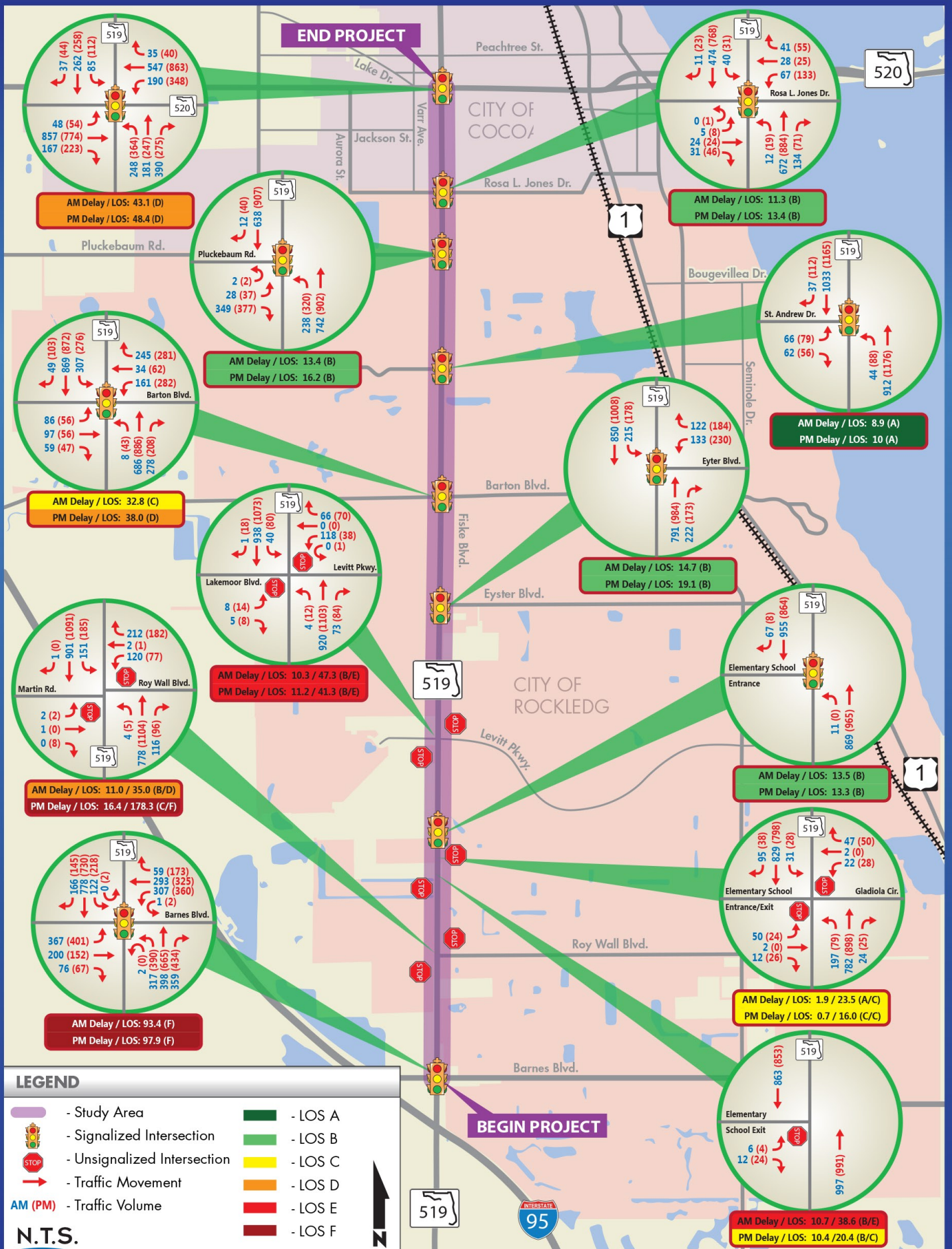
Intersection	Control	With Existing Signal Timings				With Optimized Signal Timings			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²
Fiske Boulevard at I-95 NB Ramps	Signalized	93.4	F	97.9	F	88.8	F	93.0	F
Fiske Boulevard at Roy Wall Boulevard	Un-signalized	11.0/35.0	B/D	16.4/178.3	C/F	N/A	N/A	N/A	N/A
Fiske Boulevard at Hans Christian Anderson Elementary Loop South	Un-signalized	10.7/38.6	B/E	10.4/20.4	B/C	N/A	N/A	N/A	N/A
Fiske Boulevard at Hans Christian Anderson Elementary Loop North	Signalized	13.5	B	13.3	B	N/A	N/A	N/A	N/A
Fiske Boulevard at Levitt Parkway/Lakemoor Boulevard	Un-Signalized	10.3/47.3	B/E	11.2/41.3	B/E	N/A	N/A	N/A	N/A
Fiske Boulevard at Eyster Boulevard	Signalized	14.7	B	19.1	B	N/A	N/A	N/A	N/A
Fiske Boulevard at Barton Boulevard	Signalized	32.8	C	38.0	D	N/A	N/A	N/A	N/A
Fiske Boulevard at St Andrews Drive	Signalized	8.9	A	10.0	A	N/A	N/A	N/A	N/A
Fiske Boulevard at Pluckebaum Road	Signalized	13.4	B	16.2	B	N/A	N/A	16.3	B
Fiske Boulevard at Rosa L. Jones Boulevard	Signalized	11.3	B	13.4	B	N/A	N/A	N/A	N/A
Fiske Boulevard at SR 520	Signalized	43.1	D	48.4	D	N/A	N/A	48.4	D

Source: Compiled by VHB using Synchro 8 software.

- 4 Overall intersection average delay in seconds per vehicle
- 5 Overall intersection level of service
- 6 Mainline/side street delay and level of service for un-signalized intersection

As presented in Table 17 and in Figure 24 and 25, all of the signalized study area intersections are anticipated to operate at LOS “D” or better in 2040 with the exception of the intersection of Fiske Boulevard and the I-95 northbound ramps. Optimizing the traffic signal timings at the intersection of Fiske Boulevard and Barnes Boulevard along would not address the existing and future capacity deficiencies at the intersection. The Synchro reports are provided in Appendix A.

The unsignalized intersections of Fiske Boulevard at Roy Wall Boulevard and at Levitt Parkway are anticipated to operate at LOS “F” and LOS “E”, respectively. Additional analysis will be conducted to identify potential solutions such as determining the feasibility of installing traffic signals and/or roundabouts at the intersections.





3

Public Involvement – A Collaborative Effort

3.1 The Public Involvement Plan

Public involvement includes communicating to and receiving information from all interested persons, groups, and government organizations regarding the development of a project. A Public Involvement Plan (PIP) was developed at the onset of the study to outline the process needed to ensure the appropriate level of public involvement for the project in compliance with FDOT and related statutes.

As defined in the PIP, provided in Appendix B, successful public involvement is about building trust, understanding and consensus. The following public involvement outreach goals were identified in the PIP:

- Goal #1: Early and Consistent Involvement – Involve elected officials, agency groups, stakeholders and the public early and regularly in the study during the three key stages of involvement: Informational, Decision-Making, and Review.
- Goal #2: Opportunity – Provide elected officials, agency groups, stakeholders, and the public with the opportunity to participate in all phases of the public involvement process, with a focus on engaging traditionally under-represented or under-served populations, including, but not limited to transportation disadvantaged, minority, elderly, etc.
- Goal #3: Information and Communication – Provide elected officials, agency groups, stakeholders and the public with clear, timely and accurate information relating to the study as it progresses.
- Goal #4: Use a broad-spectrum of techniques to gather input from a diverse population within the study area.

3.2 The Project Visioning Team

In support of the keys to gaining community consensus, stakeholder interviews were held to identify the specific agency staff and other interested parties that desired to actively participate as part of a Project Visioning Team (PVT). This team was assembled to assist and guide the study team throughout the study in identifying the existing conditions and issues and opportunities within the study area, brainstorming improvement strategy alternatives with a multi-modal approach to present to the general public, and refining the recommended improvement strategies to conclude the study. The PVT consisted of approximately 28 members and included representatives from the following:



- FDOT
- SCTPO (Technical Advisory Committee, Citizens Advisory Committee, Bicycle, Trails, & Pedestrian Advisory Committee)
- Brevard County
- Brevard County Health Department
- Brevard County Public Schools
- City of Cocoa
- City of Rockledge
- Space Coast Area Transit (SCAT)
- East Central Florida Regional Planning Council

Three PVT meetings were held throughout the study on the following dates:

- May 5, 2015
- August 20, 2015
- November 2, 2015

Detailed meeting information and attendance sheets are included in the Comments and Coordination Package, located in Appendix B.

