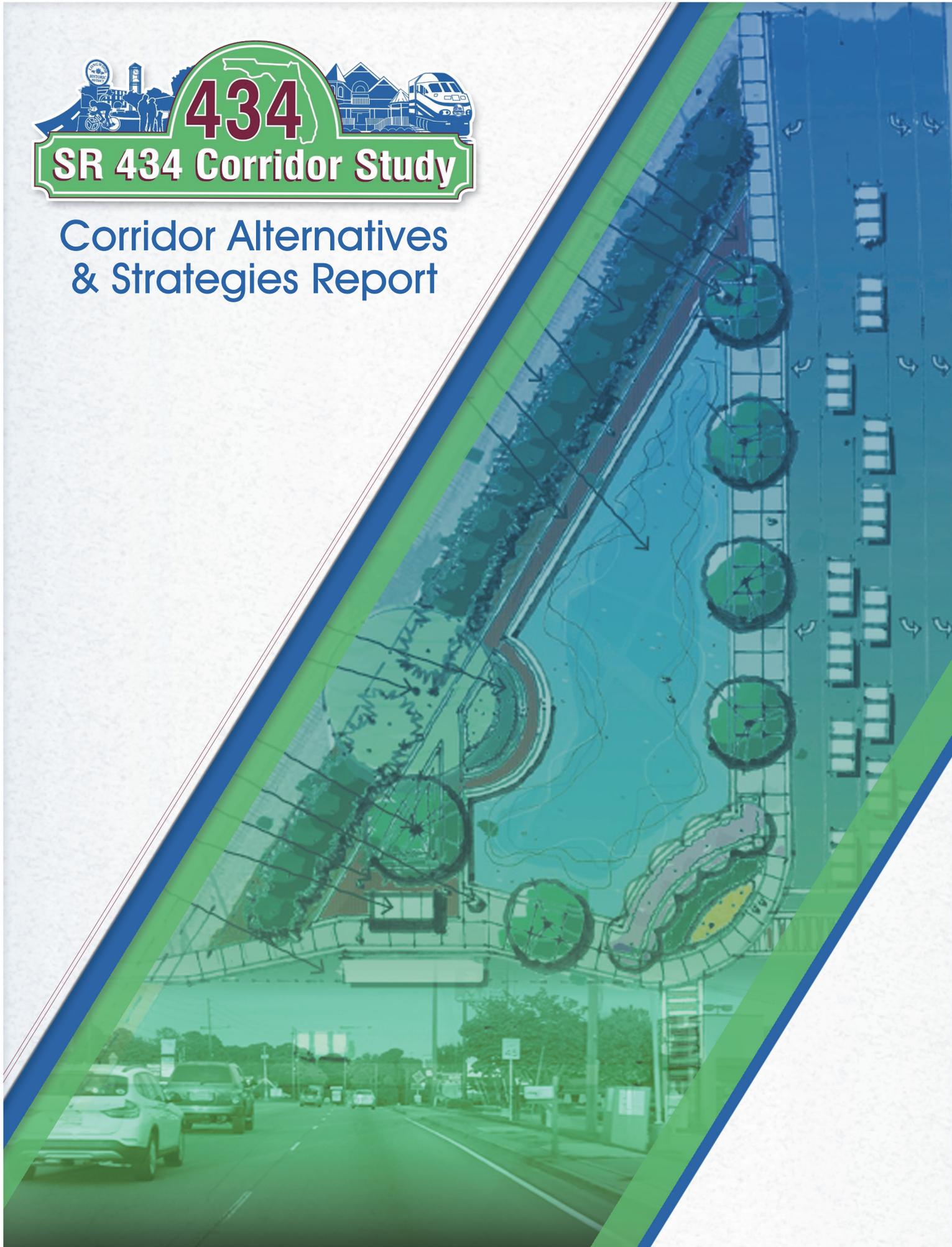




434

SR 434 Corridor Study

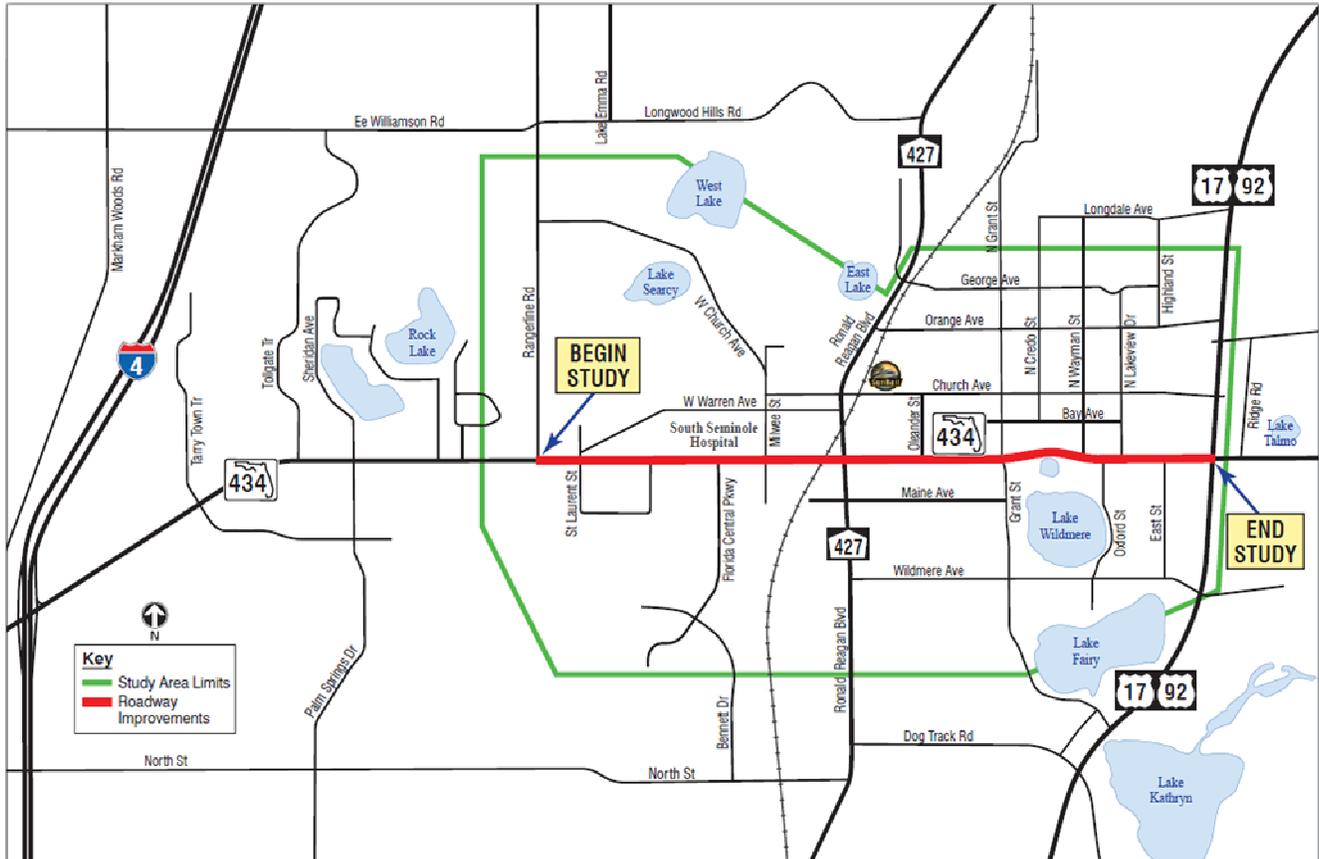
Corridor Alternatives & Strategies Report



1.1 Study Area

As displayed in **Figure 1.2**, the SR 434 corridor study area is from Rangeline Road to US 17/92, a distance of approximately 2.1 miles. SR 434 within the study limits is an urban four-lane roadway that serves as a regional east-west arterial. West of Rangeline Road, SR 434 has been recently widened to six lanes.

Figure 1.2 SR 434 Study Area



1.2 Existing Conditions

Between Rangeline Road and CR 427 (Ronald Reagan Blvd), SR 434 is a divided roadway with a raised median that is approximately 18 feet in width. East of CR 427, SR 434 transitions into a five-lane typical section with a center two-way left-turn lane. Continuous sidewalks are currently provided along both sides of SR 434 within the study limits. However, the existing roadway does not include a paved shoulder or marked bike lanes. The existing typical sections of SR 434 are displayed in **Figures 1.3** and **1.4**, on the following page.

Figure 1.3 Existing Typical Section, Rangeline Road to CR 427

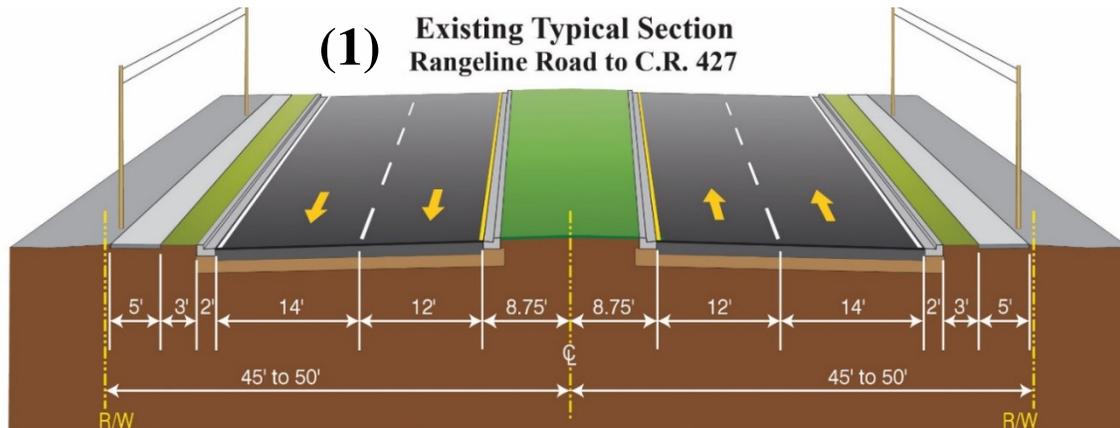
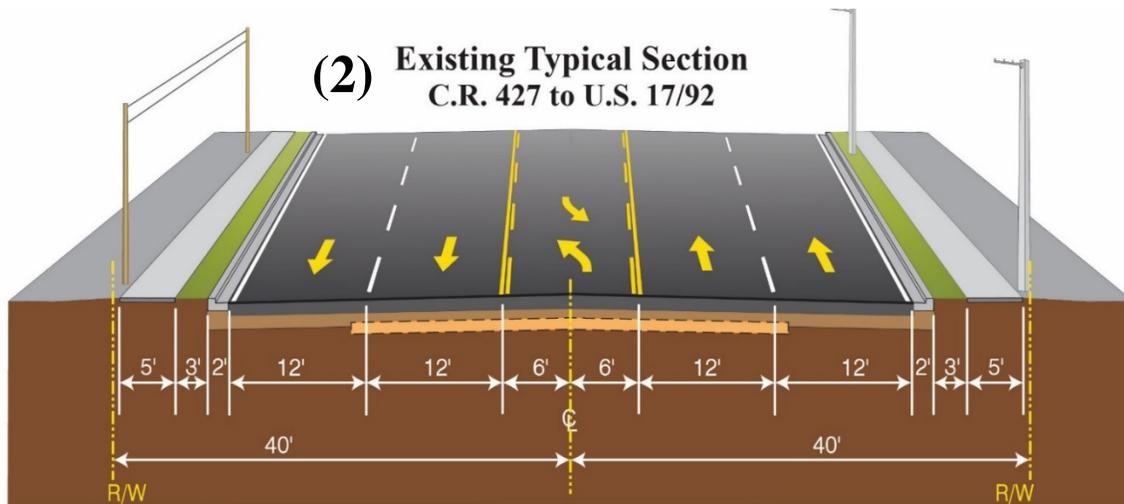


Figure 1.4 Existing Typical Section, CR 427 to US 17/92



Specific characteristics of the study area are described as follows:

- The Longwood SunRail station is located along Church Street, east of CR 427 and north of 434.
- Substantial employment provided via the commerce park accessible at Florida Central Parkway.
- South Seminole Hospital is located along SR 434 within the study area.
- Land fronting SR 434 is relatively built out:
 - Some vacant or underutilized parcels are present that could provide redevelopment opportunities in addition to Transit Oriented Development (TOD) in the vicinity of the SunRail Station

1.3 Project Background

The study corridor was previously evaluated in 2001 as part of a Project Development and Environment (PD&E) study. This 2001 study identified the need for a widening of SR 434 from four to six lanes between Interstate 4 and CR 427. Construction of four-to-six lane widening of SR 434 from I-4 to Rangeline Road has recently been completed.



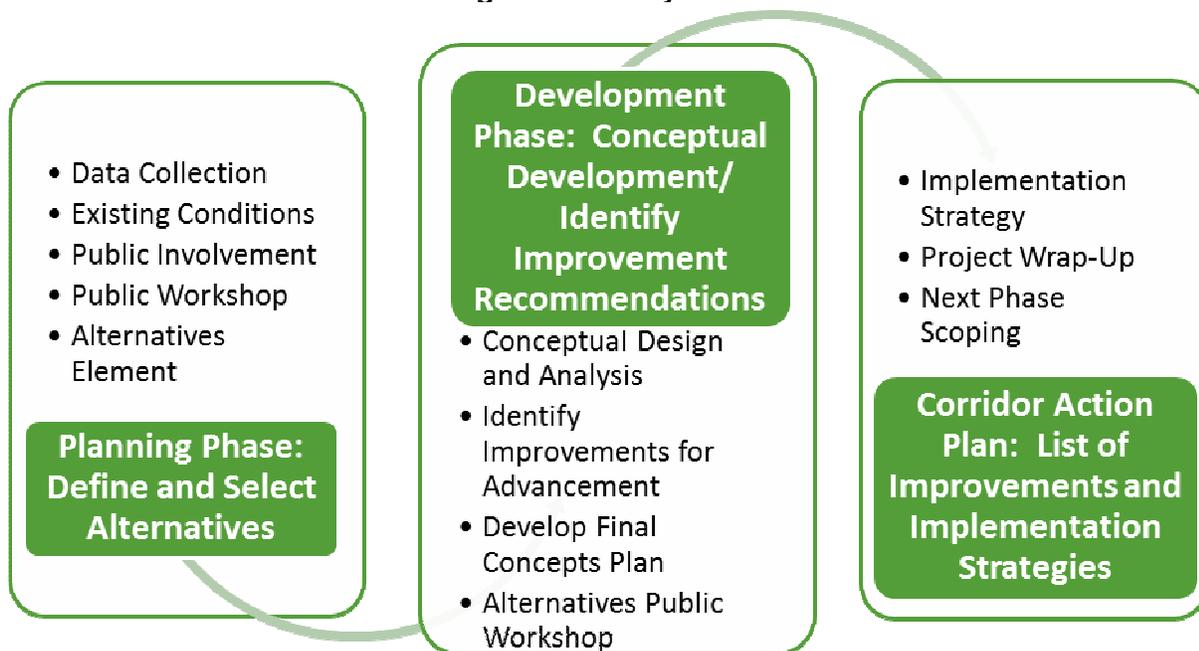
However, it is the desire of the City of Longwood to provide alternate capacity improvements along with multimodal and context sensitive improvements to the study corridor in lieu of the 4-to-6 lane widening, for the portion of SR 434 east of Rangeline Road. Furthermore, there was support from the local stakeholders to not widen this section of roadway to six lanes.

These alternative improvements are supported by the 2016 MetroPlan Orlando MPO project priority list. This priority list ranked this segment of SR 434 as the #1 ranked highway project with a specific focus on intersection, multimodal, and context sensitive improvements. Practically, the intersection of SR 434 at CR 427 / Ronald Reagan Boulevard, which is ranked at 1a.

1.4 Study Process

As displayed in **Figure 1.5**, the study process consisted of three phases: 1) Planning Phase, 2)

Figure 1.5 Study Process



Development Phase, and 3) The Corridor Action Plan.

The purpose of the planning phase was to define and select alternatives. This consisted of data collection, and existing conditions evaluation, the public involvement with public workshops, and an alternatives element. The data collection process included the following:

- An overview of existing plans pertaining to the Seminole County and the City of Longwood
- Traffic Counts, including turning movement counts and video counts
- An analysis of transit data
- SunRail surveys
- Crash Data

The function of the development phase was to create a conceptual development and identify improvement recommendations. The Development Phase included conceptual design analysis, the identification of improvements for advancement, the development of a final concept plan, and a public workshop to present the alternatives. The purpose of the final phase, the Corridor Action Plan, is to provide a list of improvements and implementation strategies. The final phase included an implementation strategy, project wrap-up, and next phase scoping.

1.5 Planned and Programmed Projects

The planned and programmed and programmed projects for the study corridor are summarized in **Table 1-1**:

Table 1-1 Planned and Programmed Projects

Location/Project Name	Improvements
SR 434 @ Florida Central Parkway	* Intersection Improvements
	* R/W Purchased from Hospital
	* Currently Under CST
SR 434 @ Ronald Reagan Blvd.	* In procurement for design (county)
	* No funding programmed beyond design
Longwood Avenue	* New sidewalk (County)
Church Avenue	* Multimodal Enhancements
CR 427/Ronald Reagan Boulevard	* Complete Street Enhancements
SR 434 @ US 17/92	* Gateway/Streetscape Improvements

1.6 Potential Modifications

Potential modifications evaluated for the SR 434 corridor include the following:

- Intersection Modifications
- Bike Lanes
- Bus shelters/bus stop relocations
- Medians/center turn lanes
- Midblock crossings
- 8-foot and 6-foot sidewalks
- Parallel networks
- Pedestrian Boardwalk
- Park location at CR 427 and SR 434
- Widening to 6 lanes
- SunRail coordination

1.7 Preliminary Concepts

Preliminary concepts are described in further detail in Section 3, and are summarized as follows:

- Dual south-bound right turn lanes at SR 434 at CR 427
- New south-bound road west of railroad tracks
- Median modifications
- Potential midblock crossings on west and east
- Bus stop modifications
- SR 434 bridge over CR 427 concept
- Widen SR 434 to 6 lanes

2. Existing Conditions and Characteristics Report

The Existing Conditions and Characteristics Report is an assembly of relevant data to support the corridor planning process. This includes community, transportation, and environmental characteristics obtained through review of relevant projects within the study area, field reviews, coordination with agencies, and other publicly-available data from various agency resources including state and county databases. The documentation includes future physical and environmental conditions, such as adjacent land uses and public and private development expansion plans along the corridor.

The relevant data collected was utilized to create existing conditions maps showing the significant corridor features and characteristics. The existing conditions map include lane configurations, speed limits, traffic data including Average Annual Daily Traffic (AADT), crash history, intersection and sidewalk gaps, and transit service. This will be utilized to assess proposed improvements over existing conditions for compatibility.

2.1 Review of Past and Current Projects

As part of a continued commitment to provide safe transportation options for all users, the Longwood City Commission adopted a “Complete Streets” policy at its July 20, 2015 meeting. Some of the complete street projects, among other projects, are listed below and described in further detail in this section.

- SR 434 at Central Florida Parkway Project
- SR 434 at CR 427 Intersection Improvements
- Cross-Seminole Trail Connection
- CR 427 Improvements
- SR 434 Project Development and Environment (PD&E) Study
- CR 427 Sidewalk Improvement
- SR 434 from Mingo Trail to Milwee Street
- SR 434 Gateway Project
- Longwood SunRail Station Sidewalk Project

2.1.1 SR 434 at Central Florida Parkway Project

In May 2015, FDOT in cooperation with Seminole County prepared a project to improve the intersection of Florida Central Parkway and SR 434 near the entrance to the South Seminole Hospital. The project included reducing lane widths to 11 feet and adding 4-foot bike lanes which allows for better access to transit. This project also included a proposed FlexBus stop, LYNX stops, and connections to the SunRail.

2.1.2 SR 434 at CR 427 Intersection Improvements

In 2007, a Design Traffic Study for Seminole County was prepared to analyze the intersections of SR434 at Florida Central Parkway and SR434 at CR427. The limits extend from Wilma Street to Myrtle Avenue. An update was prepared in 2009. From the 2009 study, improvements were recommended at both intersections. These intersection updates will provide an interim improvement until the future six lane widening can be funded for construction and right of way (R/W).

The recommended improvements were outlined in the 2010 Addendum to the Design Traffic Study for least total costs and medium impact to utilities. Turn lane improvements and medium enhancements around railroad tracks were advised. This project will add right and left turn lanes at the intersection of SR 434 at CR 427. The design is to be advertised in September 2015. There will be a nine month procurement process; two advertisements should be issued around May 2016 after alternatives have been submitted.

2.1.3 Cross-Seminole Trail Connection

The Cross-Seminole Trail is a popular multi-use path that connects a number of areas in Seminole County including Winter Springs and Oviedo. The heavily used trail approaches the city of Longwood but does not actually connect with the city limits. The design for this project for the City of Longwood includes a shared-use path that connects the Cross-Seminole Trail to Candyland Park and will allow for bicycle connections to the SunRail area. Within this project study area, sharrows will be added along Church Street from CR 427 to Grant Street.

2.1.4 CR 427 Improvements

This project for the City of Longwood includes pedestrian improvements on CR 427 between SR 434 and Palmetto Avenue to make the intersection more pedestrian friendly and improve the connection between SunRail and the Historic District and Hospital. This project also includes on-street parking and buffered bike lanes.

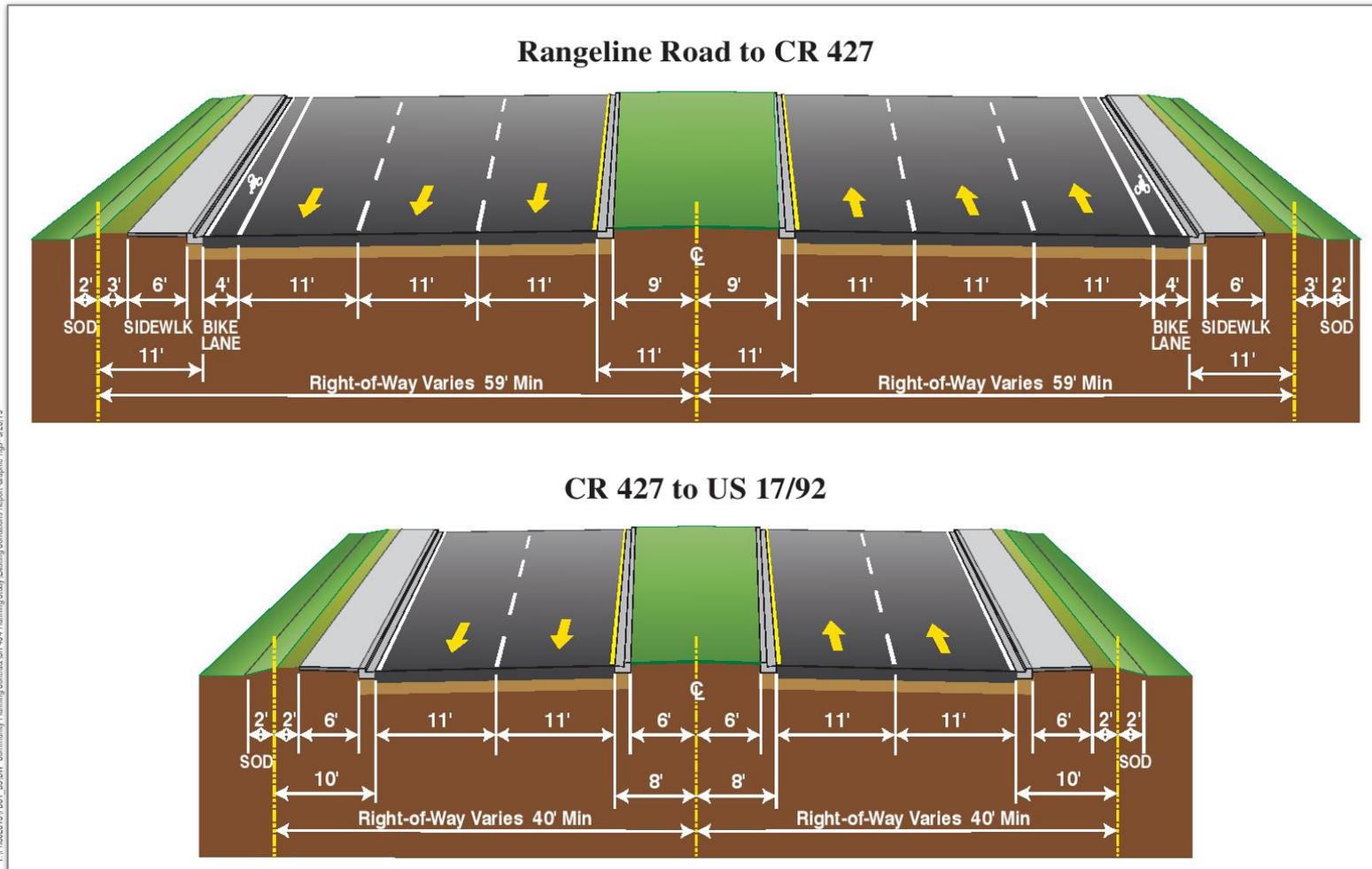
2.1.5 SR 434 Project Development and Environment (PD&E) Study

In 2001, FDOT completed a PD&E study for SR 434 from Montgomery/Wekiva Springs Road to U.S. 17/92, a distance of approximately 4.9 miles. As displayed in **Figure 2.1**, the PD&E proposed alternative consisted of a 118-foot typical section from Montgomery/Wekiva Springs Road to CR 427 and an 80-foot typical section from CR 427 (Ronald Reagan Boulevard) to U.S. 17/92.

It was recommended that SR 434 should be expanded from a four-lane to a six-lane divided roadway from Montgomery/Wekiva Springs Road to CR 427 (Ronald Reagan Boulevard) with multi-modal improvements. The segment from CR 427 to US 17/92 would become an improved four-lane facility.

Traffic projections showed that SR 434 would operate at LOS F in design year 2026 with or without improvements. While peak hour operational conditions would not improve greatly by the design year with the proposed improvements, it was determined that six-laning SR 434 would increase roadway capacity and overall regional transportation capacity.

Figure 2.1 Previous PD&E (2001) Proposed Typical Sections



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			<p>SR 434 Corridor Study Rangeline Road to Highway 17/92</p>	<p>PD&E Proposed Typical Sections</p>
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2.1.6 Longwood Street Sidewalk Improvement

This project by Seminole County includes adding sidewalks along Longwood Street, connecting existing sidewalk (at Longwood Street and Bay Avenue) along Longwood Street to the existing sidewalk on Church Avenue.

2.1.7 SR 434 from Mingo Trail to Milwee Street

This Seminole County Project is addressing some operational improvements, such as turn lanes, and including 4 foot bike lanes along SR 434. Construction is to be advertised in the next few months in 2015. The schedule is dependent on the Duke Energy schedule, as the power company is currently relocating their utilities at intersection of SR 434 and Florida Central Parkway.

2.1.8 SR 434 at U.S. 17/92 Gateway Project

The City of Longwood is preparing a joint project with the City of Winter Springs to develop a gateway for the two cities at the intersection of US 17/92 and SR 434. 90% plans have been completed on the streetscape project consisting of landscape and hardscape improvements on SR 434 between US 17/92 and Talmo Street and on all approaches to the intersection of SR 434 and SR 600 (US 17/92). The SR 434 Streetscape Project has a total budget (design, permitting, and construction) of \$485,000. The work includes sidewalk improvements on both sides of SR 434.

2.1.9 Longwood SunRail Station Sidewalk Project

Located just east of the intersection of CR 427 (Ronald Reagan Boulevard) and Church Avenue, the Longwood SunRail Station is a short distance from the Historic District of Longwood, municipal services buildings, civic centers, and three public parks. This station is located approximately 0.2 miles north of SR 434. In 2014, a sidewalk project was developed for the City of Longwood to add sidewalk around the site. See Error! Reference source not found. and Error! Reference source not found. for project overview maps.

2.2 Existing Conditions

Existing multi-modal travel and roadway characteristics were collected and documented within this section, including roadway classifications, typical sections, speed limits, cyclist and pedestrian accommodations, transit services, traffic signals and timing plans, utilities, and traffic volumes. An existing conditions map is depicted in **Figure 2.4** and a project straight line diagram is shown in **Figures 2.5** and **2.6**.

