

ESTERO INFRASTRUCTURE INVENTORY PROJECT

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PREPARED FOR THE VILLAGE OF
ESTERO, FL

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Executive Summary

In late 2015, the Village of Estero engaged Florida Gulf Coast University (FGCU) to conduct an evaluation of the bicycle, pedestrian, landscaping, and pavement conditions on the public roadways. This report summarizes the data collected to assess the current condition of biking, pedestrian, landscaping, and roadways in the Village of Estero. These data can be used as a benchmark upon which to assess the conditions of the sidewalks, bike lanes, and roadways in the Village. It also can be used for future decision making and to identify funding priorities.

Data Collection

Data collection began with aerial analysis using satellite photos. The analysis measured roadway widths, lengths and condition of sidewalks, buffer zones, bike lanes, turn lanes, roadways, medians, and landscaping. Once this was accomplished, data was collected through a walk through surveying to assess the condition of the pavement and the existing quality of sidewalk, bicycle, and landscaping. Each street was digitally recorded, walked, measured, and evaluated.

In order to accomplish these tasks a systematic approach was developed. This consisted of breaking the roadways into sections. Each section was 500 feet with half-mile intervals. To maintain consistency, each measurement road survey would be measured from north-to-south or east-to-west. The first step in the evaluation was to capture the current road conditions; this was done with the use of a vehicle mounted camera where all streets in the Village were recorded. Digitally recording allowed the Team a more comprehensive understanding of all of the roadways. It will also serve as a 'time capsule' or benchmark for future use by engineers and planners. This system ensured that an unbiased approach was taken throughout the entire network. It also provides assurance that all streets were accounted for and assessed.

Analysis and Recommendations

This report provides a summary of the condition and existence of infrastructure in the Village in both table and GIS format. For the roadways, it concludes that 12% of roadways require immediate attention. It also concludes that several improvements to the existing bicycle/pedestrian infrastructure could benefit the Village by creating a better network and provide connectivity throughout the Village and to other county facilities. A formal bicycle / pedestrian plan may also be of significant benefit to identify future opportunities beyond what exists today.

Study Context and Methodology

INTRODUCTION AND OVERVIEW

In October 2015, the Village of Estero engaged Florida Gulf Coast University (FGCU) to assess the Village's existing infrastructure conditions and needs. The intent of the project was to prioritize improvements and investments for the Village of Estero's future capital improvement program (CIP) planning and budgeting process as well as to identify future opportunities. The specific tasks included a comprehensive inventory of existing bicycle and pedestrian facilities, landscaping, and roadways; an assessment of the condition of existing facilities; and recommendations for improvements or pilot projects.

The inventory process and analysis was led by a team at FGCU. This Team consisted of faculty who have expertise in bicycle/pedestrian planning; roadway and pavement evaluation, land use planning, and geographical information systems (GIS) as well as advanced graduate and undergraduate students.

STUDY AREA

State, county, and local corridors with the boundaries of the Village of Estero were assessed. Streets and roadways that lie inside the gated communities were excluded. Figure 1 shows the boundaries of the study area.¹

¹ All maps are also provided in the Appendix in a larger format.

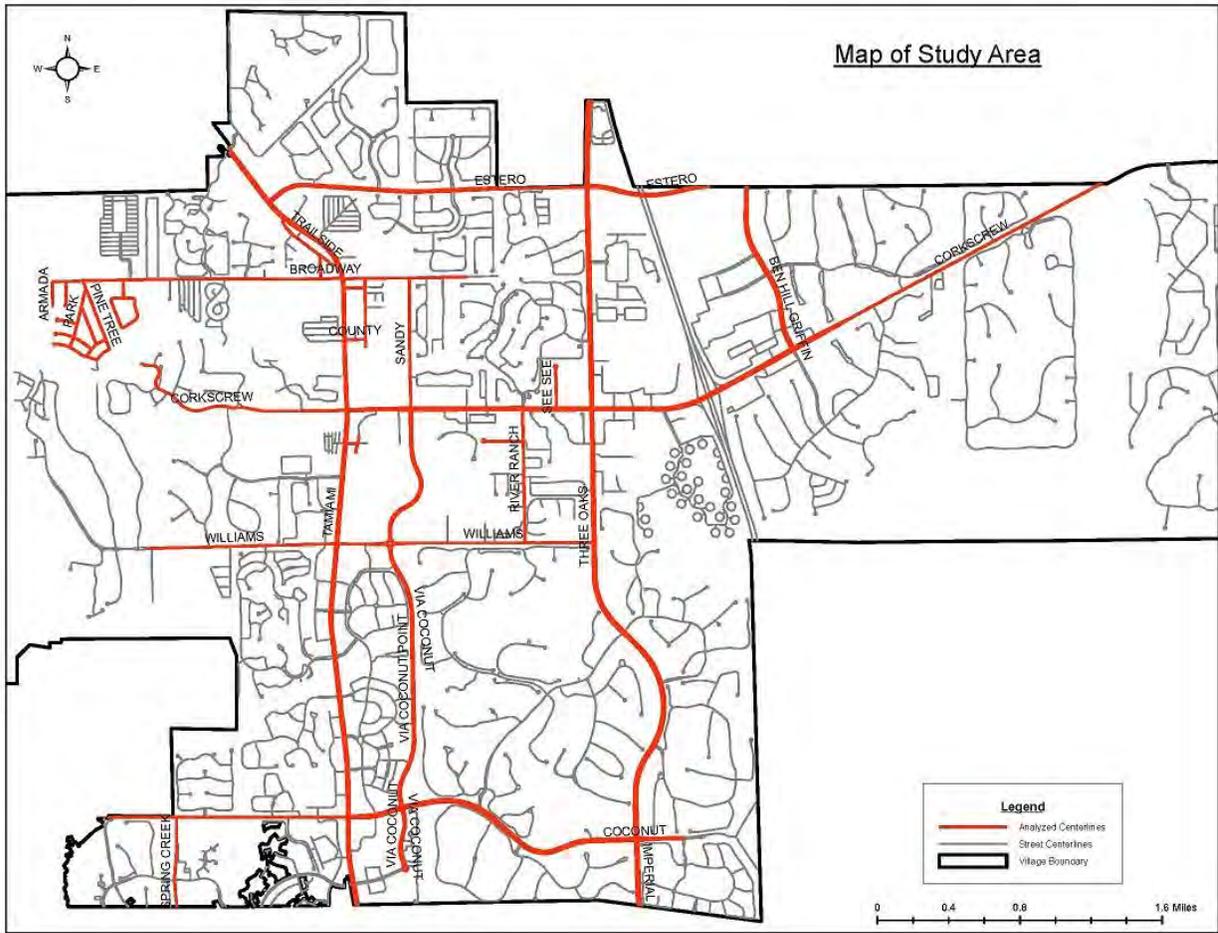


Figure 1: Study Area

Methodology and Approach

OVERALL INVENTORY APPROACH

To approach this project, the Team met with community and Estero area representatives, developed an inventory process (described below), conducted cross-training, and completed a comprehensive inventory of roadway, landscape, and bicycle/pedestrian facilities using existing and new data. The Team collected new data through field reviews, otherwise known as 'ground truthing'. All facilities were mapped using Global (Geographic) Information System (GIS).

- Bicycle and pedestrian facilities were assessed for their location, type of facility, safety, and adequacy.
- Roadways were assessed for their condition, including surface distress condition survey (cracks, and raveling) and the timeframe associated with repairs. The assessment was based on the 2015 Florida Department of Transportation (FDOT) - Pavement Condition Survey Handbook (FDOT 2015). The Condition Survey is a systematic approach to collecting and presenting existing road information. Originally, a pavement's relative ability to serve traffic was determined quite subjectively by visual inspection and experience. Although various sophisticated equipment has been developed overtime, the visual distress survey has been widely used to assess the condition of roadways. The following will also be included: A surface distress condition survey, limited structural condition survey, and a functional condition survey.
- Landscaping conditions were inventoried according to existing landscaping and appropriateness to the context.

FIELD SURVEY METHODS

To conduct all of the assessments, the Team used a combination of video footage, visual surveys, and measurements from Google Maps and Google Earth.

The field survey involved of about 31 centerline miles (98 lane miles) of paved roads in the network system. The purpose of the survey was to identify the facilities, pavement distresses such as cracking, raveling, potholes, and patching, evaluation of bicycle path, sidewalk, and landscaping conditions in the Village. In addition, the pavement condition survey was used to provide the Village of Estero with different alternatives for rehabilitation treatments within critical timeframes for improvement. The goal for the bike/ped facilities and landscape survey was to develop

recommendations and priorities for future investments. In order to accomplish the work described above the follow procedures were developed:

1) To ensure consistency and accuracy, each student was first trained by Dr. Banyan and Dr. Villiers at FGCU.² The faculty and students conducted a trial survey on a selected roadway in the Village. Based on this trial survey, the Team estimated the time that would be needed to complete the full inventory for the entire Village. To minimize bias, all the roadways were assessed by more the than one assistant. At least one faculty was present at all times during the walk through survey. This was done to maintain quality and safety in the field. At the end of each section, the assistants compared notes and discussed any major differences.

2) A drive through survey was conducted using 4K Ultra HD high resolution GoPro video camera. Recordings were performed on both sides of the roads. The data obtained from this process was used to evaluate the pavement and other facility conditions. These data can serve as a benchmark of the conditions of the infrastructure upon acceptance by the Estero Village officials. The video can also be used for future work such as bidding and assessment of the roadways condition over time. Several State and County Department of Transportation (DOT) including Florida DOT and Lee County DOT have been using this video-log technique to assess their pavement infrastructure. The benefit of this image acquisition is to obtain right-of-way data, railroad crossing identification, signs, traffic signals and intersections, edge line of pavements, sidewalk and landscaping conditions, pavement images for automated pavement distress evaluation, and possible perspective of traffic flow at the time of the survey.³

3) A procedure was developed to divide each roadway into different sections. Each section was 500 feet long with ½ a mile distance in-between. This provided an unbiased approach to evaluate the infrastructure. Google Earth was used to pin point the beginning and ending location of the sections.

4) A visual survey was conducted using a "walk-and-look" survey whose main focus was to evaluate and "ground truth" the conditions of the pavement, bicycle path, sidewalk, and landscaping. The information recorded included the number of lanes of pavement, width of side work, sidewalk buffer, bicycle lanes, pavement lanes, and median, conditions of pavement, bicycle path, and landscaping. For the pavement conditions, the work was conducted based on the Florida

² Student assistants may be identified in this report as "Assistant 1", "Assistant 2", and etcetera.

³ The final deliverable for this project includes the video files.

Department of Transportation (FDOT) guidelines as highlighted on the 2015 Flexible Pavement Condition Survey Handbook.⁴ This visual distress survey is widely used and still considered the best way to assess conditions of roadways, especially on a project level.

INFRASTRUCTURE EVALUATION

Pavement

Cracking is one of the most important distress types of asphalt pavement. Cracking in this report is classified as alligator cracking and longitudinal cracking, characteristics based on their type, extent, and severity. FDOT considers three types of cracking in their flexible pavements handbook (FDOT 2015). The classes of cracks are described as follows:

Class IB - Hairline cracks that are less than or equal to $\frac{1}{8}$ inch (3.18 mm) wide in either the longitudinal or transverse direction. These may have slight spalling and slight to moderate branching. These cracks are estimated individually for the total linear length of the cracks. The width of the affected area is considered one (1) foot (0.30 m).

Class II - Cracks greater than $\frac{1}{8}$ inch (3.18 mm) and less than $\frac{1}{4}$ inch (6.35 mm) wide in either the longitudinal or transverse direction. These may have moderate spalling or severe branching. Also includes all cracks less than $\frac{1}{4}$ inch (6.35 mm) wide that have formed cells less than 2 feet (0.61 m) on the longest side, also known as alligator cracking. Class II cracks are considered rectangular, and the total affected area in square feet is counted.

Class III - Cracks greater than $\frac{1}{4}$ inch (6.35 mm) wide that extend in a longitudinal or transverse direction and cracks that are opened to the base or underlying material. Also includes progressive Class II cracking resulting in severe spalling with chunks of pavement breaking out. Class III cracks are considered rectangular, and the total affected area in square feet is counted.

Roughness/Raveling is an important distress factor to consider a pavement condition survey. Roughness is a measure of a pavement's functional performance; that is, how well the pavement is providing a smooth, safe ride to the traveling public. Roughness can develop from surface

⁴ Florida Department of Transportation, "2015 Flexible Pavement Condition Survey Handbook" In Florida Department of Transportation Website: <http://www.dot.state.fl.us/statematerialsoffice/administration/resources/library/publications/researchreports/pavement/flexiblehandbook.pdf>, last access August 2015, State Materials Office and the State Construction Office, Gainesville, FL, January 15, 2015.

irregularities that are built into the pavement during construction and surface irregularities that develop after construction (due to traffic loading, climatic effects, and other factors). The severity levels used by FDOT to describe raveling are as follows:

Light - The aggregate and/or binder has begun to wear away but has not progressed significantly, with some loss of aggregate.

Moderate - The aggregate and/or binder has worn away and the surface texture is becoming rough and pitted; loose particles generally exist; loss of aggregate has progressed.

Severe - The aggregate and/or binder has worn away and the surface texture is very rough and pitted, loss of aggregate very noticeable.

Patching is defined as an area of the pavement that has been replaced with a newer material after the time of original construction. According to FDOT, patching should reflect a defect in the pavement that has been repaired.⁵ In this report, only significant areas of patching were considered.⁶

Sidewalk, Bicycle Lanes, and Landscaping

The remaining infrastructure was assessed using a scoring protocol adapted from two well-respected bicycle / pedestrian audit tools. The first tool is a comprehensive survey of the physical environment, called the “Spaces Instrument”.⁷ This protocol includes such items as walking and cycling paths, street assessment (crossing aids, streetlights, etc), and an overall assessment. The second protocol, the “Pedestrian Environment Data Scan” (PEDS), was slightly newer.⁸ It provided additional items to measure that are important for the pedestrian environment. The protocol appears in Appendix A. In order to enter that data into a GIS format, the Team developed a second series of data points or measures that were based on these protocols. These measures were documented in a code book and defined. The code book appears in Appendix B and the measures

⁵ Ibid.

⁶ Rutting is another form of distress, however, that analysis is beyond the scope of this work due to the need to block traffic and obtain approvals.

⁷ The University of Western Australia (2003). Survey of the Physical Environment in Local Neighbourhoods, Spaces Instrument: Observers Manual. Nedlands, Western Australia.

⁸ Livi, Andrea D. (2004). Pedestrian Environment Data Scan. National Center for Smart Growth. College Park, MD.

are summarized in Table 1 below. The measures are further described in the findings section of this report.

Table 1: Data Points for Pedestrian, Bicycle, and Landscape

Pedestrian	Bicycle	Landscape
<ul style="list-style-type: none"> • Uses in Segment • Traffic Volume • Sidewalk Location • Sidewalk Type • Sidewalk Material • Sidewalk Condition • Sidewalk Buffer • Buffer Distance • Pedestrian Connectivity • Driveways per block • Sidewalk Width • Curb Type • Sidewalk Lighting • Shade Tree Density • Land Use Mix 	<ul style="list-style-type: none"> • Bike facility location (one or both sides of the street) • Bike facility type (shared use path / marked bike lane) • Bike facility width • Bike facility condition 	<ul style="list-style-type: none"> • Voltage of Power • Width of median • Landscaped median • Irrigated Median • Landscaped Roadside • Utilities in Roadside

DEVELOPING RECOMMENDATIONS

Following the infrastructure inventory, the information gathered was analyzed and mapped. The Team then hosted a “Recommendations Conference” where experts in bicycle/pedestrian, landscaping, and pavement discussed the findings and recommended improvements. This approach allowed the Team to develop recommendations from multiple interests and perspectives.



Figure 2: Recommendations Conference Participants at Work

The recommendations do not propose to identify all of the constraints on the Village in terms of available resources or current development standards / guidelines. For example, the entity that will be responsible for the roadways in the Village is not yet known. Second, the Team recognized that opportunities for improving the infrastructure and facilities are context-sensitive in that opportunities for improvement may coincide with grants or priorities outside the Village’s jurisdiction (such as those at the Lee County or MPO level). Finally, the Team considered that solutions are both context-sensitive in terms of treatment (in that not all roadways demand the same solution) and context-sensitive in terms of timing (opportunities for improved sidewalks may coincide with utility repair or potential development of the Village Center). As a result, these recommendations are centered on improvements to the existing infrastructure that would benefit the residents from a travel, connectivity, and safety perspective.

Results & Recommendations

PAVEMENT ANALYSIS: FIELD DISTRESS SURVEY

Data collection was accomplished by visual inspection to assess the distresses present within each roadway section in the Village. The data obtained for each section were processed and analyzed. The videos obtained for the drive-through survey were also processed to identify any major differences in the rest of the roadways that were not part of the walk-through survey. About 30 Centerline miles of roadways were assessed using the 2015 Florida Department of Transportation Pavement Condition Survey Handbook. The distresses measured are reported in terms of cracking, raveling, and patching. Based on the conditions of the pavement, the following rating/terminology was used:

Poor Conditions - Extensive cracking (Class III), numerous/deep potholes or advance/severe moisture damage, and/or moderate to severe raveling.

Fair Conditions - Moderate cracking (Class II or Type II)⁹, few potholes or advance moisture damage, and/or moderate raveling.

Good Conditions - No/minor hair cracks (Class IB), early signs of moisture damage, and/or light raveling.

Roads Needing Immediate Attention

Several potholes, extensive cracking, and/or moderate raveling were observed on Estero Parkway, Poinciana Avenue, and Trailside Drive. These streets cover about 12 lane miles of pavement (see Table 2 below). These roads are categorized as in poor condition. Immediate attention is recommended. The conditions of these roadways may deteriorate very rapidly, which may result in a much more expensive solution to rehabilitate them. For example, one hundred percent (100%) of the total surface area on Estero Parkway has extensive raveling (Figure 3). At some locations the base materials are exposed. Extensive cracking and patching were observed in Poinciana Avenue (Figures 4 and 5). Some type II block cracking was observed on about the entire pavement of

⁹ This report uses the terminology Type II and Class II interchangeably.

Trailside Drive (Figure 6). It is recommended to repave these roadways within the next year. Additional information about each of these roadways is also provided in Appendix A.

Table 2: Streets that Need Immediate Attention

Street Name	Distance (ft)	Distress/concern	Recommendations / Actions
Estero Parkway	9,504	Severe raveling throughout the entire road. It is quite possible the road was never completed. Pavement appears to be very thin and is not flush with curbing (~1 inch). Light to moderated cracking.	Immediate attention is recommended. Re-pave at the earliest possible.
Poinciana Avenue	661	Severe raveling throughout the entire road. Road base can be seen through the cracks, depressions from erosion on the shoulder, as well as potholes and patching throughout.	Immediate attention is recommended. Re-pave at the earliest possible.
Trailside Drive	2,166	Moderate, type II block cracking is present throughout the entire road.	Immediate attention is recommended. If re-paving is not an option at this time, at the minimum, monitor crack propagation in the next year or so. Re-evaluated in the next year to ensure that condition does not worsen.