3.3 Public Meetings

Two public meetings (Public Kick-off Meeting and Alternatives Public Workshop) were held to solicit input from any and all interested parties that wished to actively engage in the planning process.

Public Kick-off Meeting

The Fiske Boulevard Public Kick-off Meeting #1 was held on Tuesday, August 25, 2015 at the City of Rockledge City Hall Chambers in Rockledge, Florida. The meeting began with an open house at 5:30 pm. Attendees were encouraged to discuss their thoughts and concerns about the study corridor with the project team. At 6:00 pm the formal presentation began. The objective of the meeting was to accomplish the following goals:

- Introduce the public to the overall project, and the goals and objectives
- Provide an overview of the existing conditions analysis findings
- Gain consensus on the Purpose and Need and Guiding Principles
- Receive input on issues along the corridor not identified in the existing conditions analysis
- Begin the discussion of potential alternatives to address identified issues

Approximately 60 to 70 people attended the public meeting. The attendees were provided a meeting agenda, comment form and a brochure with general information about the study. Several display boards and a banner were presented around the room, including the following: Welcome Board, Why Are You Here Board, Title VI Board, Regional Overview Board, Issues and Opportunities Board, and a banner of the Existing Conditions (accident and roadway level of service data).

The presentation consisted of a description of the project background and goals, existing conditions report overview, Purpose & Need and guiding principles, potential alternatives, and



project schedule/next steps. The presentation was conducted as an open forum, where attendees could ask questions of the presenter throughout the presentation.

A complete summary of the Public Kick-off Meeting is included in the Comments and Coordination Package, located in Appendix B.

Alternatives Public Workshop

The Fiske Boulevard Alternatives Public Workshop was held on Tuesday, March 15, 2016 at the Cocoa Civic Center located in Cocoa, Florida. The objective of the meeting was to accomplish the following goals:

- Provide an overview of the overall project, and the goals and objectives
- Provide an overview of the Purpose and Need
- Introduce the public to the conceptual alternatives
- Receive input on the conceptual alternatives

There were approximately 32 attendees. The public workshop began with an open house at 5:30 PM. Workshop attendees were provided with a comment form and a brochure with general information about the corridor and the study. Several display boards and a banner were presented around the room, including the following: Welcome Board, Title VI Board, Regional Overview Board, Issues and Opportunities Board, a banner of Existing Conditions (accident and roadway level of service data), and boards showing the specific improvements at locations along the corridor. In addition, a dedicated table was provided with detailed information on roundabouts, including safety and operational information, as well as a video demonstrating how to maneuver through a roundabout. Attendees were encouraged to discuss their thoughts and concerns about the study corridor and the proposed alternatives with the project team. At 6:00 PM there was formal presentation began.

The presentation consisted of a summary of the purpose of a corridor planning study and a brief background of the corridor. An overview of the Issues & Opportunities, the Purpose & Need statements and Guiding Principles were addressed to identify the information that was used to develop the alternatives. The Project Team then presented conceptual alternatives. Finally, next steps and the study schedule was presented as well as information on how people could provide comments to the Project Team.

Following the presentation, a Question & Answer Session was held to address any additional questions from the public. When all questions had been addressed, the workshop returned to an open house format, where the public could discuss the project with the study team. Members of the public were also encouraged to provide written comments and questions using the comment forms and question cards provided in the packets they received at the sign-in table

A complete summary of the Alternatives Public Workshop is included in the Comments and Coordination Package, located in Appendix B.



3.4 Small Group Meetings

As part of this study, several smaller group meetings were conducted to elicit feedback, and garner consensus throughout the planning process.

SCTPO Update Meeting

The study team presented the study findings at the SCTPO Governing Board Meeting held on July 14, 2016. A formal presentation including the project overview and purpose of the study, public involvement conducted, stakeholder input received, on-going and proposed projects within the study area, and the recommended improvements strategies that resulted from the study. The meeting information can be found on the SCPO's website at www.spacecoasttpo.com.

Agency Meeting

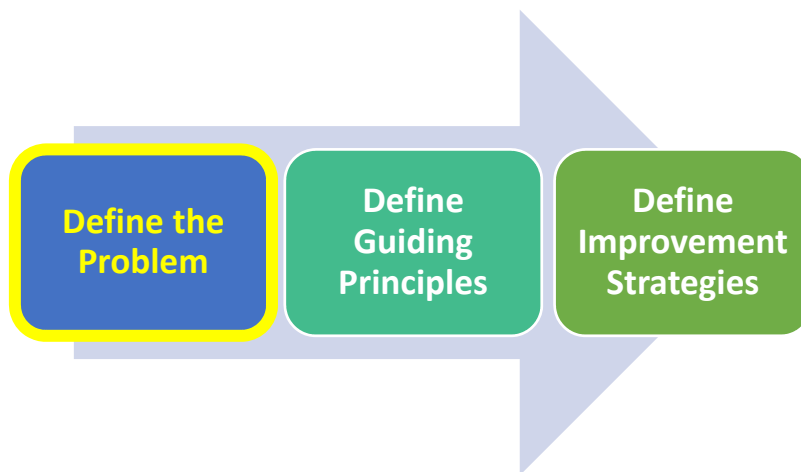
An Agency Meeting was held on August 22, 2016 to discuss the recommendation for improving the intersection of Roy Wall Boulevard and Fiske Boulevard with a roundabout. In attendance at the meeting was representatives from FDOT, the City of Rockledge, Brevard County, and SCTPO. Full details about the meeting are provided in the meeting summary included in Appendix B.

The SCTPO Governing Board and follow-up Agency meetings are further discussed in Chapter 5 of this report.

4

Understanding the Problem

In order to effectively develop context-sensitive solutions for a Corridor Planning Study, it is essential to define the Purpose and Need for the project. Context-sensitive solutions involve a number of elements, such as community values, mobility, and safety for all modes. Each component directly influences the Purpose and Need for the project. Fiske Boulevard is an important corridor for the Cities of Cocoa and Rockledge as well as the surrounding region. Classified as an *Urban Principal Arterial – Other*, Fiske Boulevard supports local and regional commuters by providing access to SR 520 and I-95. It also supports the Cities of Cocoa and Rockledge, providing access to local businesses and socio-cultural amenities (i.e. schools and parks). In addition, Fiske Boulevard is classified as an evacuation route.



Information documented during the data collection, stakeholder outreach, and traffic forecasting processes was used to identify the issues and opportunities within the corridor, and are summarized in the following sections.

4.1 Issues & Opportunities

This section summarizes the issues and opportunities identified along the corridor that help guide the development of potential improvement strategies. During the data collection and existing conditions inventory process, elements within the corridor that were found to be deficient were noted appropriately as summarized in this section. Other aspects of the corridor that represent



potential opportunities to support future enhancements were also documented. In addition, the current local agency transportation plans were used to identify a range of potential improvement strategies. The following is a summary of data collection and stakeholder feedback.

Existing Physical Features

Multiple aspects of existing physical features have been identified as issues and opportunities. The variation of the roadway cross section along the corridor causes inconsistent center turn-lane widths, ranging from 12 feet to 18 feet. Access management issues, due to the high number of driveways along the corridor, were also identified.

Existing Traffic Conditions

The *Highway Capacity Manual 2010 – 5th Edition* (HCM 2010), published by the Transportation Research Board (TRB), defines Level of service (LOS) as “qualitative measures that characterize operational conditions within a traffic stream and their perception by passengers and motorists.” The purpose of LOS is to quantify and measure the experience and perception of transportation system users by analyzing traffic operations, such as queuing times and traffic volumes. There are six levels ranging from LOS “A,” being the best operating conditions, characterized by unimpeded free-flowing traffic, to LOS “F,” characterized by extensive delays or congestion. An analysis of existing traffic volumes and LOS revealed that most study area intersections and roadway segments currently operate at an acceptable LOS during the AM and PM peak hours.

Specific segments and intersections were identified by PVT members and local stakeholders as areas to be analyzed, including:

- Intersection at Fiske Boulevard and Roy Wall Boulevard
- Congestion at the Hans Christian Anderson Elementary School
- Intersection at Fiske Boulevard and Levitt Parkway
- Intersection at Fiske Boulevard and Pluckebaum Road
- Segment of Fiske Boulevard near Provost Park / Stone Street

Bicycle and Pedestrian Infrastructure

Several sidewalk gaps along Fiske Boulevard have been identified. Additionally, part of the Brevard Zoo Trail is currently completed within the study area. The current width of this trail is eight feet. This is slightly less than the ideal width of 10 feet. These are issues that affect the connectivity, viability, and safety of the pedestrian and bicycle transportation systems along the corridor. Enhancing these facilities has the potential to create a continuous sidewalk network that will encourage and enable travel to be completed by pedestrians between the residential properties along the corridor and the various schools and retail establishments.