2.2.1 Existing Roadway and Classification

SR 434 is classified as an urban principal arterial – other on the National Highway System (NHS). This corridor is not part of the Strategic Intermodal System (SIS) network. West of Rangeline Road, SR 434 is a six-lane divided urban roadway. SR 434 is a four-lane divided urban roadway from Rangeline Road to CR 427 (Ronald Reagan Boulevard). East of CR 427 (Ronald Reagan Boulevard), SR 434 becomes a four-lane urban roadway with a center two-way left-turn lane. There are sidewalks on both sides but no designated bike lanes.

2.2.2 Existing Typical Section

As-built plans displayed in **Figures 2.2** and **2.3** display the existing typical section of SR 434 from US 17/92 to Rangeline Road.

Figure 2.2 Existing Typical Section, Rangeline Road to CR 427

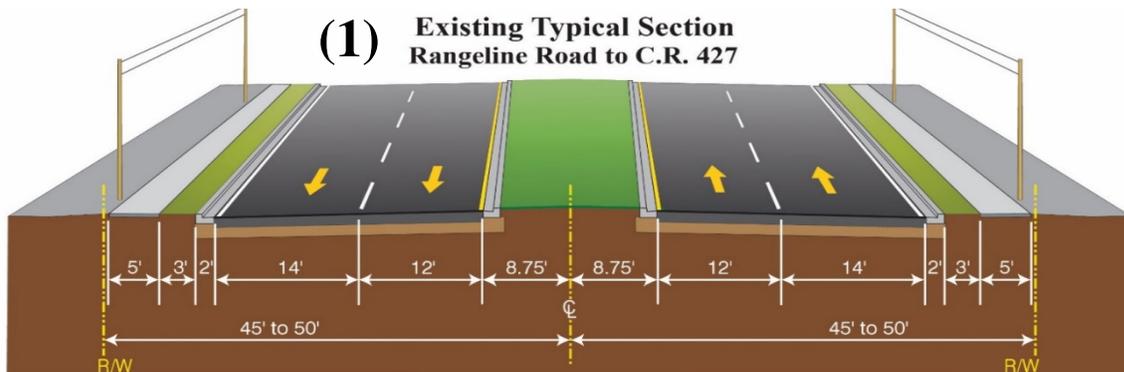


Figure 2.3 Existing Typical Section, CR 427 to US 17/92

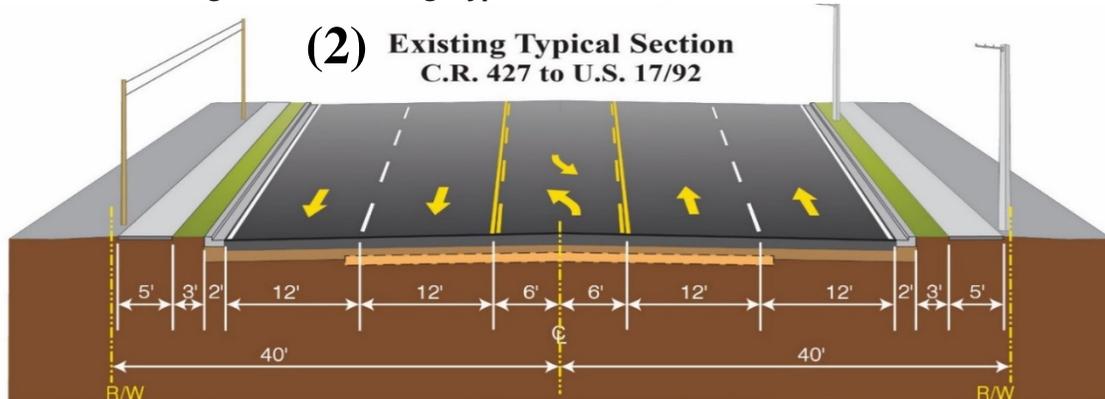
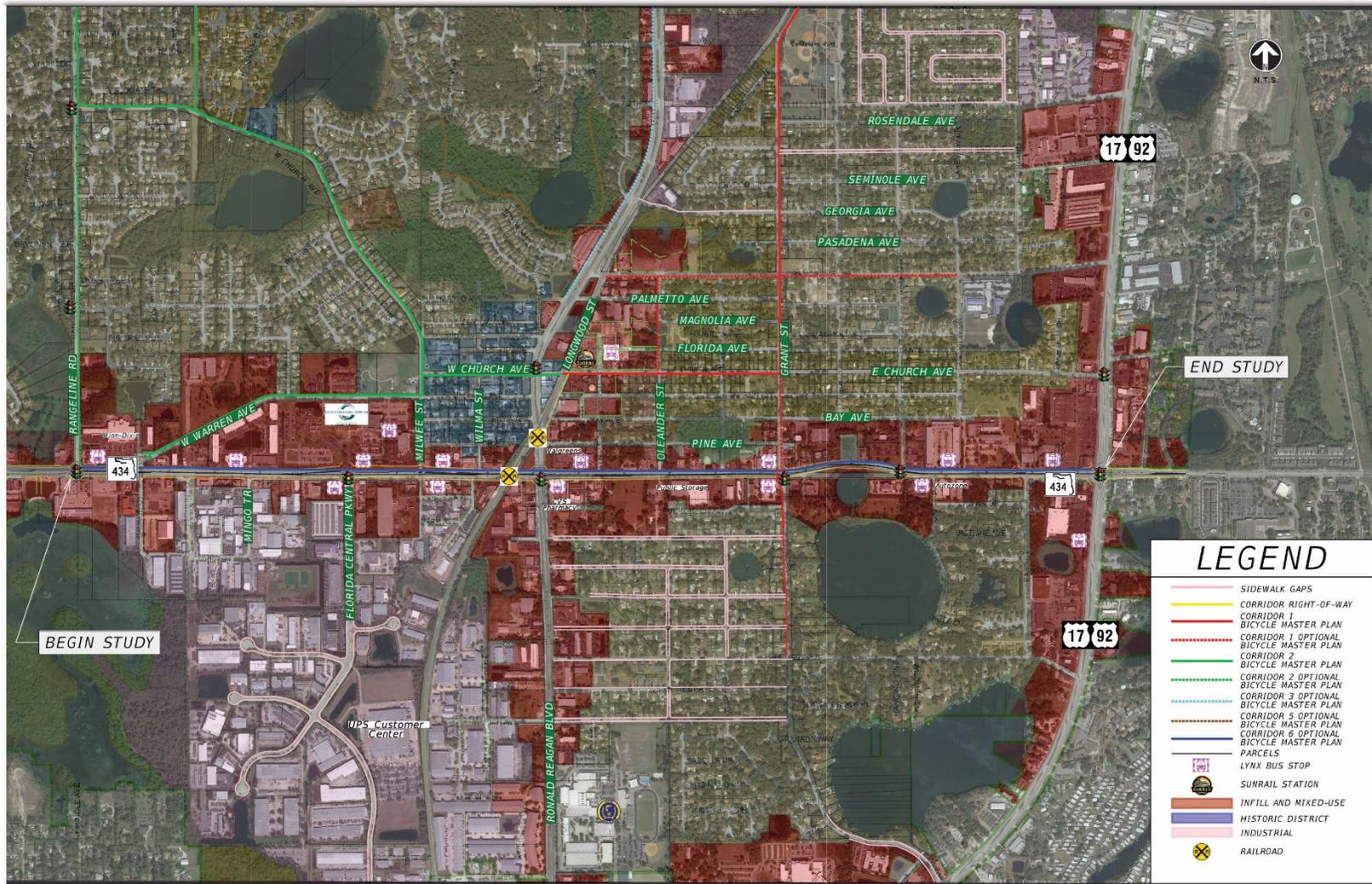
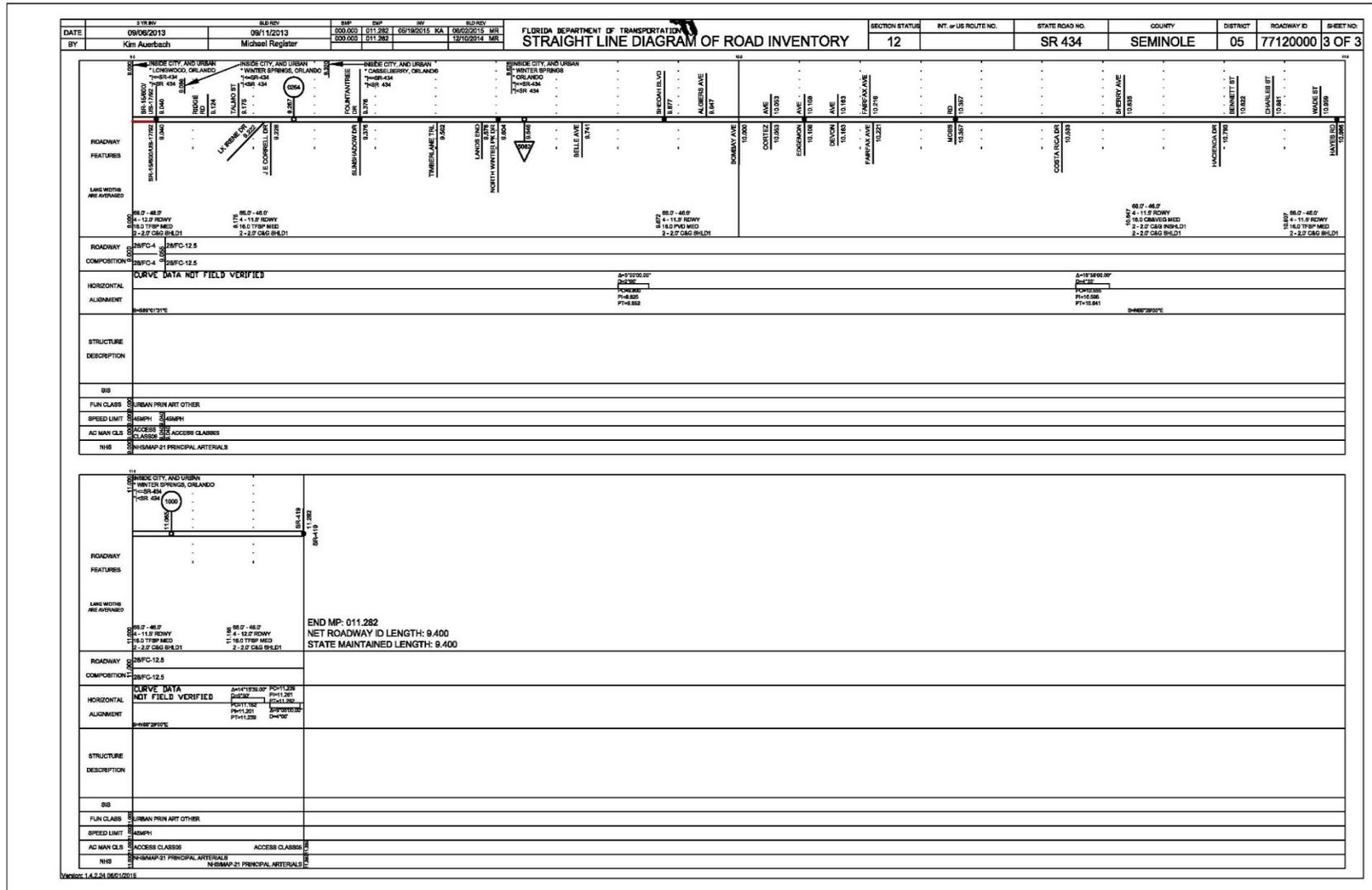


Figure 2.4 Existing Conditions Map



			<p>SR 434 Corridor Study Rangeline Road to Highway 17/92</p>	<p>Existing Conditions Map</p>
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Figure 2.6 Straight Line Diagram 2



2.2.3 Bridge Structures

There are no bridge structures in the project limits on SR 434 between Ridgeline Road and US 17/92.

2.2.4 Access Management

SR 434 is classified as a Class 5 roadway from Rangeline Road to CR 427 (Ronald Reagan Boulevard) and is classified as Class 6 from CR 427 (Ronald Reagan Boulevard) to US 17/92, according to the FDOT access management standards. The access class east of US 17/92 is classified as a Class 5 roadway. The driveway spacing for a Class 5 roadway with a posted speed of less than or equal to 45 mph is 245 feet; 1,320 feet between full median openings, 660 feet between directional median openings, and 1,320 feet between signalized intersections. Likewise, the driveway spacing for a Class 6 roadway with a posted speed of less than or equal to 45 mph is 245 feet; 1,320 feet between full median openings, 660 feet between directional median openings, and 1,320 feet between signalized intersections. Each of these spacing requirements are found on Error! Reference source not found..

Table 2-1 FDOT Spacing Criteria

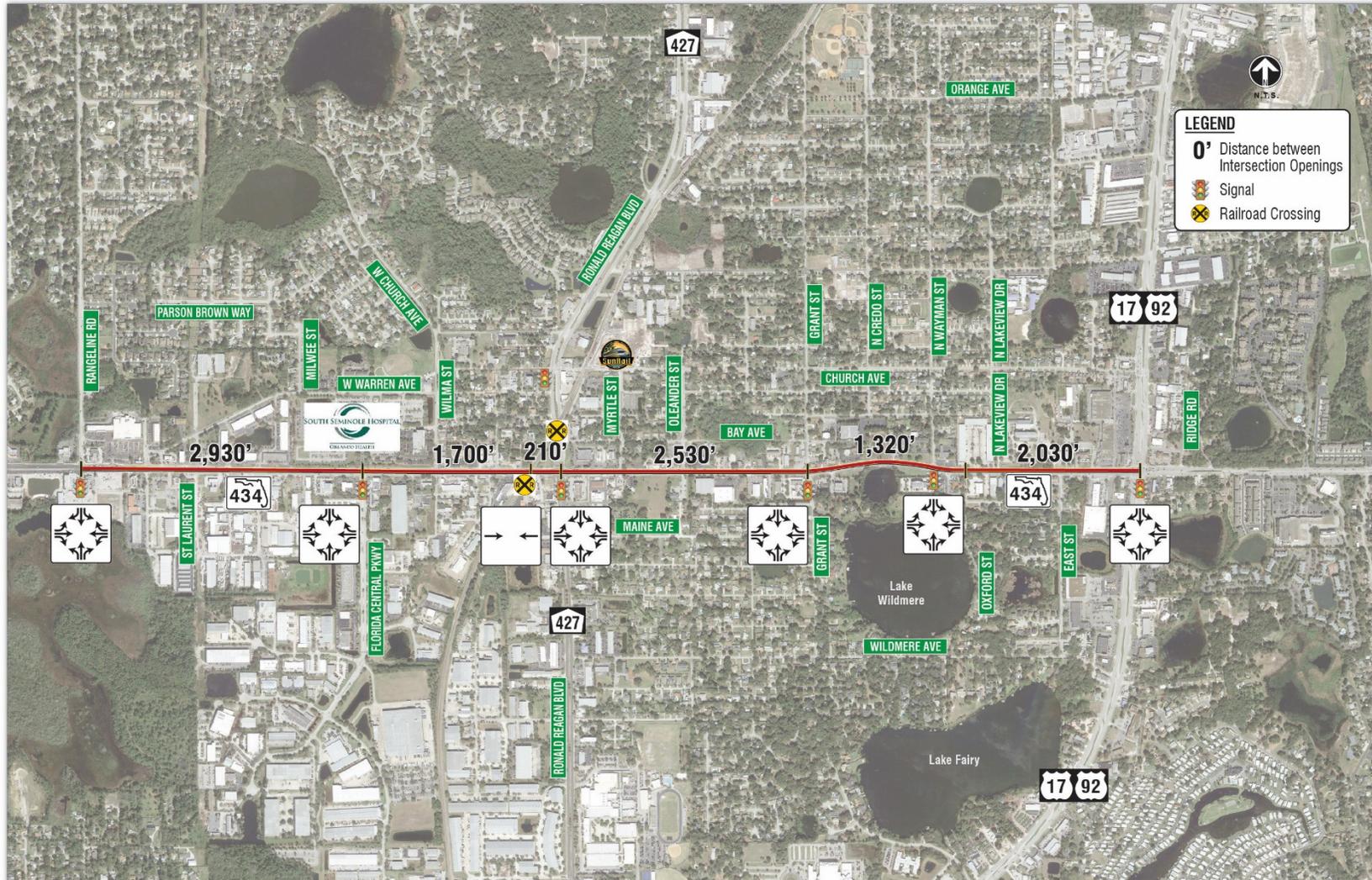
Class	Medians	Median Openings		Signal	Connection	
		Full	Directional		More than 45 MPH Posted Speed	45 MPH and less Posted Speed
2	Restrictive w/Service Roads	2,640	1,320	2,640	1,320	660
3	Restrictive	2,640	1,320	2,640	660	440
4	Non-Restrictive			2,640	660	440
5	Restrictive	2,640 at > 45 MPH Posted Speed	660	2,640 at > 45 MPH Posted Speed	440	245
		1,320 at < 45 MPH Posted Speed		1,320 at < 45 MPH Posted Speed		
6	Non-Restrictive			1,320	440	245
7	Both Median Types	660	330	1,320	125	125

Median and intersection spacing was measured centerline to centerline, as illustrated in the typical section in **Figure 2.7**. The portion of the corridor from Rangeline Road to CR 427 has medians while the portion from CR 427 to US 17-92 has a center turn lane.

Figure 2.7 depicts the spacing distances between the signalized intersections. The spacing between the railroad crossing and CR 427 (Ronald Reagan Blvd) was the only section that did not meet intersection spacing requirements due to the railroad being in existence first. This section creates traffic issues that frustrates many motorists. The trouble starts when a southbound SunRail train arrives at the Longwood station, causing the crossing gates to drop at three busy railroad intersections (Church Ave. Ronald Reagan Blvd., and SR 434) all within 300 yards of each other. FDOT is coordinating with the County and City for potential solutions to the issue.

The driveway spacing was approximately measured from the edge of driveway curb to the edge of driveway curb. **Figure 2.8** illustrates the existing driveway spacing along the study corridor. Many of the driveway segments do not satisfy the FDOT requirements.

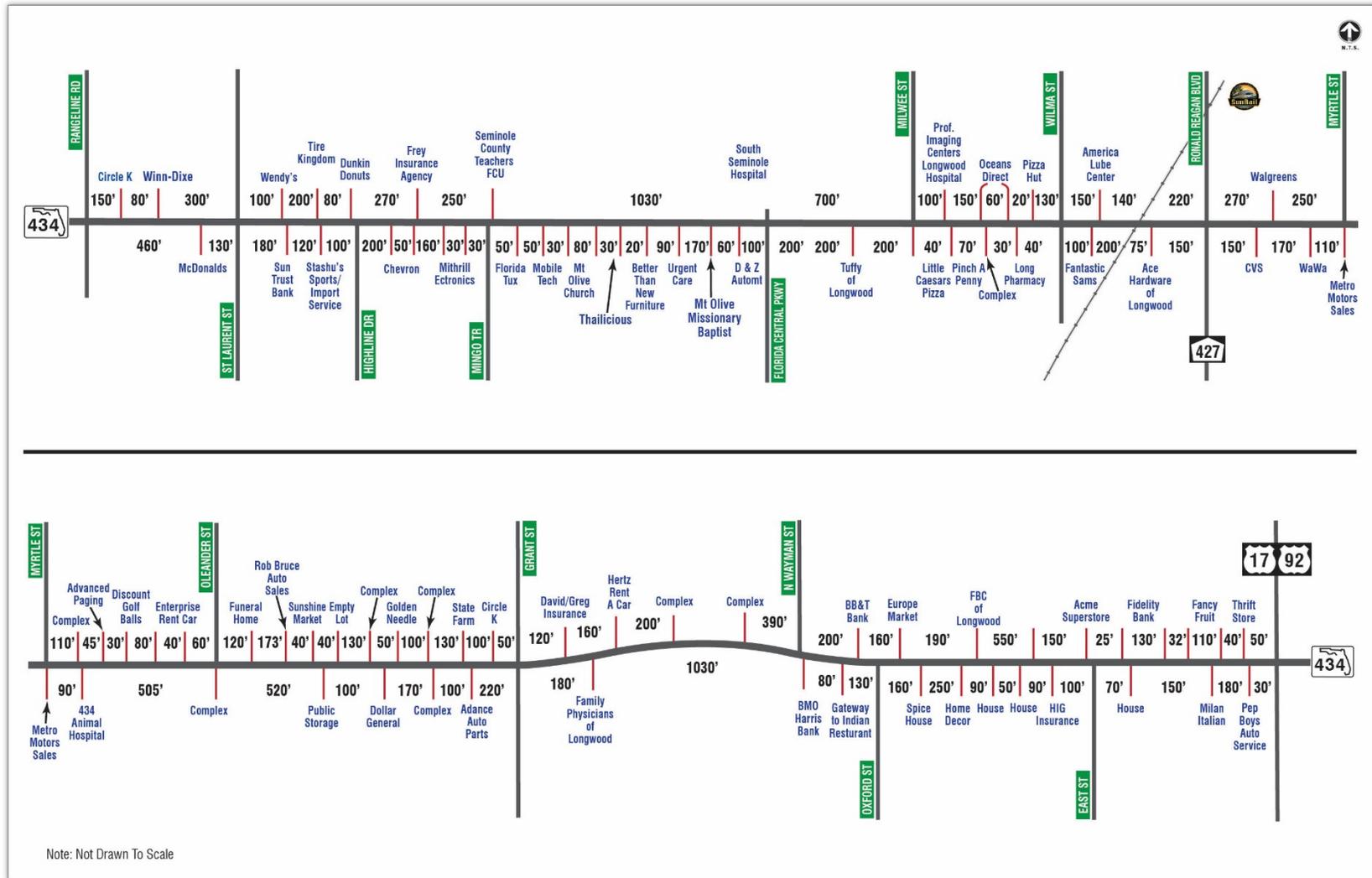
Figure 2.7 Existing Intersection Openings



SR 434 Corridor Study
Rangeline Road to Highway 17/92

Existing Intersection Openings

Figure 2.8 Existing Driveway Spacing



SR 434 Corridor Study
Rangeline Road to Highway 17/92

Existing Driveway Spacing

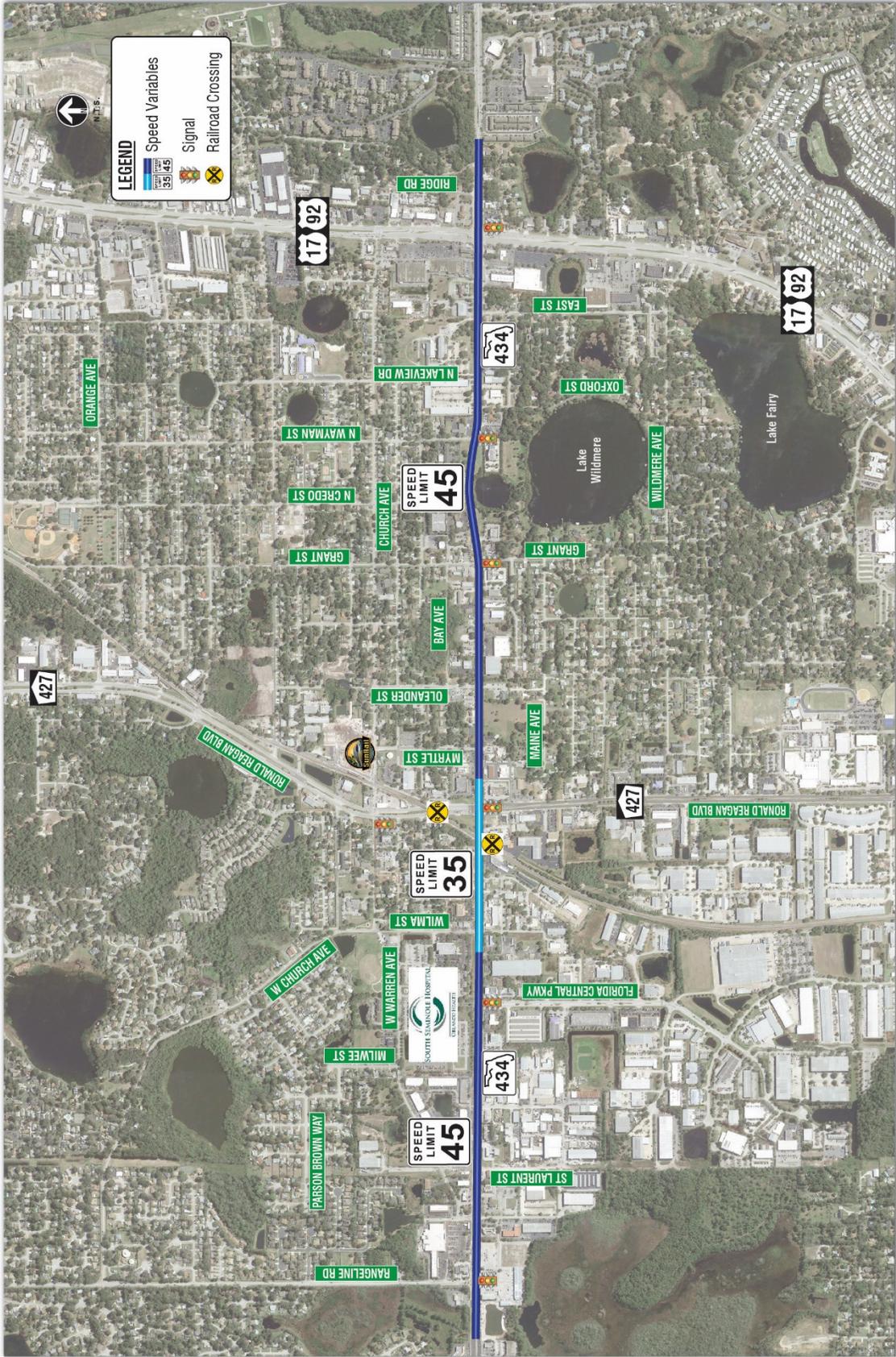
2.2.5 Speed Limits

The corridor currently has posted speed limits of 45 mph from Rangeline Rd. to just west of Milwee St. and from just west of Myrtle St. to US 17-92. The segment between these two sections (from Milwee St. to Myrtle St.) has a posted speed limit of 35 mph. A table of the existing corridor speed limits are provided in **Table 2-22**. **Figure 2.9** provides a visual map layout of the speed limits along the study corridor.

Table 2-2 Speed Limit Segments

Starting Point	Ending Point	Posted Speed Limit
West of Rangeline Road (MP 6.909)	West of Wilma St (MP 7.708)	45 mph
West of Wilma St (MP 7.708)	West of Myrtle St. (MP 7.927)	35 mph
West of Myrtle St. (MP 7.927)	East of SR 600 (US 17/92) (MP 9.040)	45 mph

Figure 2.9 Speed Limit Variations



Speed Limit Variations

SR 434 Corridor Study
Rangeline Road to Highway 17/92



2.2.6 Parking Inventory

There is no on-street parking throughout the study corridor, all existing parking is provided via private and/or commercial parking lots located along the roadway or behind buildings.

2.2.7 Lighting

Existing street lighting is present throughout the SR 434 corridor, but the locations are scarce and far in between.

2.2.8 Right of Way

Based on the Preliminary Engineering Report and roadway plans, the existing right-of-way widths are:

- Rangeline Road to CR 427 (Ronald Reagan Boulevard): 90 to 100 feet
- CR 427 (Ronald Reagan Boulevard) to US 17-92: 80 feet

2.2.9 Transit Service

The SR 434 study corridor is served by LYNX Transit and SunRail service.

LYNX Service

SR 434 is served by LYNX Route 434 which serves SR 434 from Seminole State College Altamonte Campus to The University of Central Florida. The service runs with 60 minute headways from 5:30 am to 9:30 pm Monday through Friday and 6:00 am to 9:00 pm on Saturday. There is no service on Sundays. Transit stop locations are depicted on the existing conditions map in **Figures 2.10 and 2.11**. Complete LYNX transit maps and schedules, available on the LYNX website www.golynx.com are located in **Appendix A**.

Figure 2.10 Transit Service



Figure 2.11 Transit Service



SunRail Service

SR 434 is also served by SunRail during the week, excluding weekends. The station is located two blocks north of the SR 434 on East Church Ave. The train operates during the weekdays from about 5:00 am until 11:00 pm. In the northbound direction, the train runs every thirty minutes during the peak hours of 6:57 am to 9:57 am and from 4:47 pm to 7:27 pm. The train also runs every thirty minutes from the Longwood station in the southbound direction during peak hours from 5:19 am to 8:19 am and from 3:49 pm to 6:19 pm. Complete SunRail transit maps and schedules, available on the SunRail website www.sunrail.com, are located in **Appendix B**.