Figure 3: Severe Raveling & Road Not Flush with Curbing - Estero Parkway



Figure 4: Exposed Base and Type III Alligator Cracking - Poinciana Avenue



Figure 5: Potholes and Large Patches – Poinciana Avenue



Figure 6: Type II Block Cracking Throughout - Trailside Drive

Roads Needing Evaluation in 2-3 Years

Table 3 contains roadways in which cracks have started to propagate. These streets cover about 20 lane miles of pavement in the Village. Additional information about these roadways are provided in Appendix A. In general most of these roads listed in the table are in good-to-moderate conditions. However, these cracks in some instances cover roughly 25% of the surface area on these roads. These roads should be reevaluated in two to three years.

It is important, however, to also highlight Broadway Avenue (about 5 lane miles), Sandy Lane (about 1.5 lane miles); and Charing Cross Circle (about 1.25 lane miles). These three roadways contain some type II/III cracking and light-to-moderate raveling that may need additional attention. These are highlighted in yellow on the table. The distresses cover about forty percent (40%) of the surface area on these three roadways. Longitudinal and alligator cracking especially in the wheel path or centerline was present on Broadway Avenue (West side of US 41) (Figure 7) and Sandy Lane (Figure 8 & 9). About ten percent (10%) of back slope of drainage exits on the side of these roads. Although the cause of the distress observed on Broadway Avenue and Sandy Lane is beyond the scope of this work, it appears that the drainage provides inadequate lateral support which may in turn accelerate the conditions on these roads.

Table 3: Streets that need to be Re-evaluated in the Next Two or Three Years

Street Name	Distance (ft)	Distress/concern	Recommendations / Actions
Armada Court	792	Road is in fair condition. Type IB cracking throughout.	Re-evaluate in the two to three years.
Broadway Avenue*	12,778	Road is in fair condition. Light raveling east of US 41. Type IB cracking visible and type II longitudinal crack along the centerline.	Re-evaluate in the two to three years – consider scope of distress
Charing Cross Circle*	3,274	Road is in fair condition. Moderate raveling and many type IB and type II cracks present.	Re-evaluate in the two to three years - consider scope of distress
Coconut Drive	1,320	Road is in fair condition. Many type IB and type II cracks present.	Re-evaluate in the two to three years
Coralee Avenue	1,214	The road is in good condition. Some type IB cracking throughout.	Re-evaluate in the two to three years
County Road	528	Road is in fair condition. Moderate raveling and many type IB cracks throughout.	Re-evaluate in the two to three years
Highlands Avenue	1,848	Road is in fair condition. Light raveling and many type IB and some type II cracks present.	Re-evaluate in the two to three years
Lords Way Street	580	Road is in fair condition. Moderate raveling and many type IB cracks throughout.	Re-evaluate in the two to three years
Mederia Lane	686	Road is in fair condition. Many type IB and fairly severe type II crack that should be monitored.	Re-evaluate in the two to three years
Palmetto Terrace	792	Road is in fair condition. Many type IB and some type II cracks present.	Re-evaluate in the two to three years
Park Place	1,214	Road is in fair condition. Many type IB cracks throughout.	Re-evaluate in the two to three years
Pinetree Lane	2,164	Road is in fair condition. Many type IB cracks throughout.	Re-evaluate in the two to three years
Porthole Court	792	Road is in fair condition. Many type IB cracks throughout.	Re-evaluate in the two to three years

Street Name	Distance (ft)	Distress/concern	Recommendations / Actions
Riverside Drive	1,373	Road is in fair condition. Many type IB cracks throughout.	Re-evaluate in the two to three years
Royal Palm Drive	1,214	Road is in fair condition. Many type IB and some type II cracks present.	Re-evaluate in the two to three years
Sandy Lane	3,854	Road is in fair condition. Many type IB cracks, type II cracking in the wheel path, and heavy to moderate type III longitudinal cracking present.	Re-evaluate in the two to three years - consider scope of distress
See See Street	1,161	Road is in fair condition. Moderate raveling, many type IB and fairly severe type II crack that should be monitored.	Re-evaluate in the two to three years
Spring Creek Drive	2,904	Road is in fair condition. Some type IB cracking throughout and type II alligator cracking down the wheel path.	Re-evaluate in the two to three years
Williams Road	13,200	Road is in fair condition. Light raveling, some type IB cracking, few type II cracking east of round-about. West of round-about is in good condition.	Re-evaluate in the two to three years



Figure 7: Alligator and Longitudinal Cracking in Wheel Path - Broadway Avenue



Figure 8 Longitudinal and Alligator Cracking in Wheel Path - Sandy Lane



Figure 9: Type III Cracking Along Wheel Path – Sandy Lane

Roads in Good Condition

The rest of the roadways (Table 4) are in very good shape with only minor hair and/or very light raveling (see, for example, Coconut Road in Figure 10). These streets cover about 66 lane miles of pavement in the Village. Three Oaks Parkway showed some minimal cracking in between the wheel path (Figure 11). In addition only two (2) to five (5) percent of these distresses cover the surface area on these roads. As a result, no action is required on these streets.

Table 4: Streets in Good Condition

Street Name	Distance (ft)	Distress/concern	Recommendations / Actions
Ben Hill Griffin Parkway	5,280	The road is in overall good condition. Little type IB and minimal Type II cracking exists on the newer south extension.	No immediate action needed
Coconut Road	17,582	The road is in good condition. Very few type IB cracks on the eastern end.	No immediate action needed
Commons Way	580	The road is in good condition.	No immediate action needed
Corkscrew Road	27,456	Road appears to be in good condition. There were some type IB cracks on the west bound lane between US 41 and I-75.	No immediate action needed
River Ranch Road	3,960	The road is in good condition. Very few type IB cracks.	No immediate action needed
Three Oaks Parkway	23,760	The road is in overall good condition. Little type IB and minimal Type II cracking exists on the newer south extension.	No immediate action needed
Via Coconut Point	14,362	Road is in very good condition.	No immediate action needed



Figure 10: Road in Very Good Condition - Coconut Road



Figure 11: Minimal Cracking in Between Wheel Path - 3 Oaks Parkway

SIDEWALK AND SHARED USE PATH ANALYSIS

The goal of conducting a sidewalk analysis is somewhat different from a pavement analysis for several reasons. There are several main considerations for sidewalk infrastructure: a) whether the facility exists and b) the extent to which the facility is placed in areas that meet the needs of residents. Other considerations are the walking environment, which considers the comfort and usability of the facility. This project mapped the sidewalk infrastructure, assessing the following characteristics:

- Uses in Segment
- Traffic Volume
- Sidewalk Location
- Sidewalk Type
- Sidewalk Material
- Sidewalk Condition
- Sidewalk Buffer
- Buffer Distance
- Pedestrian Connectivity
- Driveways per block
- Sidewalk Width
- Curb Type
- Sidewalk Lighting
- Shade Tree Density
- Land Use Mix

In addition, the Team mapped the existing crossings throughout the Village. These crossings are important to develop a system with safe walking conditions.

This work yielded a series of maps that allowed the Team to better understand issues and opportunities. The primary issues were gaps in the sidewalk infrastructure, substandard conditions, and unsafe conditions for pedestrians. The opportunities involved access for pedestrians to recreation, education, and employment; increases in connectivity; and increased access in areas of high usage.

Using the maps that appear in Figure 12 below, the Team assessed the presence and condition of existing facilities as well as gaps.

The Team developed a series of recommendations based on the following set of criteria:

- Safe access to educational opportunities – examples include access to Estero High School
- Safe access to recreational, shopping, or employment opportunities – examples include access to Estero Community Park and future opportunities in the Village Center
- High areas of usage – defined as areas where there are many destinations within a walking distance
- Connectivity – defined as those sidewalks or streets where there are opportunities to connect existing infrastructure to create a network. Connectivity also includes connections between destinations, such as parks to parks or parks to schools.

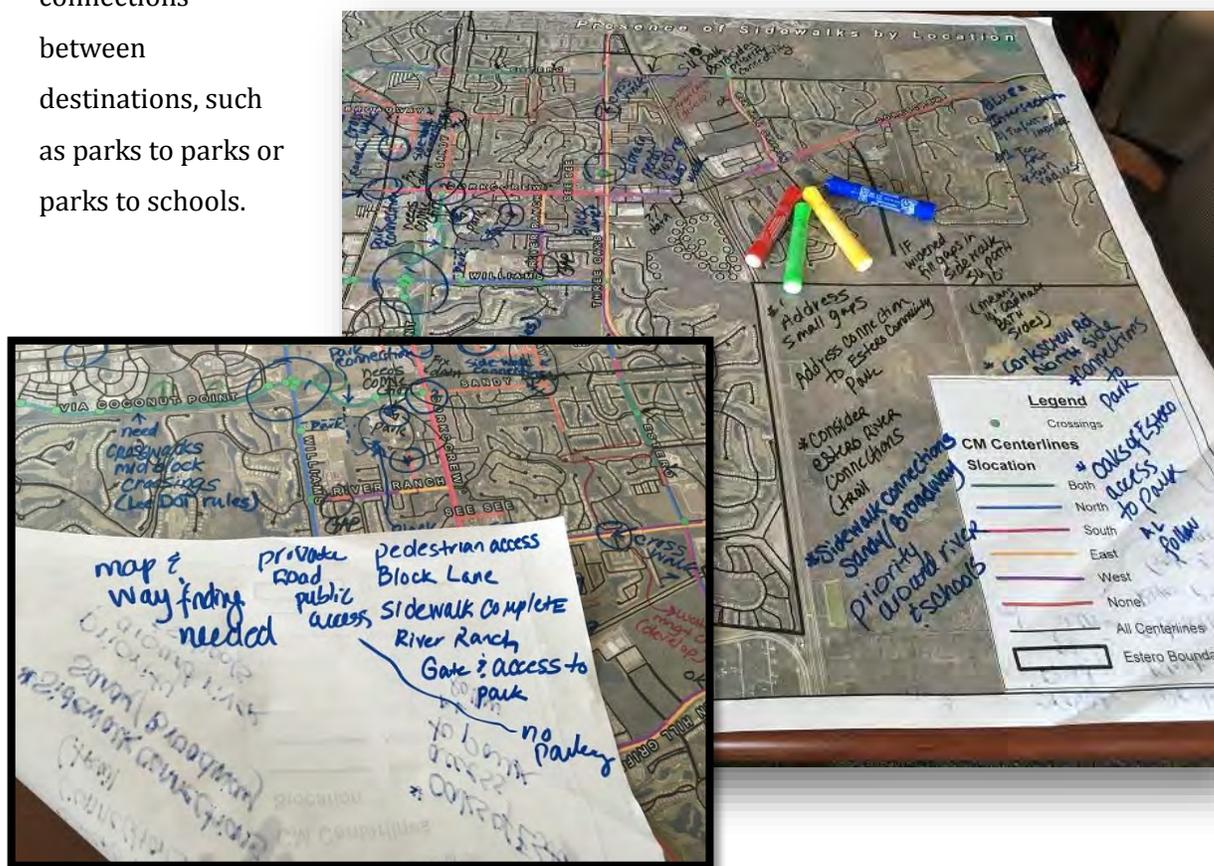


Figure 12: Recommendations at Work

This analysis yielded the recommendations that appear in Table 5 below. As noted above, this list is not prioritized in terms of immediate needs, as the opportunities for improvements are sensitive to funding availability and/or other improvements (such as utility work or repaving).

Table 5: Summary of Sidewalk Recommendations

Road / Street	Limits	Facility	Connectivity	Usage	Safety	Access
Estero Parkway	Tamiami Trail to 3 Oaks Parkway	New 10' Shared Use Path - Asphalt	✓	✓	✓	✓
River Ranch Road	Corkscrew to Williams	New Sidewalks to Repair Gaps	✓	✓	✓	✓
Connections to Estero Community Park	Via Coconut Point to Park	New Sidewalk	✓	✓	✓	✓
	Estero Park to Block Lane	New / Improved Sidewalk				✓
	Corkscrew Road (Existing Entrance) to Estero Park	Wider sidewalk				✓
Sandy Lane	Broadway to Corkscrew	New Sidewalk	✓	✓	✓	✓
	Bigelow Place to Estero River Circle	Bike/Ped Bridge over Estero River	✓			✓
Corkscrew Road	US 41 to 3 Oaks	New 10' Shared Use Path - Asphalt	✓	✓	✓	✓
Broadway	US 41 to Sandy	Sidewalk	✓			
3 Oaks Parkway	South of Coconut to City Boundary	Sidewalk repair due to tree roots			✓	
US 41 (East Side)	Covered Wagon Trailer Park to Williams Road	Sidewalk significantly under water most of rainy season		✓		✓

The map that appears in Figure 13 shows the location of existing sidewalks and sidewalk gaps. The most significant are gaps that appear on Estero Parkway from US 41 to 3 Oaks Parkway (west of the Don Eslick Bridge). Many of the participants in the recommendations conference considered

Estero Parkway to be a significant opportunity to showcase the Village's efforts to be a walkable and bikable community. This was due, in part to the opportunities for connections to residential developments and to other important facilities; including shopping and Florida Gulf Coast University.

In addition, there are many gaps on River Ranch Road near Estero High School that should be addressed. These gaps are significant because the sidewalks are primarily on one side but switch sides periodically. This presents unsafe walking conditions for students and families as it forces pedestrians to cross multiple times if they intend to use the sidewalk.

In addition, there are priority connections for pedestrians that include access to the Estero Community Park from multiple directions. There may be an existing opportunity to connect the residents along River Ranch to the Park via Block Lane and access from Via Coconut Point to the park. These connections would help to reinforce the livability and sense of place in the Village.

Though the goal of this project was not primarily to develop recommendations for future connections, there were some obvious future opportunities. For example, future connections through the Village of Estero include connecting the area's parks. The Team found it especially important to consider connections between Estero Community Park, the Estero Bay Preserve State Park, the Koreshan State Historic Site, and the potential new Village Center.

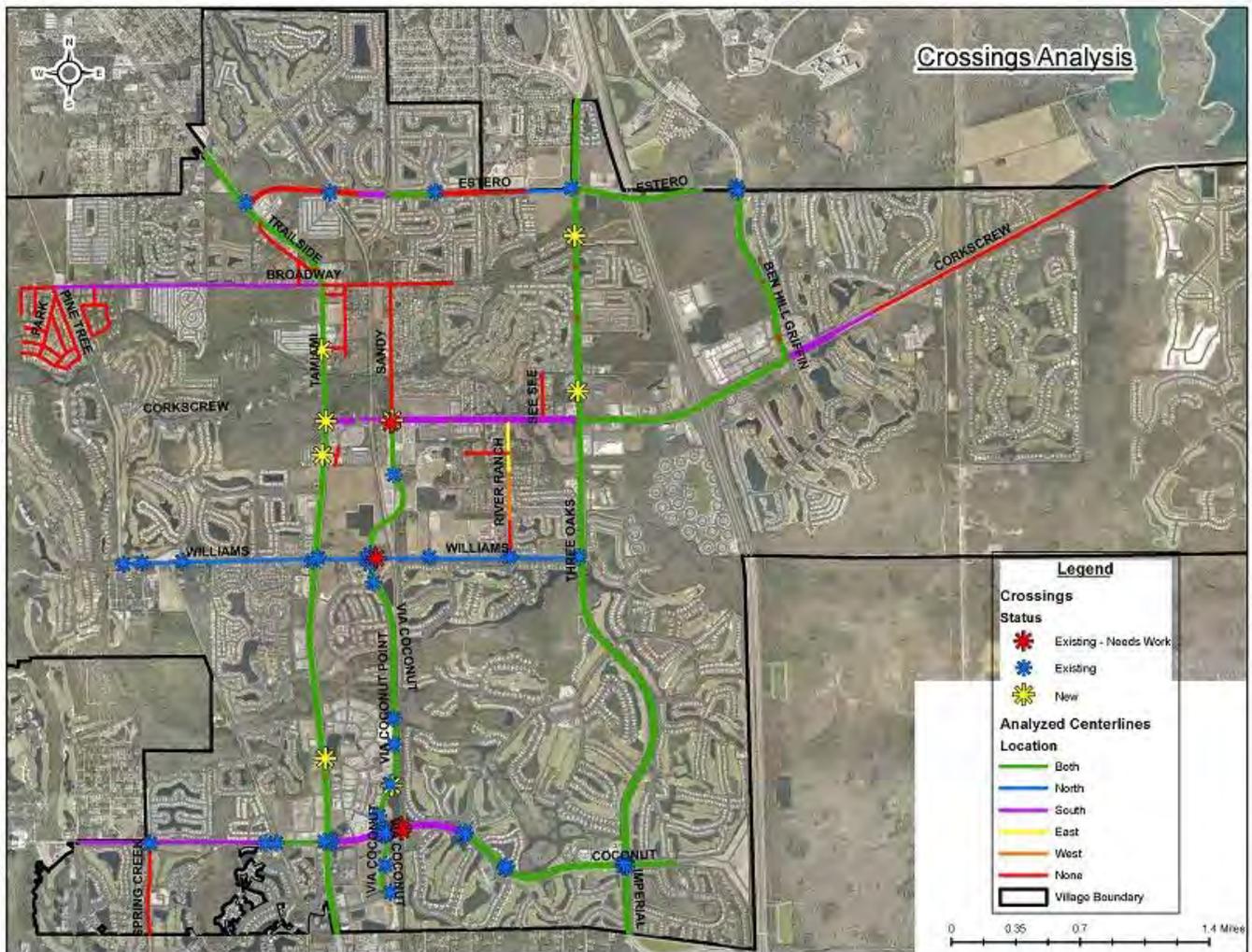


Figure 13: Sidewalks & Intersections & Crossings

INTERSECTIONS AND CROSSINGS

In addition to the sidewalks, the Team mapped many of the intersections in Estero. Intersections are particularly important from a safety standpoint because they represent conflicts between pedestrians / bicyclists and automobiles. The primary issue with the existing intersections in the Estero community is their speed. This analysis and the recommendations found three intersections that were problematic. These are indicated on map (see Figure 13) as red asterisks. They are also listed below in Table 6.

Table 6: Intersection Improvements

Intersection	Issue	Recommendation
Williams Road Roundabout at Via Coconut Point	Speed of automobiles exiting roundabout places pedestrians at risk	Place crosswalks further away from the intersection to increase site line
Crossing Via Coconut Point at Corkscrew	Speed of automobiles turning south to Via Coconut Point present safety hazard for pedestrians crossing	Consider installing island to reduce the turning radius and offer a pedestrian refuge (see Figure 14 below).
Intersection of Via Coconut Point and Coconut Road	Speed of automobiles turning present safety hazard for pedestrians crossing	Consider installing island to reduce the turning radius and offer a pedestrian refuge (see Figure 14 below). Consider timing and operation of pedestrian light.
Intersection of US 41 and Corkscrew	Speed of automobiles turning present safety hazard for pedestrians crossing	Consider installing island to reduce the turning radius and offer a pedestrian refuge (see Figure 14 below)

A primary solution to increase safety at intersections is to reduce the turning radius for vehicles. A common tool are pedestrian islands that induce traffic calming. They work to both reduce the turning radius and offer a landing / resting point for pedestrians, should it be needed. Figure 13 below is an example of one such island.