Transit

Bus stops that are along sidewalks were identified in the study area; however, many of these bus stops lack landing pads which provide a connection from the sidewalk to the bus. The lack of this connection can be challenging for users who are mobility-impaired. In addition, Routes 1 and 8 allow “flag stops” where passengers may flag down a SCAT bus at areas where there is no fixed stop, along a route.

The existing conditions inventory documented opportunities to enhance the transit system by providing bicycle and pedestrian systems to areas identified with a high concentration of transit-dependent residents. These connections will enhance the multimodal transportation system for all users.

Crash Analysis and Safety

Four intersections were identified as having crash rates above the statewide average for the same roadway type. These intersections include:

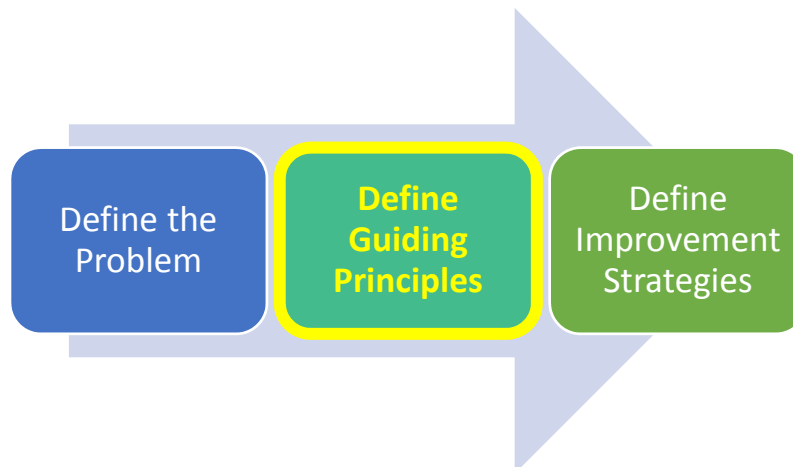
- Fiske Boulevard at Barnes Boulevard (I-95 northbound ramps)
- Fiske Boulevard at Barton Boulevard
- Fiske Boulevard at Pluckebaum Road
- Fiske Boulevard at SR 520

Lighting

There is approximately a half-mile stretch of Fiske Boulevard (from Barnes Boulevard/I-95 Northbound Ramps to Roy Wall Boulevard) that does not have any street lighting. Installing street lighting along this stretch of roadway has the potential to increase safety for both motorists and pedestrians/bicyclists as well as make it easier for SCAT bus drivers to see individuals waiting at bus stops during nighttime service.

4.2 Guiding Principles

The guiding principles of the study have been developed and agreed upon based on findings from both the Existing and Future Conditions Summaries as well as input from local stakeholders. To develop the guiding principles, the vision, major users, and desired role of the corridor were identified.



The guiding principles for the improvement strategies along the study corridor are summarized below:

1. **Safety** – Improve the safety of users of all ages and physical abilities by:
 - a) Providing better pedestrian / vehicle separation



- b) Installing lighting to improve nighttime visibility for vehicles, bicyclists and pedestrians
- c) Improving pedestrian crossings
- II. *Bike/Pedestrian Mobility*** – Improve the accessibility and connectivity of bicycle / pedestrian systems by:
 - a) Enhancing and expanding pedestrian facilities
 - b) Providing bicycle facilities or parallel alternatives
 - c) Completing trail facilities
- III. *Design Consistency*** – Improve consistency in design and access management by:
 - a) Providing consistent typical cross sections
 - b) Increasing level of compliance with access management standards
- IV. *Aesthetics*** – Enhance the aesthetic features of the corridor by identifying opportunities for improved planning, including:
 - a) Aesthetic gateway features
 - b) Maintenance of landscaping and other features
- V. *Transit*** – Enhance the accessibility, convenience and connectivity of the transit system by:
 - a) Providing improved bus stop facilities
 - b) Improving the connections between the transit system and the bicycle / pedestrian systems

4.3 Purpose & Need

The Purpose and Need Statement is the justification for undertaking a project. It is used to guide a project throughout its various phases by tying the project to solving a particular problem or need. Together with the identification and definition of the guiding principles of the corridor, the clear statement of purpose and need was developed. The purpose was based on the defined problem established by the Existing and Future Condition Summaries and coordination from project stakeholders and the public.

Purpose Statement

The purpose of this project is to provide an enhanced multimodal transportation network that promotes the creation of a more walkable community, improves access to employment, supports economic development goals and provides safe and convenient access to users of all ages and physical abilities.

Needs Statement

An enhanced multimodal network is needed based on the desire for improved safety, improved accommodations for pedestrians and bicyclists, and improved access to transit, as identified through the following observations:

- Three schools directly access the corridor
- Documented safety concerns
- No dedicated bicycle facilities
- Gaps in the sidewalk network
- Long distances between pedestrian crossings
- Minimal bus stop amenities/ADA access
- Desire for enhanced aesthetics along the corridor
- Lack of lighting along southern portion of corridor



4.4 Measures of Success

Measures of success were identified in order to evaluate the effectiveness of the solutions needed for the study area. These solutions are based on the goals and objective previously identified from the guiding principles of the study. **Error! Reference source not found.**18 presents the measures of success associated with each goal and objective of the planning study.

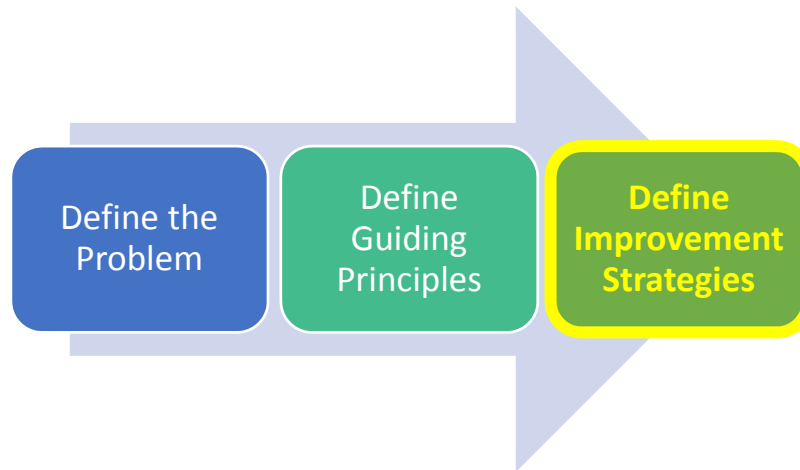
Table 18: Measures of Success

Guiding Principle	Objective	Measure
Safety	Providing better pedestrian/vehicle separation	Reduction in sidewalks that are located at the edge of curb
	Install roadway street lighting to improve nighttime visibility	Reduction in miles of roadway without street lighting
	Improve pedestrian crossings	Increase in number of pedestrian facilities and crossings that are ADA compliant Increase the visibility of marked crossings
Bike/Pedestrian Mobility	Enhance pedestrian facilities	Eliminate gaps in sidewalks
	Provide bicycle facilities	Establish dedicated bicycle lanes
Design Consistency	Complete planned trail facilities	Connect local facilities to existing bicycle lanes and trails
	Provide consistent typical cross sections	Increase numbers of miles with consistent lane geometry
Aesthetics	Increase level of compliance with access management standards	Reduction in access facilities not in compliance with access management standards
	Identify opportunity for improved planning (aesthetic features and maintenance)	Establish partnerships between cities and business owners (including The Viera Company development) Develop gateway and themed signage
Transit	Provide improved bus stop facilities	Upgrade bus stops to meet ADA standards Provide shelters / benches at bus stops
	Accommodate mode choices	Provide connections from sidewalk to bus stop

5

Recommended Improvement Strategies

The recommended improvement strategies for the Fiske Boulevard Corridor Planning Study were developed to address the defined purpose and need, based on a clear understanding of the issues along the study corridor and the established guiding principles.



5.1 Screening of Candidate Recommendations

This section describes the alternatives that were identified as having the potential to address the transportation system issues and opportunities and meet the goals and objectives of this study. The process of identifying and evaluating potential transportation enhancements included in-depth public and PVT vetting. The method of screening and evaluating these options involved assessing the degree of satisfaction to the guiding principles and purpose and need that were established in the previous section, and refined during the public and PVT meetings. Doing so ensured that the candidate options for each alternative recommendation met the identified goals and objectives.