2.2.10 Bicycle and Pedestrian Accommodations

Existing Bicycle and Pedestrian Facilities

Some bicycle and pedestrian facilities exist throughout the corridor. Five-foot sidewalks are provided along SR 434 along with crosswalks and pedestrian signals at major intersections. Bike lanes were added west of Rangeline Road where SR 434 has been widened to six lanes. However, there are no bike lanes or multi-use paths along SR 434 within the study area east of Rangeline Road.

Future Bicycle and Pedestrian Facilities

The City of Longwood adopted a Bicycle and Pedestrian Master Plan in September 2012. The master plan includes bicycle, pedestrian, school connectivity, and wayfinding signage elements. Each of these elements includes facility and policy recommendations that were developed based on data analysis, stakeholder input, and public feedback. The recommendations included the following:

- Proposed network of bicycle and multi-use facility connections
- Identified pedestrian needs
- Updated city policies and design guidelines
- Recommended performance measures to guide the city through implementation

The Bicycle and Pedestrian Master Plan included the following recommendations specific to the study corridor:

- Bike lanes on SR 434 west of Rangeline Road (now existing)
- Bike lanes as part of Florida Central Parkway and SR 434 intersection improvements
- Provide bike lanes on the remaining segments of SR 434

Other bicycle improvement recommendations are displayed in **Figures 2.12** and **2.13**. The complete City of Longwood Bicycle and Pedestrian Master Plan can be found in the appendix.

Figure 2.12 Recommended Bicycle Network, City of Longwood Bicycle and Pedestrian Master Plan

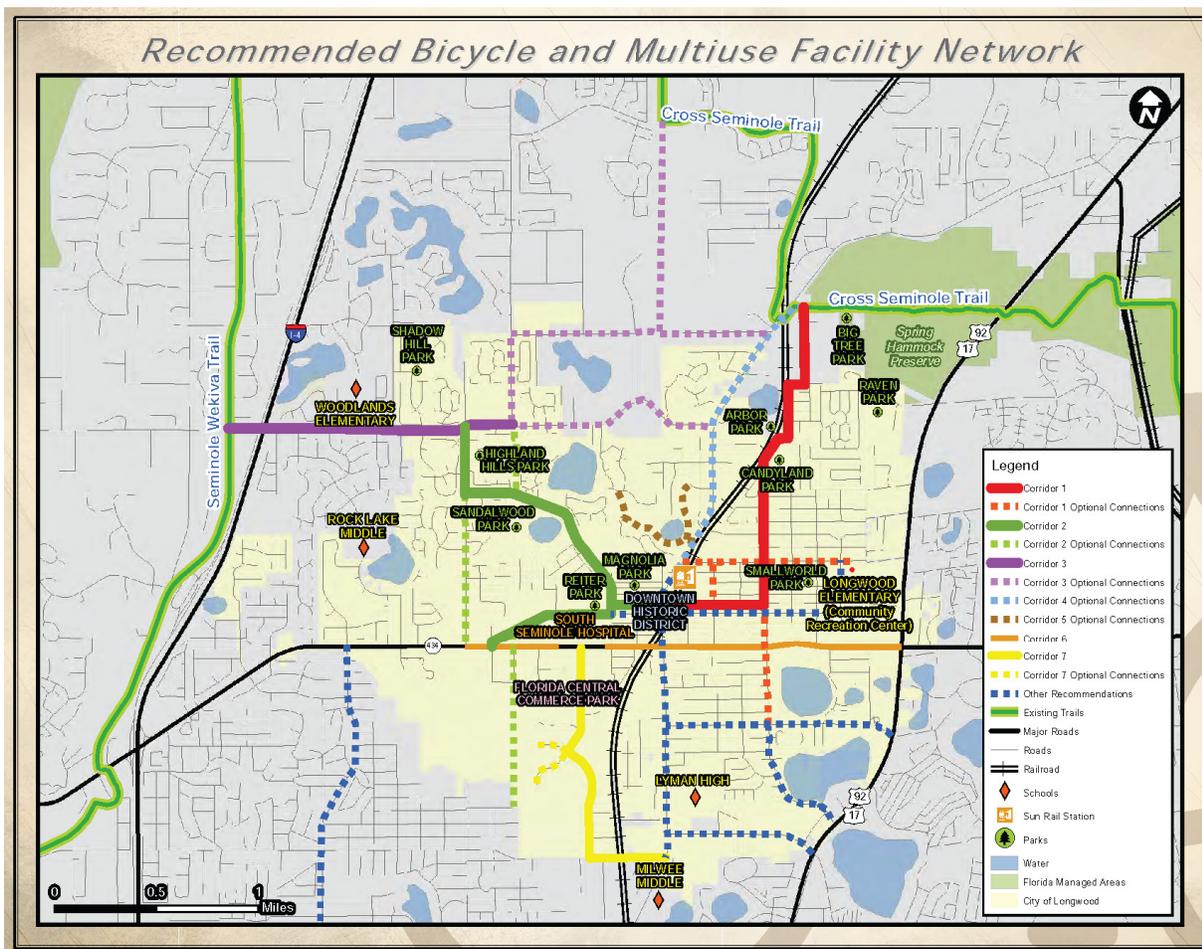
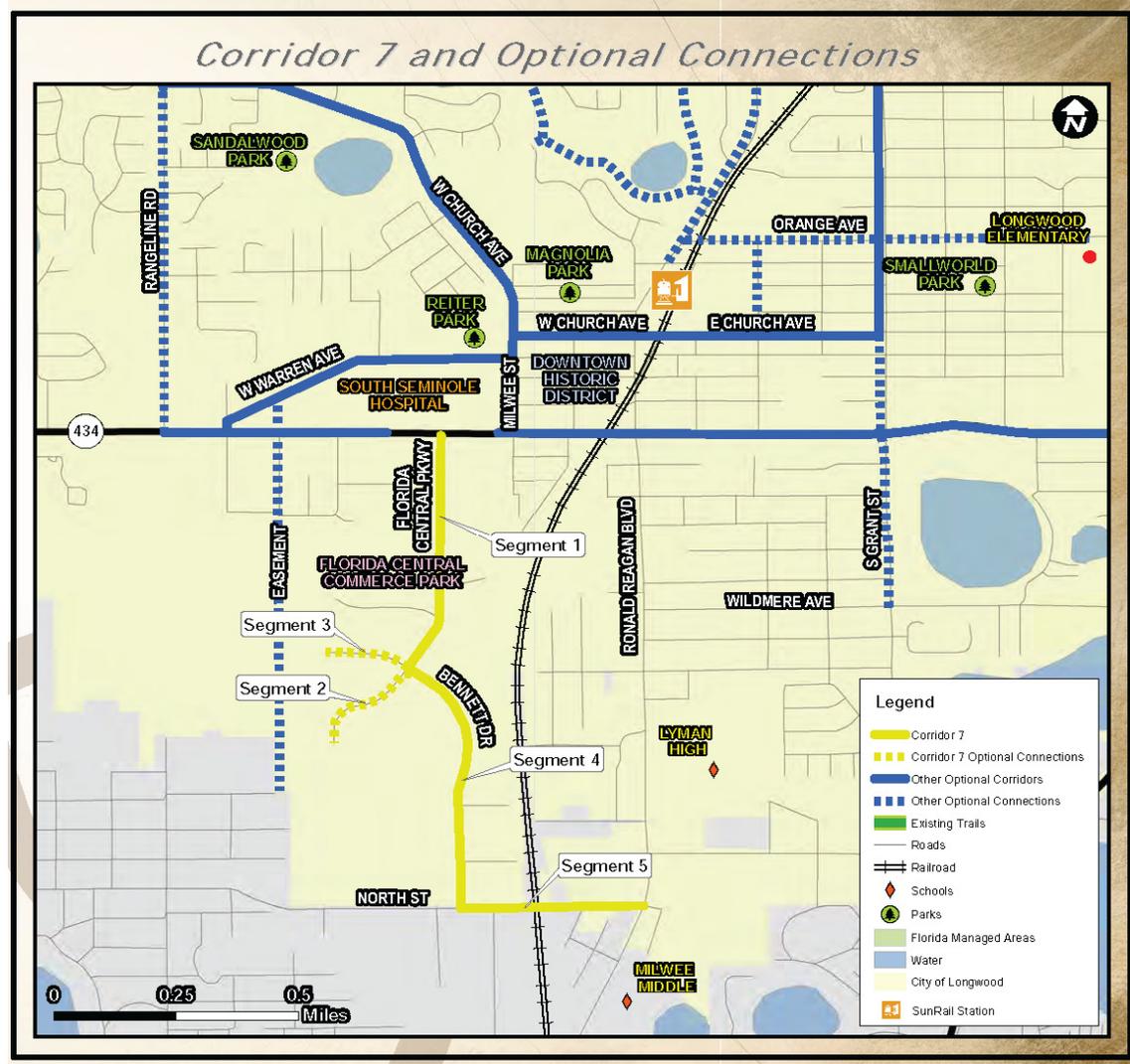


Figure 2.13 Florida Central Parkway Bicycle Element



2.3 Traffic

2.3.1 Traffic Volumes

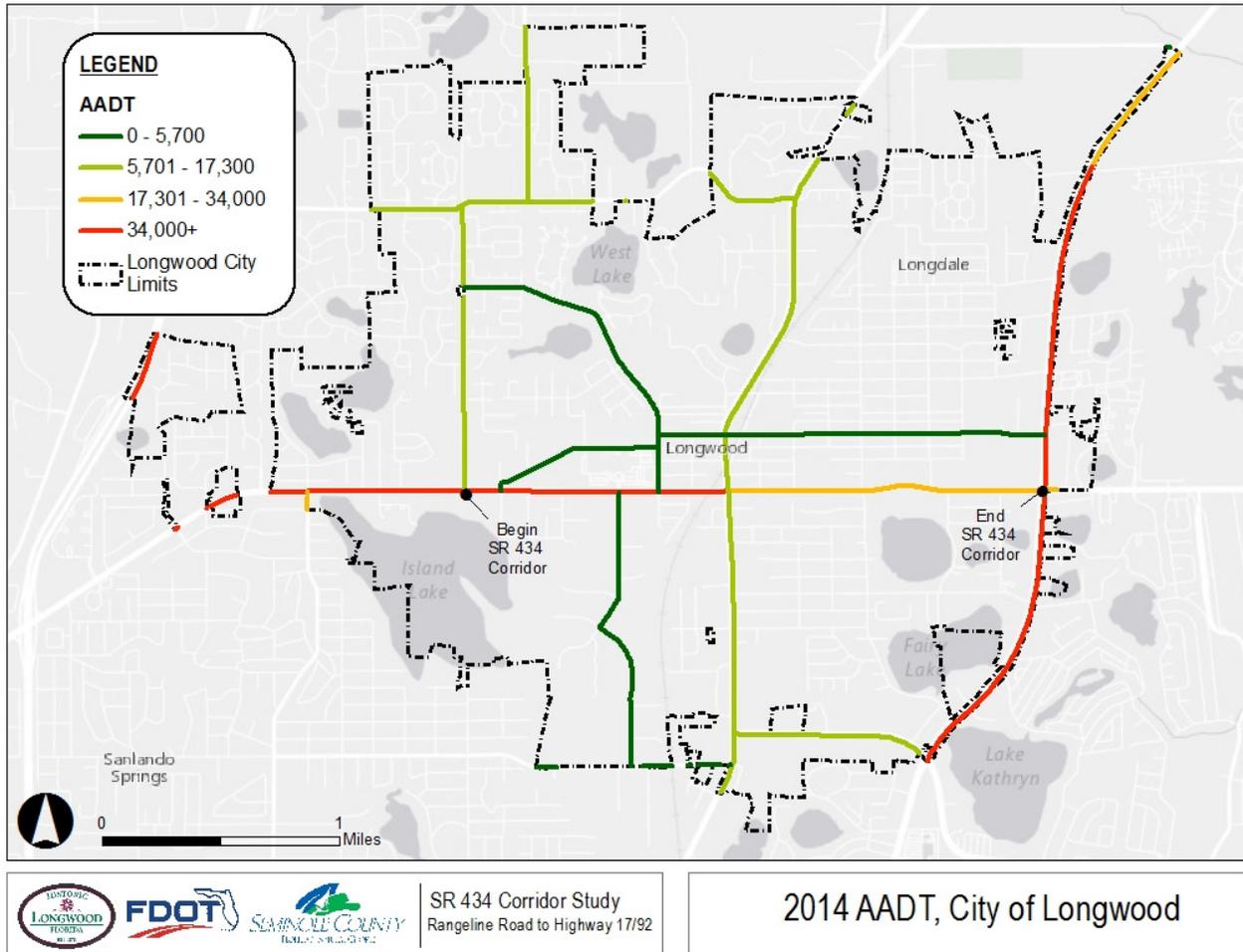
2014 Annual Average Daily Traffic (AADT) volume data within the study area, available via FDOT Florida Traffic Online (www2.dot.state.fl.us/FloridaTrafficOnline), is shown divided into two sections to more accurately classify the traffic system:

- I. From Range Line Road to CR 427 (Ronald Reagan Pkwy) – 38,000 AADT
- II. From CR 427 (Ronald Reagan Pkwy) to U.S. 17/92 – 28,000 AADT

Based on 40 mph or higher, the generalized capacity for a 4 lane divided road with exclusive left turn lanes is 39,800 AADR. At 35 mph or less the capacity is 32,400 AADT. Based on normal growth rate, the capacity will likely be exceeded in the near future.

The 2014 AADT for the City of Longwood is displayed in **Figure 2.14**.

Figure 2.14 City of Longwood AADT, 2014



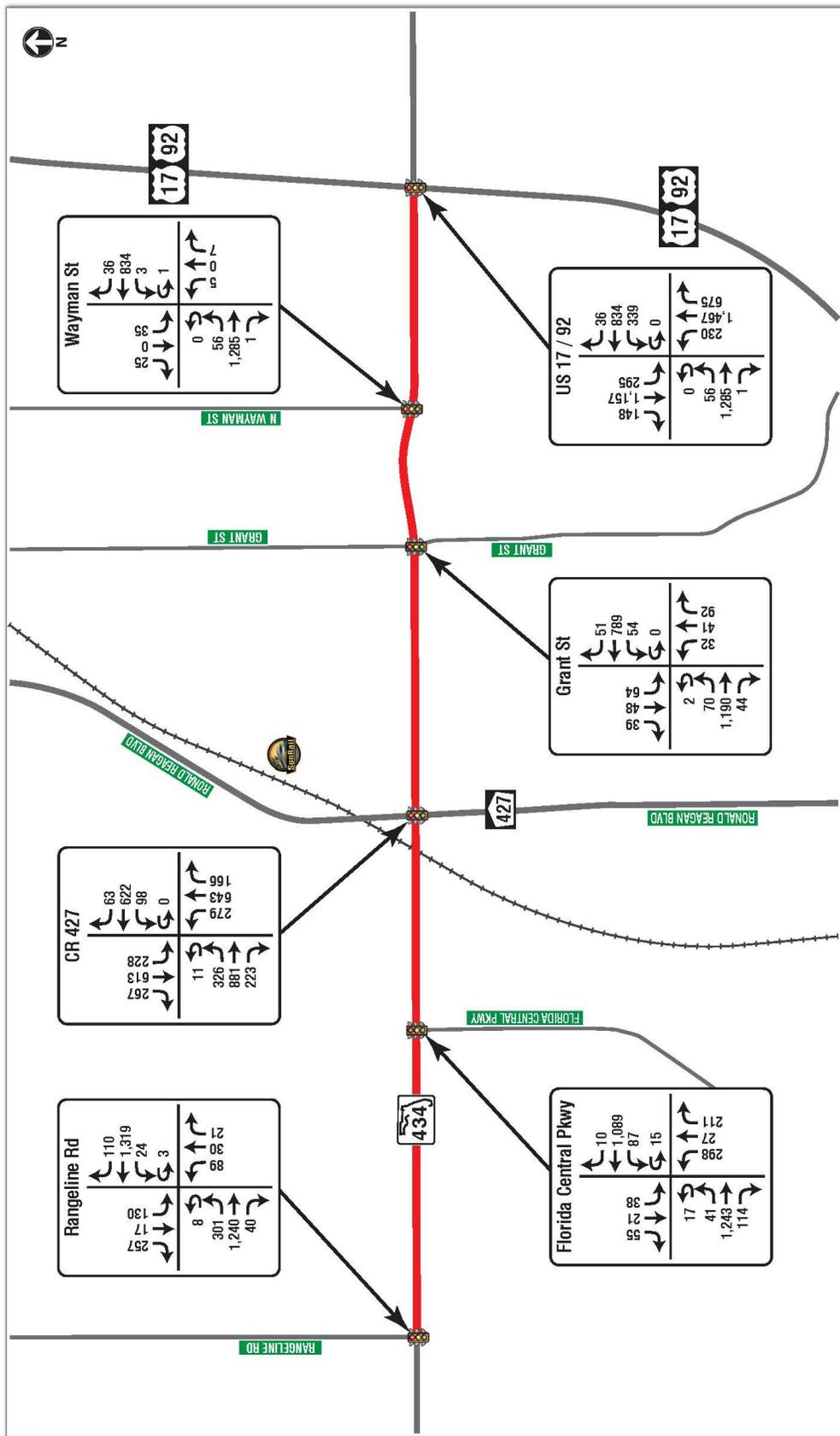
2.3.2 *Traffic Signals and Connectivity*

Within the study area, there are 6 signalized intersections on SR 434.

- Rangeline Road
- Florida Central Parkway
- Longwood Street
- Ronald Reagan Boulevard
- Grant Street
- US 17/92

Figure 2.15 illustrates the intersection lane configurations for all signalized study area intersections.

Figure 2.15 Existing Lane Configurations



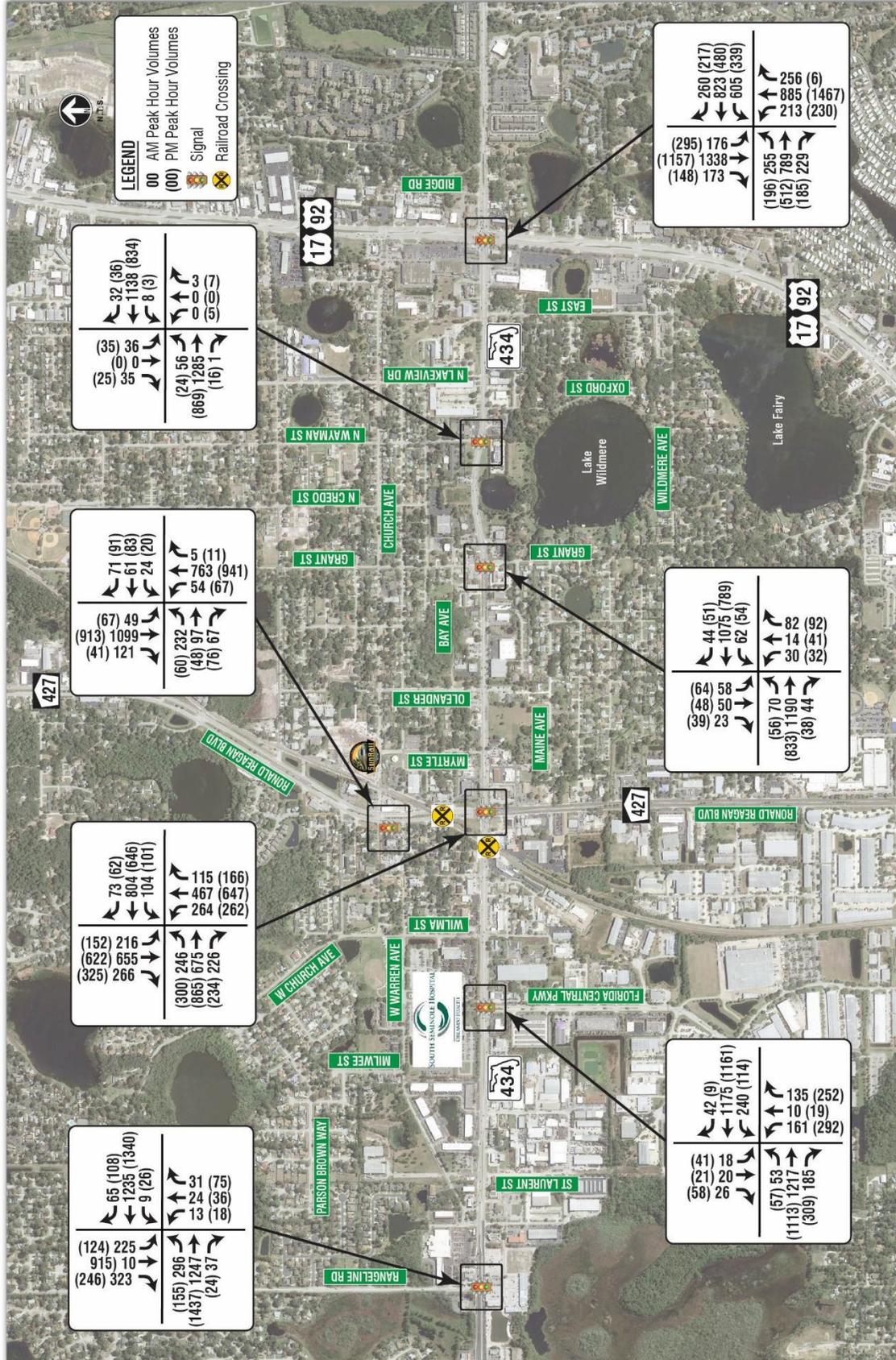
Existing 2015 PM Peak Turning Movements



2.3.3 *Traffic Turning Movements*

Turning movement counts (TMC) were collected on May 21, 2015 at all six signalized study area intersections. Based on the existing traffic volumes, the AM and PM peak hours were 7:45 – 8:45 AM and 4:45 – 5:45 PM respectively. **Figure 2.16** illustrates the AM and PM peak hour volumes at these six study area intersections. All the traffic volumes, including pedestrian and bicyclist counts, can be found in in the appendix at each of the identified intersections above. A 4 lane divided roadway with exclusive turn lanes has a generalized peak hour directional capacity (LOS D) of 2000 vehicles per hour (for 40 mph or greater) and 1630 (for 35 mph or less). Based on existing counts, all locations are within an acceptable level of service.

Figure 2.16 Existing AM/PM Traffic Volumes



Existing AM/PM Traffic Volumes

SR 434 Corridor Study
Rangeline Road to Highway 17/92



2.3.4 Vehicle Level of Service

The motorized vehicle existing Level of Service (LOS) of both intersections and segments of SR 434 was evaluated. The roadway LOS measures the quality of traffic service users can expect based on what is generally acceptable for delay and traffic density.

Intersection LOS: Existing (2015) Conditions

The LOS is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, LOS A, to very poor, represented by LOS F. The existing intersection LOS was analyzed according to Highway Capacity Manual 2010 standards. Synchro 9 was used to perform the intersection capacity analysis at the study intersections. Synchro is macroscopic analysis and optimization software application approved by the Federal Highway Administration (FHWA) and by the Florida Department of Transportation (FDOT) that applies methodology in the Highway Capacity Manual 2010 edition to determine intersection Level of Service (LOS). **Table 2.3** below lists the AM peak LOS of each intersection broken down by approaches and intersection values. The corridor was analyzed during the daily peak traffic hour which occurred from 7:45-8:45 AM. The most recent signal timings and vehicle turning movement counts were used.

Table 2.3 SR 434 Intersection Level of Service – Existing (2015) AM Peak

Cross Street	Type	Eastbound Approach	Westbound Approach	Northbound Approach	Southbound Approach	Intersection
Range Line Road	Delay	32.0	25.1	106.8	109.9	42.1
	LOS	C	C	F	F	D
Florida Central Pkwy	Delay	53.8	40.5	85.2	85.7	49.9
	LOS	D	D	F	F	D
Ronald Reagan Blvd	Delay	59.1	77.7	69.9	109.1	80.1
	LOS	E	E	E	F	F
Grant St	Delay	12.8	14.5	34.2	40.3	16.0
	LOS	B	B	C	D	B
Wayman St	Delay	8.1	9.4	38.3	42.2	10.0
	LOS	A	A	D	D	A
US 17/92	Delay	102.5	73.6	59.2	194.5	112.0
	LOS	F	E	E	F	F

During the AM peak hour, the intersections of SR 434 and Ronald Reagan Boulevard and SR 434 and US 17/92 are operating at an overall unacceptable level of service, LOS F. The adopted level of service standard is LOS D. The overall intersection delay at these two intersections are 80.1 seconds for the intersection of SR 434 and Ronald Reagan Boulevard and 112.0 seconds for the intersection of SR 434 and US 17/92.

The following table, **Table 2-4** is the existing, 2015, PM peak hour intersection level of service and delay. The PM peak hour for this analysis occurred from 4:45-5:45 PM.

Table 2-4 SR 434 Intersection Level of Service – Existing (2015) PM Peak

Cross Street	Type	Eastbound Approach	Westbound Approach	Northbound Approach	Southbound Approach	Intersection
Range Line Road	Delay	38.4	41.6	92.4	93.5	46.0
	LOS	D	D	F	F	D
Florida Central Pkwy	Delay	38.5	33.2	84.5	95.4	45.4
	LOS	D	C	F	F	D
Ronald Reagan Blvd	Delay	72.0	80.7	74.6	88.0	78.4
	LOS	E	F	E	F	E
Grant St	Delay	18.3	14.4	35.6	44.2	19.3
	LOS	B	B	D	D	B
Wayman St	Delay	8.7	8.0	43.4	46.5	9.7
	LOS	A	A	D	D	A
US 17/92	Delay	87.8	79.5	71.0	65.5	74.2
	LOS	F	E	E	E	E

During the PM peak hour, the intersections of SR 434 and Ronald Reagan Boulevard and SR 434 and US 17/92 are operating at an overall unacceptable level of service, LOS E. The adopted level of service standard is LOS D. The overall intersection delay at these two intersections are 78.4 seconds for the intersection of SR 434 and Ronald Reagan Boulevard and 74.2 seconds for the intersection of SR 434 and US 17/92. Due to the close proximity of the railroad crossing to the intersection of SR 434 and Ronald Reagan Boulevard and the SunRail schedule, level of service decreases and delays increase.

Intersection LOS: Future (2020) Conditions

The future (2020) intersection LOS was analyzed according to Highway Capacity Manual 2010 standards. Synchro 9 was used to perform the intersection capacity analysis at the study intersections. **Table 2-5** below lists the 2020 AM peak LOS of each intersection broken down by approaches and intersection values. The future traffic volumes used to perform the future traffic analysis were grown by a 2% annual growth rate and committed roadway projects were input into the analysis.

Table 2-5 SR 434 Intersection Level of Service – Future (2020) AM Peak

Cross Street	Type	Eastbound Approach	Westbound Approach	Northbound Approach	Southbound Approach	Intersection
Range Line Road	Delay	26.0	35.2	71.8	103.9	39.5
	LOS	C	D	E	F	D
Florida Central Pkwy	Delay	16.2	16.3	70.1	68.5	22.5
	LOS	B	B	E	E	C
Ronald Reagan Blvd	Delay	51.8	84.4	67.5	81.8	71.0
	LOS	D	F	E	F	E
Grant St	Delay	28.0	30.9	45.7	63.4	32.8
	LOS	C	C	D	E	C
Wayman St	Delay	5.8	14.4	62.5	68.6	12.5
	LOS	A	B	E	E	B
US 17/92	Delay	92.0	71.0	66.7	60.3	69.9
	LOS	F	E	E	E	E

During the 2020 AM peak hour, the intersections of SR 434 and Ronald Reagan Boulevard and SR 434 and US 17/92 are anticipated to operate at an overall unacceptable level of service, LOS E. The adopted level of service standard is LOS D. The overall intersection delay at these two intersections are 71.0 seconds for the intersection of SR 434 and Ronald Reagan Boulevard and 69.9 seconds for the intersection of SR 434 and US 17/92. The following table, **Table 2-6** is the future, 2020, PM peak hour intersection level of service and delay.