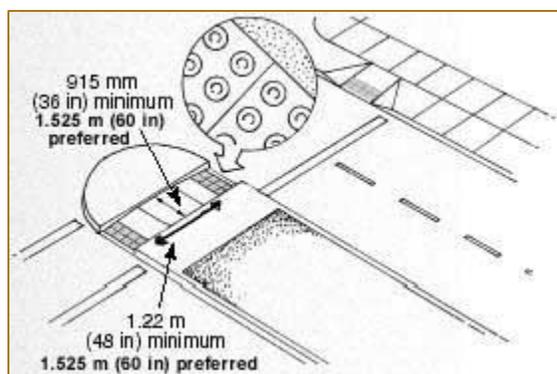


Figure 14: Pedestrian Median ¹⁰

¹⁰ From https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/sidewalks209.cfm

In addition, the Team noted that the pedestrian signal at the intersection of Via Coconut Point and Coconut Road does not automatically turn during a green light. By forcing pedestrians to activate the walk signal, it forces pedestrians to wait long periods through several cycles of lights before crossing.

The map that appears in Figure 13 graphically shows the sidewalk gaps and notable crossings in the community.

In addition to the existing intersections, there are several important new crossings that, if installed, could significantly increase the safety and walkability of the community. These are listed below in Table 7 as well as indicated in yellow asterisks on Figure 13. While several of these crossings are not in the jurisdiction of the Village of Estero, there may be opportunities to improve these intersections in the future.¹¹

¹¹ Though the purpose of this exercise was not to analyze traffic conditions, it was noted that there are problematic intersections for drivers attempting to exit their gated communities with a left-hand turn. Specifically, residents of the Cascades and the Reserve face problematic conditions.

Table 7: Potential New Crossings

Intersection	Issue	Recommendation
Corkscrew at Sandy Lane	Safety in crossing busy Corkscrew Road	New crossing needed in future to accommodate access to Estero Park
US 41 Crossing at Covered Wagon Trailer Park to Publix	Safety issue in crossing busy US 41	New crossing needed to increase safety for residents walking to shopping
US 41 Crossing at Lychee Lane (Sunny Grove Trailer Park)	Safety Issue in crossing busy US 41	New crossing needed to increase safety for residents walking to shopping
US 41 at Coconut Point Mall	Safety Issue in crossing busy US 41	New crossing needed to increase safety for residents walking to shopping
3 Oaks Parkway South of Estero Parkway	Increased access across busy 3 Oaks Parkway	New crossing needed within reasonable proximity to shopping and residential uses
3 Oaks Parkway North of Corkscrew Road to connect the library and post office	Increased access across busy 3 Oaks Parkway	New crossing needed within reasonable proximity to public and civic uses
Via Coconut Point at Coconut Point Mall	Increase access from east sidewalk to west at Coconut Point entrance	New crossing needed to accommodate pedestrians and bicyclists traveling from residential areas on the east side of Via Coconut Point to the Coconut Point Mall

BICYCLE FACILITY ANALYSIS

The bicycle facility data collection effort consisted of the following data points:

- Bike facility location (one or both sides of the street)
- Bike facility type (shared use path / marked bike lane)
- Bike facility width
- Bike facility condition

The analysis and mapping followed a similar process as described above in the section on sidewalks. A similar criteria were used to assess the recommendations for improvements. These were:

- Safe access to educational opportunities – examples include access to Estero High School
- Safe access to recreational, shopping, or employment opportunities – examples include access to Estero Community Park and future opportunities in the Village Center
- High areas of usage – defined as areas where there are many destinations within a walking distance
- Connectivity – defined as those sidewalks or streets where there are opportunities to connect destinations, such as connections between parks or parks-schools. Connectivity also included the ability to connect gaps in the infrastructure.

The recommended improvements are outlined in Table 8 below.

Table 8: Bike Facility Improvements

Road / Street	Limits	Facility	Connectivity	Usage	Safety	Access
Estero Parkway	US 41 to Don Eslick Bridge	New 10' Shared Use Path – Asphalt and Buffered and Marked Bike Lane	✓	✓	✓	✓
River Ranch Road	Corkscrew to Williams	New Bike Lanes	✓	✓	✓	✓
Connections to Estero Community Park	Corkscrew Road (Existing Entrance) to Estero Park	Bike Lane	✓			✓
Williams Road	River Ranch to Via Coconut Point	Bike Lanes	✓	✓	✓	✓
Broadway	Estero Bay Park to US 41	Paved Shoulder	✓			✓
Sandy Lane	Broadway to Corkscrew	Paved Shoulder	✓		✓	✓
Corkscrew Road	US 41 to Miramar Mall Area	New 10' Shared Use Path - Asphalt	✓	✓	✓	✓
3 Oaks Parkway	South of Estero Parkway to Village Boundary	Consider buffered bike lanes			✓	
Village Center		Consider slows streets and sharrows		✓		✓

As shown on Figure 15 below, there are many gaps in the biking facilities in the Village. There are a variety of benefits of fixing these gaps, including increased safety, usage, and reduction of vehicle miles traveled. In addition, there are connectivity benefits that could increase livability.

There are certain improvements that if made, could significantly add to a connected network. This would provide safer biking for residents in Estero. For example, a shared use path and a buffered bike lane along Estero Parkway connecting US 41 to 3 Oaks Parkway and the University Loop would significantly increase the entire network. This is also true for a bike lane on Williams that could

connect Via Coconut and 3 Oaks Parkway; creating a loop going east on Williams, south to 3 Oaks, west on Coconut, and north on Via Coconut back to Williams.

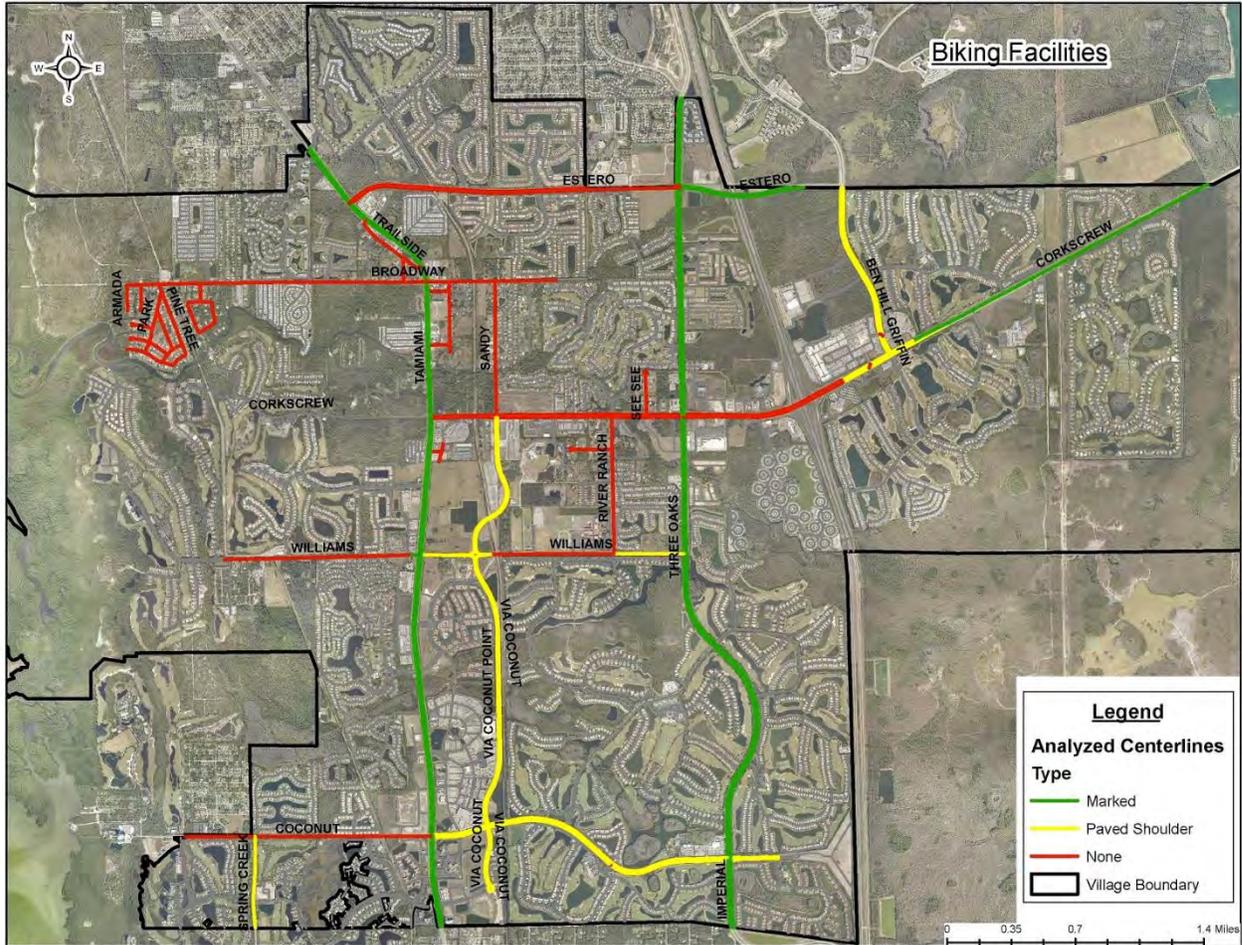


Figure 15: Estero Biking Facilities

The final set of recommendations involve opportunities with the proposed Village Center. Because the concept is to have slow and walkable streets, there is less of a need for wide bike lanes. In this instance, the recommendations are to install sharrows on slower streets. Sharrows are simply painting on the street that indicates that bicycles are welcome and should share the road with automobiles. In addition, if streets are slow, it is possible to safely share the road. An example of a sharrow appears in Figure 16.



Figure 16: Example of a Sharrow

Designing for safety

All of the treatments for biking facilities in Estero should be designed for safety.

For example, given that 3 Oaks Parkway is likely to be extended, increased traffic will affect the areas south of Estero Parkway. This will mean that safety will become a primary factor in bike facility usage.

Buffered bike lanes and lane diets should be considered as the Village continues to develop. Buffered bike lanes are those that separate the riding lane from the automobile lane. There are many examples of buffered bike lanes, including those that are created with paint, hard infrastructure, or on-street parking. Figure 16 illustrates the most common buffering with paint. This is a relatively inexpensive solution to a safety problem because it involves repainting, rather than hard infrastructure improvements.



Figure 17: Example of buffered bike lane

To make room for buffered bike lanes, lane diets narrow the travel lane, simultaneously slowing cars and making room for buffering (see Figure 17). Lane diets also work to calm traffic by making drivers feel less comfortable and thereby decreasing speed.

For example, reducing the lane width on roadways such as Estero Parkway from 12' to 11' each would create a 2' right of way "savings". The additional foot could be allocated to increase the paved shoulder and the other foot allocated to some form of buffer.¹² Given the need to rehabilitate or resurface the road would mean that this improvement would be of insignificant cost.

¹² There are no strict guidelines for buffer width. However, wider buffers increase safety and the perception of safety.



Figure 18: Lane Diet Example ¹³

Overall, the lack of connectivity that exists in the gated communities tends to force all modes of transportation onto very few roads. This creates safety issues for pedestrians and bicyclists. As the Village continues to develop, standards should be created to require future communities to create connectivity within their developments. In addition, the creation of a bike/ped master plan would be enormously important to identifying future opportunities and a multi-modal vision for the community.

¹³ From http://www.annarbor.com/assets_c/2012/10/Ann_Arbor_road_diet_100812-thumb-300x408-123936.jpg

LANDSCAPE ANALYSIS AND RECOMMENDATIONS

The Team also collected data on landscaping in the medians and roadsides. This included the following:

- Voltage of Power
- Width of median
- Landscaped median
- Irrigated Median
- Landscaped Roadside
- Utilities in Roadside

The median landscaping was mapped in a similar fashion as the other facilities. Figure 19 shows the presence of median landscaping in the Village.

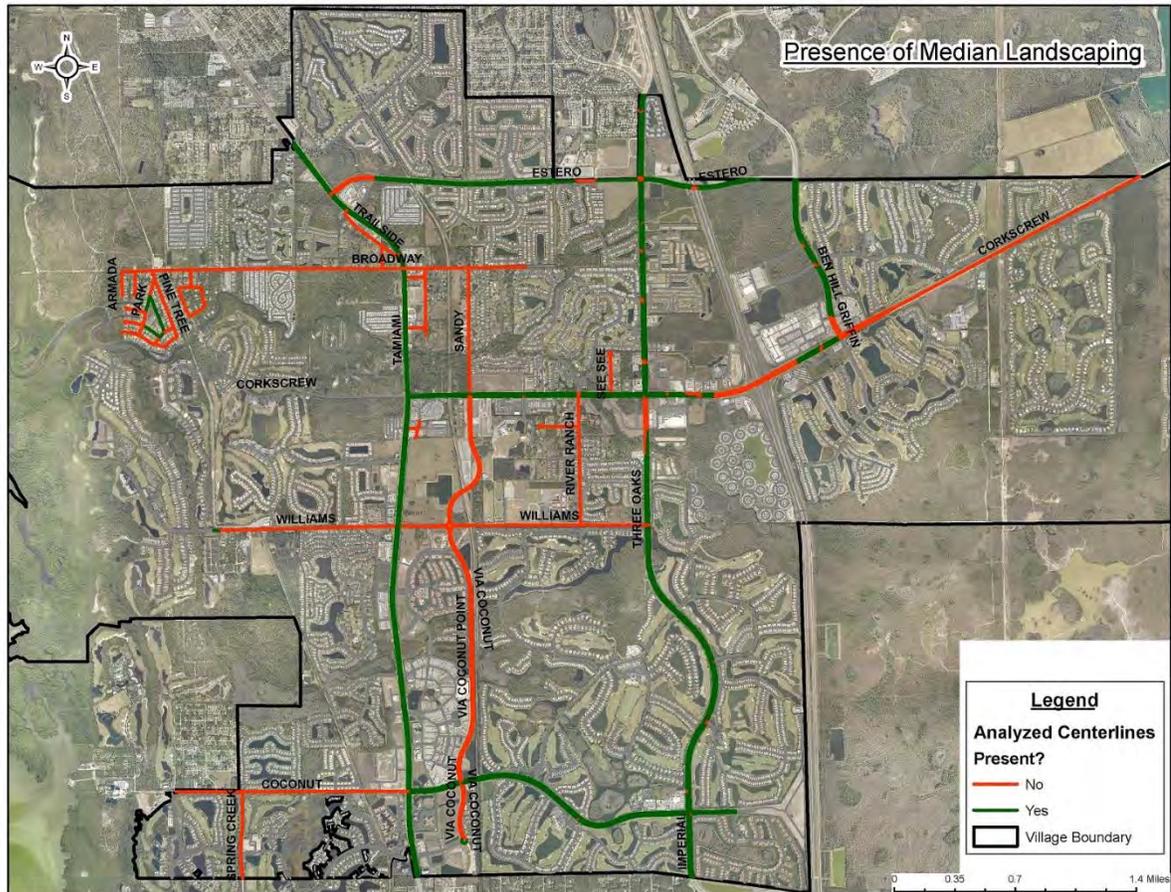


Figure 19: Median Landscaping

The recommendations group prioritized landscaping for the medians with the criteria of lower cost, aesthetic value, and enhancement of the image of the Village as the main criteria. The availability of water was a main consideration. When water is available or nearby developers are willing, the landscaping can come at a reasonable cost. In addition, landscaped medians can work to calm traffic and therefore increase safety for all users of the roadways.

The recommendations appear in Table 9 below.

Table 9: Landscaping Priorities

Road / Street	Recommendation	Priority	Cost	Aesthetic	Image
Estero Parkway at US 41	Plant median	1	✓	✓	✓
Via Coconut Point	Median planting	2	✓	✓	✓
Estero Community Park	Enhanced landscaping at entrance	3		✓	✓
Corkscrew Road	Median planting	3		✓	✓
Oakbrook	Median planting	4	✓	✓	✓
Williams Road	Planting on south side of ROW	5		✓	✓
Village Center	Consider incentives for enhanced landscaping		✓	✓	✓
Other	Consider tree planting programs for private properties		✓	✓	

Each of the landscaping priorities offer unique opportunities to enhance the image and aesthetic in the Village. In some instances, developers are now willing to offer water; in other instances, a tree program on private property is an excellent resource. Tree programs are popular across the country where municipalities or volunteer groups offer trees to property owners who are willing to provide the water and maintenance.

Conclusions

The objective of this study was to identify the infrastructure conditions in the Village of Estero, including pavement distresses, sidewalks, bicycle facilities, and landscaping conditions. In order to meet this goal, a field survey of the entire roadway of the Village was conducted.

- Overall, the roadways are in very good conditions. Only minor hair cracks and/or very light raveling (if any) were observed on about 68% (66 lane miles) of the roads. As a recommendation, no action is required on these streets.
- On some other streets, type IB cracks have started to propagate. Some of these roadways appear to be a little rougher than those classified earlier as the “no action” category. As a result, continued monitoring is recommended on these roadways. They should be reevaluated in the next two to three years. About 20% (20 lane miles) of roadways fall into this category. Broadway Avenue, Sandy Lane, and Charing Cross Circle were the three roadways in this category in which noticeable pavement distresses were observed. Special attention should be given to Broadway Avenue and Sandy Lane in particular.
- Some other areas appeared rougher (more raveling) as compared to the street mentioned earlier. These roadways represent on 12% (12 lane miles) of the total roads in the Village. These roads need immediate attention. Extensive raveling was observed especially in Estero Parkway in almost 100% of the road. In many locations the base materials were exposed and the pavement layer appeared to be very thin. Extensive cracking and patching were observed in Poinciana Avenue. Some type II block cracking was observed on about the entire pavement of Trailside Drive. It is recommended to repave these roadways within the next year or so.
- The pedestrian infrastructure analysis showed that connections in areas of high usage with safety issues would be significantly beneficial. Specifically, this included pedestrian access around Estero High School as well as the Estero Community Park.
- There are several intersections and crossings that should be considered to reduce the potential for serious accidents.
- Connecting gaps in the bicycle infrastructure network would significantly improve the opportunities to access a much larger system within and outside the Village.
- There is a need to consider the next step of creating a bicycle/pedestrian master plan that could identify additional future opportunities for a connected and integrated system.

In addition to these conclusions, the FGCU Team is waiting on an additional analysis being provided by Walk Score. This analysis will be used to create a “heat map” that can be used to prioritize projects. Walk Score is currently preparing this data on our behalf and it is expected to be completed within the next few weeks. This data will help to provide a baseline upon which future improvements can be measured.