Based on the transportation system issues and opportunities identified in this study and review of previous recommendations, the candidate improvements were organized into one of the following categories that meet the goals and objectives of this study.

- Corridor Wide Improvement Strategies
- Spot Improvement Strategies



The initial improvement strategies are summarized in the following sections.

5.1.1 Corridor Wide Improvement Strategies

The following corridor wide improvement strategies were carried forward for further consideration in this study:

- Pedestrian and Bicycle Accommodations
 - Close sidewalk gaps
 - Connect to Brevard Zoo Trail
 - Add shared-use path near Provost Park
 - Add bicycle lanes on both sides of study corridor
 - Meet ADA standards
- Traffic Calming Measures
 - Narrow lanes and consistent lane widths
 - Roundabouts at key locations (see spot improvements section)
- Bus Stop Enhancements
 - Enhance bus stop features (shelters and benches)
 - Update Bus Stop locations to current ADA standards
- Access Management (raised median) Corridor Wide
- Street lighting south of Roy Wall Boulevard

5.1.2 Spot Improvement Strategies

The following spot improvement strategies were carried forward for further consideration in this study:

- Barnes Boulevard / I-95
 - Short Term – Add southbound left turn lane and add one receiving lane on east leg
 - Long Term – Add eastbound left turn lane, add northbound left turn lane, and add one receiving lane on west leg
- Roy Wall Boulevard
 - Consider a roundabout at the offset intersection
 - Consider a traffic signal at the offset intersection
- Hans Christian Anderson
 - Potential to create room for stacking on-site
 - Police enforcement/management
 - Off-site parking
- Levitt Parkway
 - Consider a roundabout at the offset intersection
 - Consider a traffic signal at the offset intersection
- Pluckebaum Road
 - Modify signal timing
 - Pull back northbound stop bar
 - Realign north crosswalk



- Add crosswalk on south leg
- Tighten southbound right-turn radius on Pluckebaum Road
- Provost Park/Stone Street/SR 520
 - Right-in/right-out only at Stone Street
 - Formalized median to redirect southbound left turns onto Stone Street and westbound left turns onto Fiske Boulevard via Barbara Jenkins Street
 - Pedestrian refuge area near Barbara Jenkins Street
 - Provide a wide multi-use path along the west side of Fiske Boulevard adjacent to the park

The spot improvements that were not carried forward for further consideration in this study are summarized in Table 19.

Table 19: Corridor Wide and Spot Improvements Eliminated from Further Consideration

Option	Reason for Elimination
Access Management Corridor Wide	During the Public Kick-off Meeting held on Tuesday, August 25, 2015 at the City of Rockledge City Hall Chambers, the 60 to 70 members of the public in attendance overwhelmingly rejected this improvement strategy. Based on future discussions with the PVT, this strategy was not carried forward.
Street Lighting	The segment of the corridor from Barnes Boulevard to Roy Wall Boulevard, currently does not have any street lighting; however, lighting is included as part of an upcoming I-95 improvement project. As a result, this improvement was no longer needed, and therefore not carried forward.
Traffic signal at Roy Wall Boulevard	Based on the data collected at 31 locations along the corridor (intersections, segments and pedestrian crossings), data provided by the City of Rockledge regarding the Health First Expansion, and a preliminary signal warrant analysis, this intersection does not meet the requirements for a traffic signal. In addition, based on FDOT’s policy, a roundabout alternative must be evaluated on new construction and reconstruction projects. Evaluation is also required for all other types of projects that propose new signalization or require a change in an un-signalized intersection control.
Traffic signal at Levitt Parkway	Based on the data collected at 31 locations along the corridor (intersections, segments and pedestrian crossings) and a preliminary signal warrant analysis, this intersection does not meet the requirements for a traffic signal. In addition, based on FDOT’s policy, a roundabout alternative must be evaluated on new construction and reconstruction projects. Evaluation is also required for all other types of projects that propose new signalization or require a change in an un-signalized intersection control.

Option	Reason for Elimination
Hans Christian Anderson	Off-site parking was not moved forward because potential off-site parking locations were located outside of the FDOT right-of-way and would require right-of-way acquisition.

The recommended strategies are summarized in the following sections.

5.2 Improvement Strategy 1 – Typical Cross Section

As identified in Section 4.1, the cross section varies throughout the study corridor. Additionally, sidewalk gaps and the absence of dedicated bicycle facilities negatively impact multimodal travel along Fiske Boulevard. In order to enhance the multimodal system and advance the guiding principles of the study, a new typical cross section was developed. It is recommended that the Fiske Boulevard corridor be restriped within the existing pavement, in order to reduce the lane widths of both travel lanes and the bidirectional center turn lane. The extra space from the lane-width reductions would allow for the addition of bicycle lanes in both directions. Figure 25 and Figure 26 illustrate the existing and recommended typical cross sections for the Fiske Boulevard study corridor.

Figure 25: Existing Typical Cross Section

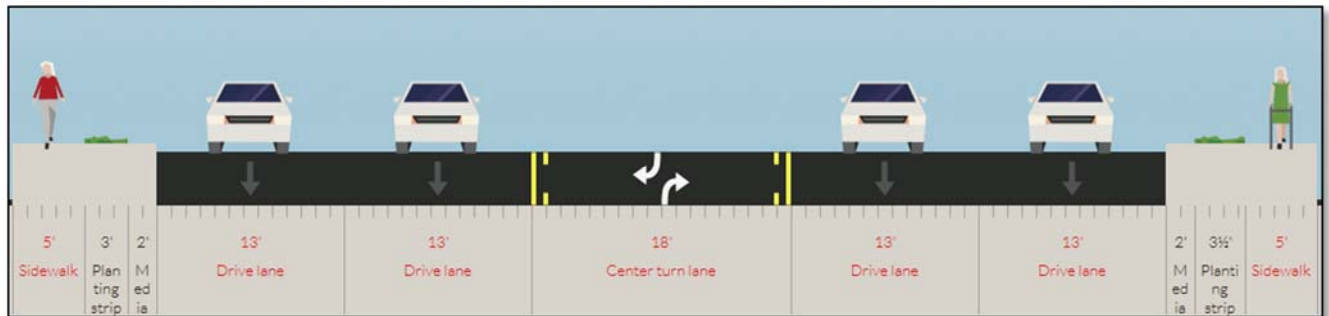
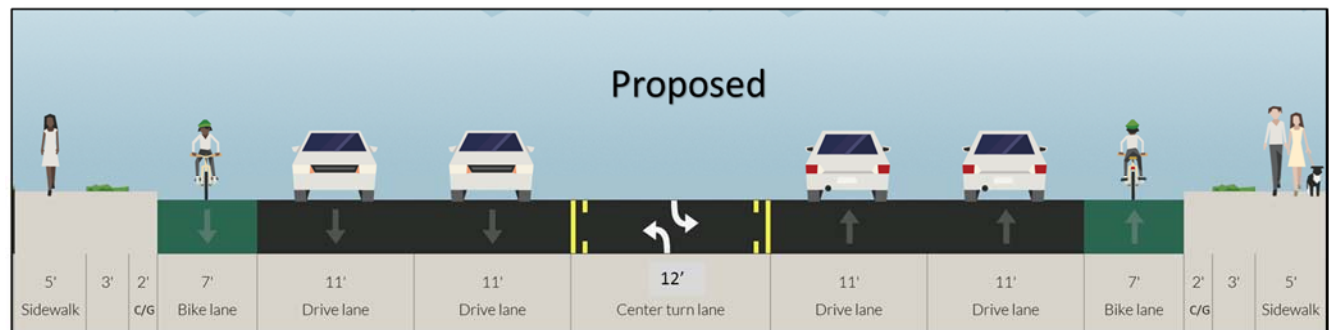


Figure 26: Proposed Typical Cross Section



The proposed section generally contains 11-foot travel lanes, 12-foot two-way left-turn lanes (TWLTL), as well as 5- to 7-foot bicycle lanes. The very northern and southern sections do not have curb and gutter. New curb and gutter is only proposed in the City of Cocoa portion of the corridor (a half-mile segment). The locations with five-foot bicycle lanes will require a variance as it is below the current



minimum recommended bicycle lane width of seven feet. No right-of-way impacts are anticipated based on the Brevard County Parcel data.