Table 2-6 SR 434 Intersection Level of Service – Future (2020) PM Peak

Cross Street	Type	Eastbound Approach	Westbound Approach	Northbound Approach	Southbound Approach	Intersection
Range Line Road	Delay	30.4	43.5	72.8	111.9	43.9
	LOS	C	D	E	F	D
Florida Central Pkwy	Delay	28.8	30.6	68.1	75.7	37.2
	LOS	C	C	E	E	D
Ronald Reagan Blvd	Delay	64.5	81.2	72.9	78.6	72.9
	LOS	E	F	E	E	E
Grant St	Delay	27.2	20.8	48.0	66.7	28.4
	LOS	C	C	D	E	C
Wayman St	Delay	7.5	9.5	62.2	68.1	10.2
	LOS	A	A	E	E	B
US 17/92	Delay	93.2	70.4	74.3	60.2	73.6
	LOS	F	E	E	E	E

During the 2020 PM peak hour, the intersections of SR 434 and Ronald Reagan Boulevard and SR 434 and US 17/92 are anticipated to operate at an overall unacceptable level of service, LOS E. The adopted level of service standard is LOS D. The overall intersection delay at these two intersections are 72.9 seconds for the intersection of SR 434 and Ronald Reagan Boulevard and 73.6 seconds for the intersection of SR 434 and US 17/92.

Intersection LOS: Future (2040) Conditions

The future (2040) intersection LOS was analyzed according to Highway Capacity Manual 2010 standards. Synchro 9 was used to perform the intersection capacity analysis at the study intersections. **Table 2-7** below lists the 2020 AM peak LOS of each intersection broken down by approaches and intersection values. The future traffic volumes used to perform the future traffic analysis were grown by a 2% annual growth rate and committed roadway projects were input into the analysis.

Table 2-7 SR 434 Intersection Level of Service – Future (2040) AM Peak

Cross Street	Type	Eastbound Approach	Westbound Approach	Northbound Approach	Southbound Approach	Intersection
Range Line Road	Delay	39.7	37.1	77.4	130.5	49.8
	LOS	D	D	E	F	D
Florida Central Pkwy	Delay	21.2	23.3	81.5	75.2	29.0
	LOS	C	C	F	E	C
Ronald Reagan Blvd	Delay	79.7	128.0	108.6	140.0	113.0
	LOS	E	F	F	F	F
Grant St	Delay	34.4	30.4	44.0	72.4	35.7
	LOS	C	C	D	E	D
Wayman St	Delay	12.1	9.8	65.5	72.9	12.8
	LOS	B	A	E	E	B
US 17/92	Delay	154.1	125.1	107.6	94.2	115.9
	LOS	F	F	F	F	F

During the 2040 AM peak hour, the intersections of SR 434 and Ronald Reagan Boulevard and SR 434 and US 17/92 are anticipated to operate at an overall unacceptable level of service, LOS F. The adopted level of service standard is LOS D. The overall intersection delay at these two intersections are 113.0 seconds for the intersection of SR 434 and Ronald Reagan Boulevard and 115.9 seconds for the intersection of SR 434 and US 17/92. The following table, **Table 2-8** is the future, 2040, PM peak hour intersection level of service and delay.

Table 2-8 SR 434 Intersection Level of Service – Future (2040) PM Peak

Cross Street	Type	Eastbound Approach	Westbound Approach	Northbound Approach	Southbound Approach	Intersection
Range Line Road	Delay	38.3	48.5	145.6	92.7	50.6
	LOS	D	D	F	F	D
Florida Central Pkwy	Delay	42.1	51.0	92.1	107.3	55.6
	LOS	D	D	F	F	E
Ronald Reagan Blvd	Delay	105.0	120.4	130.4	143.3	122.3
	LOS	F	F	F	F	F
Grant St	Delay	32.4	26.9	54.0	98.1	35.7
	LOS	C	C	D	F	D
Wayman St	Delay	10.3	9.6	73.5	82.8	12.4
	LOS	B	A	E	F	B
US 17/92	Delay	169.0	112.0	101.6	87.8	112.8
	LOS	F	F	F	F	F

During the 2040 PM peak hour, the intersections of SR 434 and Ronald Reagan Boulevard, SR 434 and Florida Central Parkway, and SR 434 and US 17/92 are anticipated to operate at an overall unacceptable level of service, LOS E or F. The adopted level of service standard is LOS D. The overall intersection delay at these two intersections are 122.3 seconds for the intersection of SR 434 and Ronald Reagan Boulevard, 55.6 seconds for the intersection of SR 434 and Florida Central Parkway and 112.8 seconds for the intersection of SR 434 and US 17/92.

2.3.5 Pedestrian and Bicyclist Volumes

On May 15, 2015, a pedestrian and bicyclist traffic study was conducted for the City of Longwood. All pedestrian and bicyclist movements were monitored and collected for 24 hours from TMC cameras at each of the following 6 locations:

1. Church St. at Parking Lot (**Figure 2.17**)
2. Church St. at Train Station (**Figure 2.17**)
3. Church St. at CR 427 (**Figure 2.18**)
4. Longwood St. at CR 427 (**Figure 2.19**)
5. SR 434 at CR 427 north corner (**Figure 2.20**)
6. SR 434 at CR 427 south corner (**Figure 2.20**)

At each of the camera locations listed above, there are corresponding figures that display the movements on a map and a table that documents the traffic counts. The raw data for this study can be found in the appendix.

Figure 2.17 Locations #1 and #2 Pedestrian and Bicyclist Movements



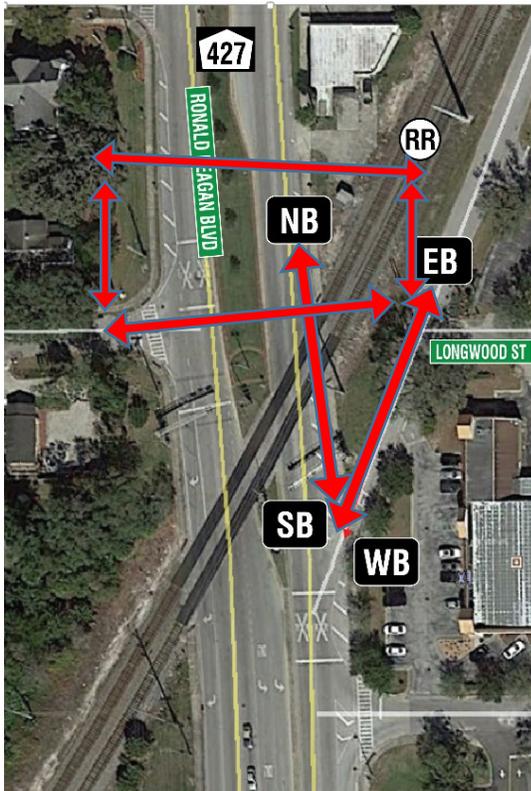
Locations #1 and #2		
Movement	Pedestrian Volume	Bicyclist Volume
1	42	8
1A	23	2
2	10	10
2A	30	14
3	9	4
3A	65	5
4	74	4
4A	61	5
5	57	7
5A	8	2
6	83	4
6A	16	0

Figure 2.18 Location #3 Pedestrian and Bicyclist Movements



Location #3			
Movement	Pedestrian Volume	Bicyclist Volume (Roadway)	Bicyclist Volume (Sidewalk)
NB	20	1	9
SB	48	0	10
EB	18	7	12
WB	59	3	18

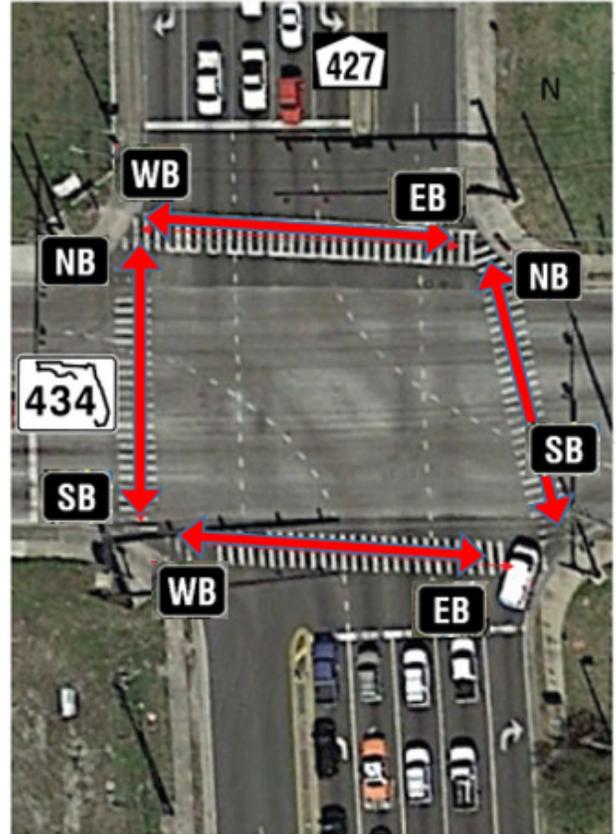
Figure 2.19 Location #4 Pedestrian and Bicyclist Movements



Location #4		
Movement	Pedestrian Volume	Bicyclist Volume
NB	11	6
SB	11	3
EB	50	13
WB	27	16

Figure 2.20 Locations #5 and #6 Pedestrian and Bicyclist Movements

Location #5 and #6			
Movement	Pedestrian Volume	Bicyclist Volume (Roadway)	Bicyclist Volume (Sidewalk)
NB	23	3	16
SB	14	0	16
EB	21	0	22
WB	25	6	21



2.3.6 Alternative Modes Level of Service

Alternative modes including pedestrian, bicycle, and bus modes of transportation were analyzed along the SR 434 corridor. The FDOT Quality/Level of Service Handbook was utilized when determining the level of service for each mode as shown below in **Table 2-9** and **Table 2-10**.

Pedestrian Mode

The pedestrian mode Level of Service (LOS) was determined using sidewalk coverage percentage and adjacent street motorized vehicle volumes. Unlike automobile LOS, which is highly dependent on the number of other motorized vehicles on the roadway, pedestrian LOS is not determined by how many other pedestrians use the facility; rather, it is primarily determined by the presence of sidewalks and the volume of motorized vehicles.

Throughout the corridor the pedestrian mode is currently at LOS 'C' which is a result of having a high percentage of sidewalk coverage and acceptable vehicle volumes along the study location.

Bicycle Mode

Bicycle mode utilizes two factors when determining the LOS: paved shoulder/bicycle lane coverage and the adjacent street motorized vehicle volumes. Unlike automobile LOS, which is highly dependent on the number of other motorized vehicles on the roadway, bicycle LOS is not

determined by how many other bicyclists are on road; rather, it is primarily determined by the bicycle accommodations on the roadway and volume of motorized vehicles.

The LOS for SR 434 is considered to be a 'D' for the section from Ronald Reagan Boulevard to Highway 17/92 and LOS 'E' for all other sections within the study. The lower LOS is due to the lack of bicycle facilities along the corridor.

Bus Mode

The bus mode LOS is dependent upon peak time bus stop frequency and pedestrian accessibility to bus stops. Unlike automobile, bicycle, and pedestrian LOS thresholds, the bus mode LOS thresholds are not related to the number of motorized vehicles on the roadway yet determined by the number of scheduled fixed route buses that have a potential to stop in a given segment in the peak direction of flow in a 1 hour time period

The only bus stop within the study area is one stop near the SR 434 and Highway 17/92 intersection with one bus arriving within the peak hour/peak direction. The bus mode is currently operating at LOS 'E'.

Table 2-9 Bus Mode Level of Service

Peak Hour:	04:45 PM - 05:45 PM
Peak Direction:	Eastbound
Bus Stop Location:	SR 434 & Hwy 17/92
Sidewalk Coverage:	100%
Buses in Peak Hour Direction:	1
Bus Mode LOS:	E

Table 2-10 Pedestrian and Bicycle Level of Service

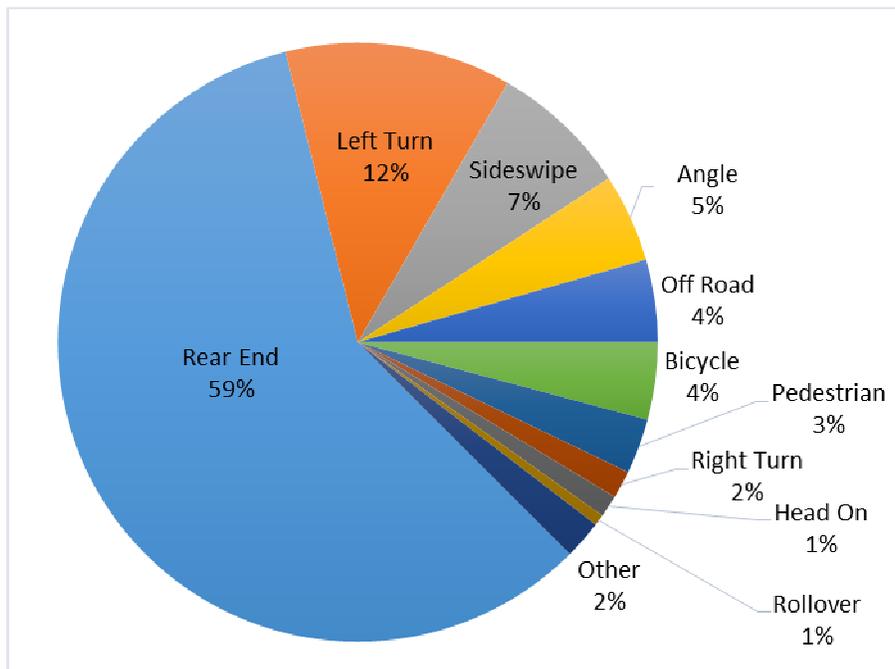
Location	AADT	Sidewalk Coverage	Pedestrian Mode LOS	Paved Shoulder / Bicycle Lane Coverage	Bicycle Mode LOS
SR 434 - SR 400 to Florida Central Pkwy	42,000	100%	C	0%*	E
SR 434 - Florida Central Pkwy to Ronald Reagan Blvd	38,000	100%	C	0%*	E
SR 434 - Ronald Reagan to US 17/92	28,000	100%	C	0%*	D
SR 434 east of US 17/92	33,500	100%	C	0%*	E

*0% indicates there is no paved shoulder bicycle lane coverage.

2.3.7 Crash and Safety Summary

Five years of crash data was collected and reviewed for the corridor from January 2009 - December 2013. In this period a total of 336 crashes were reported, which consisted of 1 Fatal (0.3%), 170 (50.6%) Injury, and 165 (49.1%) Property Damage Only (PDO) crashes. **Figure 2.21** below highlights the percentages of crash types and conditions.

Figure 2.21 SR 434 Crash Types



Of the 336 crashes reported, the leading crash type (59%) involved rear-end collisions. The second highest occurring crash type was left turn crashes, which composed 41 (12%) of the total incidents. 170 (50.4%) of all crashes occurred at an intersection, and 67 (19.9%) of crashes occurred within the intersection influence area.

Two segments within the study area appear on the 2009-2013 statewide high crash list. The section of SR 434 from Wilma Street to Myrtle Street is ranked 548th with a crash rate of 5.287 crashes per million vehicle miles. The second most severe section within the study area is SR 434 from 570 feet west of US 17/92 to 230 feet west of Sunshadow Drive, which is ranked 968th with a crash rate of 3.20 crashes per million vehicle miles. The statewide average rate for this segment type is 1.936 crashes per million vehicle miles.

High Crash Segments

Two segments within the study area appear on the 2009-2013 statewide high crash list. The section of SR 434 from Wilma Street to Myrtle Street is ranked 548th with a crash rate of 5.287 crashes per million vehicle-miles. The second most severe section within the study area is SR 434 from 570 feet west of US 17/92 to 230 feet west of Sunshadow Drive which is ranked 968th with a crash rate of 3.270 crashes per million vehicle-miles. The statewide average rate for this segment type is 1.936 crashes per million vehicle-miles. **Figure 2.22** displays the crash frequency locations within the project area from 2009-2016.

High Crash Intersection

The intersection of SR 434 and County Road 427 (Ronald Regan Boulevard) is ranked 552nd statewide with a crash rate of 0.937 crashes per million entering vehicles. The average crash rate for this intersection is 0.340 crashes per million entering vehicles. **Figure 2.23** depicts the total number of crashes at intersections along the corridor.

Figure 2.22: Crash Types

<u>Crash Type</u>	<u>Crashes</u>
Rear End	197
Left Turn	41
Sideswipe	25
Angle	16
Off Road	15
Bicycle	14
Pedestrian	10
Right Turn	5
Head On	4
Rollover	2
Other	7

<u>Severity</u>	<u>Crashes</u>
Fatal	1
Injury	170
PDO	165
Total:	336

Pedestrian and Bicycle Crashes

Figures 2.24 and **2.25** exhibit the bicycle and pedestrian crash locations. The original collected crash data is included in the appendix.

Figure 2.23 Crash Locations and Frequency, 2009-2016

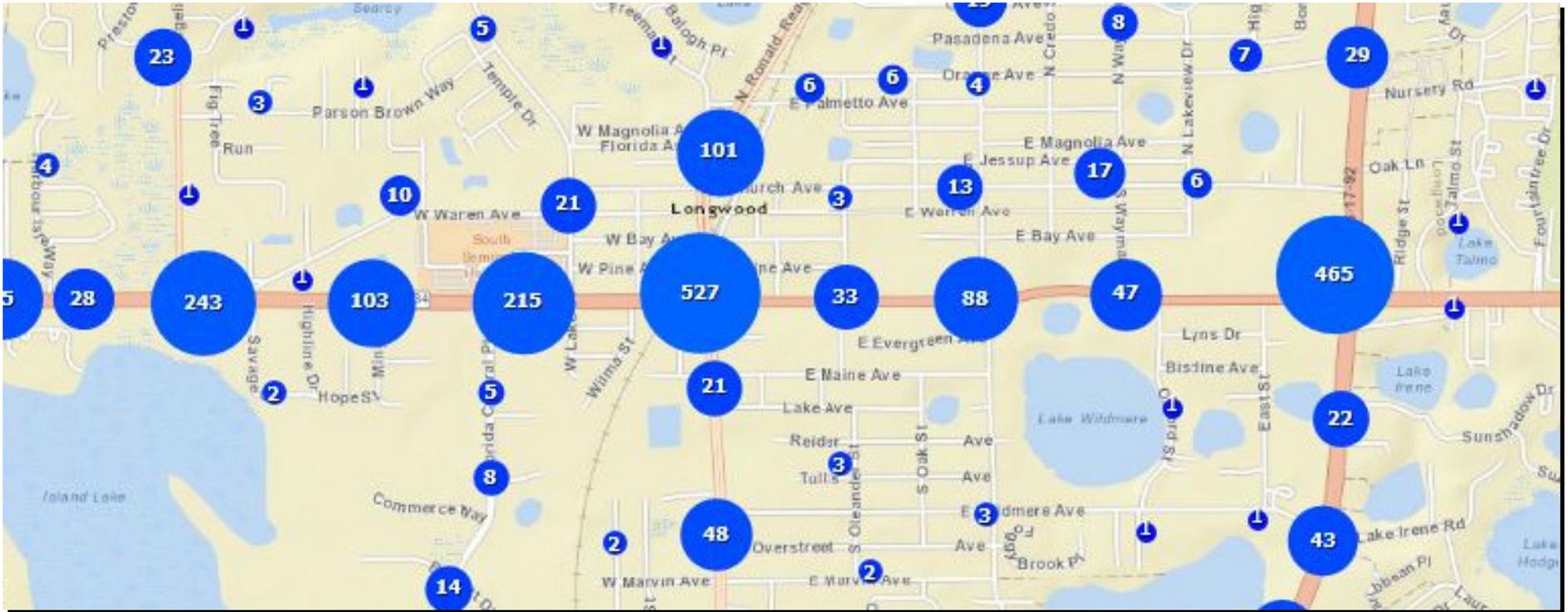
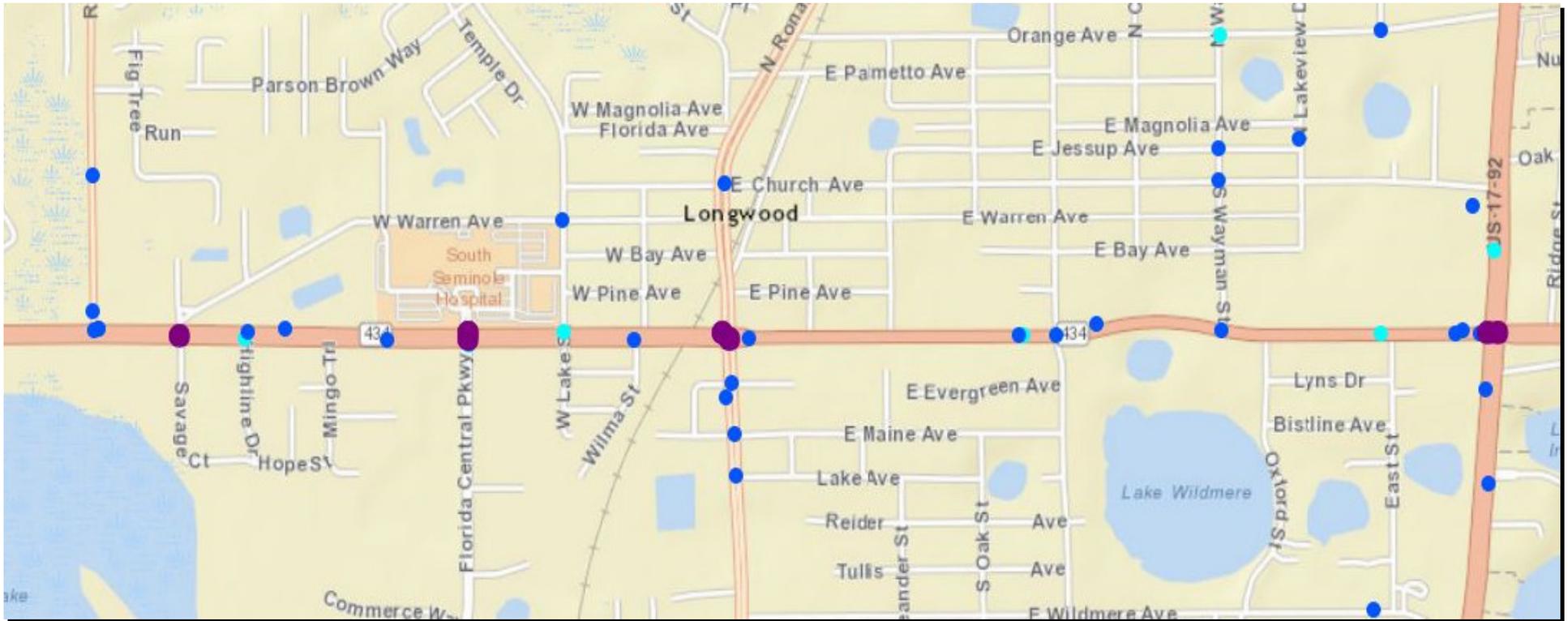
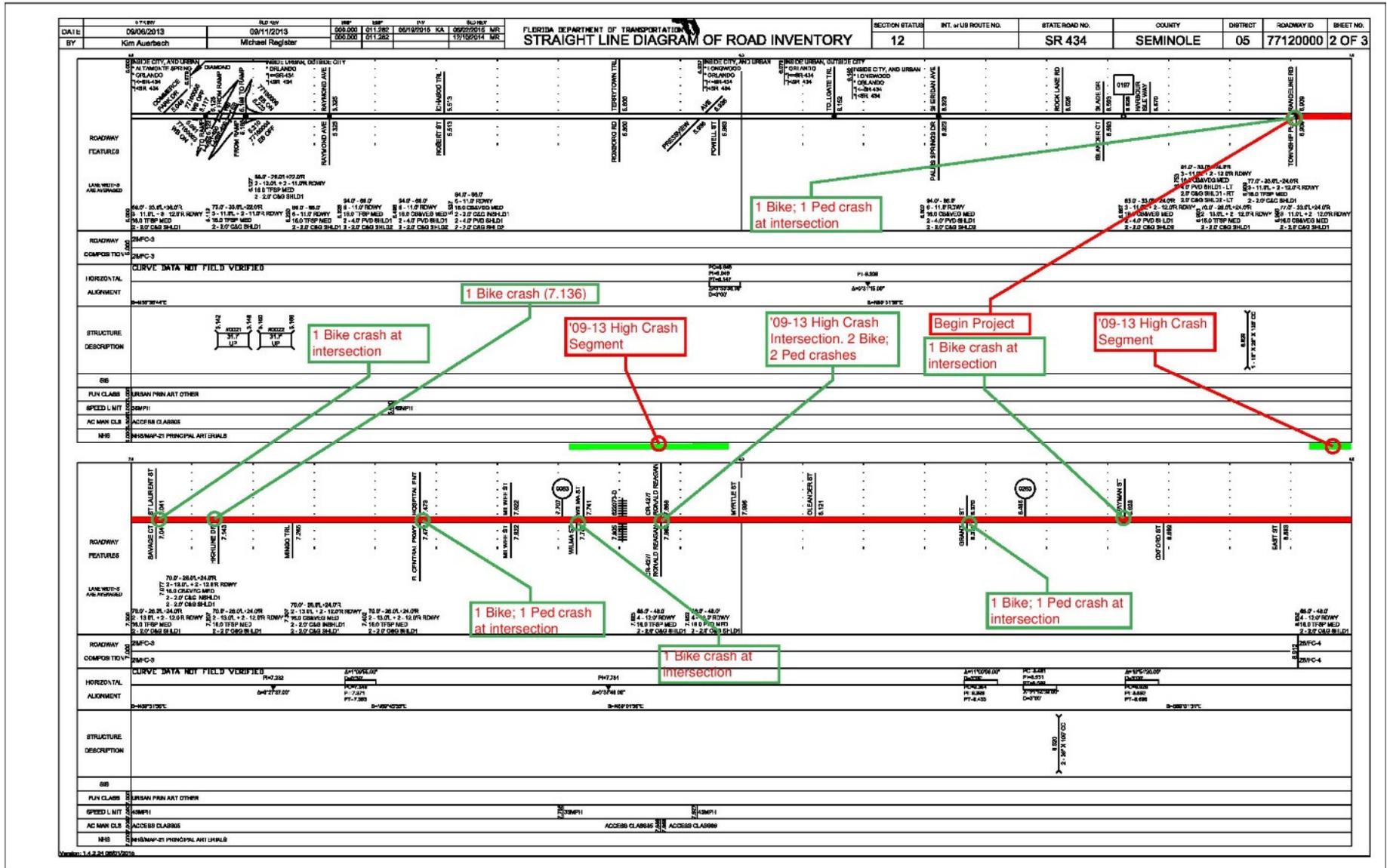


Figure 2.24 Bicycle and Pedestrian Crash Locations, 2009-2016



- Injury
- Property Damage Only
- Multiple Events

Figure 2.25 Straight Line Diagram with Pedestrian and Bicycle Crash Details



2.3.8 Issues and Concerns

Various locations throughout the corridor were observed for operational and safety issues during a project visioning team field review. The following issues and concerns were identified during the review and represented the views of the field team:

- Along the study corridor on SR 434, conditions are unfavorable for pedestrian and cyclists. There are no bike lanes, and the existing sidewalks located adjacent to the corridor are 5 feet wide. Although the standard sidewalk width is 5 feet according to FDOT standards, it is desirable to create wider sidewalks in business districts, near transit stops, or where a pedestrian atmosphere is encouraged, in particular, a heavily used bus stop on the north side of SR 434 near US 17-92. This stop has no seats, overhead cover, and is directly adjacent to utility infrastructure.
- The bus stops along SR 434 are not encouraging for users of the LYNX systems. Improvement of these systems could help the multimodal experience in the project area. Several bus stops are outdated and need to be improved.
- A majority of the south side of the road contains large transmission lines. If corridor widening options are considered, the relocation of these transmission lines is not a desirable option due to the costs.
- The team observed that there was a lack of shade trees along the SR 434 corridor for pedestrian and cyclist benefit. More shade trees would encourage a more multimodal friendly environment.
- Church Avenue would be a good locations for sharrows and a parallel bicycle facility for a SR 434 alternative. The City mentioned that there were previous plans for Church Avenue but that there were issues acquiring ROW.
- During the field review, both pedestrians and bicyclists were observed crossing SR 434 mid-block, as illustrated in **Figure 2.26**.
- There are few shelters provided for the bus stops along SR 434. Also, some of the bus stop signs were placed in crowded areas that were difficult to locate. An example of a bus stop without a shelter and in a poor location without proper ADA accommodations is shown below in **Figure 2.27**.