APPENDIX A
FIELD DISTRESS SURVEY

Table A-1. Armada Court Field Distress Survey

Armada Court																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26.440336°	W81.837352°	N/A	N/A	N/A	N/A	22'3"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26.440269°	W81.837358°	N/A	N/A	N/A	N/A	19' 7"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	D	none	none	none	Drainage culvert at 322' No sidewalk No bike lanes Residential - dead end									
			JH	IB	D	none	none	none										
			Ave	IB	D	none	none	none										
			CV	II	F	none	none	none										
			JH	II	F	none	none	none										
			Ave	II	F	none	none	none										

Note: 1 mile = 5280 feet

^a Asst. = Assistant

^b Eng. = Engineer

^c - = Not applicable

^d R = Right Side of the Road

^e NA = Not available

^f L = Left Side of the Road

Table A-2. Ben Hill Griffin Parkway Field Distress Survey

Ben Hill Griffin Parkway																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	2	Begins	N26°26.876'	W81°46.479'	5'	10'	N/A	4'2"	21'7"	N/A	46'2"		22'2"	4'1"	10'8"	15'2"	5'
			Ends	N26°26.477'	W81°46.477'	7'11"	10'3"	N/A	3'10"	22'2"	N/A	45'9"		22'7"	4'3"	3'	5'2"	
2	600	2	Begins	N26°26.349'	W81°46.289'	8'3"	1'3"	11'3"	4'3"	22'	12'	30'7"	N/A	24'11"	4'2"	N/A	15'9"	4'10"
			Ends	N26°26.252'	W81°46.269'	7'11"	2'	12'	3'5"	22'7"	12'	34'6"	N/A	21'10"	3'10"	N/A	14'9"	5'1"
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	2	CV	IB	D	none	none	none	Gas Pipeline at 160' Drainage at 280' 1/4 of sidewalk repaired Esterio way sign at 148' Marked bike path									
			JH	IB	D	none	none	none										
			Ave	IB	D	none	none	none										
			CV	II	F	none	none	none										
			JH	II	F	none	none	none										
			Ave	II	F	none	none	none										
2	600	2	CV	IB	B	none	none	none	Utility at 600' Corkscrew way sign at 600' Sidewalk in bad condition 30% Cable line at 417' Drainage at 232'									
			JH	IB	B	none	none	none										
			Ave	IB	B	none	none	none										
			CV	none	none	light	4	none										
			JH	none	none	light	4	none										
			Ave	none	none	light	4	none										

Table A-3. Broadway Avenue Field Distress Survey

Broadway Avenue																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26°26.525' N26°26.523'	W81°48.059' W81°48.149'	N/A N/A	N/A N/A	N/A N/A	N/A N/A	19'9" 16'10"	N/A N/A							
2	500	1	Begins Ends	N26°26.511' N26°26.514'	W81°48.808' W81°48.898'	4'6" 5'	18'6" 16'10"	N/A N/A	N/A N/A	20'2" 20'	N/A N/A							
3	500	1	Begins Ends	N26°26.513' N26°26.515'	W81°49.407' W81°49.488'	4'11" 5'	5' 5'	N/A N/A	N/A N/A	22' 21'	N/A N/A							
4	500	1	Begins Ends	N26°26.508' N26°26.506'	W81°49.964' W81°50.055'	5'3" 5'1"	4'6" 5'	N/A N/A	N/A N/A	18'10" 20'	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	B	light	4	none	Longitudinal cracking along centerline									
			JH	IB	B	light	4	none										
			Ave	IB	B	light	4	none										
2	500	1	CV	II	F	light	4	none	Sidewalk on south (east bound) side only Longitudinal cracking in both wheelpaths Longitudinal near the shoulder Sidewalk in good condition long. In wheelpath 80% in east bound lane long. In wheelpath 20% in west bound lane									
			JH	II	F	light	4	none										
			Ave	II	F	light	4	none										
			CV	IB	C	light	4	none										
			JH	IB	C	light	4	none										
			Ave	IB	C	light	4	none										
3	500	1	CV	IB	B	light	4	none	Sidewalk in south (east bound) side only Fire hydrant at 218' Sidewalk in moderate condition									
			JH	IB	B	light	4	none										
			Ave	IB	B	light	4	none										
4	500	1	CV	IB	A	light	4	none	Sidewalk patching Sidewalk ends at end of section									
			JH	IB	A	light	4	none										
			Ave	IB	A	light	4	none										

Table A-4. Charing Cross Circle Field Distress Survey

Charing Cross Circle																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26.440139° N26.438860°	W81.832066° W81.831518°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	20'3" 20'	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	D	Moderate	4	none	Residential single family No sidewalk or bike lane Moderate raveling throughout Ecessive raveling and patching of potholes near intersection to circle									
			JH	IB	D	Moderate	4	none										
			Ave	IB	D	Moderate	4	none										
			CV	II	G	Moderate	4	none										
			JH	II	G	Moderate	4	none										
			Ave	II	G	Moderate	4	none										

Table A-5. Coconut Drive Field Distress Survey

Coconut Drive																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26.439514° N26.438237°	W81.834663° W81.834108°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	18' 19'	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	D	none	none	none	Residential single family No sidewalk or bike lane Community park located on west side									
			JH	IB	D	none	none	none										
			Ave	IB	D	none	none	none										
			CV	II	F	none	none	none										
			JH	II	F	none	none	none										
			Ave	II	F	none	none	none										

Table A-6. Coconut Road Field Distress Survey

Coconut Road																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	2	Begins Ends	N26°23.775' N26°23.760'	W81°47.210' W81°47.295'	7'7" 7'11"	11'1" 4'10"	N/A 11'6"	4'1" 4'	22' 22'2"	N/A N/A	33'7" 44'4"	11'4"	22'1" 21'11"	3'9" 4'	N/A N/A	12'1" 13'4"	8' 7'10"
2	500	2	Begins Ends	N26°23.814' N26°23.849'	W81°47.759' W81°47.834'	8'7" 8'8"	10'10" 6'3"	N/A N/A	4'1" 4'3"	21'9" 22'1"	N/A N/A	45'8" 34'9"	N/A N/A	22'5" 21'9"	3'8" 4'3"	N/A N/A	10' 5'4"	9' 8'8"
3	500	2	Begins Ends	N26°23.927' N26°23.890'	W81°48.376' W81°48.472'	N/A N/A	N/A N/A	N/A 11'9"	4'9" 4'2"	22'11" 22'9"	N/A 13'9"	35'5" 30'	11' N/A	22' 22'4"	3'10" 4'5"	11'3" N/A	N/A 6'7"	8'7" 8'1"
4	500	2	Begins Ends	N26°23.880' N26°23.882'	W81°49.071' W81°49.164'	8' 7'10"	25'7" 24'5"	N/A N/A	N/A N/A	24'9" 24'2"	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A
5	500	2	Begins Ends	N26°23.876' N26°23.875'	W81°49.721' W81°49.813'	8' 7'10"	22' 22'	N/A N/A	N/A N/A	25'5" 27'2"	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	2	CV JH Ave	IB IB IB	A A A	none none none	none none none	none none none	Light sidewalk cracking Asphalt sidewalk									
2	500	2	CV JH Ave	none none none	none none none	none none none	none none none	none none none	Light sidewalk cracking from tree roots Asphalt sidewalk Way sign at start									
3	500	2	CV JH Ave	none none none	none none none	none none none	none none none	none none none	No sidewalk on north (west bound) side Landscaping in buffer									
4	500	2	CV JH Ave	none none none	none none none	none none none	none none none	none none none	No sidewalk on north (west bound) side Buffer with landscaping in swale 50% of sidewalk concrete w/ major cracks									
5	500	2	CV JH Ave	none none none	none none none	none none none	none none none	none none none	No sidewalk on north (west bound) side Buffer with landscaping in swale									

Table A-7. Commons Way Field Distress Survey

Commons Way																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	250	1	Begins Ends	N26.428504° N26.428481°	W81.809751° W81.810515°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	30' 34'6"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	250	1	CV JH Ave	none none none	none none none	none none none	none none none	none none none	Entrance to Estero Commons Commercial Gutters No bike lanes or sidewalks									

Table A-8. Coralee Avenue Field Distress Survey

Coralee Avenue																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26.428694° N26.428694°	W81.794833° W81.796363°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	20' 19'11"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV JH Ave	IB IB IB	D D D	none none none	none none none	none none none	No sidewalk No bike lanes Residential - dead end									

Table A-9. County Road Field Distress Survey

County Road																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26.437026° N26.436990°	W81.809067° W81.810600°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	20'2" 24'4"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV JH Ave	IB IB IB	D D D	Moderate Moderate Moderate	4 4 4	none none none	No sidewalk No bike lanes Utility - water at 490' Road need attention									

Table A-10. Estero Parkway Field Distress Survey

Estero Parkway																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	2	Begins	N26.449547°	W81790767°	N/A	N/A	N/A	3'10"	23'7"	N/A	6'8"	13'6"	23'5"	4'	12	33'6"	5'
			Ends	N26.449515°	W81.792292°	N/A	N/A	N/A	4'8"	24'	8'6"	13'	N/A	24'5"	4'	N/A	45'6"	5'
2	500	2	Begins	N26.449253°	W81.801348°	7'7"	8'	N/A	3'	23'6"	N/A	18'7"	N/A	23'	4'6"	N/A	9'	5'
			Ends	N26.449215°	W81802893°	6'6"	8'7"	12'	4'5"	23'	13'	5'6"	N/A	23'6"	3'	N/A	11'3"	4'8"
3	500	2	Begins	N26°26.964'	W81°48.794'	N/A	N/A	N/A	5'	24'	N/A	9'3"	N/A	24'	3'8"	12'9"	16'6"	5'
			Ends	N26°26.979'	W81°48.711'	N/A	N/A	N/A	5'	24'	N/A	18'4"	N/A	24'	3'	N/A	30'	5'

Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments
				Type	Code	Type	Code		
1	500	2	CV	IB	A	Severe	4	none	Severe raveling on 100% of the roadway Pavement appears to be very thin throughout Not flush with curb and gutter (~1" difference)
			JH Ave	IB	A	Severe	4	none	
				IB	A	Severe	4	none	
2	500	2	CV	IB	A	Severe	4	none	Severe raveling on 100% of the roadway Pavement appears to be very thin throughout Not flush with curb and gutter (~1" difference)
			JH Ave	IB	A	Severe	4	none	
				IB	A	Severe	4	none	
3	500	2	CV	II	E	Severe	4	none	Severe raveling on 100% of the roadway Pavement appears to be very thin throughout Not flush with curb and gutter (~1" difference)
			JH Ave	II	E	Severe	4	none	
				II	E	Severe	4	none	
			CV	IB	A	Severe	4	none	
			JH Ave	IB	A	Severe	4	none	
				IB	A	Severe	4	none	

Table A-11. Highlands Avenue Field Distress Survey

Highlands Avenue																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26.441874°	W81.809049°	N/A	N/A	N/A	N/A	19'6"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26.440506°	W81.809038°	N/A	N/A	N/A	N/A	19' 7"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments
				Type	Code	Type	Code		
1	500	1	CV	IB	C	light	4	none	No sidewalk No bike lanes Residential and chuches
			JH Ave	IB	C	light	4	none	
				IB	C	light	4	none	
			CV	II	G	light	4	none	
			JH Ave	II	F	light	4	none	
				II	G	light	4	none	

Table A-12. Lords Way Street Field Distress Survey

Lords Way Street																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26.441244° N26.441233°	W81.809132° W81.810664°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	21'7" 19'1"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV JH Ave	IB IB IB	D D D	Moderate Moderate Moderate	4 4 4	none none none	No sidewalk No bike lanes Road need attention									

Table A-13. Mederia Lane Field Distress Survey

Mederia Lane																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	480.2	1	Begins Ends	N26.438559° N26.437733°	W81.836737° W81.835288°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	19'3" 19'1"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	480.2	1	CV JH Ave CV JH Ave	IB IB IB II II II	C C C G F G	none none none none none none	none none none none none none	none none none none none none	Residential single family No sidewalk or bike lane Cracking (type II) should be monitored									

Table A-14. Palmetto Terrace Field Distress Survey

Palmetto Terrace																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26.436984°	W81.832622°	N/A	N/A	N/A	N/A	18'9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26.436203°	W81.833849°	N/A	N/A	N/A	N/A	18'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	D	none	none	none	Residential single family No sidewalk or bike lane Cracking (type II) should be monitored									
			JH	IB	D	none	none	none										
			Ave	IB	D	none	none	none										
			CV	II	F	none	none	none										
			JH	II	F	none	none	none										
			Ave	II	F	none	none	none										

Table A-15. Park Place Field Distress Survey

Park Place																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26.436455°	W81.835797°	N/A	N/A	N/A	N/A	19'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26.437733°	W81.835288°	N/A	N/A	N/A	N/A	19'6"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	D	none	none	none	Residential single family No sidewalk or bike lane Large depressed patch at 495'									
			JH	IB	D	none	none	none										
			Ave	IB	D	none	none	none										

Table A-16. Pinetree Lane Field Distress Survey

Pinetree Lane																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26.441595°	W81.834527°	N/A	N/A	N/A	N/A	18'2"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26.440316°	W81.833972°	N/A	N/A	N/A	N/A	18'10"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	D	none	none	none	Residential single family No sidewalk or bike lane									
			JH	IB	D	none	none	none										
			Ave	IB	D	none	none	none										

Table A-17. Poinciana Avenue Field Distress Survey

Poinciana Avenue																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	586	1	Begins Ends	N26°26.622' N26°26.526'	W81°48.781' W81°48.781'	N/A N/A	N/A N/A	N/A N/A	N/A N/A	20'3" 18'3"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	586	1	CV JH Ave	III III III	L L L	Severe Severe Severe	4 4 4	3 3 3	Connects neighborhood to Broadway Road Very Bad Condition Can see base through cracks depressions on shoulder potholes throughout									

Table A-18. Porthole Court Field Distress Survey

Porthole Court																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26.441607° N26.440235°	W81.836168° W81.836142°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	20' 19'10"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV JH Ave CV JH Ave	IB IB IB IB IB IB	D D D C C C	none none none none none none	none none none none none none	none none none none none none	Longitudinal crack along the centerline Residential single family No sidewalk or bike lane									

Table A-19. River Ranch Road Field Distress Survey

River Ranch Road																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26°25.779'	W81°47.678'	5'	4'3"	N/A	N/A	20'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26°25.688'	W81°47.678'	4'10"	4'5"	N/A	N/A	20'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	500	1	Begins	N26°25.319'	W81°47.678'	N/A	N/A	N/A	N/A	26'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26°25.236'	W81°47.676'	N/A	N/A	N/A	N/A	11'1"	11'2"	N/A	N/A	N/A	N/A	10'11"	N/A	N/A
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	A	none	none	none	Sidewalk on east (north bound) only Estero Place at 310' Some culverts are daamaged									
			JH Ave	IB	A	none	none	none										
				IB	A	none	none	none										
2	500	1	CV	none	none	none	none	none	Fire hydrant at 160'									
			JH Ave	none	none	none	none	none										
				none	none	none	none	none										

Table A-20. Riverside Drive Field Distress Survey

Riverside Drive																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26.441595°	W81.834527°	N/A	N/A	N/A	N/A	17'4"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26.440316°	W81.833972°	N/A	N/A	N/A	N/A	18'4"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	C	none	none	none	Residential single family No sidewalk or bike lane More long. cracking near the shoulder									
			JH Ave	IB	C	none	none	none										
				IB	C	none	none	none										

Table A-21. Royal Palm Drive Field Distress Survey

Royal Palm Drive																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26.437526°	W81.836852°	N/A	N/A	N/A	N/A	18'6"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ends				N26.437190°	W81.835378°	N/A	N/A	N/A	N/A	19'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments
				Type	Code	Type	Code		
1	500	1	CV	IB	D	none	none	none	Residential single family No sidewalk or bike lane Cracking (type II) should be monitored Park Pl intersection at section end
			JH	IB	D	none	none	none	
			Ave	IB	D	none	none	none	
			CV	II	B	none	none	none	
			JH	II	B	none	none	none	
			Ave	II	B	none	none	none	

Table A-22. Sandy Lane Field Distress Survey

Sandy Lane																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26°26.434'	W81°48.302'	N/A	N/A	N/A	N/A	23'3"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ends				N26°26.358'	W81°48.296'	N/A	N/A	N/A	N/A	22'10"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments
				Type	Code	Type	Code		
1	500	1	CV	IB	C	light	4	none	No sidewalk No bike lane Heavy to moderate longitudinal cracking Type II cracking in the wheelpaths
			JH	IB	D	light	4	none	
			Ave	IB	C	light	4	none	
			CV	II	E	light	4	none	
			JH	II	E	light	4	none	
			Ave	II	E	light	4	none	
			CV	III	I	light	4	none	
			JH	III	I	light	4	none	
			Ave	III	I	light	4	none	

Table A-23. See See Street Field Distress Survey

See See Street																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26.434546° N26.433170°	W81.791703° W81.791665°	N/A N/A	N/A N/A	N/A N/A	N/A N/A	19' 7" 22'3"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	C	Moderate	4	none	Longitudinal crack down centerline No sidewalk No bike lanes Residential - dead end									
			JH	IB	C	Moderate	4	none										
			Ave	IB	C	Moderate	4	none										
			CV	II	H	Moderate	4	none										
			JH	II	H	Moderate	4	none										
			Ave	II	H	Moderate	4	none										

Table A-24. Spring Creek Road Field Distress Survey

Spring Creek Road																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26.396418° N26.395046°	W81.826188° W81.826201°	N/A N/A	N/A N/A	N/A N/A	5'4" 6'	23'6" 23'9"	N/A N/A	N/A N/A	N/A N/A	N/A N/A	6'7" 5'3"	N/A N/A	N/A N/A	N/A N/A
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	IB	B	none	none	none	Alligator cracking in the wheelpaths No sidewalk Paved shoulder bike lane Landscaping right up to roadside									
			JH	IB	B	none	none	none										
			Ave	IB	B	none	none	none										
			CV	II	G	none	none	none										
			JH	II	G	none	none	none										
			Ave	II	G	none	none	none										