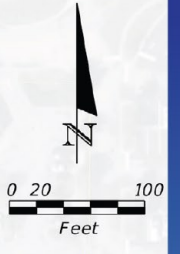
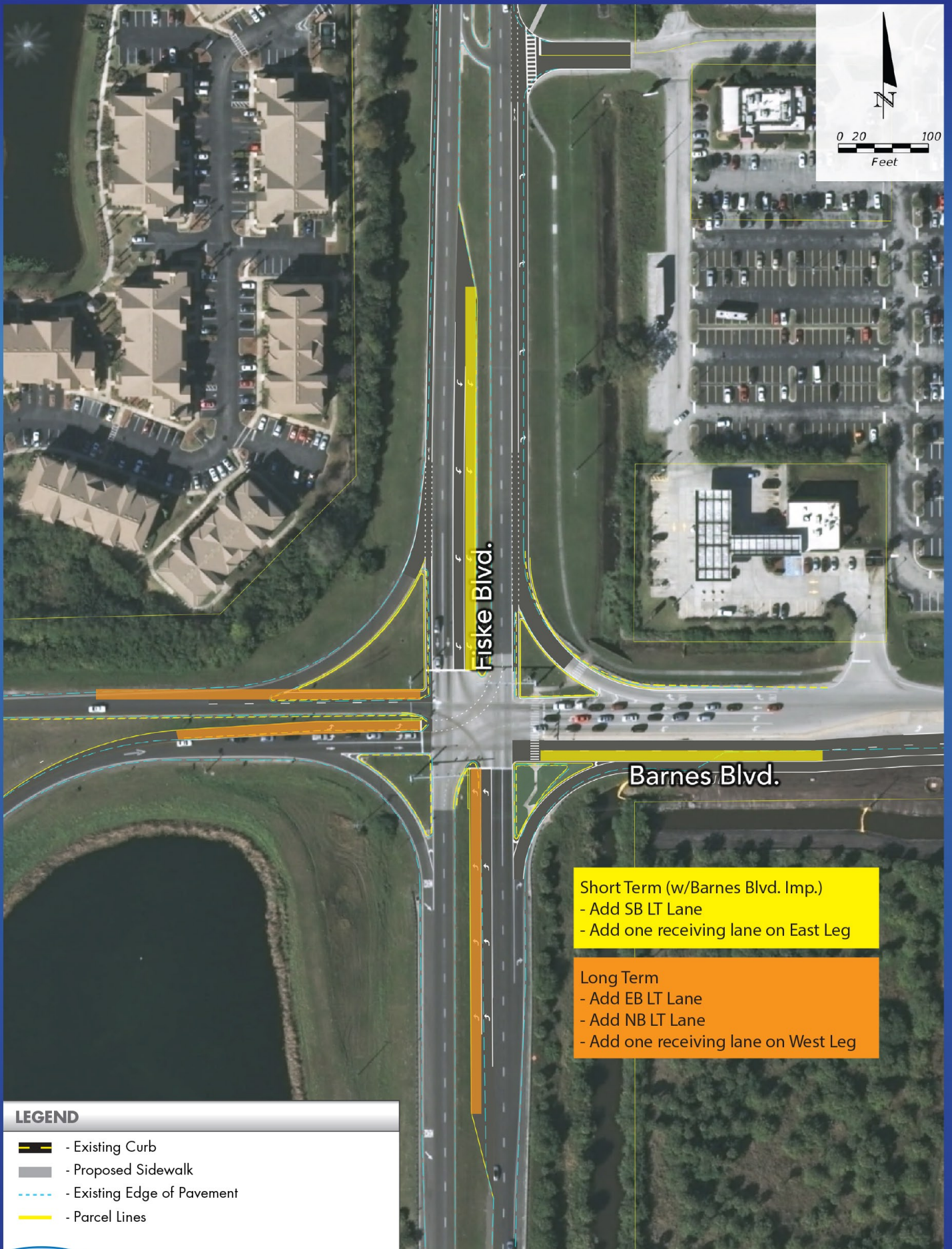
As part of this strategy, it is recommended that a complete survey of the study corridor be completed prior to the design phase(s) of this project to document the right-of-way.

5.3 Improvement Strategy 2 – Barnes Boulevard / I-95

Short- and long-term improvements are recommended at the intersection of Fiske Boulevard and Barnes Boulevard / I-95 ramps. Short-term improvements include adding a southbound left-turn lane on Fiske Boulevard with a corresponding receiving lane on the east leg of Barnes Boulevard. Long-term improvements include the following:

- Adding an eastbound left-turn lane on the I-95 ramps to Fiske Boulevard;
- Adding a northbound left-turn lane from Fiske Boulevard to the I-95 ramps; and
- Adding one receiving lane on the I-95 ramps.

The improvements would improve traffic operations and increase safety at this intersection. These improvements are consistent with the I-95 Systems Operational Analysis Report (SOAR) Update currently under development by FDOT. A concept layout of the recommended improvements is provided in Figure 27.







Fiske Blvd.

Barnes Blvd.

Short Term (w/Barnes Blvd. Imp.)
 - Add SB LT Lane
 - Add one receiving lane on East Leg

Long Term
 - Add EB LT Lane
 - Add NB LT Lane
 - Add one receiving lane on West Leg

LEGEND

-  - Existing Curb
-  - Proposed Sidewalk
-  - Existing Edge of Pavement
-  - Parcel Lines





5.4 Improvement Strategy 3 – Roy Wall Boulevard Intersection

A roundabout is recommended at the Fiske Boulevard and Roy Wall Boulevard intersection. This improvement would improve safety for all modes by promoting slower speeds along the corridor, reduce traffic delays and improve traffic flow. The roundabout also meets the City of Rockledge's desire for creating an aesthetic gateway feature along the corridor. Another significant benefit of the roundabout is the realignment of Martin Road and Roy Wall Boulevard. Pedestrian crossings and bicycle accommodations were also considered and included in the design of the roundabout to improve pedestrian and bicycle safety along the corridor.

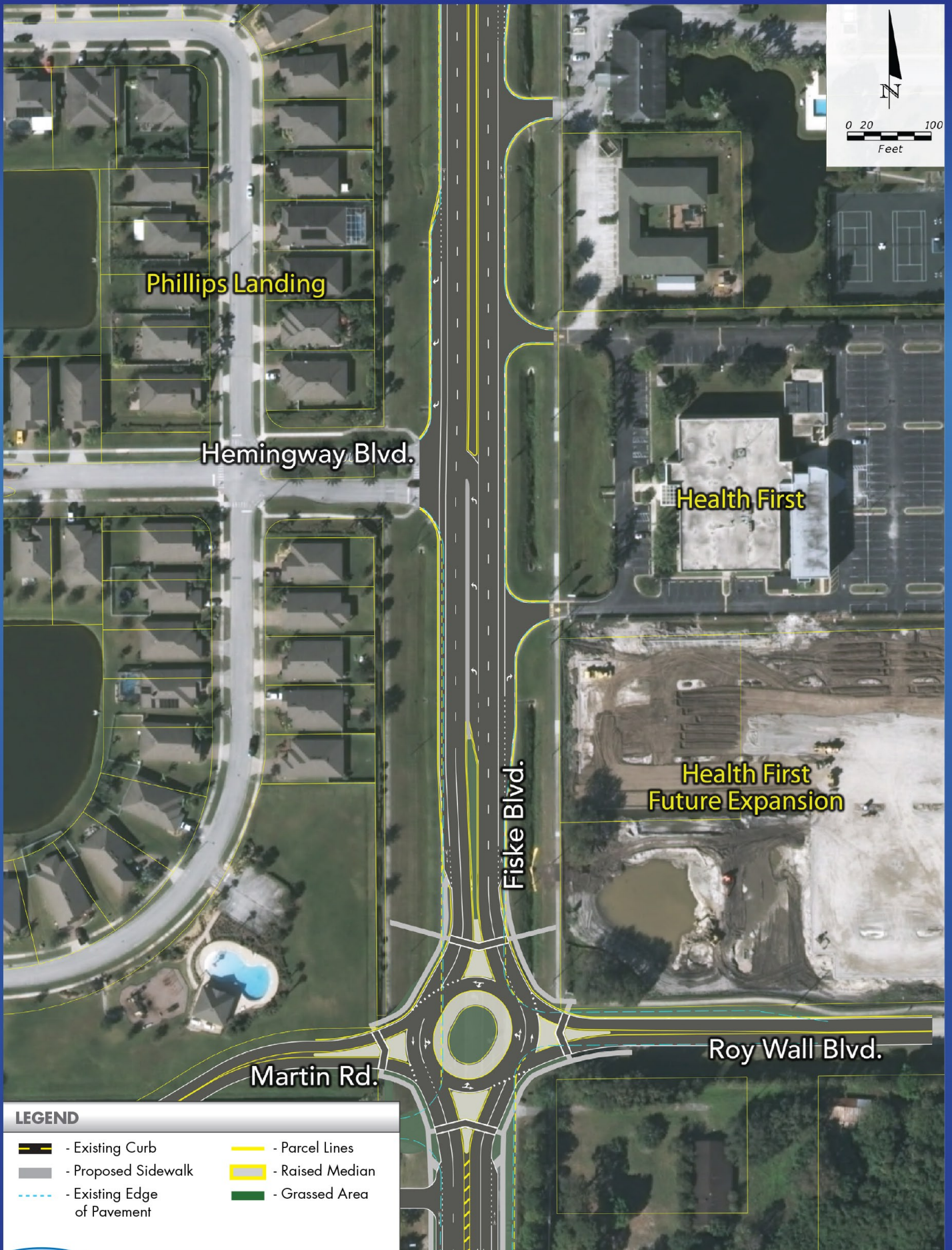
In conjunction with the roundabout, access management improvements for the Health First property and the Phillips Landing residential development are recommended, including a median that will restrict left-turn movement along Fiske Boulevard for both Health First and Philips Landing. Access would be limited to prevent left-turning conflicts between the two developments. Primary access for left turning vehicles to/from Health First to/from Fiske Boulevard would be via the roundabout and the new Health First access along Roy Wall Boulevard. Philips Landing's residents would be able to make right turns in and out, and left-turns into the residential development via a dedicated northbound left turn. Left-turns out of the development would make a right turn onto Fiske Boulevard and maneuver through the roundabout to travel in the northbound direction. The conceptual layout of this improvement is provided in Figure 28.