Figure 2.26 Pedestrians Crossing SR 434 near US 17/92



Photo Credit: Atkins, SR 434 near US 17/92.

Figure 2.27 Bus Stop in Poor Location with No Shelter



Photo Credit: Atkins, SR 434 near US 17/92.

2.4 Environmental Characteristics

2.4.1 Soils

A geotechnical study was performed by Nodarse and Associates as part of the 2001 PD&E Study. A review of the U.S. Department of Agriculture Soil Conservation Services (U.S. D.A.-S.C.S.) Seminole County Florida Soil Survey - Soils Map reveals that Urban Land is the predominant soils group with Tavares - Millhopper Fine Sands representing a minor influence. A study area soils inventory map is depicted in **Figure 2.28**. The Geotechnical Report can be referenced for details on that study.

Separation between the estimated seasonal high groundwater level and a limerock roadway base should be at least 2 feet. The separation recommended between the estimated seasonal high groundwater level and ABC-3 base should be at least 1 foot.

It should be noted that extensive sinkhole activity has occurred within the project limits. One sinkhole occurred in October of 1989 at the intersection of SR 434 and Harbor Isle Way. At about the same time, several sinkholes occurred on private properties close to this location. The potential for sinkholes is not sufficient cause to modify or control the roadway alignment even though the sinkhole potential is higher than average throughout the vicinity. Based on FDOT District 5 experience with sinkhole-related projects, it is recommended that no exfiltration trenches for stormwater treatment be used with the project limits as they may promote sinkhole activity. In addition, grouting may be needed if sinkholes occur before, during, or after construction.

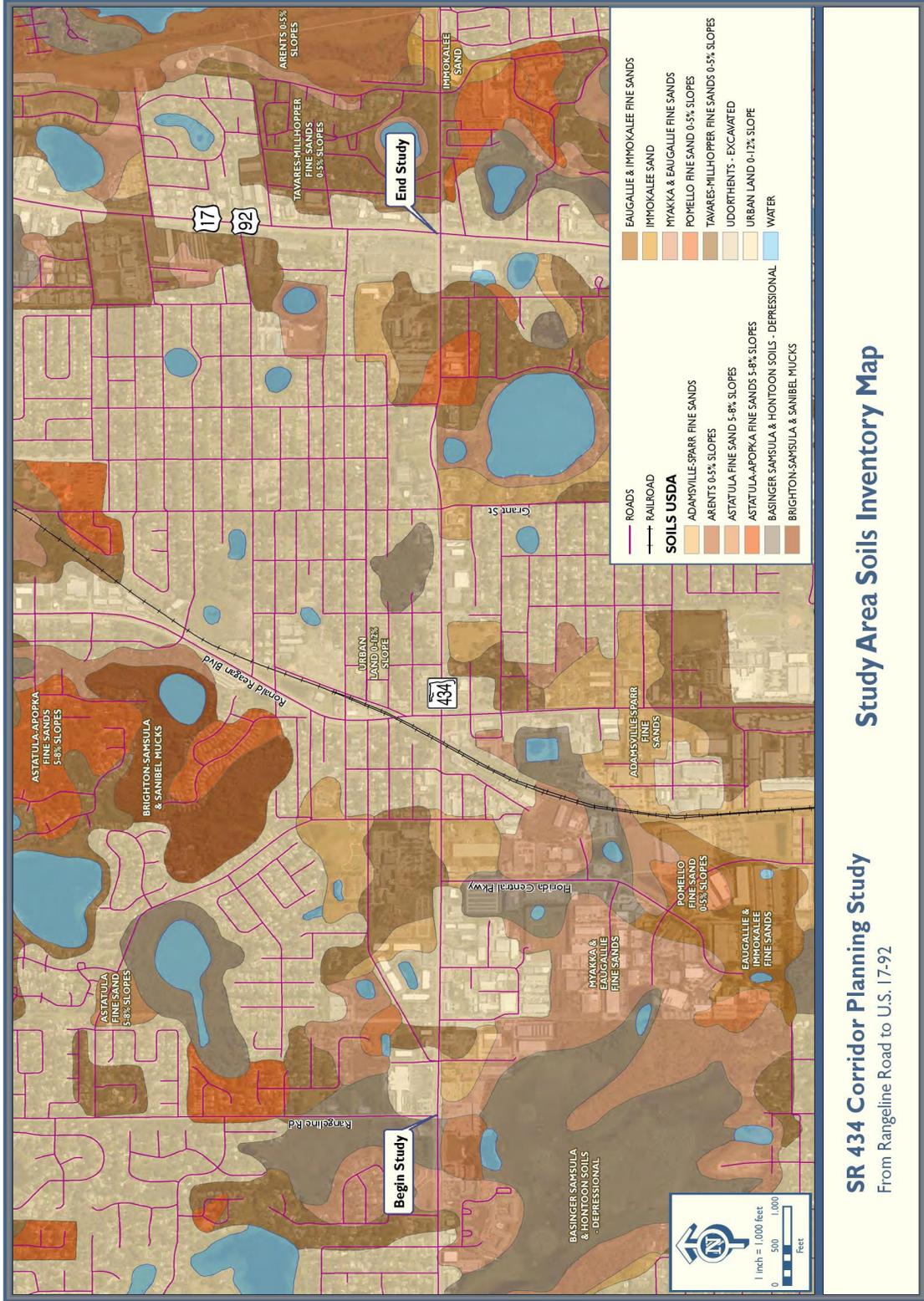
2.4.2 Drainage System Inventory

The project is under the jurisdiction of the St. John's River Water Management District (SJRWMD). Stormwater is collected via a curb and gutter system and conveyed to a closed stormwater management system that outfall to retention ponds along the project. Stormwater treatment is currently provided in retention ponds adjacent to the SR 434 right-of-way. The ponds were constructed prior to much of the existing development along the corridor. Large basin areas shown on the FDOT drainage maps no longer contribute to the roadway drainage system. Any development in the past 35 years would have provided retention systems for additional impervious area. Consequently, the overall drainage basin areas are now significantly smaller than when the system was constructed. According to the Straight Line Diagrams in **Figure 2.25**, there is only one significant drainage structure present: a double 36-inch x 105-foot concrete cross drain located approximately 570 feet west of Wayman Street.

2.4.3 Land Uses

The study area consists of commercial, residential, mixed-use, institutional, and industrial land uses. **Figure 2.29** depicts a general land use map for the city of Longwood. The Downtown Historic District is located north of SR 434 west of CR 427 (Ronald Reagan Boulevard). The South Seminole Hospital is located on the north side of SR 434 at the Florida Central Parkway intersection. There are several schools within the corridor. Lyman High School is located south of SR 434 along CR 427 (Ronald Reagan Boulevard). Friends Pre-School Academy is located along Wilma Street north of SR 434. Noah's ark Christian Preschool and the Ampersand School are located on the north side of SR 434, west of S.R. 600 (U.S. 17/92). The City of Longwood's Future Land Use Map is displayed in **Figure 2.30**.

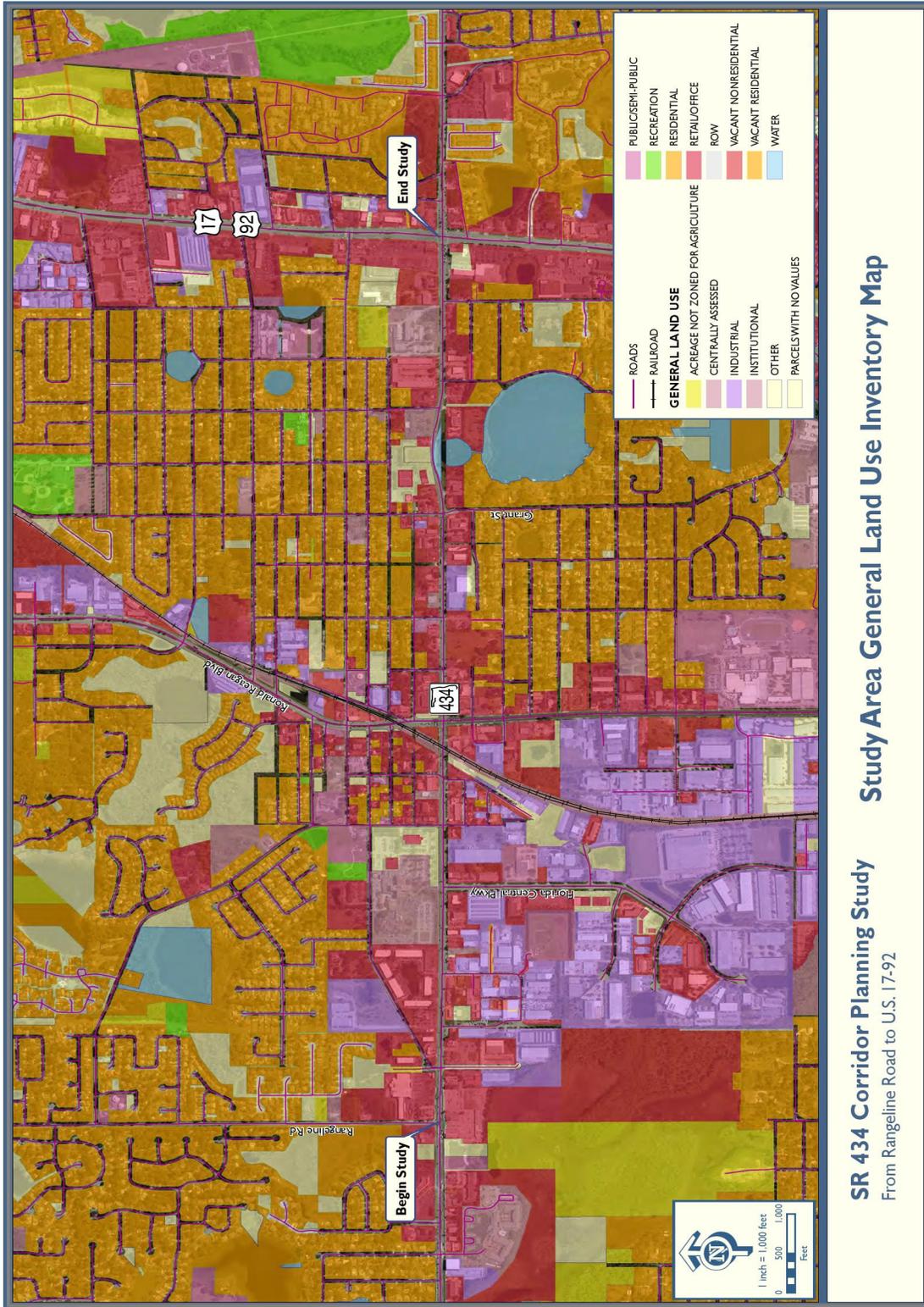
Figure 2.28 Study Area Soil Inventory Map



SR 434 Corridor Planning Study
From Rangeline Road to U.S. 17-92

Study Area Soils Inventory Map

Figure 2.29 General Land Use Inventory Map

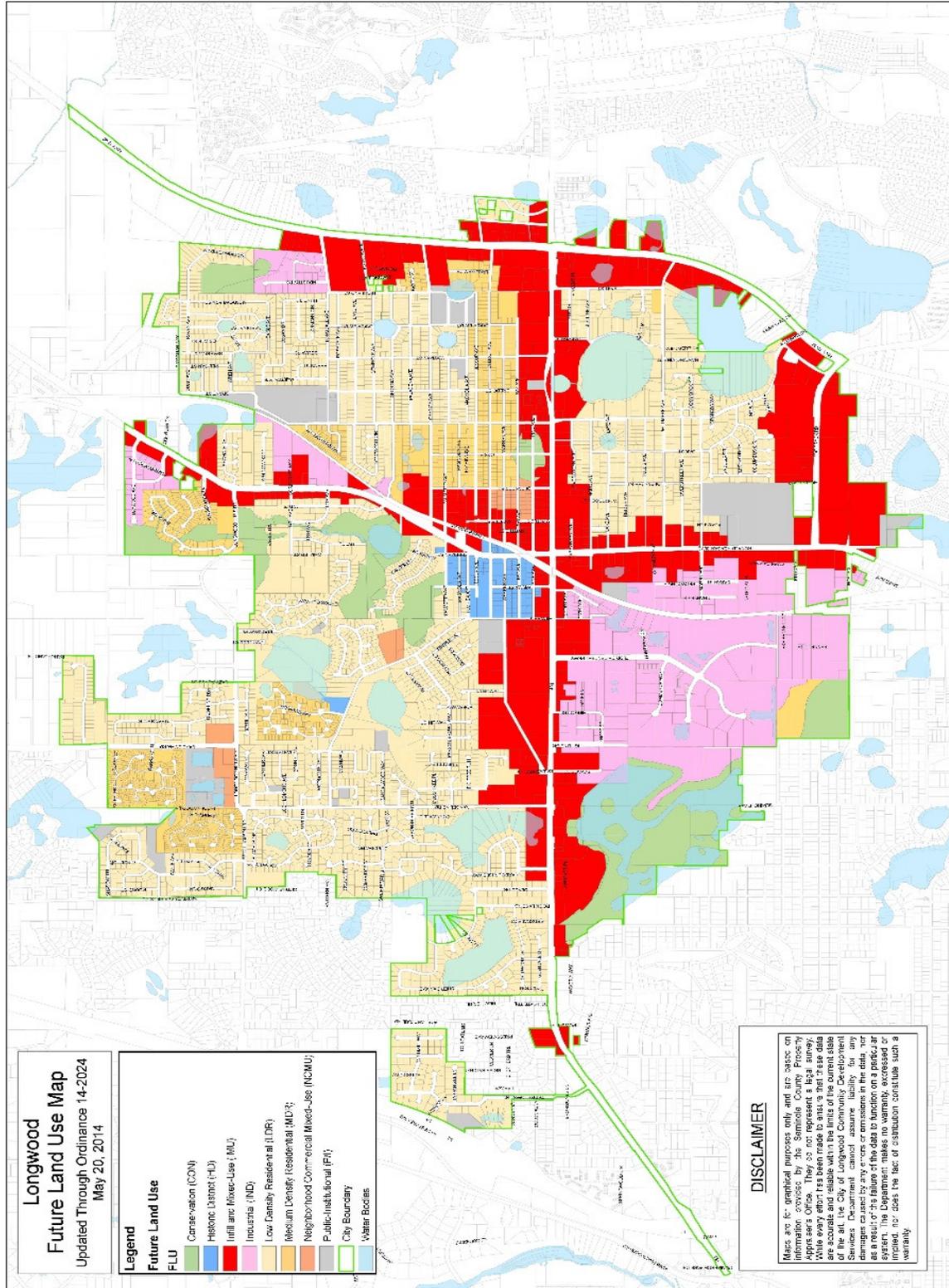


SR 434 Corridor Planning Study

From Rangeline Road to U.S. 17-92

Study Area General Land Use Inventory Map

Figure 2.30 City of Longwood Future Land Use Map



Population and Demographics

The SR 434 corridor was informally screened through the Geographic Information System (GIS) data available within the Efficient Transportation Decision Making (ETDM) Area of Interest Tool using a 500 foot buffer. Those results are displayed in the appendix.

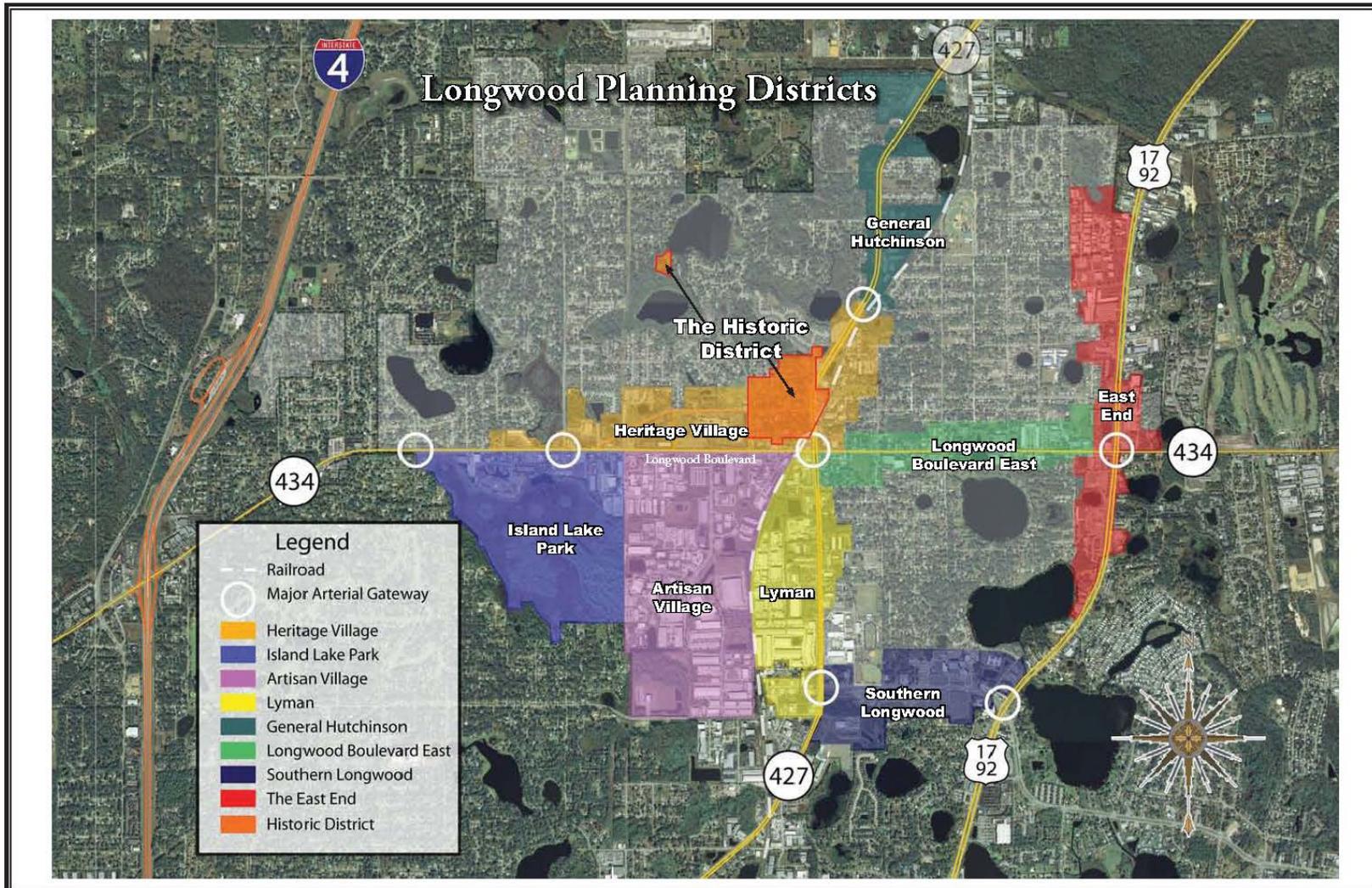
Historic District

Longwood's Historic District encompasses approximately 190 acres and has 37 contributing structures. It became part of the National Register of Historic Places in October 1990. The District is located near the intersection of SR 434 and CR 427 (Ronald Reagan Boulevard). In addition to the Longwood Hotel, the Historic District boasts a handful of historic structures, including the 1873 Inside-Outside House (now home to a small business called Culinary Cottage), the 1879 Christ Episcopal Church and the 1885 Bradlee-McIntyre House, a former winter cottage and example of Queen Anne-style architecture. The Historic District also contains City Hall and a number of city administration buildings, as well as a new 10,000-square-foot, \$1.4-million Community Building. In addition, a couple of specialty stores and boutiques can be found in this area. The Historic District is shown on the Longwood Planning Districts map in **Figure 2.31**.

Parks

The City of Longwood has no parks located directly along the SR 434 study corridor. A park inventory map is depicted in **Figure 2.32**.

Figure 2.31 Longwood Planning Districts



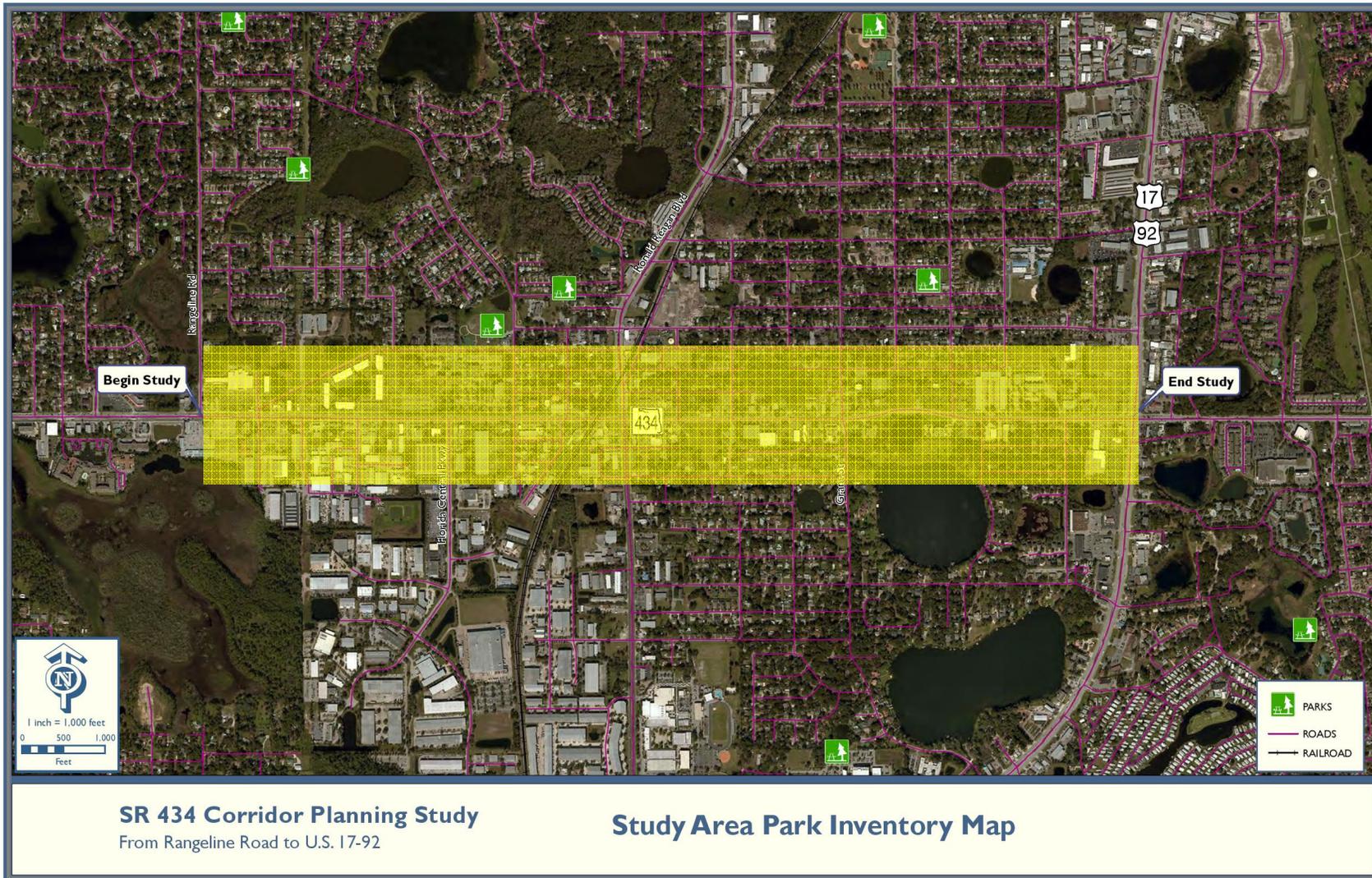
Adopted February 16, 2009

Longwood Historic District Code Book
City of Longwood, Florida

Longwood Planning Districts

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Figure 2.32 Parks Inventory Map



Heritage Village Transit Oriented Development (TOD) Special District

The City of Longwood's Comprehensive Development Plan was amended through June 2010 to include specific goals, objectives, and policies intended to support successful implementation of the SunRail station and integration of the station into the surrounding city fabric.

The function of the Heritage Village TOD Special District is to establish specific uses, densities, intensities and design and performance standards consistent with the Heritage Village/TOD Redevelopment Plan. This district is intended to guide future development and redevelopment toward creating an attractive urban pattern that balances the pedestrian and traffic needs of residents, while protecting and enhancing the original pattern of development consistent with the goals of the City's Comprehensive Plan, Heritage Village Redevelopment Plan, Longwood Design Guidelines, and the Longwood Historic District Code Book.

2.4.4 Wetlands and Floodplains

There are 276 acres of wetlands and 276 acres of floodplain within the 500-ft buffet area depicted in **Figure 2.33** and **Figure 2.34**. The area is generally developed within an urban area with minimal natural habitat remaining. There is a significant wetland system surrounding Rangeline Road, crossing to the south of SR 434 just west of the intersection. There is a natural wooded area north of SR 434 between S. Oleander Street and S. Grant Street. Lake Windmere and a small connected pond are located south of SR 434 just east of S.R. 600 (U.S. 17/92). There is another wetland system/pond north of SR 434 just east of S.R. 600 (US 17/92).