Figure A-25. Three Oaks Parkway Field Distress Survey

Three Oaks Parkway																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	2	Begins	N26°27.298'	W81°47.334'	7'	N/A	N/A	5'	22'	N/A	54'	N/A	20'	4'6"	N/A	N/A	7'
			Ends	N26°27.135'	W81°47.201'	5'9"	N/A	N/A	3'9"	22'10"	N/A	38'6"	9'6"	22'	4'	12'3"	N/A	N/A
2	500	2	Begins	N26°26.773'	W81°47.337'	6'	N/A	N/A	4'	22'	N/A	54'2"	N/A	22'	4'	N/A	N/A	6'
			Ends	N26°26.690'	W81°47.335'	5'	N/A	N/A	4'	22'	N/A	48'6"	N/A	26'9"	5'	N/A	N/A	6'
3	500	2	Begins	N26°26.289'	W81°47.326'	6'5"	N/A	N/A	4'	22'	N/A	53'7"	N/A	22'	4'	N/A	N/A	6'10"
			Ends	N26°26.209'	W81°47.328'	7'	N/A	N/A	4'	22'	N/A	27'3"	13'6"	22'	4'	N/A	N/A	7'
4	500	2	Begins	N26°25.778'	W81°47.313'	6'	1'11"	N/A	4'3"	22'	N/A	37'7"	N/A	21'7"	3'9"	N/A	N/A	6'2"
			Ends	N26°25.695'	W81°47.301'	5'10"	4'6"	N/A	4'2"	22'2"	N/A	29'8"	12'2"	22'	3'6"	12'9"	N/A	N/A
5	500	2	Begins	N26°25.191'	W81°47.304'	5'9"	8'1"	N/A	4'4"	22'	N/A	36'4"	11'4"	22'	3'11"	N/A	6'	9'9"
			Ends	N26°25.120'	W81°47.303'	5'	7'	N/A	4'	22'	N/A	43'11"		22'	5'3"	N/A	9'3"	8'11"
6	600	2	Begins	N26°24.637'	W81°47.027'	6'	5'4"	N/A	4'	22'	N/A	44'1"	N/A	25'10"	4'4"	N/A	4'9"	7'
			Ends	N26°24.586'	W81°46.969'	5'1"	4'10"	N/A	4'1"	22'6"	11'4"	33'6"	N/A	25'	4'2"	N/A	4'6"	8'5"
7	500	2	Begins	N26°24.083'	W81°47.069'	5'6"	5'	N/A	4'	22'2"	N/A	44'8"	N/A	22'2"	4'	N/A	10'3"	8'8"
			Ends	N26°24.001'	W81°46.075'	5'6"	5'4"	N/A	4'1"	25'9"	N/A	44'5"	N/A	21'9"	3'10"	N/A	7'	7'11"

Figure A-25. Three Oaks Parkway Field Distress Survey (continue)

Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments
				Type	Code	Type	Code		
1	500	2	CV	IB	A	none	none	none	Bus stop and bench in section Residential single family Gutter, no buffer, irrigation in median
			JH	IB	A	none	none	none	
			Ave	IB	A	none	none	none	
2	500	2	CV	none	none	none	none	none	Rookery Point at 150' Guardrail at 235' Bridge at 405'-477' Marked bike path
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	
3	500	2	CV	none	none	none	none	none	Utility (30-72#1) at 42' Fiber at 105' Village - Country Creek at 427' Post Office at 191' Fire Hydrant at 158' Utility (west water pump 72-22) at start
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	
4	500	2	CV	none	none	none	none	none	Marked bike path Estero Town Commons at 415' Sorkscrew waay sign at 350' Utility (cable) at 335' Guardrail at 80'-310'
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	
5	500	2	CV	IB	C	none	none	none	Cracking minly between the wheelpaths Marked bike lanes Alligator cracking in wheelpath near the shoulder
			JH	IB	C	none	none	none	
			Ave	IB	C	none	none	none	
6	600	2	CV	II	D	none	none	none	Minor hairline cracking in lanes Longitudinal in wheelpaths Minor sidewalk cracking - 0.1%
			JH	II	D	none	none	none	
			Ave	II	D	none	none	none	
7	500	2	CV	IB	D	none	none	none	Minimal sidewalk cracking Utility (cable) at 200'
			JH	IB	D	none	none	none	
			Ave	IB	D	none	none	none	
7	500	2	CV	II	B	none	none	none	
			JH	II	B	none	none	none	
			Ave	II	B	none	none	none	

Table A-26. Trailside Drive Field Distress Survey

Trailside Drive																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins Ends	N26°26.586' N26°26.624'	W81°48.704' W81°48.777'	N/A N/A	N/A N/A	N/A N/A	N/A N/A	23'6" 19'8"	N/A N/A							
2	500	1	Begins Ends	N26°26.636' N26°26.684'	W81°48.787' W81°48.860'	N/A N/A	N/A N/A	N/A N/A	N/A N/A	19'11" 19'9"	N/A N/A							
Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments									
				Type	Code	Type	Code											
1	500	1	CV	II	D	none	none	none	No sidewalk or bike lane Residential and commercial									
			JH Ave	II	D	light	4	none										
				II	D	light	4	none										
2	500	1	CV	II	D	none	none	none	No sidewalk or bike lane Residential and commercial									
			JH Ave	II	D	light	4	none										
				II	D	light	4	none										

Table A-27. Via Coconut Point Field Distress Survey

Via Coconut Point																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	2	Begins	N26.430971°	W81.804972°	5'	4'8"	N/A	4'	22'	10'	7'	N/A	22'3"	5'	N/A	5'	5'
			Ends	N26.429601°	W81.804943°	5'	5'	N/A	5'	22'	N/A	6'6"	10'8"	22'	5'	N/A	5'	5'
2	500	2	Begins	N26.423289°	W81.805584°	5'	5'	N/A	5'	21'6"	N/A	18'	N/A	22'6"	5'	N/A	5'	5'4"
			Ends	N26.422340°	W81.806654°	5'	5'	N/A	5'	22'	N/A	18'	N/A	22'	4'	N/A	5'	6'
3	500	2	Begins	N26°25.162'	W81°48.410'	5'1"	5'1"	N/A	4'2"	21'10"	N/A	14'2"	N/A	21'8"	4'	N/A	6'2"	4'11"
			Ends	N26°25.089'	W81°48.375'	5'3"	5'	N/A	4'3"	21'9"	N/A	6'7"	11'6"	22'2"	4'1"	N/A	4'6"	5'1"
4	500	2	Begins	N26°24.511'	W81°48.287'	4'11"	5'	N/A	4'	21'9"	N/A	17'9"	N/A	22'2"	4'	N/A	5'3"	5'
			Ends	N26°24.430'	W81°48.273'	5'3"	5'2"	N/A	4'	22'3"	N/A	7'2"	11'6"	21'11"	4'9"	N/A	4'10"	5'1"
5	500	2	Begins	N26°23.853'	W81°48.336'	5'	5'2"	N/A	3'10"	22'1"	N/A	18'	N/A	22'	4'2"	N/A	5'2"	5'
			Ends	N26°23.711'	W81°48.349'	5'2"	5'4"	N/A	3'10"	21'7"	N/A	18'	N/A	23'3"	3'8"	N/A	5'1"	5'

Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments
				Type	Code	Type	Code		
1	500	2	CV	none	none	none	none	none	Entrance to farm/market at 206' Grass in median and buffer needs maint.
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	
2	500	2	CV	none	none	none	none	none	Guard rail at 216'-end of section on west Grass in median and buffer needs maint.
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	
3	500	2	CV	none	none	none	none	none	No irrigation in median Grass needs to be maintained Way sign at 150'
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	
4	500	2	CV	none	none	none	none	none	Grass not well maintained Utility at 330' Guardrail at 20'-113' 0.01% on sidewalk in need of repair
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	
5	500	2	CV	none	none	none	none	none	Way sign at 700' Mirsol community at 569' Grass in median and buffer needs maint.
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	

Table A-28. Williams Road Field Distress Survey

Williams Road																		
Section	Length (ft)	Lanes ^a per Dir.	Coordinates			Road Section Measurement ^b												
			Location	Northing	Easting	Sidewalk	Buffer	Turn	Bike	Road	Turn	Median	Turn	Road	Bike	Turn	Buffer	Sidewalk
1	500	1	Begins	N26°25.228'	W81°47.414'	5'3"	22'10"	N/A	6'	24'8"	N/A	N/A	N/A	N/A	5'8"	N/A	N/A	N/A
			Ends	N26°25.226'	W81°47.497'	5'	25'1"	N/A	5'9"	24'5"	N/A	N/A	N/A	N/A	5'8"	N/A	N/A	N/A
2	500	1	Begins	N26°25.227'	W81°48.008'	5'	13'5"	N/A	N/A	22'5"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26°25.224'	W81°48.100'	5'	15'3"	N/A	N/A	23'9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	500	1	Begins	N26°25.220'	W81°48.836'	4'10"	5'2"	N/A	N/A	25'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26°25.221'	W81°48.927'	4'5"	21'6"	N/A	N/A	24'9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	500	1	Begins	N26°25.208'	W81°49.424'	5'2"	4'10"	N/A	N/A	23'4"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Ends	N26°25.206'	W81°49.520'	5'	4'4"	N/A	N/A	25'4"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Section	Length (ft)	Lanes ^a per Dir.	Eng. ^c Asst.	Cracking		Raveling		Patching Code	Section Comments
				Type	Code	Type	Code		
1	500	1	CV	none	none	light	4	none	SW good condition Bike - unmarked shoulder SW in west bound only
			JH	none	none	light	4	none	
			Ave	none	none	light	4	none	
2	500	1	CV	IB	A	none	none	none	No bike lane present in section light longitudinal hairlines in wheelpath
			JH	IB	A	none	none	none	
			Ave	IB	A	none	none	none	
			CV	II	E	none	none	none	
			JH	II	E	none	none	none	
Ave	II	E	none	none	none				
3	500	1	CV	none	none	none	none	none	Starts just after US41 No bike lane either side Water Utility at 370'
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	
4	500	1	CV	none	none	none	none	none	Drainage at 234' No bike lane on either side grass in bad condition on east bound
			JH	none	none	none	none	none	
			Ave	none	none	none	none	none	

Appendix B

Segment Type

Road Segment Type

Low volume road	
High volume road	
Bike or Ped Path	

Environment

Uses in Segment

	Side 1	Side 2
Housing-Single Family detached		
Housing-Multi-Family		
Housing-Mobile Homes		
Office/Institutional		
Restaurant/Café/Commercial		
Industrial		
Vacant/Undeveloped		
Recreation		
Agriculture		

Intersections (indicate count)

	Side 1	Side 2
3 way intersection		
4 way intersection		
Other intersection		
Deadens / path continues		
Deadens		
No intersections		

Pedestrian Facilities

Type(s) of Ped facilities

	Side 1	Side 2
Footpath (<i>worn dirt path</i>)		
Paved Trail		
Sidewalk		
Pedestrian Street (<i>no cars</i>)		

Sidewalk / Path Material

	Side 1	Side 2
Asphalt		
Concrete		
Paving Bricks or Flat Stone		
Gravel		
Dirt or Sand		

Sidewalk Condition

	Side 1	Side 2
Poor (many bumps/cracks/holes)		
Fair (some bumps/cracks/holes)		
Good (few bumps/cracks/holes)		
Under Repair		

Path Obstructions

	Side 1	Side 2
Poles or Signs		
Parked Cars		
Greenery		
Garbage Cans		
Other		
None		

Buffers between road & path

	Side 1	Side 2
Fence		
Tress		
Hedges		
Landscape		
Grass		
None		

Path Distance from Curb

	Side 1	Side 2
At edge		
< 5 feet		
> 5 feet		

Sidewalk Width

	Side 1	Side 2
4		
5		
6		
8		

Curb cuts

	Side 1	Side 2
None		
1 to 4		
>4		

Sidewalk Continuity-entire seg.

	Side 1	Side 2
Sidewalk is complete		
Sidewalk is incomplete		

Road Attributes

Number of lanes

	Side 1	Side 2
Minimum # of lanes to cross		
Maximum # of lanes to cross		

Posted Speed limit

None posted	
Enter MPH	

On -Street parking

	Side 1	Side 2
Parallel or Diagonal		
None		

Med-hi volume driveways

	Side 1	Side 2
<2		
2 to 4		
>4		

Traffic Control devices

Traffic light	
Stop sign	
Traffic circle	
Speed bumps	
Chicanes or chokers	
None	

Crosswalks

None	
1 to 2	
3 to 4	
>4	

Crossing Aids

	Side 1	Side 2
Yield to Ped Paddles		
Pedestrian Signal		
Median/Traffic Island		
Curb Extension		
Overpass/Underpass		
Pedestrian Crossing Warning Sign		
Flashing Warning Light		
Share the Road Warning Sign		
None		

Driveway Crossovers:

	Side 1	Side 2
Most buildings have one driveway		
Approx. ½ buildings have one driveway		
Approx. ¼ buildings have one "		
No driveways		

Curb type

	Side 1	Side 2
Gutter		
Swale		
V-Shaped		

Cycling Facilities

Path Type

	Side 1	Side 2
On road cycle lane- marked		
On road cycle lane sharrow		
On road cycle lane - unmarked		

Condition of bike lane

	Side 1	Side 2
Poor (a lot of bumps, cracks and holes)		
Moderate (some bumps, cracks and holes)		
Good (very few bumps, cracks and holes)		

Bicycle facilities

	Side 1	Side 2
Bicycle Route signs		
Striped bicycle lane designation		
Bicycle crossing warning		
No bicycle facilities		

Bike parking facilities:

	Side 1	Side 2
Bike locker or enclosure		
Bike parking or U rails		
Rack or stand		
None		

Bus stops

	Side 1	Side 2
Bus stop with shelter		
Bus stop with bench		
Bus stop with signage only		
No bus stop		

Environment

Wayfinding aids?

	Side 1	Side 2
No		
Yes		

Are destinations present?

	Side 1	Side 2
Yes		
No		

Other Routes available

	Side 1	Side 2
Lane		
Access lane through cul-de-sac/no		
Through road		
Path through park		
None		

Streetlights

	Side 1	Side 2
Yes		
No		

Does lighting cover path area?

	Side 1	Side 2
Yes		
No		

Amenities (*all that apply*)

	Side 1	Side 2
Public garbage cans		
Benches		
Water fountain		
Street vendors/ vending machines		
No amenities		

Landscaping

Degree of enclosure

	Side 1	Side 2
Little or no enclosure		
Some enclosure		
Highly enclosed		

Powerlines along segment?

	Side 1	Side 2
Low Voltage/ Distribution line		
High Voltage/ Transmission line		
None		

Number of trees – walking area:

	Side 1	Side 2
1 or more per house block		
Approx. 1 tree for every 2 house blocks		
Approx. 1 tree for every 3 or more house blocks		
No trees		

Median

Width (from outside of curb)	
Landscaped (Y/N)	

Billboards

	Side 1	Side 2
Single-Sided		
Double-Sided		
None		

Roadside

	Side 1	Side 2
Utilities?		
Easements?		
Water Retention Areas?		
Landscaped?		

Subjective Assessment (Entire Segment)

1=Strongly Agree 2=Agree
3= Disagree 4= Strongly Disagree

...Is attractive for walking	
...Is attractive for cycling	
...Feels safe for walking	
...Feels safe for cycling	
...Physically easy for walking	
...Physically easy for cycling	

Name

Date / Time	
Segment	
Road	

If Road is E/W
 Side 1 = North
 Side 2 = South

If Road is N/S
 Side 1 = West
 Side 2 = East

	A	B	C	D	E	F	G	H	I	J
1	Variable	Label	Type of Data	Value Labels	Notes					
2	Uses	Uses in Segment	Character	Single family	<i>document majority of use</i>					
3				Multi family						
4				Mobile homes						
5				Office						
6				Commercial		<i>restaurants, retail</i>				
7				Industrial						
8				Vacant						
9				Recreation		<i>include parks</i>				
10				Agriculture						
11										
12	Volume	Traffic Volume	Character	High						
13				Medium						
14				Low						
15										
16	Slocation	Sidewalk Location	Character	None						
17				North						
18				South						
19				East						
20				West						
21				Both						
22										
23	Stype	Sidewalk Type	Character	Sidewalk	<i>Developed</i>					
24				Footpath	<i>Not developed</i>					
25				Multiuse Trail	<i>Developed</i>					
26										
27	Smaterial	Sidewalk Material	Character	Asphalt						
28				Concrete						
29				Gravel						
30				Dirt or Sand						
31				Pavers						
32										
33	Scondition	Sidewalk Condition	Character	Good						
34				Fair						
35				Poor						
36				Repair						
37										
38	Buffer	Sidewalk Buffer	Character	Fence	<i>Buffer between sidewalk and roadway</i>					
39				Trees						
40				Hedges						
41				Grass						
42				No Buffer						
43										
44	BufferDis	Buffer Distance	Character	0	<i>Distance between sidewalk & roadway</i>					
45				5 or less						
46				5 or more						
47										
48	PedConnect	Pedestrian Connectivity	Character	300 or less	<i>Distance (feet) btween intersections or mid-block crossings</i>					
49				301-400		<i>Look at distance between majority of intersections</i>				
50				401-500		<i>Do not include driveways</i>				
51				501-600		<i>Count crosswalks as intersections</i>				
52				over 600						
53										
54	Driveways	Driveways per block	Character	High	<i>1 driveway per 300 feet</i>					
55				Moderate		<i>1 driveway per 600</i>				
56				Low		<i>1 driveway per 900 feet</i>				
57				None		<i>no driveways in segment</i>				
58										
59	Swidth	Sidewalk Width	Numeric		<i>measure width of sidewalk</i>					
60										
61	Curb	Curb Type	Character	Gutter	<i>Curb & Gutter or Swale</i>	Gutter	Swale			
62				Swale						
63										



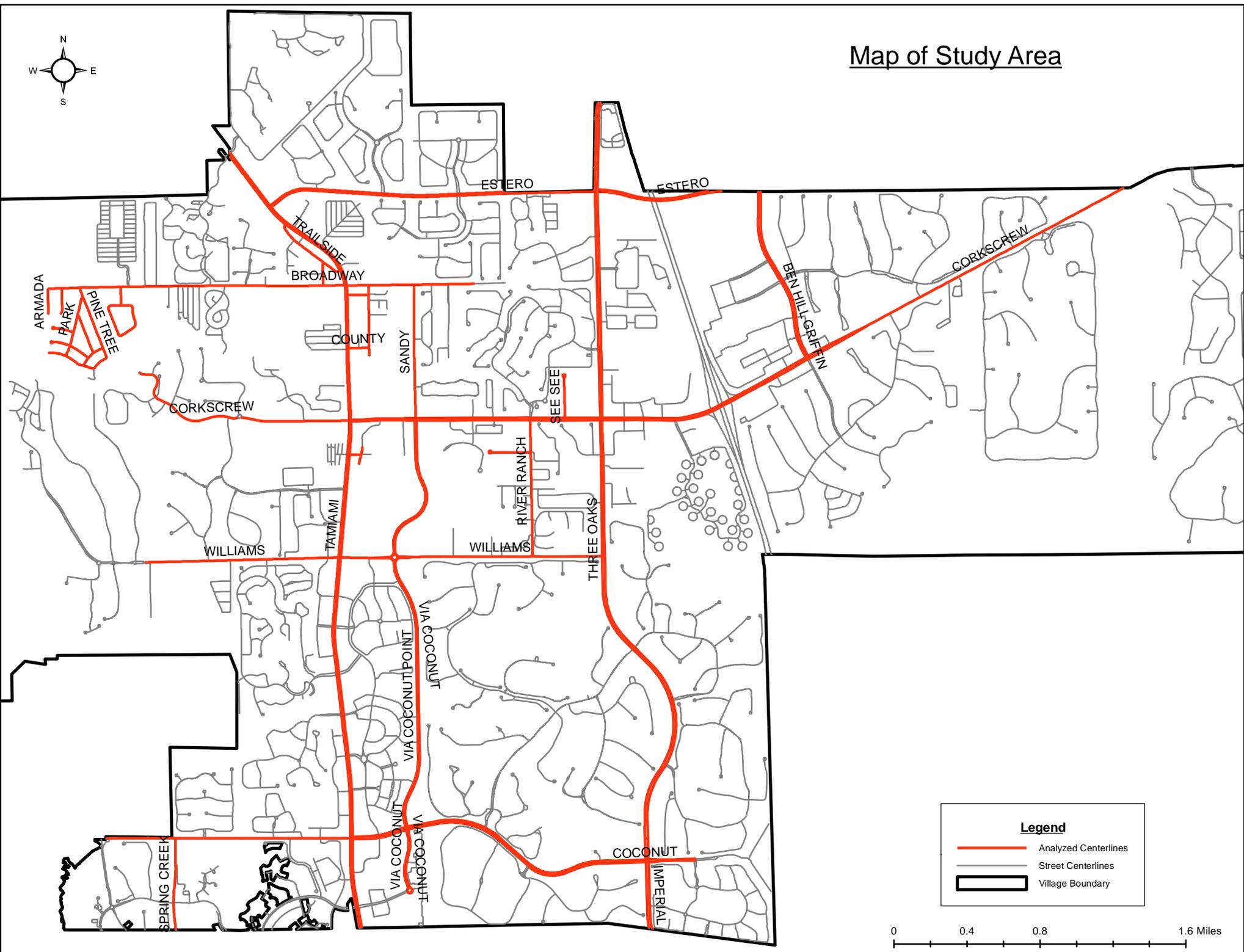
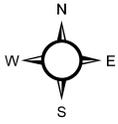
Estero Inventory Code Book