5.4.1 Operational Analysis

Traffic operations for the Roy Wall Boulevard roundabout were analyzed using SIDRA (a roundabout evaluation tool). The analysis concluded that the proposed roundabout is expected to operate at LOS "A" in 2040 AM and PM peak hours. The SIDRA output sheets, along with the Roundabout Screening Checklist, is provided in Appendix C.

5.5 Improvement Strategy 4 – Hans Christian Andersen Elementary School

The queuing issue along Fiske Boulevard at Hans Christian Andersen Elementary School is currently being addressed by the City of Rockledge and the Brevard County School Board. These stakeholders are partnering to increase on-site stacking for vehicles and improve management during peak hours. This improvement is outside of the FDOT right-of-way and is being completed by other entities; however, it is critical to addressing one of the primary issues raised by the public during the Fiske Boulevard Corridor Planning Study. In the interim, the Sheriff's Department distributed flyers to motorists queuing along Fiske Boulevard, notifying them that they cannot queue for pickup no more than fifteen minutes prior to school dismissal.



LEGEND

- Existing Curb
- Proposed Sidewalk
- Existing Edge of Pavement
- Parcel Lines
- Raised Median
- Grassed Area



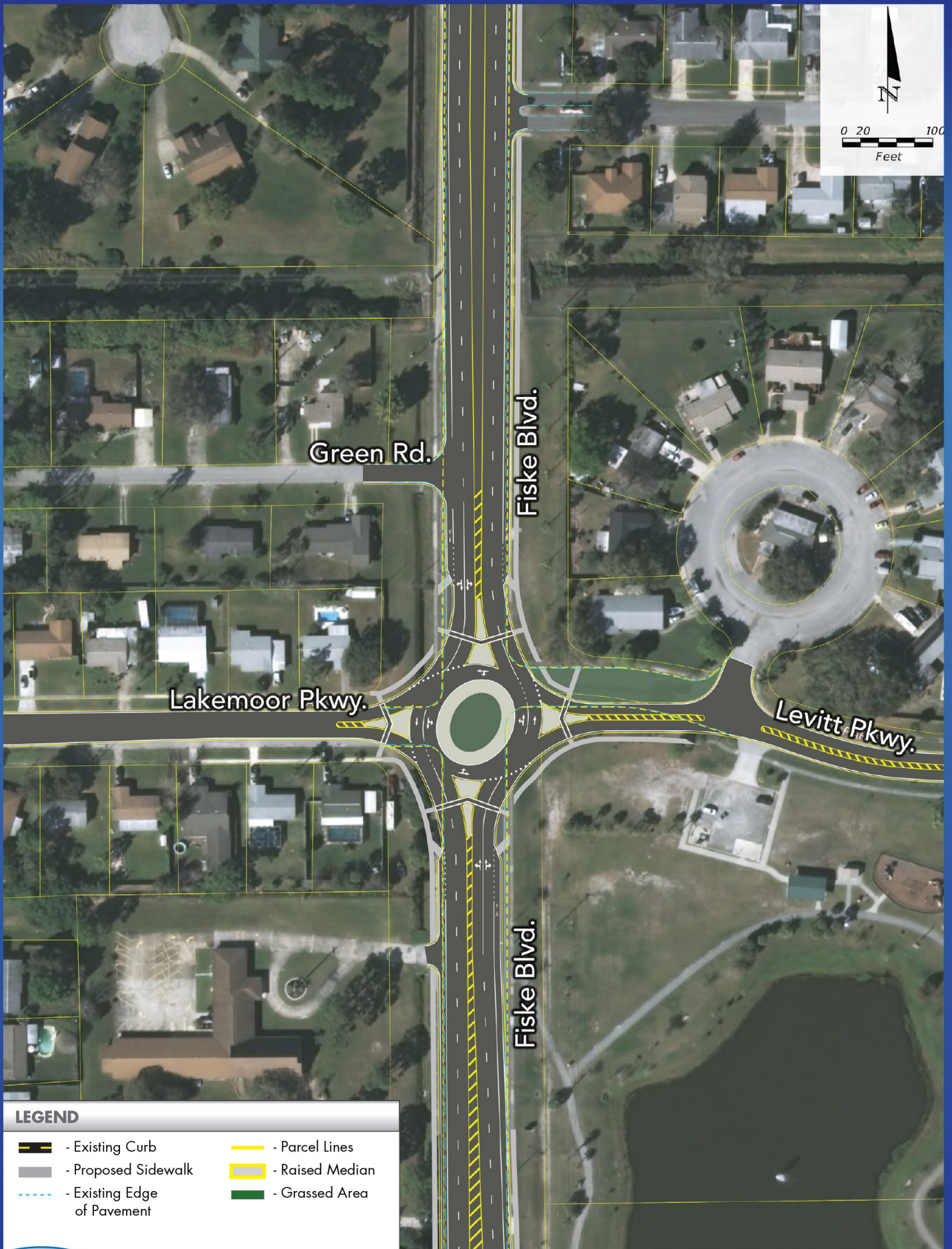


5.6 Improvement Strategy 5 – Levitt Parkway

A roundabout is recommended at the Fiske Boulevard and Levitt Parkway intersection. This improvement would not only improve safety for all modes by promoting slower speeds along the corridor, reduce traffic delays and improve traffic flow. In addition, the combination of the narrowed travel lanes and roundabout at Roy Wall Boulevard would reinforce the need and ability of drivers to travel at higher speeds along Fiske Boulevard, especially for traffic exiting I-95 in the southbound direction. Pedestrian crossings and bicycle accommodations were considered and included in the design of the roundabout to improve pedestrian and bicycle safety along the corridor. The conceptual layout of improvements is provided in Figure 29.

5.6.1 Operational Analysis

An operational analysis of the Levitt Parkway roundabout was performed utilizing SIDRA. The analysis concluded that the proposed roundabout is expected to operate at LOS “A” in 2040 AM and PM peak hours. The SIDRA output sheets, along with the Roundabout Screening Checklist, is provided in Appendix C.