Figure 2.33 Wetlands Inventory Map

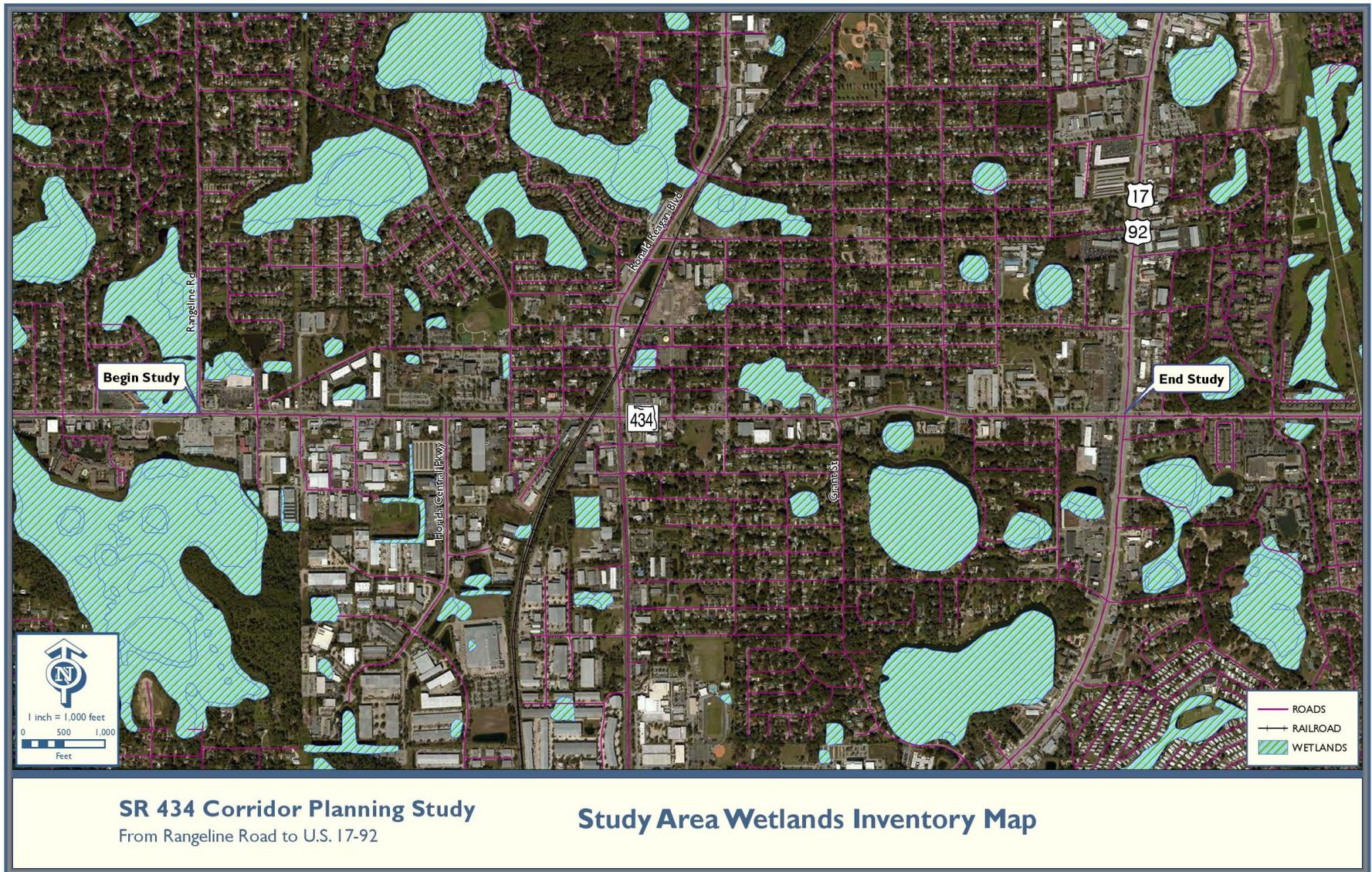
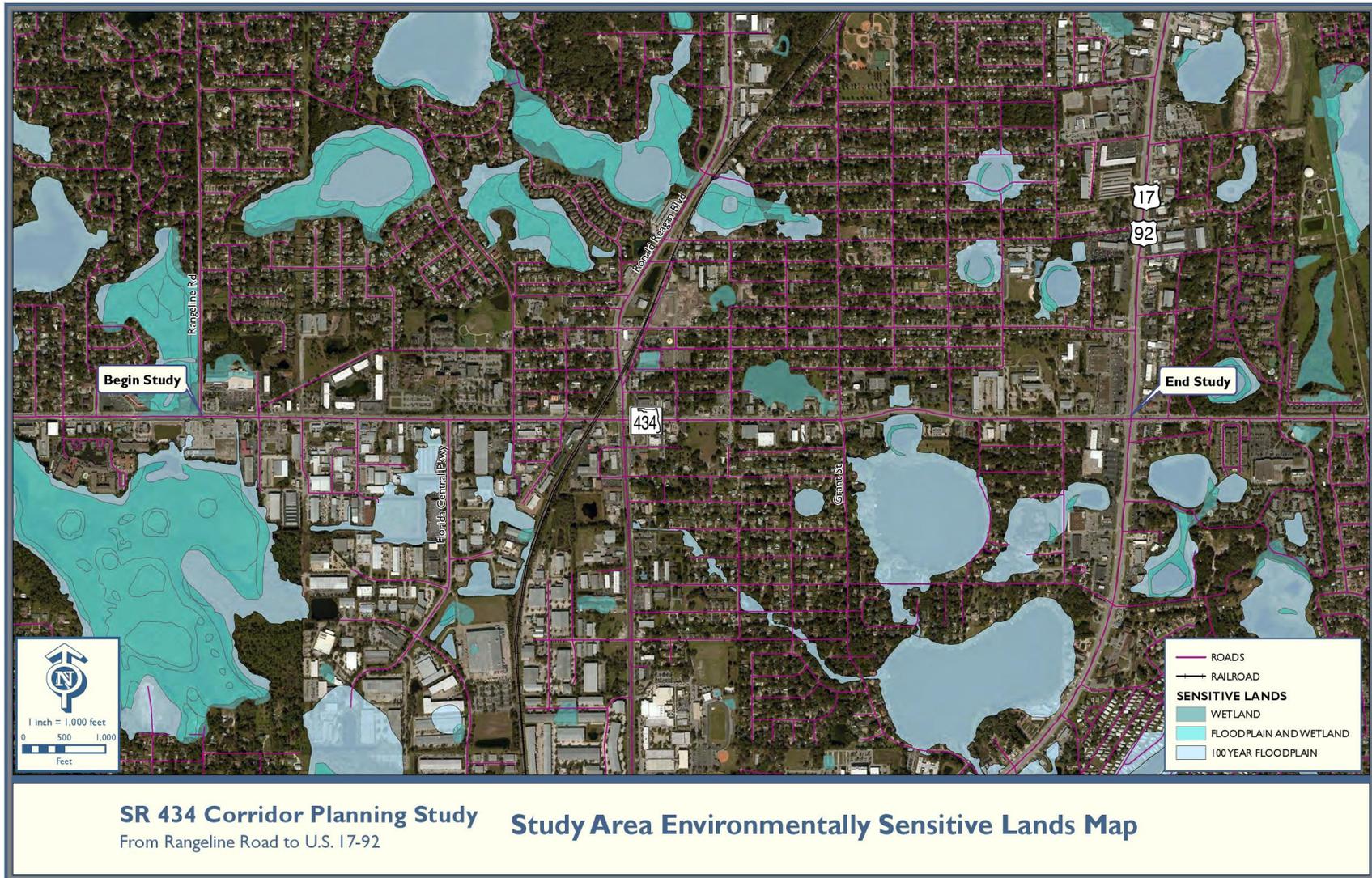


Figure 2.34 Environmentally Sensitive Lands Map



2.5 Utilities

A document of all existing facilities located along the corridor is provided in **Appendix H. Table 2-11** below illustrates the utilities and facility owners within the study area. We reached out to all the providers and documented our findings. Many of the utility providers have yet to respond and coordination will continue as the study progresses. All utility correspondence, conversations, and data are located in **Appendix H.**

Table 2-11 Utility Providers

Utility Owner / Agency	Contact Name	Contact Info	Utility Type	General Location (See Exhibit H for details)
AT&T	Greg Jacobson	813-342-0512 GJ1523@att.com	Telephone Service	Crossing S.R. 434 westbound traffic west side of U. S. 17/92. Crossing S.R. 434 at U.S. 17/92. Along the centerline of S.R. 434 from west of U.S. 17/92 to U.S. 17/92. See email in Exhibit H
AT&T / Distribution	Dino Farruggio	354-243-0558		
Seminole County	James Monahan Shannon Ashworth	407-665-2021 (James) 407-665-2119 (Shannon) sashworth@seminolecountyfl.gov		
AT&T / Distribution				
Bright House Networks	Marvin Usry	407-532-8503 Marvin.USRY@mybriighthouse.com		Exclusively overhead. FL central Pkwy. rework underground. Utilities under US 17-92
City of Altamonte Springs	Dan Goodling	407-571-8340		Crossing S.R. 434 at U.S. 17/92.
City of Longwood Public Works	Richard Kornbluh	407-263-2388 rkornbluh@longwoodfl.org	Sewer	2 1/2" - South side of S.R. 434 from Rangeline Road to Highline Drive beneath the right-of-way line and sidewalk. 4" - South side of S.R. 434 from Highline Drive to Milwee Street generally beneath the westbound right lane. Crossing S.R. 434 at Wayman Street. 10" - Crossing S.R. 434 at Grant Street. 2" - North side of S.R. 434 from Oleander Street to Grant Street and east of Grant Street beneath sidewalk. Crossing S.R. 434 west of U.S. 17/92. North side of S.R. west of U.S. 17/92 beneath the westbound right lane. 8" - South side of S.R. 434 from Florida Central Parkway to Oleander Street sidewalk and eastbound right lane. South side of S.R. 434 west of Grant Street to East Street beneath the sidewalk and centerline of eastbound traffic. North side of S.R. 434 east of Wildmere Avenue. 10" - South side of S.R. 434 from Rangeline Rd. to highline Drive beneath eastbound right lane. Crossing S.R. 434 east of Mingo Tr. South side of S.R. 434 from Mingo Tr. to C.R. 427 generally beneath sidewalk.
Utilities Inc. of Longwood			Sewer	South side of S.R. 434 from Islander Cour to Rangeline Road generally beneath the sidewalk. Crossing S.R. 434 at Rangeline Road.
Bell South Telephone				Crossing S.R. 434 at Rangeline Road and east of Savage Court and on the north side S.R. 434 from Rangeline Road to Florida Central Parkway beneath the edge of the curb and gutter.
Duke Energy	Sharon Dear	407-905-3321 sharon.dear@duke-energy.com		See Exhibit H for diagram
Sprint Telephone / CENTEL				
FPL FiberNet LLC	Danny Haskett	305-552-2931 danny.haskett@fpl.com	Fiber	FPL FiberNet has underground facilities crossing SR-434 at Ronald Reagan Boulevard in Orlando. This is the only area in which we have facilities within the area of the SR-434 corridor. See email in Exhibit H
MCI WorldCom	Dean Boyers	investigations@verizon.com	Telephone Service	Crossing S.R. 434 at C.R.427. See Exhibit H for as-built.
Centurylink	Marlon Brown	407-830-3353 marlon.n.brown@centurylink.com	Telephone Service	From Florida Central Parkway to east of Wildmere Avenue behind the right-of-way line. West of Wyman Street to east of East Street beneath centerline of eastbound traffic.
Wiring Technologies, Inc.		407-862-6290 ext. 116 MarkD@wiringtech.com	N/A	No utilities in project corridor. See email in Exhibit H
Chuluota Water & Wastewater	Ted	727-848-8292	N/A	N/A
Florida Public Utilities	Glenn Pendleton			
Level 3 Communications, LLC		877-366-8344 ext2 Level3.networkrelocations@level3.co		See Exhibit H for as-built.

2.6 Conclusion

The *Existing Conditions and Characteristics Report* contained in this section was the first of three components for the SR 434 Corridor Study. This component collected relevant information and data for the corridor that would form the basis of future concepts and recommendations. Elements of the *Existing Conditions and Characteristics Report* included:

- A review of past and current projects, with a focus on complete streets projects
- An overview existing roadway conditions such as typical sections, bridge structures, access management, and bicycle and pedestrian facilities
- An analysis of traffic conditions including traffic volumes, level of service, and crash data
- A survey of environmental characteristics such as soils, the drainage system, land uses, and wetlands and floodplains

Through the gathering and analysis of relevant data presented in this section, initial concepts were then developed. The concepts are further detailed in the second component of the study, the *Corridor Alternatives and Strategies Report*, in Section 3.

3. Corridor Improvement Preliminary Concepts

Corridor improvement concepts were developed via data and trends from the Existing Conditions and Characteristics Report and through collaboration with stakeholders and FDOT staff. The preliminary concepts are presented and evaluated in this section. The evaluation of these concepts result in the final recommendations and implementation outline in the Corridor Action Plan in Section 4.

The preliminary concepts are divided into two segments of SR 434. The first segment is SR 434 from Rangeline Road to CR 427, and the second segment is from CR 427 to US 17/92. The segments are displayed in **Figures 3.1** and **3.2**.

Figure 3.1 SR 434 Segment 1: Rangeline Road to Ronald Reagan Boulevard

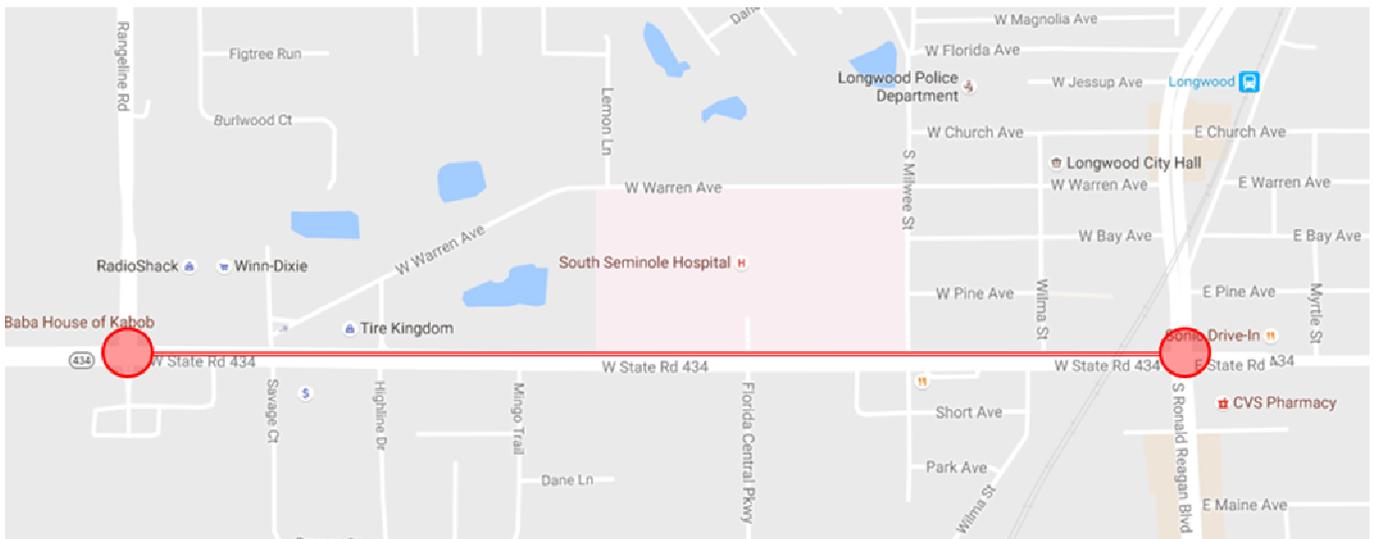


Figure 3.2 SR 434 Segment 2: Ronald Reagan Boulevard to US 17/92

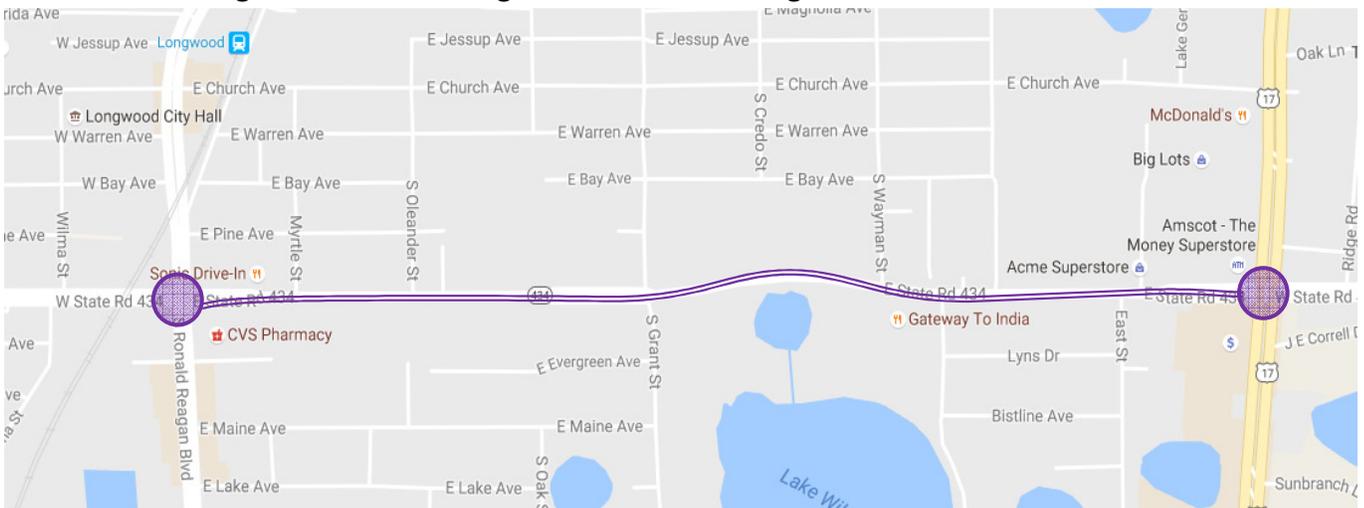


Table 3-1 provides a summarized list of the preliminary concepts and potential modifications further detailed in this section. The potential modifications listed in **Table 3-1** are linked with the preliminary concepts in the column on the right. Section 3 will detail the preliminary concepts and the potential modifications found in each preliminary concept.

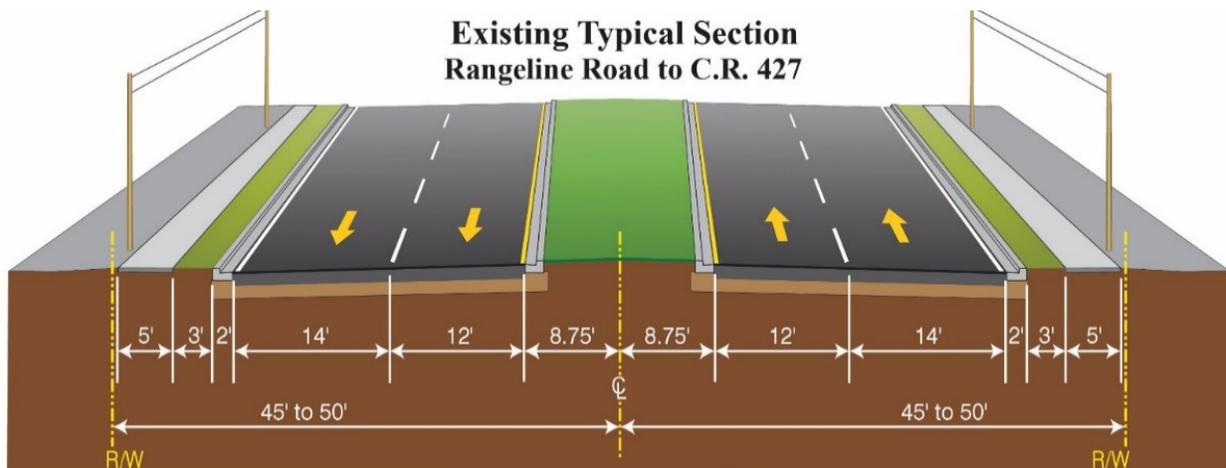
Table 3-1 Potential Modifications and Preliminary Concepts List

Potential Modifications	Preliminary Concepts
Intersection Modifications	Western/Eastern Typical Sections
Bike Lanes	Dual South-Bound Right Turn Lanes (SR 434 at CR 427)
Bus Shelters/Bus Stop Relocations	New South-Bound Road (SR 434 at CR 427)
Medians/Center Turn Lanes	Median Modifications
Midblock Crossings	Midblock Crossings - Potentially on West and East
8-foot/6-foot Sidewalks	Bus Stop Modifications
Parallel Networks	
Pedestrian Boardwalk	SR 434 Bridge Over CR 427
New Park Location	
Widening to 6 Lanes	Widen SR 434 to 6 Lanes
SunRail Coordination	

3.1 Segment 1 Preliminary Concepts

To provide a reference point for improvements, the existing typical section of SR 434 from Rangeline Road to CR 427, Section 1, ranges from 45 feet to 50 feet of right-of-way on each side of the road with five foot sidewalks on either side. There are no existing bike lanes. The existing typical section is displayed in **Figure 3.3**.

Figure 3.3 Segment 1 Existing Typical Section



3.1.1 Option 1W

Concept Option 1W widens the existing sidewalks from 5 feet to 8 feet by replacing the grass strip with colored concrete (or similar material), adds 4-foot bike lanes on both sides of the roadway, and includes enhanced landscaping in the median. In order to accommodate the bike lanes, all four travel lanes are narrowed to 11 feet. **Figure 3.4** displays a rendering of the potential typical section for Option 1W, and **Figure 3.5** is a photo of similarly widened sidewalks.

Figure 3.4 Rendering of Option 1W

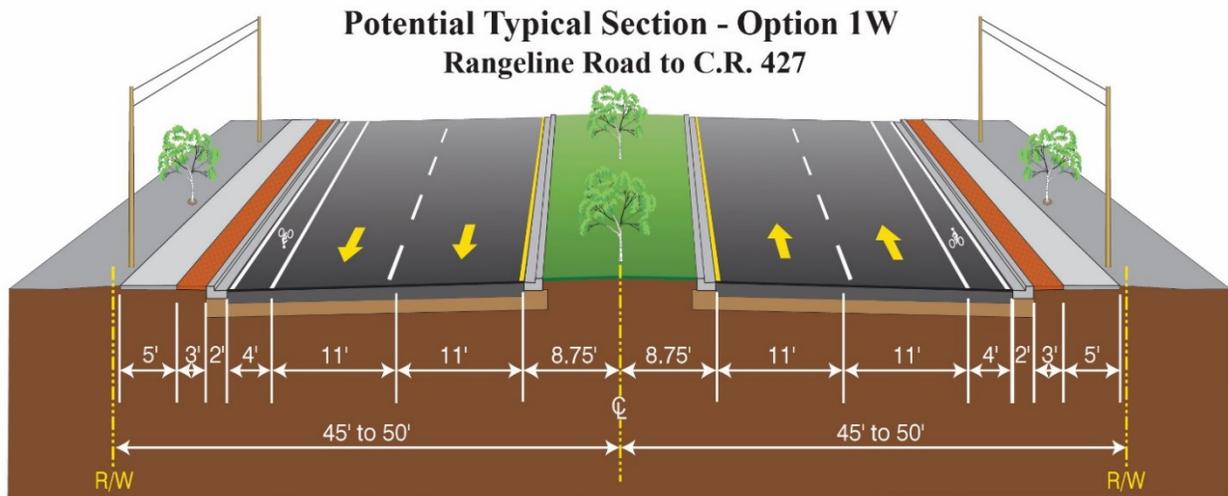


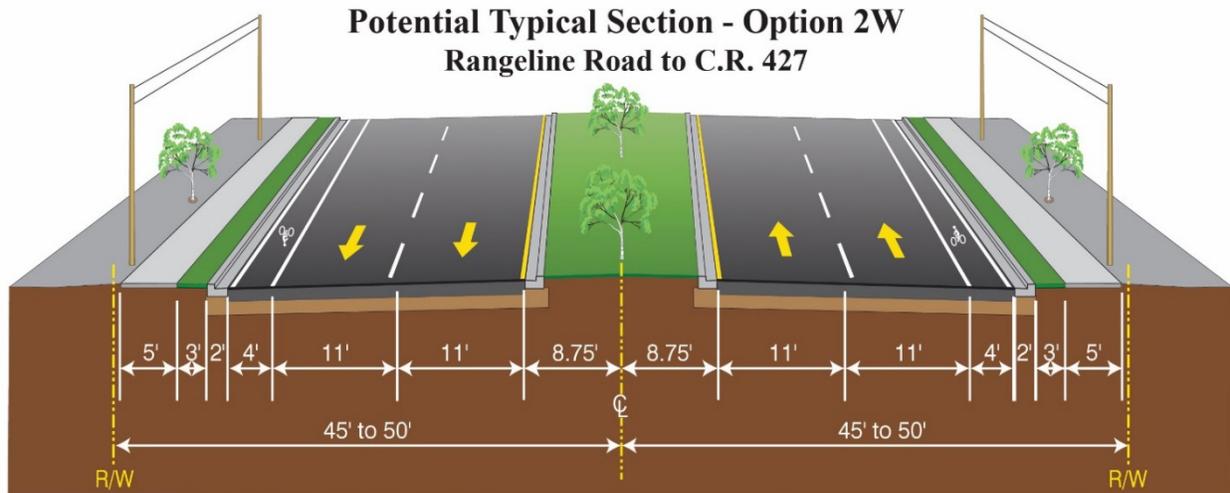
Figure 3.5 Photo of Wide Sidewalk



3.1.2 Option 2W

Option 2W is a variant of Option 1W, in which the existing grass strip remains between the sidewalk and the curb, and the sidewalk is not widened. The four travel lanes are again narrowed to 11 feet, in order to provide bike lanes. **Figure 3.6** displays a rendering of the potential typical section for Option 2W.

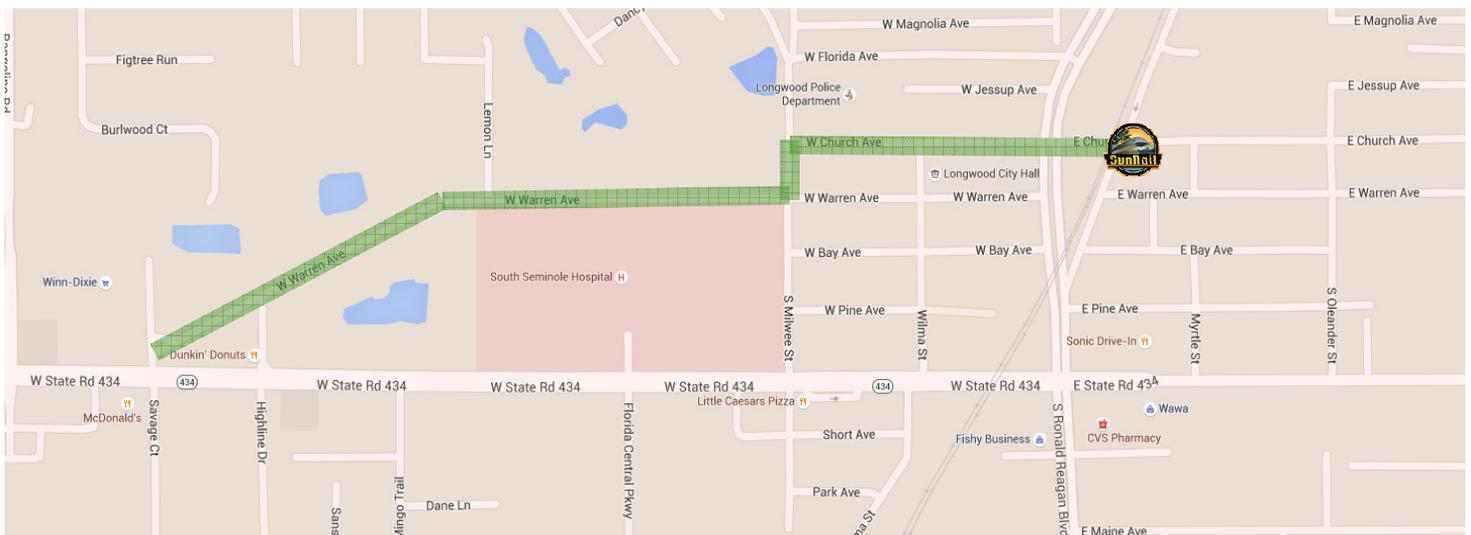
Figure 3.6 Rendering of Option 2W



3.1.3 Potential Parallel Network

A potential parallel network offers an alternative to SR 434 via Warren Avenue and Church Avenue to provide better connectivity to the SunRail station and to downtown Longwood. This potential parallel network is displayed in **Figure 3.7**. The potential parallel network would divert some traffic away from the intersection of SR 434 and CR 427 / Ronald Reagan Boulevard as well as provide an alternative route to the SunRail station from the west.

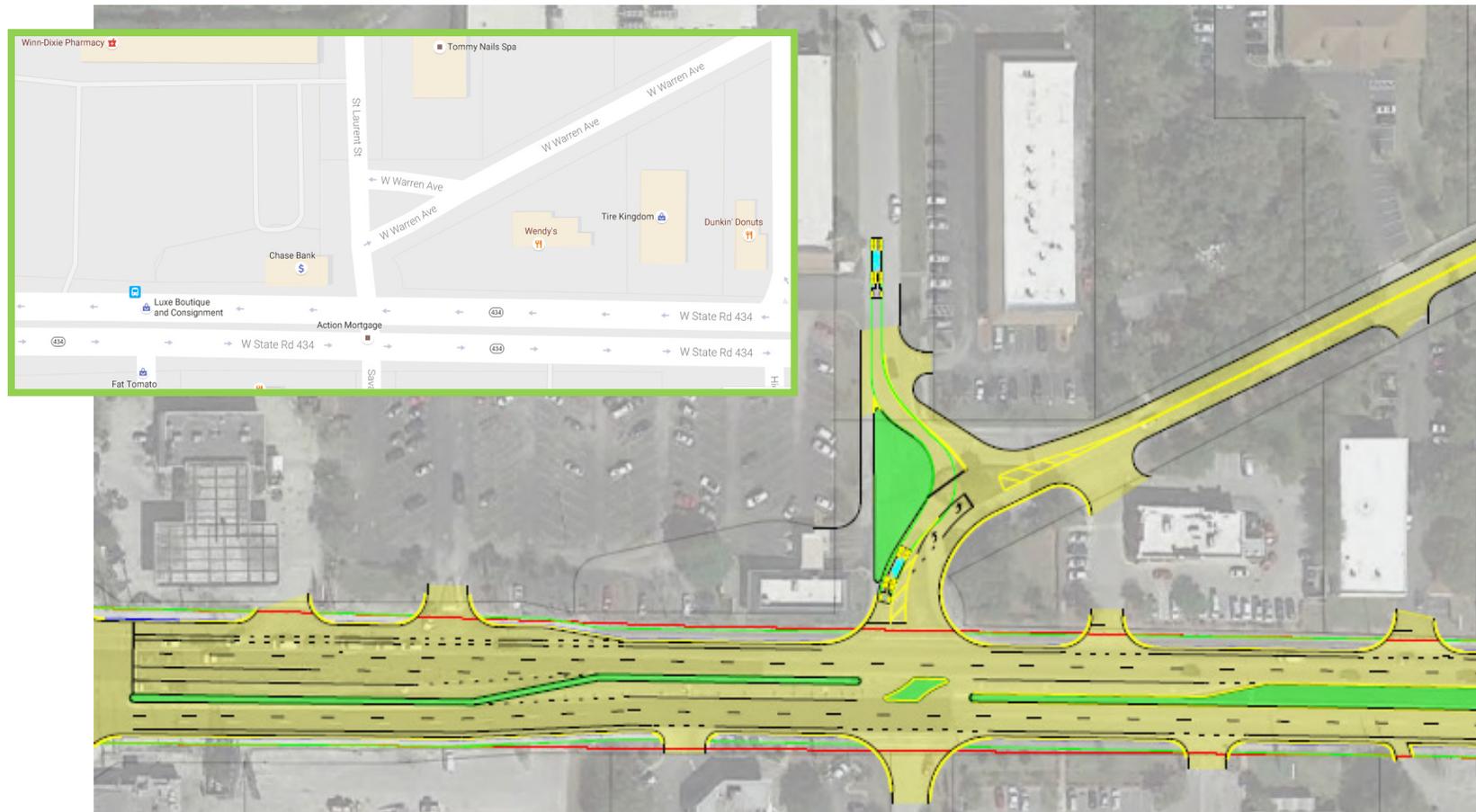
Figure 3.7 Potential Parallel Network



3.1.4 Warren Avenue Realignment

Currently, Warren Avenue is a collector that connects CR 427 / Ronald Reagan Boulevard with Laurent Street just north of SR 434. Warren Avenue runs along the north side of the South Seminole Hospital. A realignment of Warren Avenue involves realigning Laurent Street to where it makes a T-intersection with Warren Avenue and Warren Avenue intersections with SR 434 directly, and would provide direct access from Warren Avenue to SR 434. **Figure 3.8** displays the potential realignment visualization. The Warren Avenue Realignment would provide a better connection for the potential parallel network described in Section 3.1.3.