	A	B	C	D	E	F	G	H	I	J
64	Lighting	Sidewalk Lighting	Character	Covers sidewalk						
65				Covers street						
66				No lighting						
67										
68										
69										
70	Trees	Shade Tree Density	Character	High	<i>1 shade tree per every 300 feet covering sidewalk</i>					
71				Moderate	<i>1 shade tree per every 600 feet covering sidewalk</i>					
72				Low	<i>1 shade tree per every 900 feet covering sidewalk</i>					
73				None	<i>no shade trees on segment</i>					
74										
75	LandUse	Land Use Mix	Numeric		<i>Count different land use types, e.g. restaurants, hotels, houses</i>					
76					<i>If all residential enter 1; If a bank and 3 restaurants count 2</i>					
77										
78	BldgHeight	AVG Building Height	Numeric		<i>Estimate the building height along segment for majority of buildings</i>					
79										
80	Powerlines	Voltage of Power	Character	Low Voltage						
81				High Voltage						
82										
83	Medwidth	Width of median	numeric							
84										
85	Medland	Landscaped median	Character	Yes						
86				No						
87										
88	Medirrig	Irrigated Median	Character	Yes						
89				No						
90										
91	RoadLand	Landscaped Roadside	Character	Yes						
92				No						
93										
94	RoadUtil	Utilities in Roadside	Character	Yes						
95				No						
96										
97	Blocation	Bikelane location	Character	None						
98				North						
99				South						
100				East						
101				West						
102				Both						
103										
104										
105	Btype	Bikelane Type	Character	Marked	<i>Marked</i>	<i>Sharrow</i>	<i>Paved shoulder</i>			
106				Sharrow						
107				Paved shoulder						
108				unpaved shoulder						
109				None						
110										
111	Bwidth	Bikelane Width	Numeric		<i>measure from gutter pan to bike lane striping</i>					
112										
113					<i>Gutter pan (area right of pavement)</i>					
114										
115										
116										
117										
118	Bcondition	Bikelane Condition	Character	Good						
119				Fair						
120				Poor						
121				Repair						
122										
123	CrackRating	Crack Rating	Numeric	1						
124				2						
125				3						

Estero Inventory Code Book

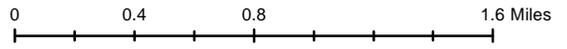
	A	B	C	D	E	F	G	H	I	J
126										
127	CrackType	Cracking Type	Character	Hair						
128										
129										
130										
131	Raveling	Raveling Rating	Character	Light						
132				Moderate						
133				Severe						
134										
135	Patching	Percent of area	numeric							

Map of Study Area

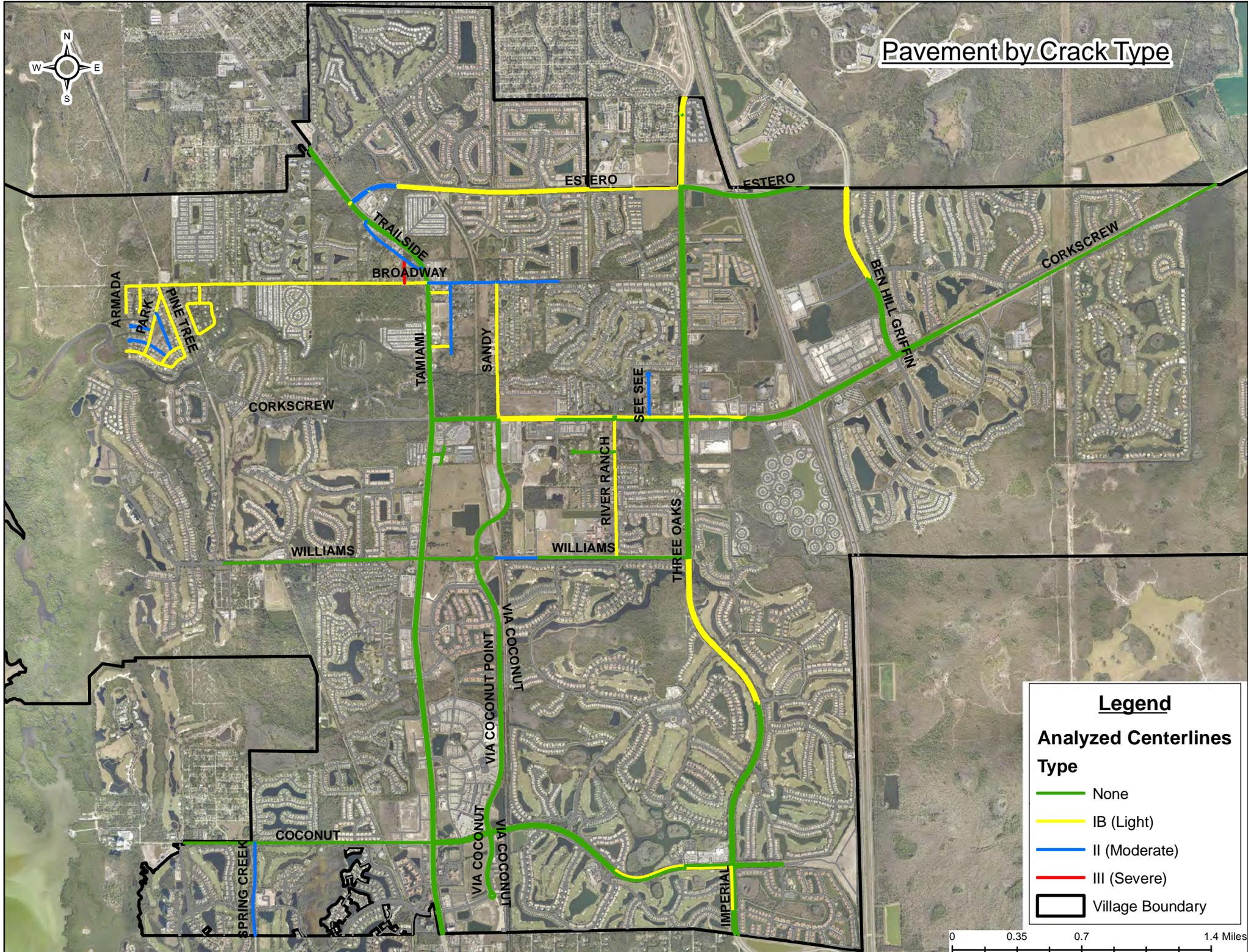


Legend

-  Analyzed Centerlines
-  Street Centerlines
-  Village Boundary



Pavement by Crack Type



Legend

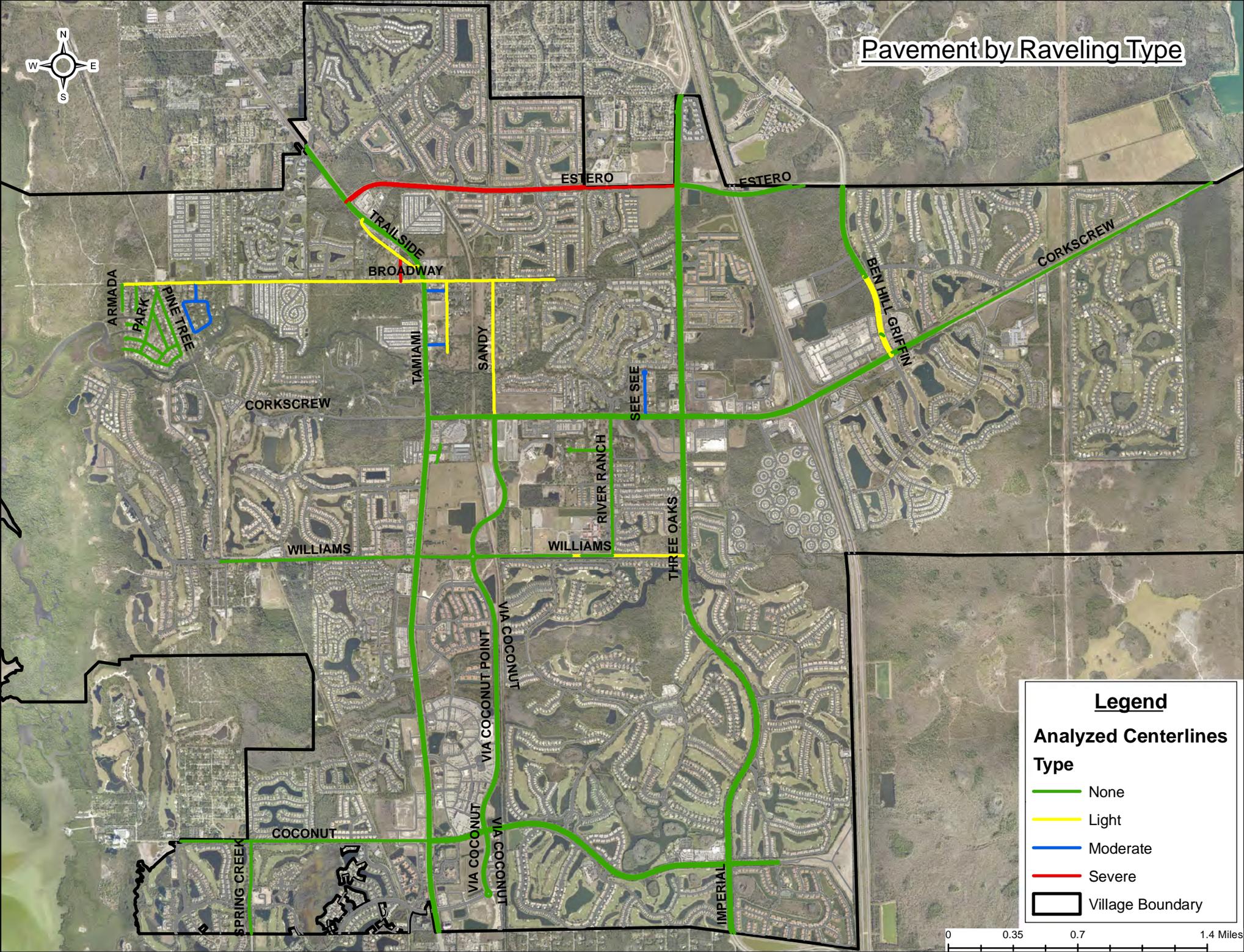
Analyzed Centerlines

Type

- None
- IB (Light)
- II (Moderate)
- III (Severe)
- Village Boundary

0 0.35 0.7 1.4 Miles

Pavement by Raveling Type



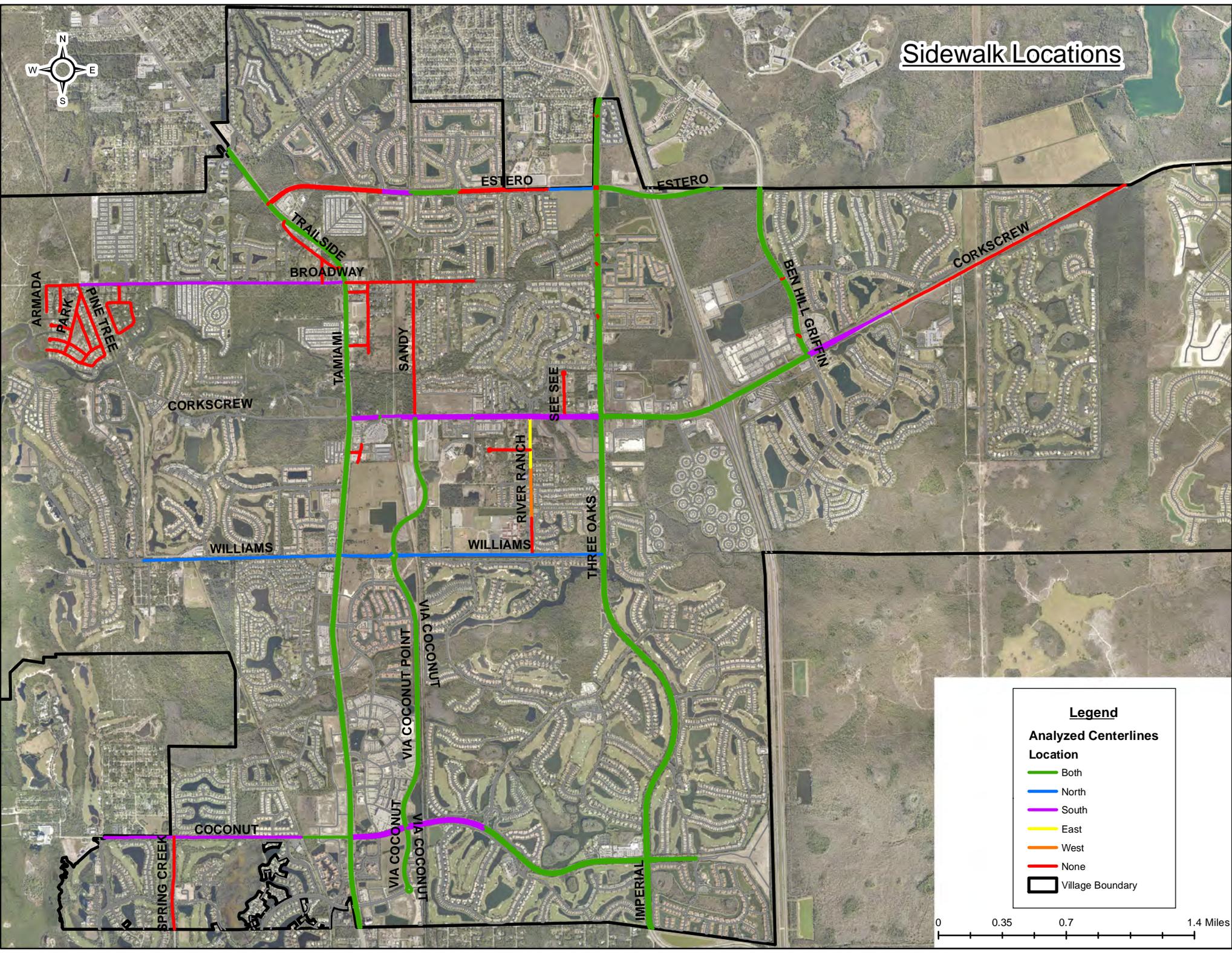
Legend

Analyzed Centerlines Type

- None
- Light
- Moderate
- Severe
- Village Boundary



Sidewalk Locations

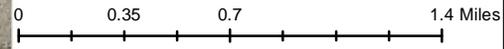


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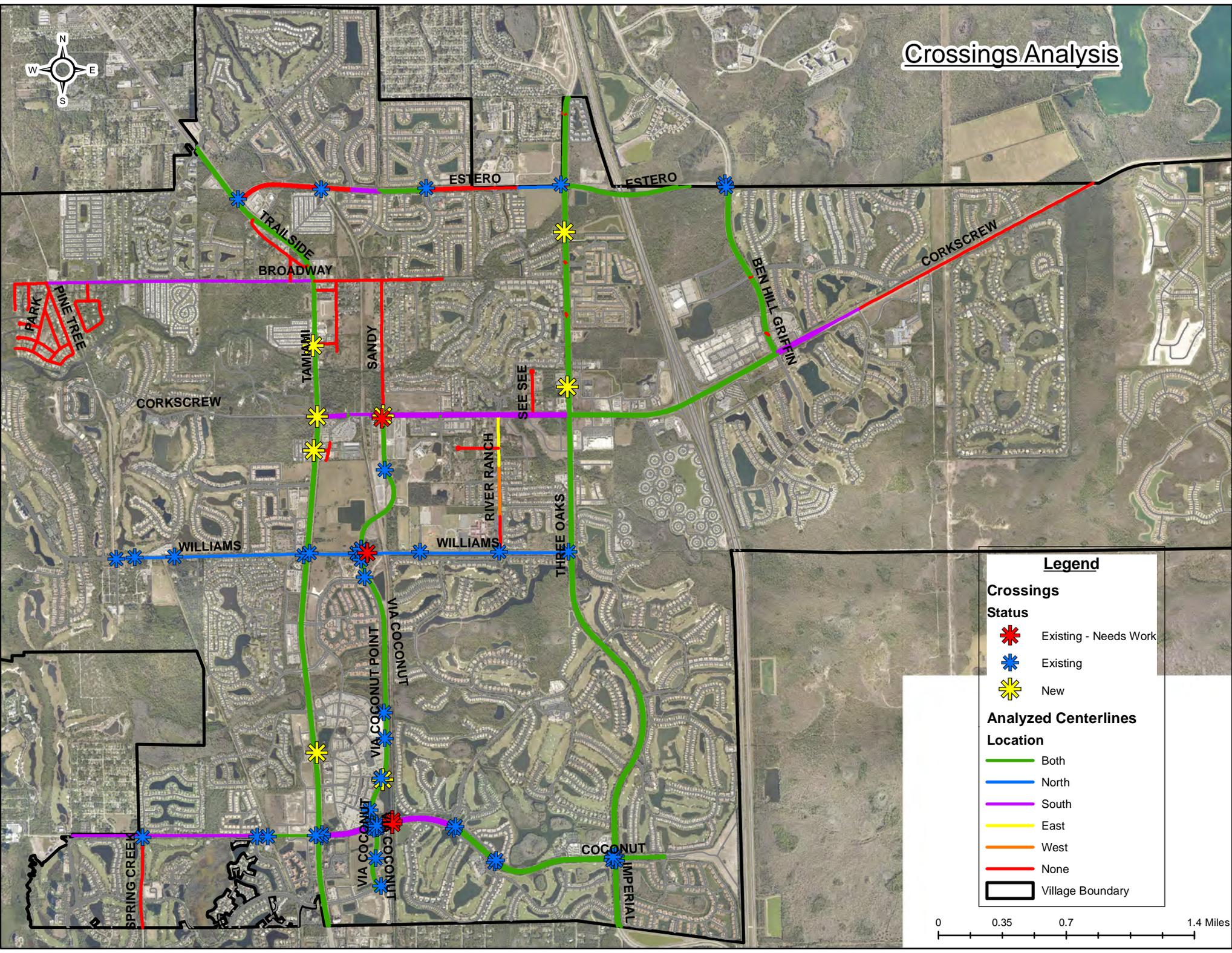
Analyzed Centerlines