LEGEND

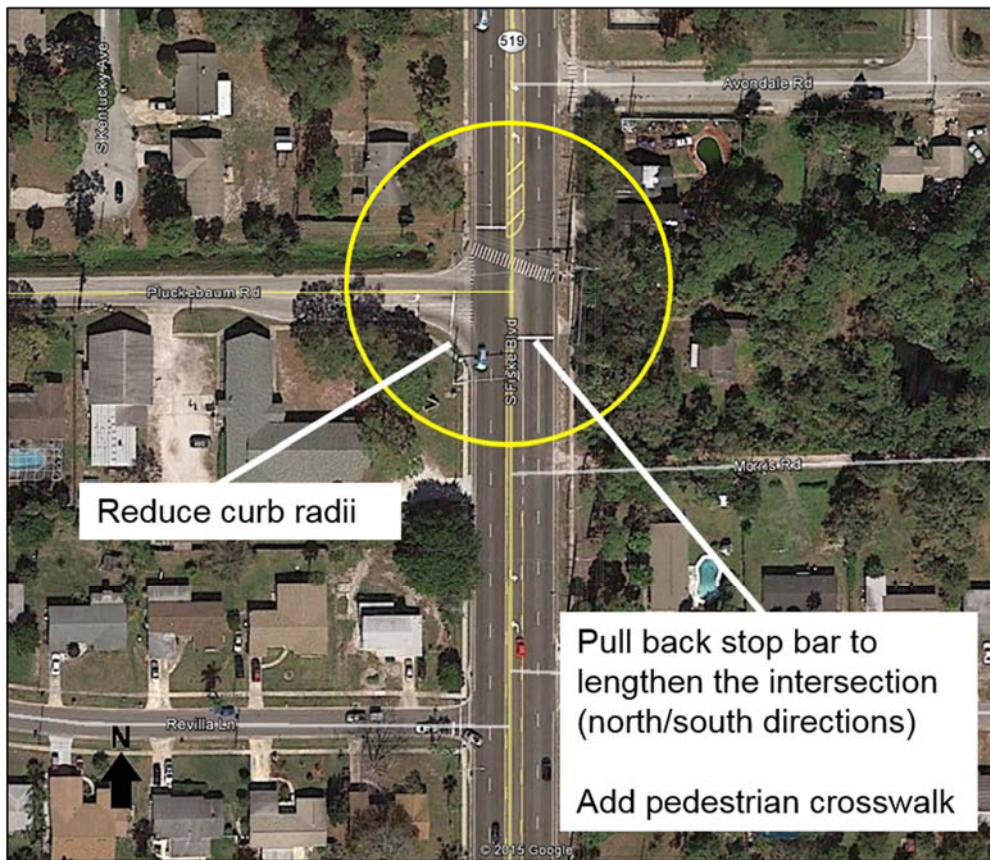
- | | |
|---|---|
|  - Existing Curb |  - Parcel Lines |
|  - Proposed Sidewalk |  - Raised Median |
|  - Existing Edge of Pavement |  - Grassed Area |



5.7 Improvement Strategy 6 – Pluckebaum Road Intersection

The current design of the Fiske Boulevard / Pluckebaum Road intersection is unsafe due to the location of the stop bar in the northbound direction and the wide turning radii in the east least of the intersection. The design places the stop bar too far forward into the intersection, promoting drivers to either wait in the intersection or continue through when they do not have the right of way. The radius of the right turn from Pluckebaum Road onto Fiske Boulevard is very large as well, which leads vehicles to behave as if it is a yield instead of a stop, creating unsafe conditions for vehicles, cyclists and pedestrians. It is recommended that this turn radius be reduced; the stop bar relocated; and a crosswalk added along the east and south legs of the intersection. These improvements are intended to improve the safety of the intersection for all users. A concept layout of the recommended improvements is provided in Figure 30.

Figure 30: Fiske Boulevard/Pluckebaum Road Intersection Concept Layout





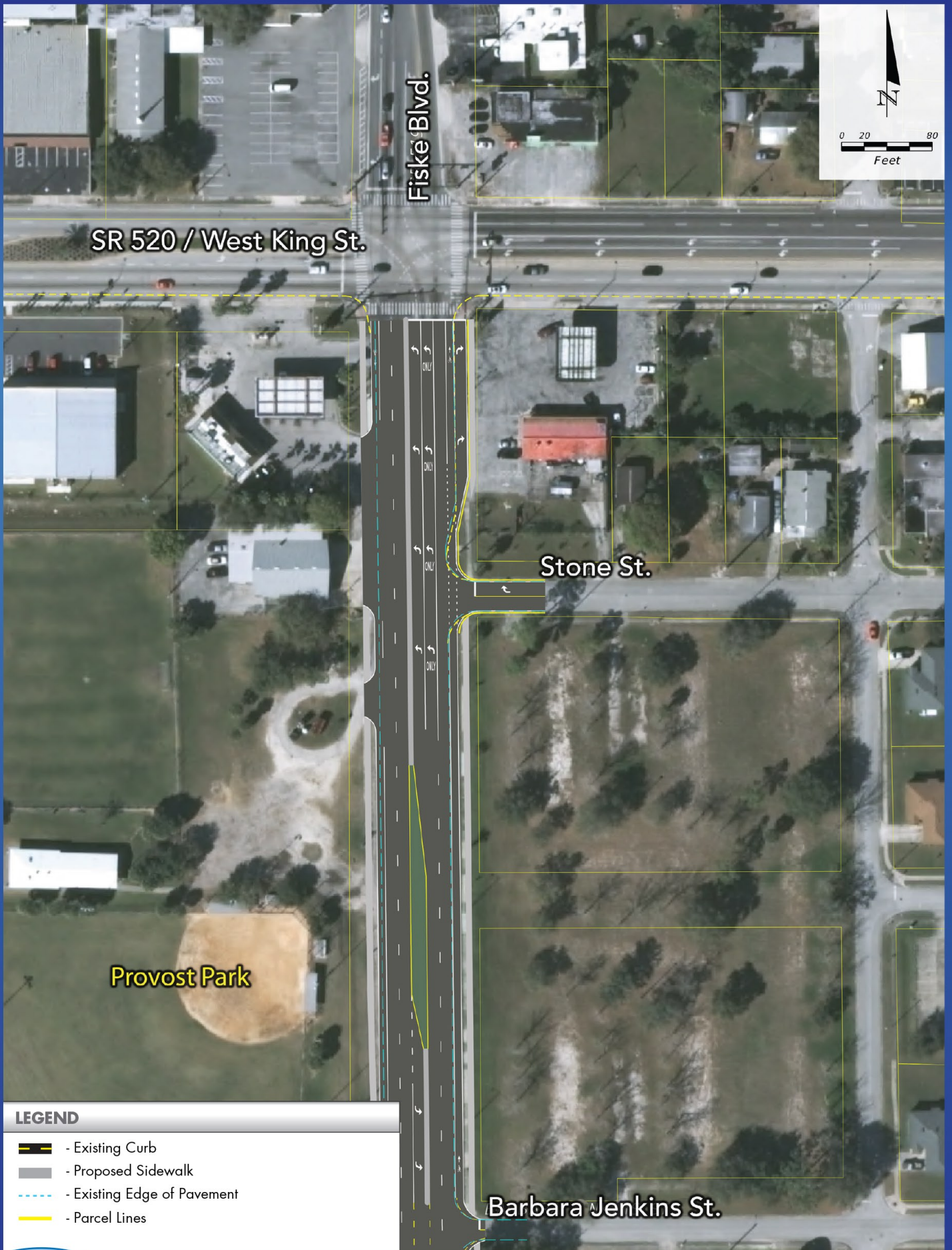
5.8 Improvement Strategy 7 – Provost Park / Stone Street / Barbara Jenkins Street

A pedestrian refuge is recommended at the intersection of Fiske Boulevard and Barbara Jenkins Street near Provost Park. This location was identified as having a large number of pedestrian crossings at unmarked locations. A marked crosswalk was analyzed, but was determined to be too close to the SR 520 intersection; therefore, a pedestrian refuge was recommended. This improvement will provide safer crossing opportunities for pedestrians by breaking up crossings into two-stages, allowing pedestrians to rest in the median and only be concerned with one direction of traffic at a time; versus one long crossing stage. This location also aligns with the City of Cocoa's planned sidewalk at the southern end of Provost Park.

Access management improvements were also analyzed for the intersection of Fiske Boulevard and Stone Street. The close location of Stone Street to SR 520 causes left-turning vehicles to/from Stone Street to/from SR 520 to conflict with each other and the vehicles queuing along Fiske Boulevard waiting to make a northbound left turn onto SR 520. Adding a formalized median at this location will enhance safety by eliminating left-turn conflicts and conflicts with queuing vehicles in the northbound left turn lane. Left turns into and out of the neighborhood will remain at Barbara Jenkins Streets via dedicated left-turn lanes and Stone Street will allow right-in/right-out turns. A concept layout of the recommended improvements is provided in Figure 31.

5.9 Right-of-Way Acquisitions

Based on the property appraiser parcel data, right-of-way acquisitions are not anticipated for the recommended improvement strategies. The Concept Development and Design phases will further evaluate each strategy with regard to right-of-way. Because right-of-way data is only available in the form of parcel data, it is recommended that a complete survey of the study corridor be completed prior to the design phase(s) of this project to document the right-of-way.



SR 520 / West King St.





Fiske Blvd.

Stone St.