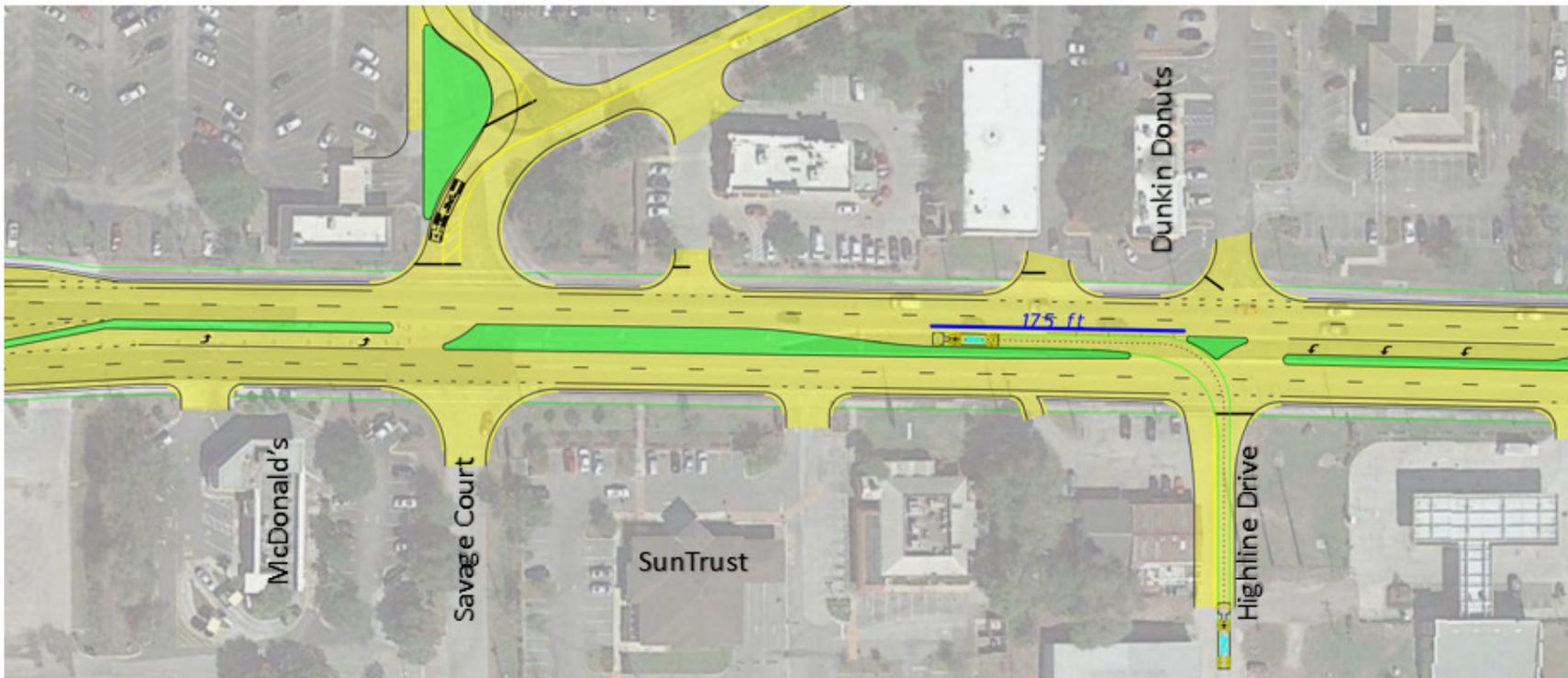
Figure 3.8 Warren Avenue Realignment



3.1.5 Partial Median Opening at Highline Drive

The addition of a midblock crossing/Partial median opening in the vicinity of Highline Drive is another potential improvement, as displayed in **Figure 3.9**. The intersection of SR 434 and Highline Drive with this potential improvement includes a westbound left turn movement from SR 434 to Highline Drive and a left turn movement from Highline Drive to westbound SR 434, to provide enhanced access from the industrial area to Interstate 4. The area between Highline Drive and Warren Avenue/Laurent Street may also be an appropriate location for installation of a midblock crossing, providing pedestrians a safe, buffered crossing on SR 434 between the Rangeline Road and Florida Central Parkway signals.

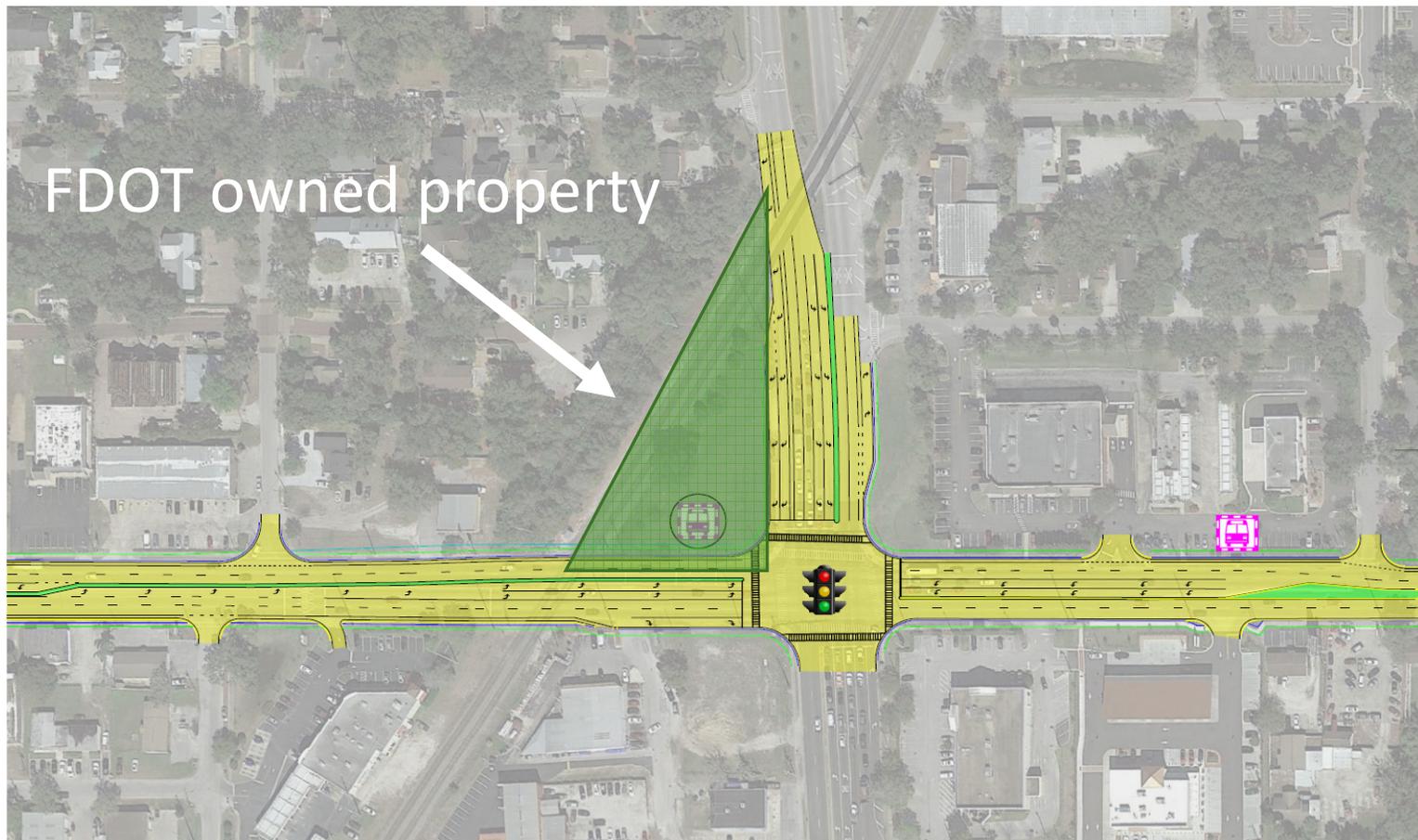
Figure 3.9 Highline Drive Partial Median Opening Concept



3.1.6 SR 434 and CR 427/Ronald Reagan Boulevard Intersection – Option 1(I)

The first option for the SR 434/CR 427 intersection adds dual left turn lanes eastbound and westbound, an eastbound right turn lane, and dual right turn lanes southbound, as illustrated in **Figure 3.10**. Adding a dual southbound right turn will increase storage space for vehicles making a right turn from CR 427/Ronald Reagan Boulevard southbound to SR 434 westbound thus reducing southbound queues on CR 427/Ronald Reagan Boulevard. *This option has been studied by Seminole County with the preliminary design is underway.*

Figure 3.10 SR 434/CR 427 Intersection Option 1



3.1.7 SR 434 and CR 427/Ronald Reagan Boulevard Intersection – Option 2(I)

The second option for the SR 434/CR 427 intersection is similar, but a new southbound right turn lane west of the railroad tracks is provided in lieu of dual southbound right turn lanes, as shown in **Figure 3.11**. This option would reduce the queuing of traffic on the railroad tracks and allow southbound CR 427/Ronald Reagan Boulevard traffic destined for westbound SR 434 to continue moving when both roadways are closed due to a train passing by.

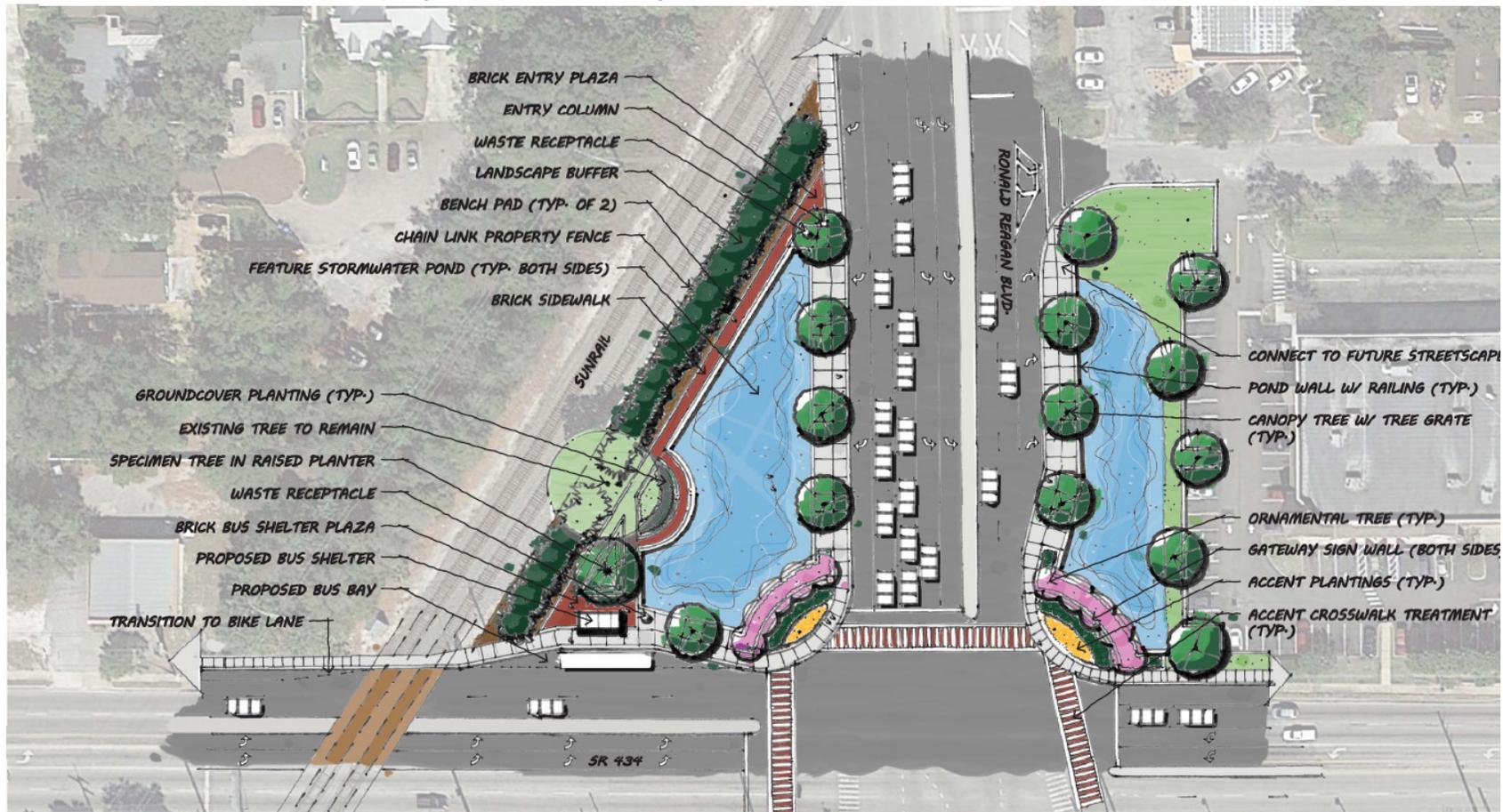
Figure 3.11 SR 434/CR 427 Intersection – Option 2



3.1.8 Potential Park at SR 434 and CR 427/Ronald Reagan Boulevard

The potential for development of park at SR 434 and CR 427 can be included with any of the options discussed for Segment 1. The park, as depicted on **Figure 3.12** includes entry features, a feature stormwater pond, landscape improvements, and general infrastructure upgrades such as bike lane to sidewalk transitions. The park would provide a friendlier aesthetic feature for the community and corridor, while also providing amenities for pedestrians and transit riders.

Figure 3.12 Rendering of Potential Park at SR 434 and CR 427



Note: This concept has been revised. A bus bay is no longer proposed based on new analysis and new LYNX bus routes.

3.1.9 Bike Lane to Sidewalk Transitions

Bike lane to sidewalk transitions, like those in **Error! Reference source not found.**, are another potential improvement to the corridor. Places along the corridor that may be too narrow to fit a bicycle lane within the existing footprint, a bike lane to sidewalk transition may be an option to pursue so that a bike facility can be implemented along the entire length of the corridor. This may be necessary in the vicinity of the SR 434 / CR 427 intersection.

Figure 3.13 Bike Lane to Sidewalk Transitions



US 301, Alachua County, Florida, Google Maps

3.1.10 SR 434/CR 427 Rail Crossing Modifications (Dynamic Envelope)

Providing a dynamic envelope for rail crossings at SR 434 and CR 427 may enhance the safety of the rail crossing and minimize queuing of vehicles across the tracks.

For example, a rail crossing dynamic envelope was installed on Commercial Boulevard just west of Interstate 95 in Ft. Lauderdale, with a construction cost of \$67,000.

Since the installation of the dynamic envelope, the percentage of cars stopping prior to the stop bar increased from 62% to 67%. A corresponding reduction in the percentage of cars stopping on the railroad tracks has also occurred, decreasing from 11% to 6%. A photo of the Ft. Lauderdale dynamic envelope is provided in **Figure 3.13**.

Figure 3.13 Dynamic Envelope for Rail Crossings



3.2 Segment 2 Preliminary Concepts

Segment 2 on SR 434 extends from CR 427/Ronald Reagan Boulevard to US 17/92. For reference, the existing typical section for Segment 2 is displayed in **Figure 3.15**. The roadway is narrower in Section 2, with approximately 40 feet of right-of-way (ROW) on each side of the roadway centerline. Five foot sidewalks exist on both sides of the road, along with approximately 3 foot grass strips, and 2 foot wide curb and gutter. There are two 12-foot travel lanes in each direction, and a 12-foot wide center turn lane.

Figure 3.14 Segment 2 Existing Typical Section

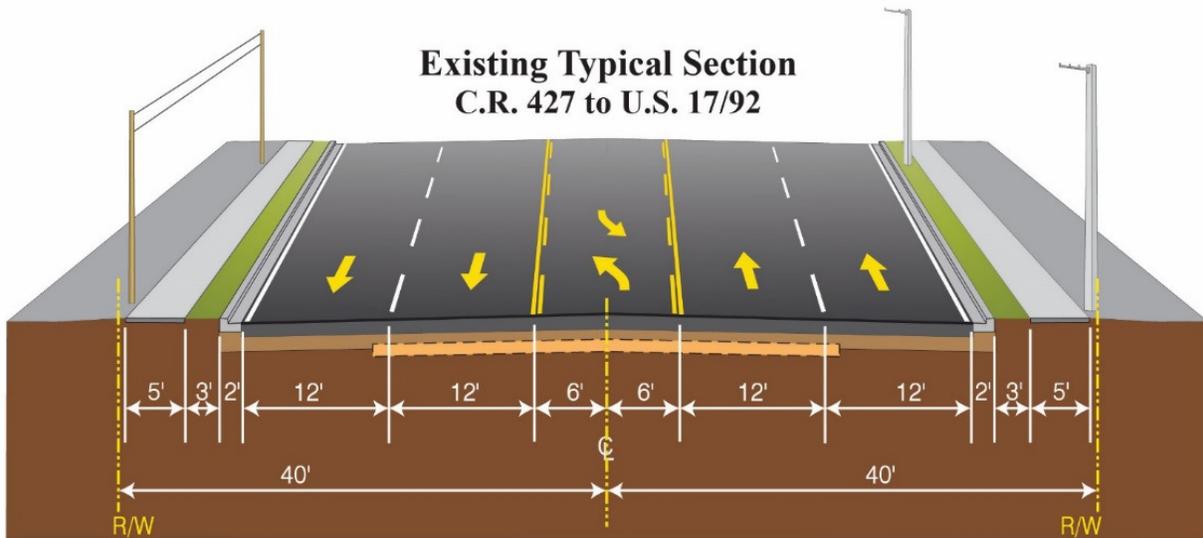


Figure 3.15 Photo of a Raised, Landscaped Median

3.2.1 Option 1E - Raised Median

Concept Option 1E narrows the four travel lanes from 12-feet to 11-feet, thus providing an additional width to install a 16-foot raised and landscaped median. The option also includes replacing the grass strips with colored concrete, thus providing a widened sidewalk.

The raised median option will provide flare-outs where necessary for U-turns, and can include enhanced landscaping. **Figure 3.15** is a photo example of what a raised median may look like, while **Figure 3.17** displays a rendering of a typical section for Option 1E.



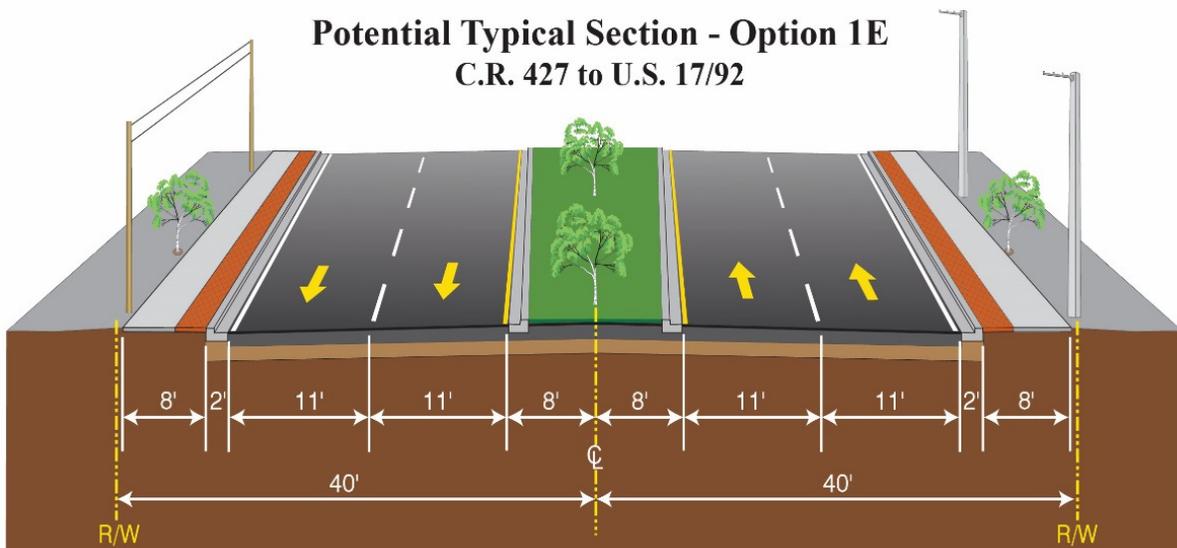


Figure 3.16 Option 1E Rendering

3.2.2 Option 2E – Center Turn Lane and Wide Outside Lanes

As with Option 1E, Option 2E replaces the grass strips to widen the sidewalks on each side of the roadway to 8 feet. Wider outside travel lanes (from 12 feet to 14 feet) are provided for bicyclists, by narrowing the inside travel lanes (from 12 feet to 11 feet) and the center turn lane (from 12 feet to 10 feet). A rendering of Option 2E is displayed in **Figure 3.18**.

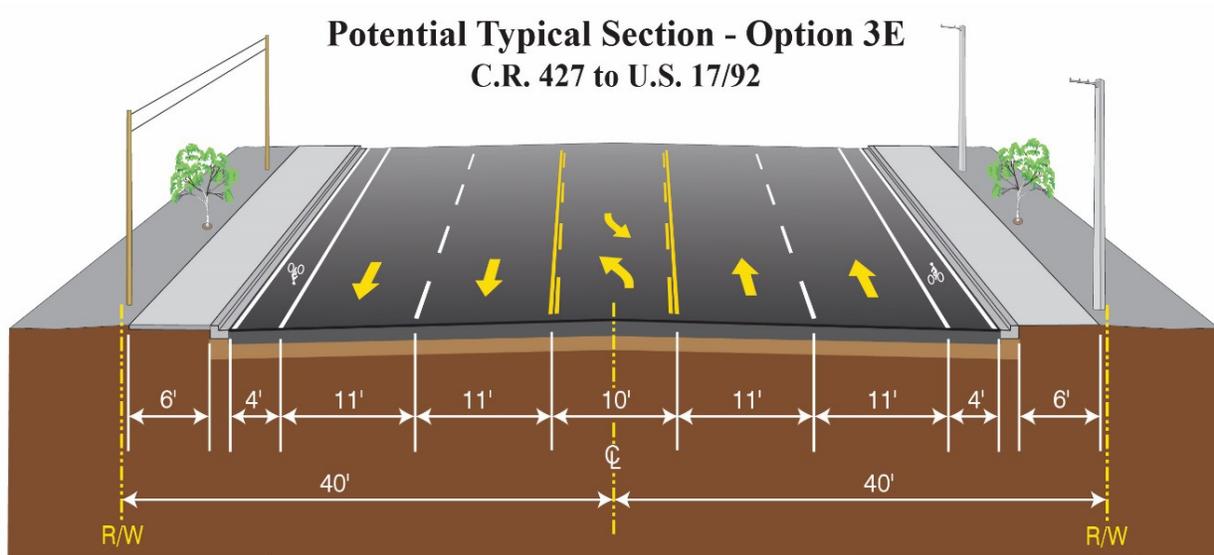
Figure 3.17 Option 2E Rendering



3.2.3 Option 3E – Center Turn Lane and Bike Lanes

Option 3E includes a 10 foot center turn lane, 4 foot bike lanes on both sides of the roadway, and a 6 foot sidewalk on both sides. The addition of bike lanes requires narrowing the travel lanes from 12 feet to 11 feet and the center turn lane from 12 feet to 10 feet. Furthermore, the existing 3-foot grass strips would be removed, allowing the curbs to be moved out two feet on each side of the roadway within the existing right-of-way. The additional foot would be added to the sidewalks, as 6-foot is the minimum state standard when directly adjacent to the roadway. A rendering of Option 3E is illustrated in **Figure 3.19**.

Figure 3.18 Option 3E Rendering



3.3 Potential Flyover Bridge Over CSX and CR 427/Ronald Reagan Boulevard

A potential flyover bridge of SR 434 over the CSX tracks and CR 427/Ronald Reagan Boulevard has been identified. The location, renderings, and examples are presented in **Figures 3.26** and **3.27**. The potential flyover bridge would begin west of Milwee Street and come back to at-grade east of Oleander Street. This would allow traffic wishing to continue east or west on SR 434 to skip over the CSX railroad and the SR 434 and CR 427/Ronald Reagan Boulevard intersection thus removing some traffic from that intersection and allow the intersection to operate more efficiently.

Figure 3.20 Potential Bridge Concept Over CSX and CR 427



Figure 3.19 Flyover Bridge Example, Proposed Selmon Connector in Tampa, Tampa-Hillsborough Expressway Authority



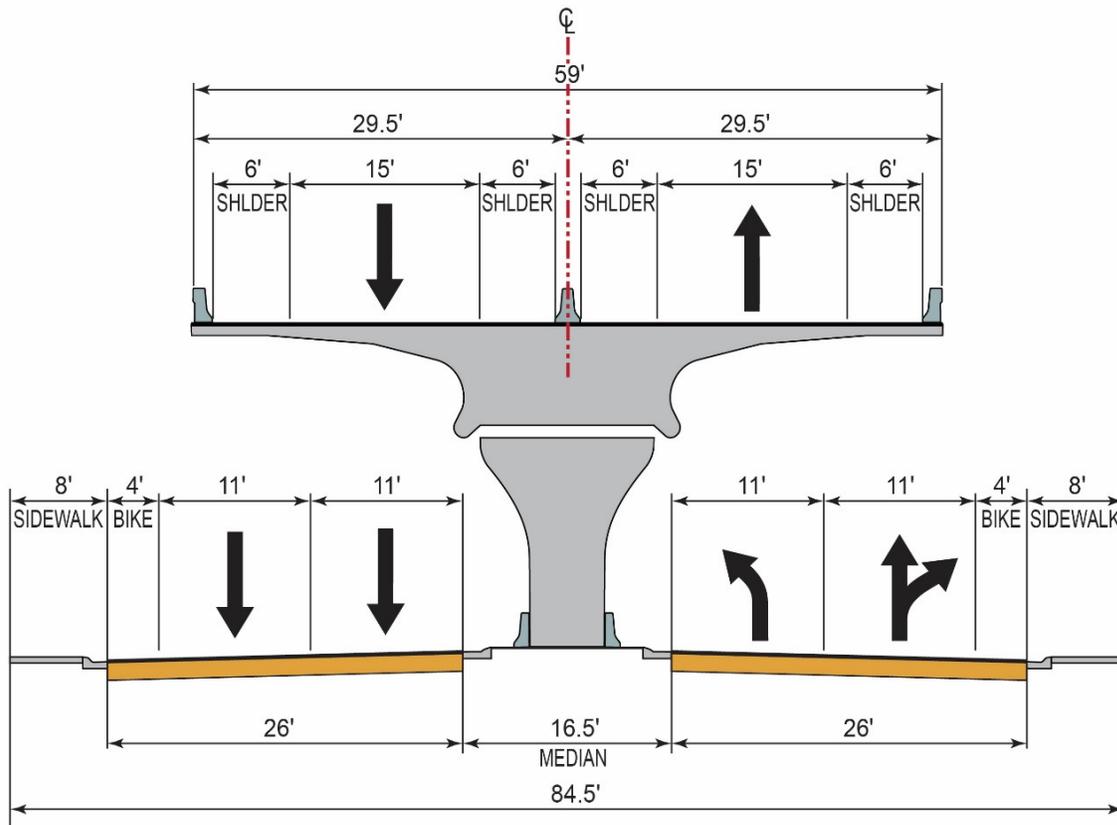
Two options have been developed for the configuration of the at-grade roadway adjacent to the flyover in order to address different mobility needs.