Location

- Both
- North
- South
- East
- West
- None
- Village Boundary



Crossings Analysis



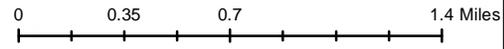
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Crossings Status

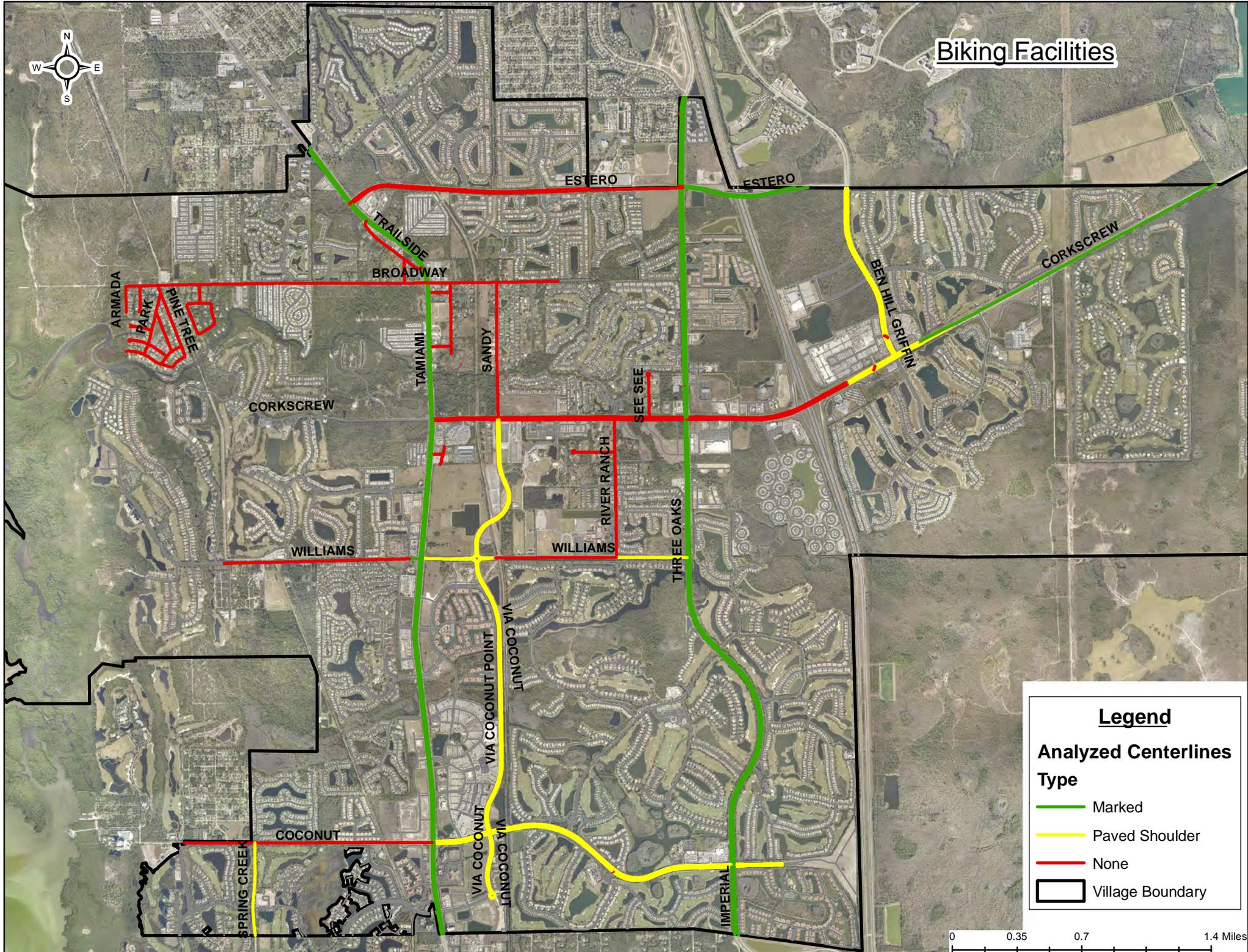
- Existing - Needs Work
- Existing
- New

Analyzed Centerlines Location

- Both
- North
- South
- East
- West
- None
- Village Boundary



Biking Facilities



Legend

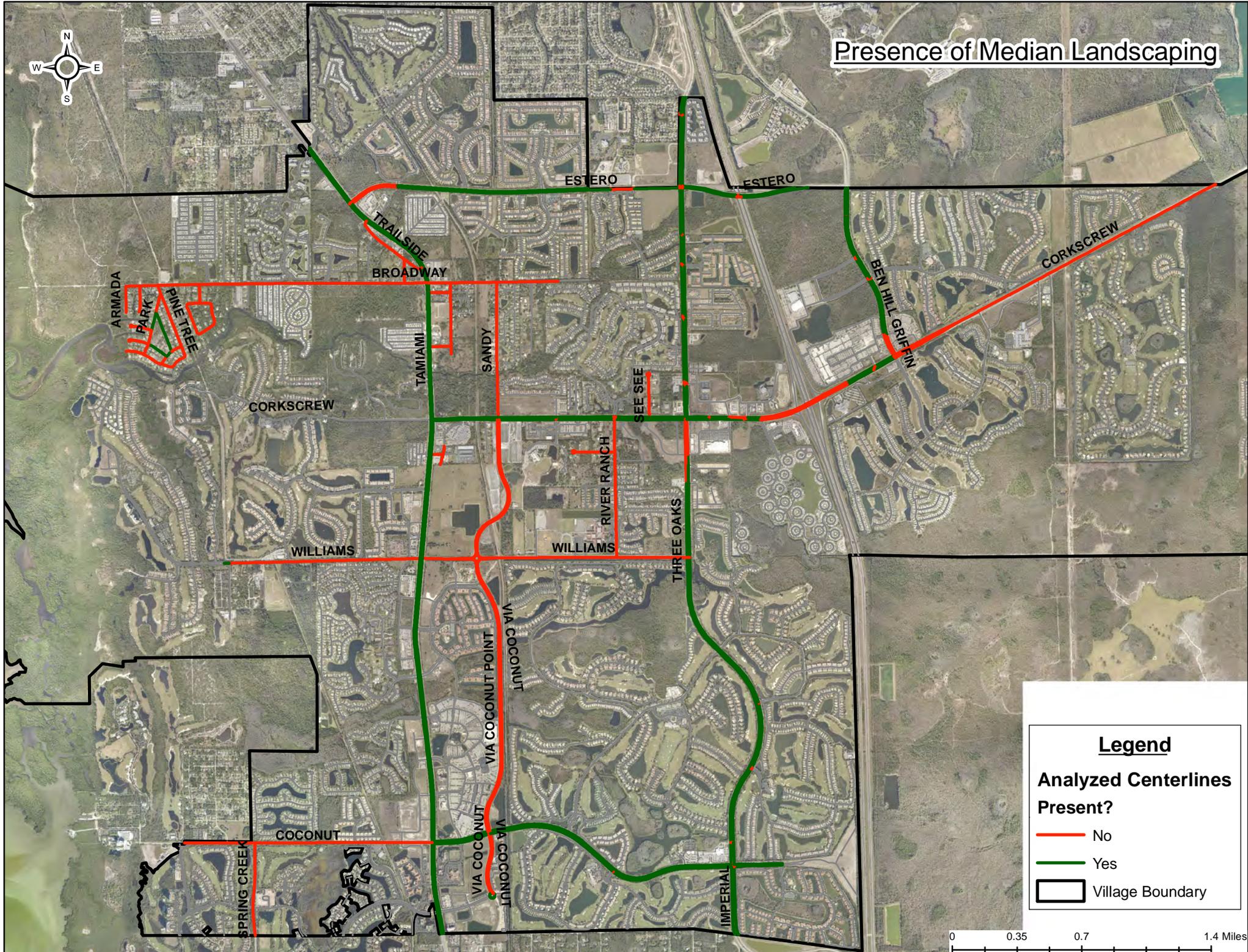
Analyzed Centerlines

Type

- Marked
- Paved Shoulder
- None
- Village Boundary



Presence of Median Landscaping



Legend

Analyzed Centerlines Present?

- No
- Yes
- Village Boundary





ESTERO INFRASTRUCTURE INVENTORY

Florida Gulf Coast University
January 20, 2016

Presentation Outline

- Introduction/Background
- Objectives
- Process
- Results and Analysis
 - *Pavement*
 - *Sidewalks & Intersections*
 - *Bicycles*
 - *Landscaping*
- Recommendations

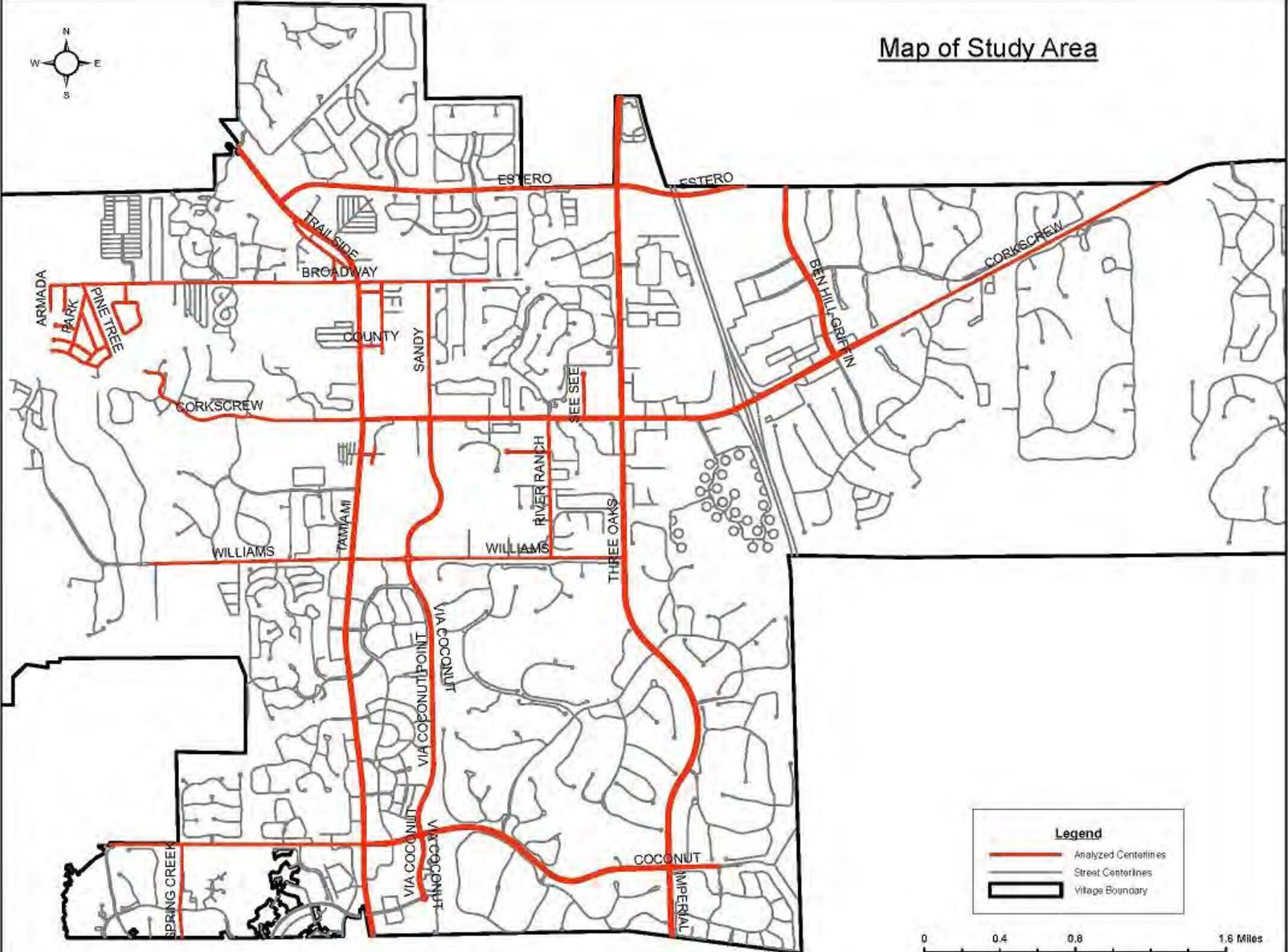
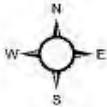


Objectives

- Evaluation of infrastructure
 - *Pavement conditions*
 - *Pedestrian facilities*
 - *Bicycle facilities*
 - *Landscaping*
- Identify existing infrastructure & gaps
- Provide a baseline of facilities
- Contribute to the development of the CIP
- Provide data for public input & prioritization

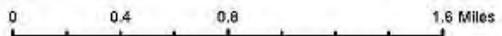


Map of Study Area



Legend

- Analyzed Centerlines
- Street Centerlines
- ▭ Village Boundary



Process

- Aerial Analysis
- Cross Training
- Drive-Through Survey
- Video Documentation
- Walk-and-Look Survey
- Independent Verification of Data
- GIS Coding
- Recommendations Conference



RESULTS



Pavement Conditions

Road / Street	Findings			Recommendation
	Cracking	Raveling	Potholes	
Estero Parkway	✓	✓		<ul style="list-style-type: none"> • Very thin pavement layer • Pavement layer not flush with curbing • Base materials exposed • Resurfacing/ Rehabilitation in 2-3 YRS
Poinciana Avenue	✓	✓	✓	<ul style="list-style-type: none"> • Base materials exposed • Resurface/ Rehabilitate in the next 1-2 YRS
Trailside Drive	✓			<ul style="list-style-type: none"> • Resurface or monitor for 1 YR
Broadway Avenue	✓			<ul style="list-style-type: none"> • Reevaluate: 2-3 YRS
Sandy Lane	✓			<ul style="list-style-type: none"> • Reevaluate: 2-3 YRS
Charing Cross Circle	✓	✓		<ul style="list-style-type: none"> • Reevaluate: 2-3 YRS

Estero Parkway

- Very thin pavement layer
- Pavement layer not flush with curbing
- Base materials exposed
- Resurfacing/ Rehabilitation in 2-3 YRS



Poinciana Avenue

- Base materials exposed
- Resurface/ Rehabilitate in the next 1-2 YRS



Trailside Drive

Resurface or monitor for 1 YR

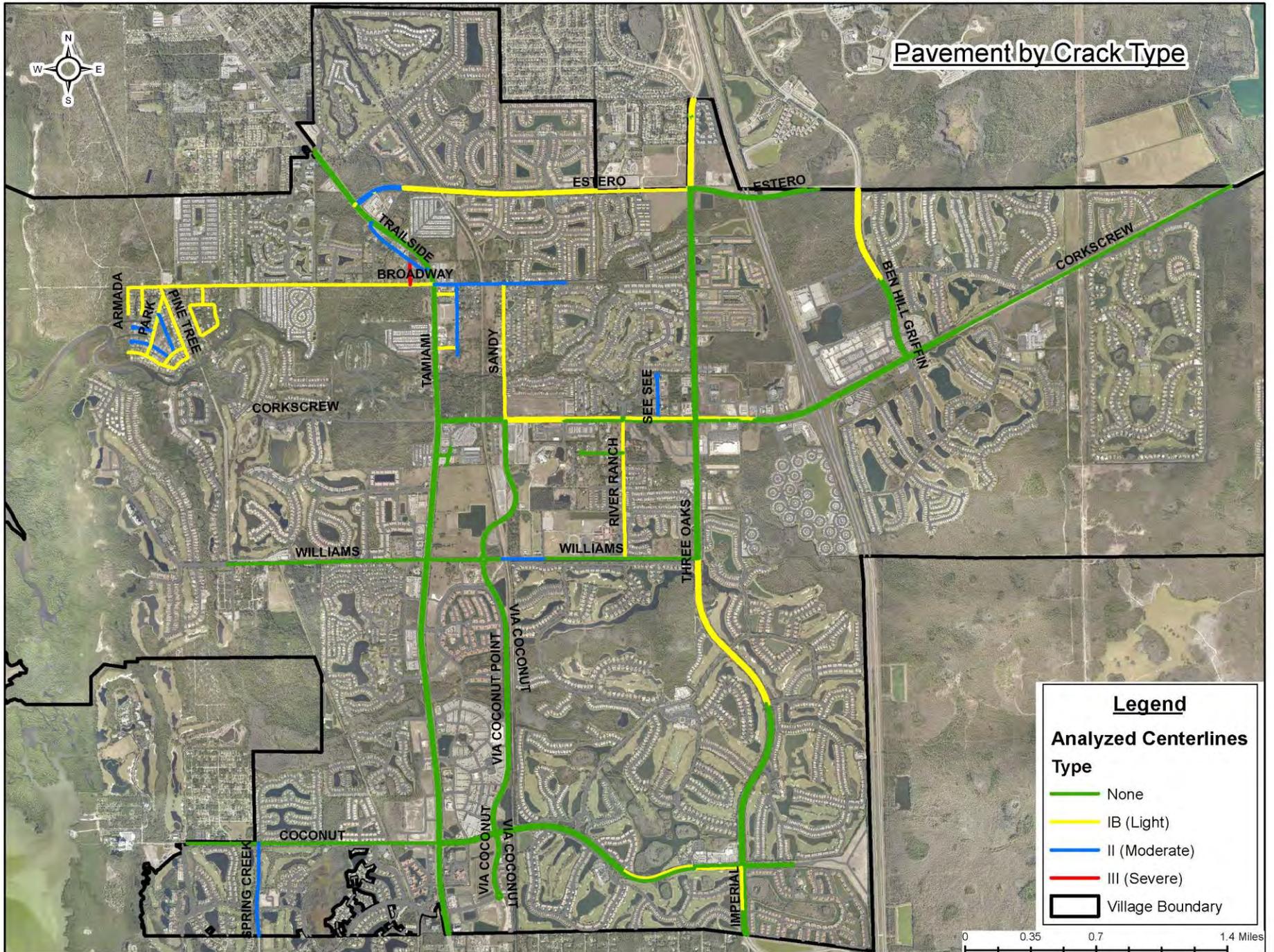




Broadway Avenue

- Light raveling West of US-41
 - Type IB and Type II longitudinal cracks along the centerline