Provost Park

Barbara Jenkins St.

LEGEND

-  - Existing Curb
-  - Proposed Sidewalk
-  - Existing Edge of Pavement
-  - Parcel Lines





5.10 Estimated Costs

Table 20 provides the estimated costs for each recommended improvement strategy as defined in the previous sections. Estimated costs are based on a planning-level analysis of the anticipated work efforts and major work elements. The costs provided should not be taken as the final cost assessment for the projects described. The concept development phase of the Fiske Boulevard project will further evaluate the costs associated with the recommended improvement strategies.

Table 20: Estimated Costs

Improvement Strategy	Work Elements	Estimated Costs¹
Improvement Strategy 1 – <i>Reduce Lane Widths, Add Bike Lanes Entire Corridor (4.18 miles²)</i>	Milling & Resurfacing, Restriping, Mobilization, and Traffic Maintenance	\$4,360,000
Improvement Strategy 2 – <i>Intersection improvements at Fiske Boulevard / Barnes Boulevard / I-95 Ramp³</i>	Create dual-left configuration for NB, SB, and EB (I-95 Ramp) approaches	\$825,000
Improvement Strategy 3 – <i>Roundabout at Fiske Boulevard / Roy Wall Boulevard</i>	Install roundabout at Fiske Boulevard / Roy Wall Boulevard; Realign Martin Road; Install access management improvements; Install sidewalk Improvements	\$780,000
Improvement Strategy 5 – <i>Roundabout at Fiske Boulevard / Levitt Parkway</i>	Install roundabout at Fiske Boulevard / Levitt Parkway; Realign Levitt Parkway; Install sidewalk Improvements	\$465,000
Improvement Strategy 6 – <i>Minor intersection improvements at Fiske Boulevard / Pluckebaum Road</i>	Reduce curb radius from Pluckebaum Road onto Fiske Boulevard; Relocate NB stop bar further south; Add crosswalk	\$15,000
Improvement Strategy 7 – <i>Corridor improvements along Fiske Boulevard from SR 520 to S of Barbara Jenkins Street</i>	Add NB right-turn lane; Install median / access management improvements; Add pedestrian refuge near Barbara Jenkins Street and Provost Park	\$530,000
TOTAL		\$6,975,000

¹ Estimated costs are based on a planning-level analysis of anticipated new construction, milling & resurfacing, and replacement (of transmission lines/pole, traffic signal, etc.) efforts. The costs provided should not be taken as the final cost assessment for the projects described. The concept development phase of the Fiske Boulevard project will further evaluate the costs associated with the recommended improvement strategies.

² The estimated cost for Improvement Strategy 1 does not include the same work elements within the spot improvements (Strategies 2, 3, 5, 6, and 7). For the spot improvements, the items discussed in Strategy 1 were considered within the respective spot improvement.

³ Does not include lane improvements on Barnes Boulevard, as these are anticipated to be completed by the Barnes Boulevard project.



6

Next Steps

The recommended improvement strategies for the Fiske Boulevard Corridor Planning Study were developed to address the defined purpose and need, based on a clear understanding of the issues along the study corridor and the established guiding principles.

6.1 Summary of Corridor Study Recommendations

The goal of this planning study, as identified in the Purpose and Need Statement and the guiding principles, is to provide recommendations for enhancing the multimodal transportation network along the Fiske Boulevard corridor, which promotes walkability, improves access to employment, supports economic development goals, and provides safe and convenient access for all users.

FDOT identified several improvement strategies to meet the stated goals and objectives of the Corridor Planning Study. As explained in Chapter 5, recommended improvements include:

- Restriping the corridor to improve typical section consistency, reduce drive- and center-lane widths, and implement bike lanes;
- Implementing intersection improvements at the Fiske Boulevard / I-95 Ramp / Barnes Boulevard intersection;
- Implementing a roundabout at the Fiske Boulevard / Roy Wall Boulevard intersection, in addition to median alterations that will restrict ingress / egress access along Fiske Boulevard
- Supporting the efforts of the Brevard County School Board and Sheriff's Department to alleviate queuing issues on Fiske Boulevard near the school;
- Implementing a roundabout at the Fiske Boulevard / Levitt Parkway intersection, in addition to removing left-turn access into the Hope United Church of Christ entrance;
- Implementing intersection improvements at the Fiske Boulevard / Pluckebaum Road intersection; and
- Implementing center-lane changes along Fiske Boulevard near Provost Park to redirect left-turning movements to/from Stone Street and provide a pedestrian refuge to support pedestrian access to Provost Park.

6.2 Recommendations and Agency Support

The following is a brief summary of feedback provided by local stakeholders and agency partners regarding the recommended improvements for the Fiske Boulevard corridor.



6.2.1 Technical and Citizens Advisory Committees Joint Meeting

The recommended improvements for Fiske Boulevard were presented at the SCTPO Governing Board Meeting held on July 14, 2016. During the meeting, the City of Rockledge objected to the recommended roundabout at the Fiske Boulevard / Roy Wall Boulevard intersection. The City felt a traffic signal would be more appropriate for that intersection. FDOT staff explained that based on the data collected during the study period, the intersection does not meet the criteria for a traffic signal. In addition, per FDOT policy, a roundabout alternative must be evaluated on new construction and reconstruction projects. Evaluation is also required for all other types of projects that propose new signalization or require a change in an un-signalized intersection control. The City of Rockledge cited concerns with the safety and operation of the roundabout. The City also indicated preference for the Phillips Landing subdivision to maintain its left-turn out onto Fiske Boulevard. The Corridor Planning Study's recommendation would allow for right-turn in/out and left-turn in access, requiring motorists seeking to travel north on Fiske Boulevard to use the proposed roundabout just south of the subdivision. All other recommendations were accepted by the SCTPO Board.

At the City's request, FDOT agreed to hold a separate workshop with the City of Rockledge and other agency partners to discuss the recommendations further.

6.2.2 Technical and Citizens Advisory Committees Joint Meeting

On August 22, 2016, FDOT staff met with representatives from Brevard County, SCTPO, and the City of Rockledge to further discuss the recommended roundabout improvement at the Fiske Boulevard / Roy Wall Boulevard intersection. FDOT staff reminded attendees that the recommendations put forth by the Corridor Planning Study are for planning purposes only, with no commitments to implement these improvements. FDOT staff explained that these recommendations will be evaluated further when the project advances to the concept development phase, at which time the information would be shared with the stakeholders.

The City of Rockledge indicated its concern regarding the safety and operation of the proposed roundabout, and the preference for a traffic signal at the intersection instead. FDOT staff provided statistics that roundabouts, when properly designed, improve safety and operation when compared to a signalized intersection. Roundabouts have fewer conflict points than in a conventional intersection, and promote slower speeds by design. The City noted it has no objection to the roundabout at the Fiske Boulevard / Levitt Parkway intersection.

FDOT staff explained that the data collected at 31 locations along the corridor, and data provided by the City of Rockledge regarding the Health First Expansion, does not support the need for a traffic signal at the Roy Wall Boulevard intersection. .

In addition, a roundabout alternative must be evaluated on new construction and reconstruction projects, under current FDOT policy. Evaluation is also required for all other types of projects that propose new signalization or require a change in an un-signalized intersection control. FDOT and the agency partners agreed that the Alternatives Report would be finalized with the current recommendations, with FDOT documenting the City of Rockledge and SCTPO opposition to the roundabout alternative at the Fiske Boulevard / Roy Wall Boulevard intersection.



Participants agreed that the scoping of the project's concept development phase would include feedback from the City and SCTPO and would include additional data collection at the intersection to assess the traffic conditions after the completed Health First expansion and the Barnes Boulevard widening project. A full traffic signal warrant study will also be included in the scope's provisions.

6.3 Next Steps – Concept Development

The next phase of the Fiske Boulevard project, Concept Development, is anticipated to begin early 2017. During Concept Development, FDOT staff will further evaluate the proposed improvement strategies, determining the specifics for each recommendation, such as which segments of the corridor will require 5-foot bike lanes rather than the corridor standard 7-foot bike lanes. During this phase, FDOT staff will develop additional alternatives for the corridor and continue the public outreach component of the Corridor Planning Study to ensure local stakeholders are given the opportunity to provide feedback to the study team.

The Design and Construction phases of the project will follow the completion of the concept development phase. Funding and timing for these phases are undetermined.



Appendix

Appendix A – Synchro Reports

See Companion to Report



Appendix

Appendix B – Comments & Coordination Summary

See Companion to Report



Appendix

Appendix C – SIDRA Reports & Screening Checklist

See Companion to Report