3.3.1 CSX and CR 427 Flyover Option 1

As displayed in **Figure 3.28**, Option 1 includes an 8 foot sidewalk, 4 foot bike lanes, and 11 foot travel lanes, and a 22-foot median. In this option, there is only a single left turn lane eastbound and westbound on SR 434 at CR 427 / Ronald Reagan Boulevard. This option fits within the existing right-of-way at the intersection, but some right-of-way would need to be acquired on each end, where the flyover touches down and merges with the surface roadway.

Figure 3.21 CSX and CR 427/Ronald Reagan Boulevard Flyover Option 1

SR 434 West of CR 427

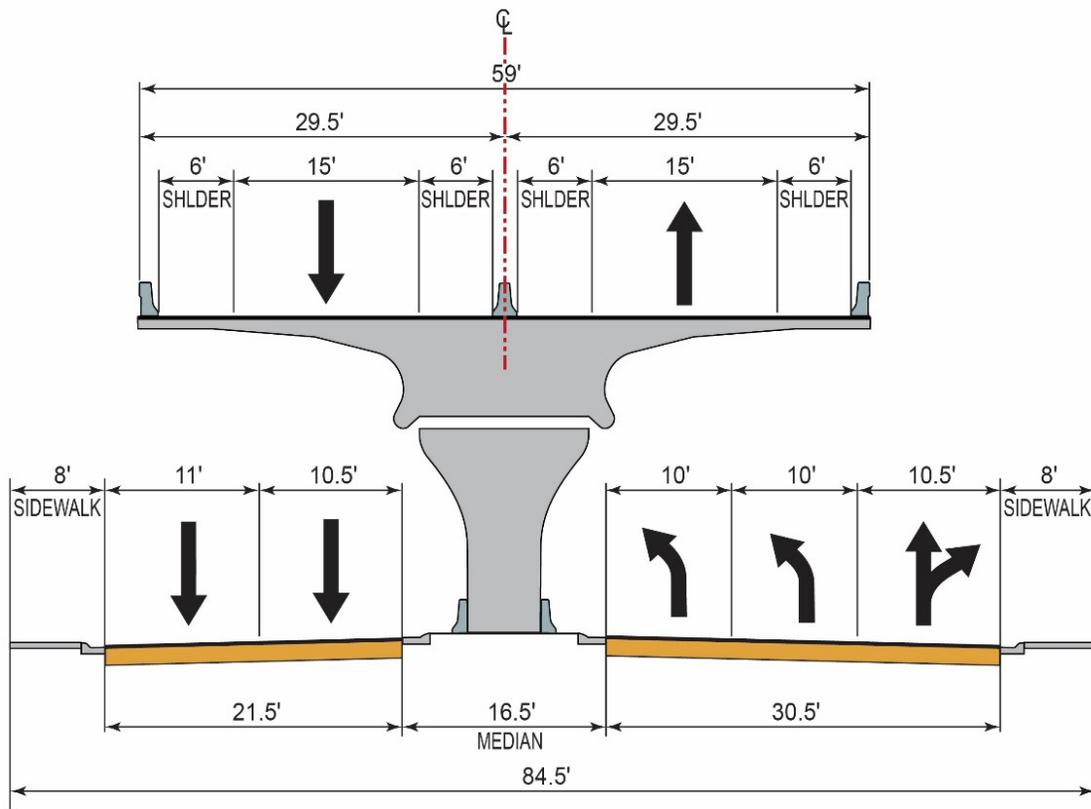


3.3.2 CSX and CR 427 Flyover Option 2

The second flyover option is displayed in **Figure 3.29**. The second option adds an additional left turn lane in lieu of the bike lanes. As with Flyover Option 1, it is anticipated that this option would fit within the existing right-of-way at the intersection. Some right-of-way would need to be acquired on each end, where the flyover touches down and merges with the surface roadway. It is important to note that SR 434 is widened at the CR 427/Ronald Reagan Boulevard intersection, as discussed in Sections 3.1.6 and 3.1.7, there would be enough room for the bike lanes to be included.

Figure 3.22 CSX and CR 427 Flyover Option 2

SR 434 West of CR 427



3.4 Six-Lane SR 434

As discussed earlier in the report, a previous 2001 PD&E study recommended six-laning SR 434 east to CR 427. The preliminary concept of a six lane alternative for SR 434 includes preserving the existing 5 foot sidewalk on both sides of the road, adding 7 foot buffered bike lanes on each side, and adding an additional lane on both sides of the road. The raised median would remain in Segment 1, and if the six lanes were extended east through Segment 2, a raised median would be installed. As depicted on **Figure 3.30**, this typical section would require approximately 126 feet of right-of-way, whereas, the existing corridor varies from 80 feet to 100 feet.

Figure 3.30 Six Lane Option Rendering

Potential Typical Section - 6 Lane Option
Rangeline Road to US 17/92

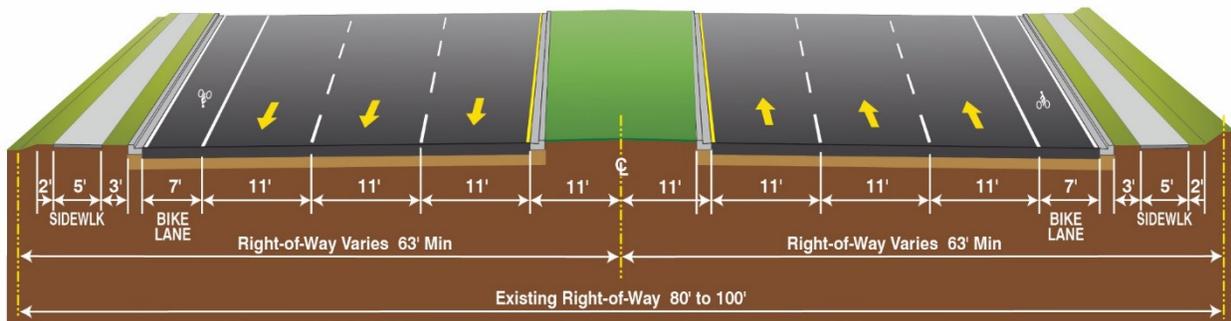
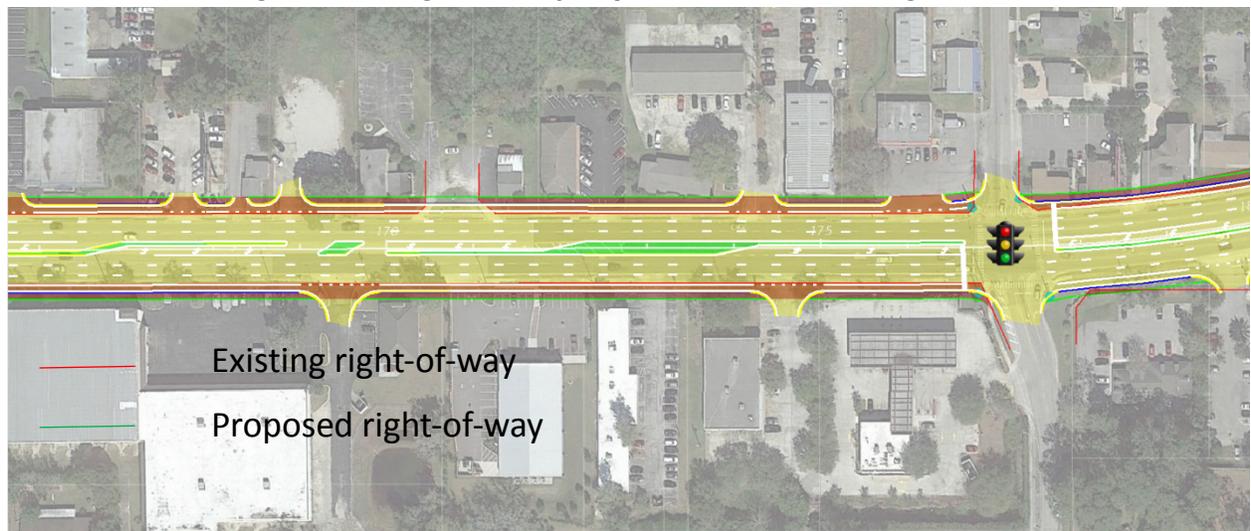


Figure 3.31 displays the potential right-of-way impacts resulting from widening SR 434 to six lanes. For the purposes of this study, it was assumed that right-of-way would be acquired equally from each side of the roadway. While the image is a snapshot of the corridor near Grant Street, impacts would be similar throughout Segment 2. As there is more right-of-way in Segment 1, impacts would be less severe.

Figure 3.31 Right-of-Way Impacts from Six-Laning SR 434



3.5 Multi-Modal Options

In each segment, several multi-modal options are available to enhance the experience and safety of pedestrians, bicyclists, and transit riders. The following multi-modal options are possible in both segments for the most part except for the potential pedestrian boardwalk, which crosses a pond located south of SR 434 on the eastern segment.

3.5.1 Pedestrian Boardwalk

There is the potential for a pedestrian boardwalk between South Grant Street and Oxford Street, as shown in **Figures 3.34** and **3.35**. The boardwalk would cross an existing pond found on the south side of SR 434 and add another aesthetic feature to the corridor making more inviting for pedestrians and bicyclists. The boardwalk would be within existing FDOT right-of-way; however, a local maintenance agreement would likely be required.

Figure 3.34 Pedestrian Boardwalk Location

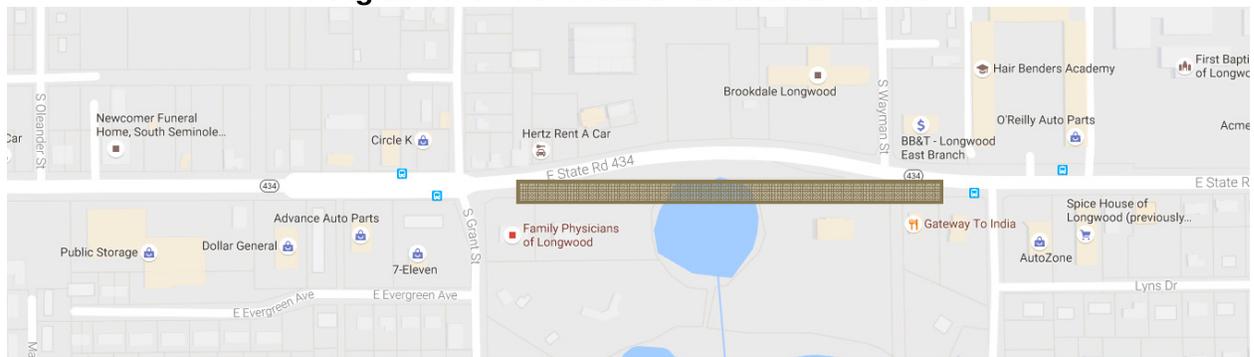


Figure 3.35 Pedestrian Boardwalk Example



3.5.2 Potential Bus Shelters and Bus Stops

In coordination with LYNX Transit, there is a potential for providing additional bus stops and shelters along the corridor, as well as relocating some existing stops. **Figures 3.36** depict the current LYNX bus stop locations along at the SR 434 corridor within the study area. Potential new and/or relocated bus stop locations are highlighted in **Figure 3.37**. An example of a bus shelter installed on the corridor is shown in **Figure 3.38**.

Figure 3.36 Current Lynx Bus Stop Locations

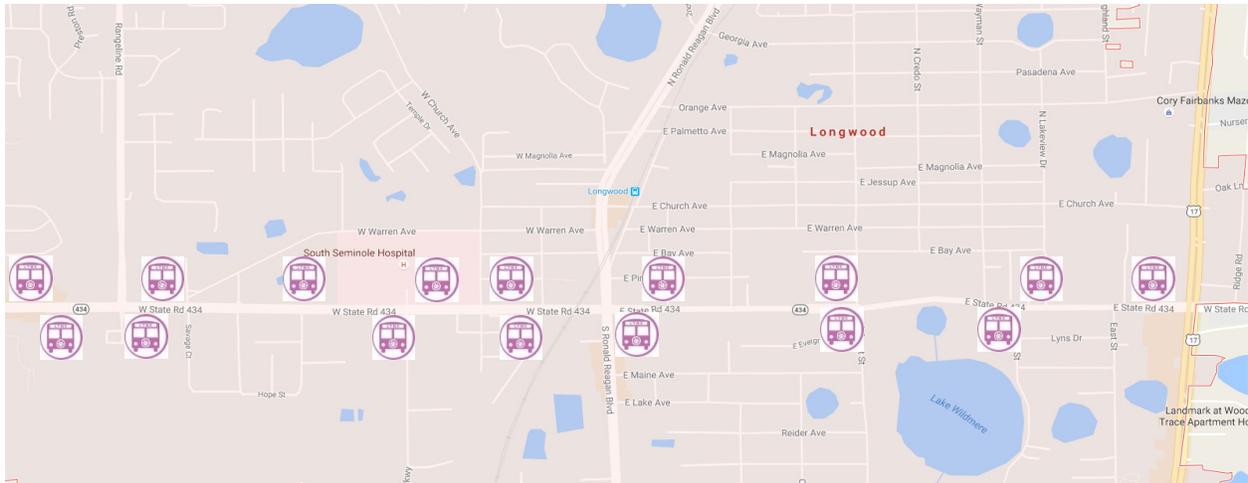


Figure 3.37 Potential Lynx Bus Stop Locations

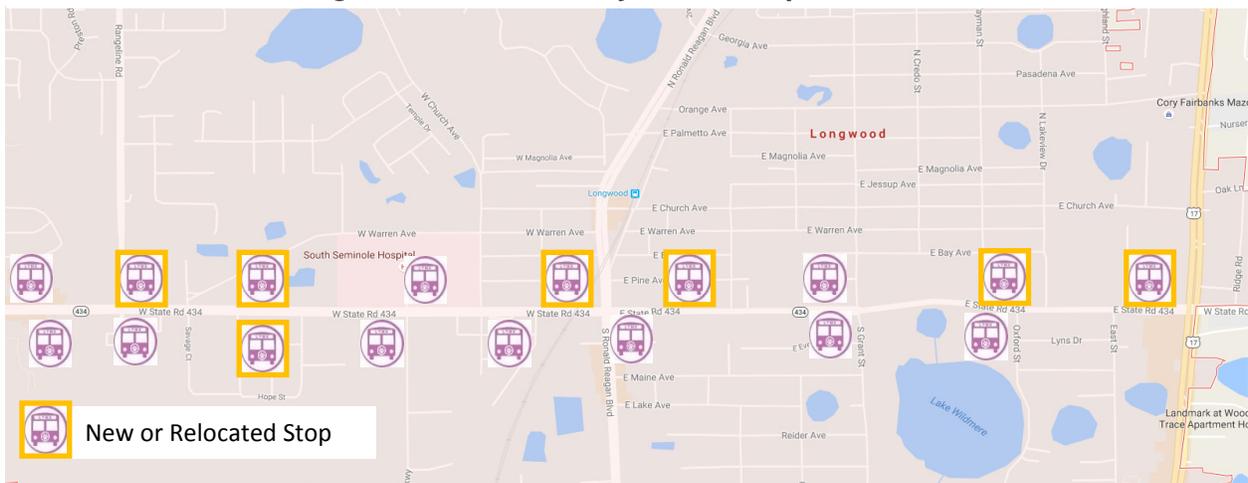


Figure 3.38 Potential Bus Shelters



3.5.3 Midblock Crossings

There are several potential midblock crossing locations on SR 434. One mentioned earlier is near Highline Drive, and another is west of Oleander Street, as shown in **Figure 3.39**. This location would provide safer pedestrian access to the SunRail station as well as other businesses in this area, and is in the vicinity of a potential transit-oriented development (TOD) located on the south side of SR 434 between Oleander Street and Myrtle Street. Additional engineering analysis and approval from the FDOT Traffic Operation Unit must be obtained before implementing midblock crossings.

Figure 3.39 Potential Midblock Crossing



3.6 Evaluation of Preliminary Concepts

The previous subsections presented the preliminary concepts for SR 434 improvements. Following identification of the various concepts, they were evaluated in order to form recommendations and implementation plan. The evaluation of preliminary concepts was three-fold, including an intersection level of service (LOS) summary, the impact on corridor travel times, and development of an evaluation matrix based on and quantifiable measures. These three evaluations are described below, and presented in more detail in this section.

3.6.1 SR 434 / CR 427 Intersection LOS Summary

The intersection LOS summary included an AM and PM scenario for the six intersection alternatives (Committed, 434/427 Option 1, 434/427 Option 2, Flyover 1, Flyover 2, and Six-Lane). The analysis included delay and LOS metrics along with the four approaches (eastbound, westbound, northbound, and southbound). The Committed scenario includes the improvements currently under construction at the SR 434 and Florida Central Parkway intersection. The analysis was conducted for 2020 and 2040, and the results are displayed in **Table 3-2**.

The results of the intersection LOS summary for the five intersection alternatives are that the Flyover 2 alternative produces the best all-around results in 2040 with a delay of 48.7 seconds and a LOS D during the AM peak. In the PM peak, the Flyover 2 alternative has a delay of 56.8 seconds with a LOS E, however in the 2040 PM peak the 6-Lane alternative does slightly better with 55.8 seconds of delay but maintains a LOS D. It is worth noting that the flyover and six-lane alternatives were only evaluated for 2040, as it is unrealistic for those improvements to be in place by 2020.

3.6.2 Corridor Travel Times

The evaluation of the corridor travel times included AM and PM scenarios for the five scenarios listed above, and also included data for existing conditions. The alternatives were evaluated eastbound and westbound for 2015, 2020, and 2040. As noted above, the flyover and six-lane alternatives were only evaluated in 2040. The results of the corridor travel times analysis are in **Table 3-3**.

During the 2040 travel time analysis the Flyover 1 and Flyover 2 alternatives performed the best. In the eastbound direction during the AM peak, Flyover 1 had a travel time of 7:30 minutes and Flyover 2 had a travel time of 8:08 minutes. In the westbound direction during the AM peak Flyover 1 and 2 alternatives both had a travel time of 3:54 minutes.

During the PM peak in 2040, Flyover 1 had a travel time of 13:05 minutes eastbound compared to 12:50 minutes for Flyover 2. Both Flyover 1 and 2 alternatives had a travel time of 3:56 seconds for the westbound direction during the PM peak in 2040.

Table 3-2 SR 434 & CR 427 Intersection Preliminary Concepts LOS Analysis

Scenario	Alternative	Metric	2020					2040				
			Approach				Intersection	Approach				Intersection
			EB	WB	NB	SB		EB	WB	NB	SB	
AM	Committed	Delay	51.8	84.4	67.5	81.8	71.0	79.7	128.0	108.6	140.0	113.0
		LOS	D	F	E	F	E	E	F	F	F	F
	434/427 Opt 1(I)	Delay	38.6	63.3	58.9	67.2	56.2	56.6	90.9	84.0	106.2	83.3
		LOS	D	E	E	E	E	E	F	F	F	F
	434/427 Opt 2(I)	Delay	38.6	63.3	58.9	70.6	56.8	56.6	90.9	84.0	115.2	84.6
		LOS	D	E	E	E	E	E	F	F	F	F
	Flyover 1*	Delay	NA	NA	NA	NA	NA	66.6	88.5	49.6	61.6	61.8
		LOS	NA	NA	NA	NA	NA	E	F	D	E	E
	Flyover 2*	Delay	NA	NA	NA	NA	NA	62.4	65.3	38.7	44.8	48.7
		LOS	NA	NA	NA	NA	NA	E	E	D	D	D
	Six-Lane	Delay	NA	NA	NA	NA	NA	42.8	69.1	55.1	65.6	57.9
		LOS	NA	NA	NA	NA	NA	D	E	E	E	E
PM	Committed	Delay	64.5	81.2	72.9	78.6	72.9	105.0	120.4	130.4	143.3	122.3
		LOS	E	F	E	E	E	F	F	F	F	F
	434/427 Opt 1(I)	Delay	40.6	68.9	59.6	57.7	54.7	59.0	76.2	83.7	89.0	74.8
		LOS	D	E	E	E	D	E	E	F	F	E
	434/427 Opt 2(I)	Delay	40.4	68.9	59.9	63.6	55.8	59.0	76.2	81.7	91.3	74.6
		LOS	D	E	E	E	E	E	E	F	F	E
	Flyover 1*	Delay	NA	NA	NA	NA	NA	74.5	88.4	66.5	72.3	72.2
		LOS	NA	NA	NA	NA	NA	E	F	E	E	E
	Flyover 2*	Delay	NA	NA	NA	NA	NA	57.7	63.2	54.0	57.6	56.8
		LOS	NA	NA	NA	NA	NA	E	E	D	E	E
	Six-Lane	Delay	NA	NA	NA	NA	NA	48.2	55.7	61.7	60.8	55.8
		LOS	NA	NA	NA	NA	NA	D	E	E	E	E

*Assumption: The Flyover captures 90% of the eastbound and westbound through volume, with 10% of through traffic remaining at-grade.

Table 3-3 Corridor Travel Times

Scenario	Alternative	Eastbound			Westbound		
		2015	2020	2040	2015	2020	2040
AM	Existing	8:10	NA	NA	7:49	NA	NA
	Committed	NA	5:40	9:10	NA	5:33	5:19
	434/427 Opt 1(I)	NA	5:16	9:19	NA	4:52	4:51
	434/427 Opt 2(I)	NA	5:19	10:02	NA	4:49	5:05
	Flyover 1*	NA	NA	7:30	NA	NA	3:54
	Flyover 2*	NA	NA	8:08	NA	NA	3:54
	Six-Lane	NA	NA	8:09	NA	NA	4:35
PM	Existing	7:22	NA	NA	8:00	NA	NA
	Committed	NA	9:13	19:57	NA	5:12	5:50
	434/427 Opt 1(I)	NA	8:52	20:27	NA	4:57	5:31
	434/427 Opt 2(I)	NA	7:55	20:02	NA	5:01	5:28
	Flyover 1*	NA	NA	13:05	NA	NA	3:56
	Flyover 2*	NA	NA	12:50	NA	NA	3:55
	Six-Lane	NA	NA	19:51	NA	NA	5:12

*Assumption: The Flyover captures 90% of the eastbound and westbound through volume, with 10% of through traffic remaining at-grade.

3.6.3 Evaluation Matrix

The evaluation matrix rated each option on a scale from least desirable to most desirable for twelve evaluation measures. An evaluation matrix was performed for each segment (west segment from Rangeline Road to CR 427/Ronald Reagan Boulevard and the east segment from CR 427/Ronald Reagan Boulevard to US17-92) As well as the SR 434 and CR 427/Ronald Reagan Boulevard intersection. The twelve evaluation measures were:

- Construction Cost
- Drainage Impacts
- Sustainable Design
- Pedestrian Mobility
- Bicyclist Mobility
- 2040 Travel Time
- Vehicular Access/Safety
- Ease of Implementation
- Landscaping/Beautification
- Development/Redevelopment Potential
- Right-of-way Impacts
- Environmental Impacts

Each evaluation measure was given a score, ranging from 0 to 4 points, and a corresponding symbol. In addition, each evaluation measure was weighted between 1 and 3 points. Using the rankings and weight assigned to each evaluation measure, each option for each segment was scored. The maximum possible score for each option is 100 points.

The west segment of SR 434 between Rangeline Road and CR 427/Ronald Reagan Boulevard had both Option 1W and Option 1E ranked close together with Option 1W having a rank of 66 while Option 1E just behind it at 65.

The east segment of SR 434 from CR 427/Ronald Reagan Boulevard to US 17-92, the highest ranking option is Option 1E with a score of 59 followed by Option 3E with a score of 58 and then Option 2E with a score of 56.

For the intersection of SR 434 and CR 427/Ronald Reagan Boulevard the highest rank belonged to the flyover bridge option with a score of 54 followed by Option 2(l) with a score of 51 and Option 1(l) with a score of 50.

The results of the evaluation matrix are displayed in **Figure 3.40**.

Figure 3.40 SR 434 Corridor Evaluation Matrix

Evaluation Measure	Weight	West - Rangeline Road to CR 427				East - CR 427 to US 17-92					CR 427 and SR 434 Intersection				Notes
		No-Build Option	Option 1W	Option 2W	6 Lane Option	No-Build Option	Option 1E	Option 2E	Option 3E	6 Lane Option	No-Build Option	Option 1(I)	Option 2(I)	Bridge Option	
1: Construction Cost	3	4	2	3	0	4	2	3	2	0	4	2	2	0	Primary consideration
2: Drainage Impacts	1	4	4	4	0	4	3	3	3	1	4	2	2	2	Tertiary consideration
3: Pedestrian Mobility	2	1	3	2	1	1	3	1	2	1	1	2	2	3	Secondary consideration
4: Bicyclist Mobility	2	0	3	2	2	0	1	2	3	3	1	2	2	3	Secondary consideration
5: Transit Mobility	2	1	2	2	2	0	2	2	2	2	0	2	2	3	Secondary consideration
6: 2040 Travel Time	3	2	2	2	4	1	1	1	1	2	0	1	1	3	Primary consideration
7: Vehicular Access / Safety	2	2	2	2	2	1	4	2	2	3	0	2	3	2	Secondary consideration
8: Ease of Implementation	1	4	2	2	0	4	2	3	2	0	4	3	2	1	Tertiary consideration
9: Landscaping / Beautification	2	0	2	2	2	0	2	1	1	2	0	2	2	2	Secondary consideration
10: Development / Redevelopment Potential	2	2	3	3	2	2	3	2	3	2	0	2	2	2	Secondary consideration
11: Right Of Way Impacts	3	4	4	4	0	4	3	4	4	0	4	2	2	2	Primary consideration
12: Environmental Impacts	2	3	3	3	2	3	3	3	3	2	4	3	3	3	Secondary consideration
TOTAL SCORE		56	66	65	38	49	59	56	58	37	44	50	51	54	

Legend

Symbol	Meaning	Points
0	Least Desirable	0
1		1
2	Neutral	2
3		3
4	Most Desirable	4

Highest Overall Scores by Segment

3.7 Conclusion

The *Corridor Alternatives and Strategies Report* is the second component of the SR 434 Corridor Study. Building upon the results of the *Existing Conditions and Characteristics Report* and also through collaboration with stakeholders and FDOT staff, the initial concepts were devised. Throughout this section, the preliminary concepts and strategies were detailed and then evaluated. Thirteen total concepts were developed for the corridor, and are categorized as follows:

- West: Rangeline Road to CR 427 (4 scenarios spanning from no-build to 6-lane widening)
- East: CR 427 to US 17/92 (5 scenarios ranging from no-build to 6-lane)
- Intersection: CR 427 and SR 434 (4 scenarios including no-build to a bridge option)

Once the concepts were finalized, they were evaluated through an intersection level of service (LOS) and corridor travel time analysis along with an evaluation matrix based on quantifiable measures. The results of the evaluation process are summarized below.

- Evaluation Matrix: The maximum possible score for each option was 100 points.
 - West: Option 1W (66 points) and Option 1E (65 points) ranked highest
 - East: Option 1E (59 points) and Option 3E (58) ranked highest
 - Intersection: Flyover Bridge Option (54 points) and Option 2(l) (51 points) ranked highest.

Now that the preliminary concepts have been identified and evaluated, the next steps for the Study will be include additional coordination with the stakeholders and FDOT staff to identify the options to carry forward. Additional analysis will be conducted and design concepts will be refined. The final component of the study, the *Corridor Action Plan*, will summarize the recommended corridor improvements and outline an implementation strategy.