Pavement by Crack Type



Legend

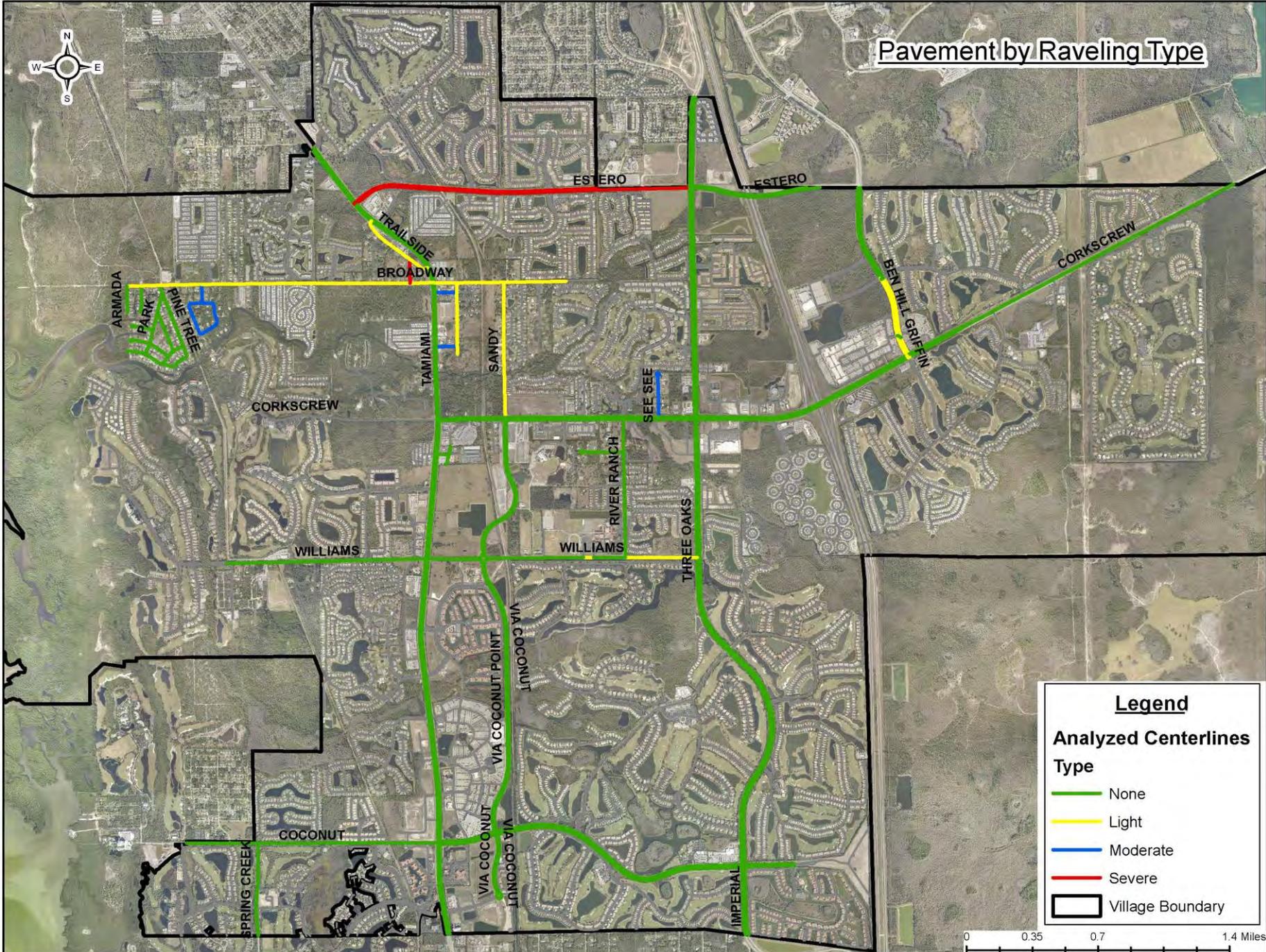
Analyzed Centerlines

Type

- None
- IB (Light)
- II (Moderate)
- III (Severe)
- Village Boundary

0 0.35 0.7 1.4 Miles

Pavement by Raveling Type



Legend

Analyzed Centerlines

Type

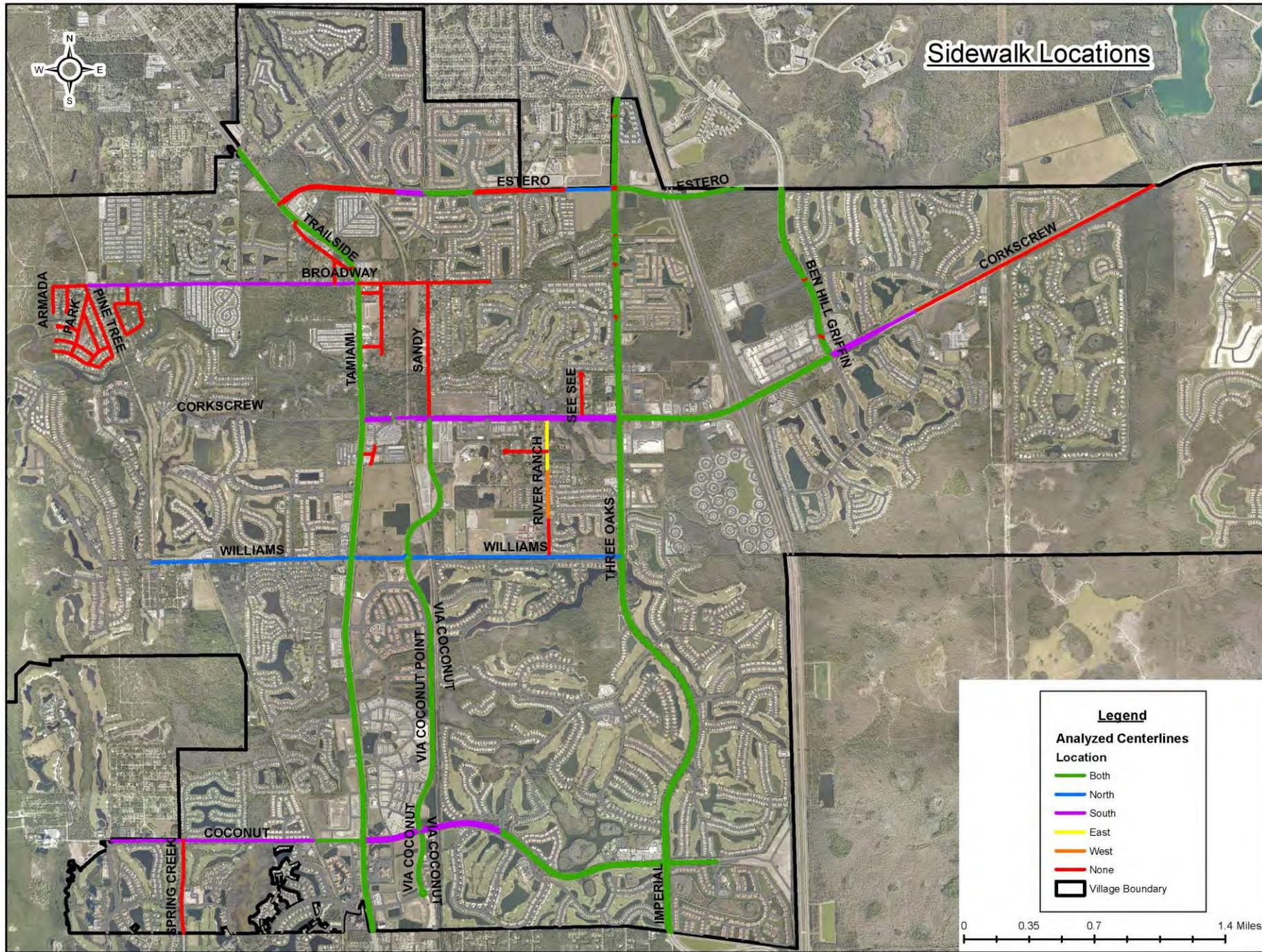
- None
- Light
- Moderate
- Severe
- Village Boundary



Pavement Summary

- Approximately 12% of lane miles of total roads need immediate attention
- Approximately 20% of lane miles of total roads are of the type IB cracks that should be reevaluated in 2-3 years
- Approximately 68% of lane miles of total roads are in good condition where no immediate action needs to be taken

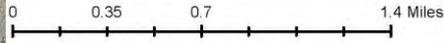
Sidewalk Locations



Legend

Analyzed Centerlines Location

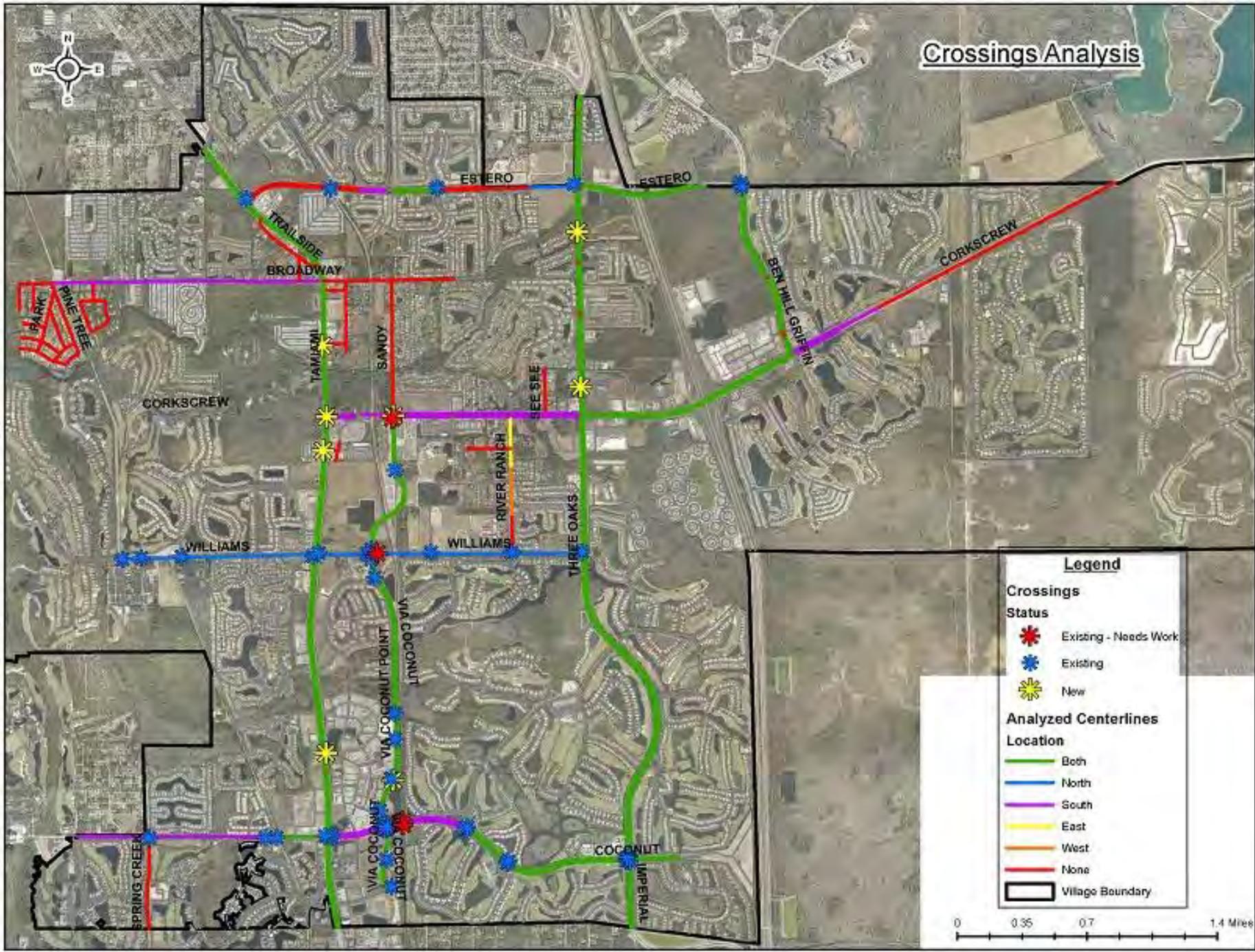
- Green line: Both
- Blue line: North
- Purple line: South
- Yellow line: East
- Orange line: West
- Red line: None
- Black outline: Village Boundary



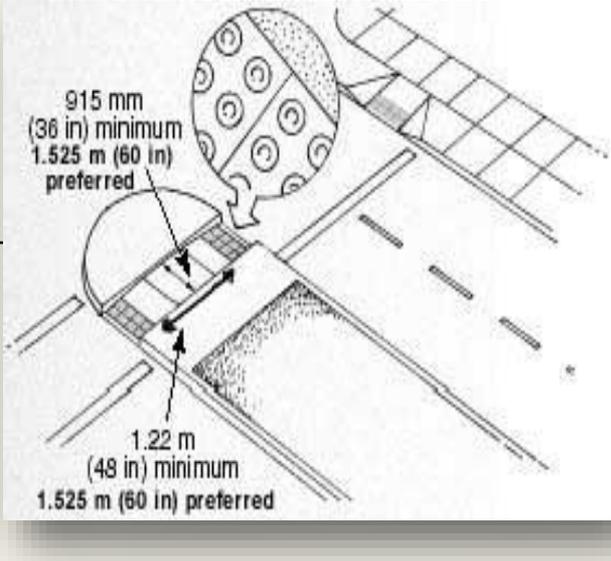
Sidewalk Recommendations

Road / Street	Criteria				Recommendation
	Connectivity	Usage	Safety	Access	
Estero Parkway (41 to 3 Oaks)	✓	✓	✓	✓	New 10' Shared Use Path
River Ranch Road (Corkscrew to Williams)	✓	✓	✓	✓	New Sidewalks to Repair Gaps
Connections to Estero Community Park <ul style="list-style-type: none"> • Via Coconut to Park • Estero Park to Block Ln • @ Corkscrew Road 	✓	✓	✓	✓	New Sidewalk New / Improved Sidewalk Wider sidewalk
Sandy Lane (Broadway to Corkscrew)	✓	✓	✓	✓	New Sidewalk Bike/Ped Bridge Over River
Corkscrew Road (41 to 3 Oaks)	✓	✓	✓	✓	New 10' Shared Use Path - Asphalt
Broadway (41 to Sandy)	✓				Sidewalk
3 Oaks Parkway (Coconut to City Boundary)			✓		Sidewalk repair due to tree roots
US 41 (East Side – Covered Wagon to Williams)		✓		✓	Sidewalk significantly under water most of rainy season

Crossings Analysis



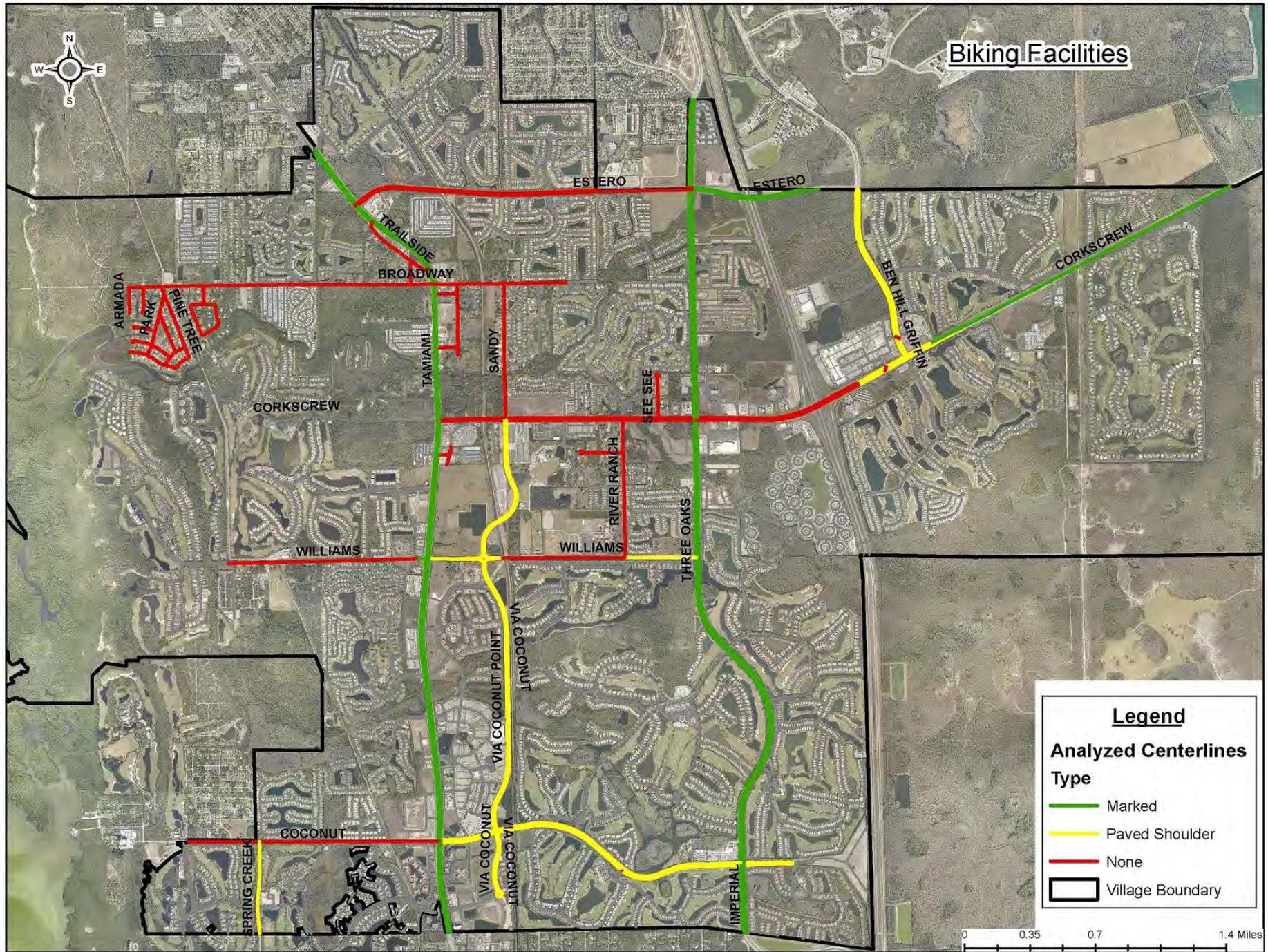
Crossings Analysis

Intersection	Issue	Recommendation
Williams Road Roundabout at Via Coconut Point	Speed of automobiles exiting roundabout places pedestrians at risk	Place crosswalks further away from the intersection to increase sight line
Crossing Via Coconut Point at Corkscrew	Speed of automobiles turning south to Via Coconut Point present safety hazard for pedestrians crossing	 <p>915 mm (36 in) minimum 1.525 m (60 in) preferred</p> <p>1.22 m (48 in) minimum 1.525 m (60 in) preferred</p>
Intersection of Via Coconut Point and Coconut Road	Speed of automobiles turning present safety hazard for pedestrians crossing	
Intersection of US 41 and Corkscrew	Speed of automobiles turning present safety hazard for pedestrians crossing	Consider installing island to reduce the turning radius and offer a pedestrian

New Crossings

- Corkscrew at Sandy Lane
- US 41 Crossing at Covered Wagon Trailer Park to Publix
- US 41 Crossing at Lychee Lane (Sunny Grove Trailer Park)
- US 41 at Coconut Point Mall
- 3 Oaks Parkway South of Estero Parkway
- 3 Oaks Parkway North of Corkscrew Road to connect the library and post office
- Via Coconut Point at Coconut Point Mall

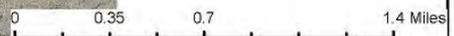
Biking Facilities



Legend

Analyzed Centerlines Type

- Marked
- Paved Shoulder
- None
- Village Boundary



Bike Facility Recommendations

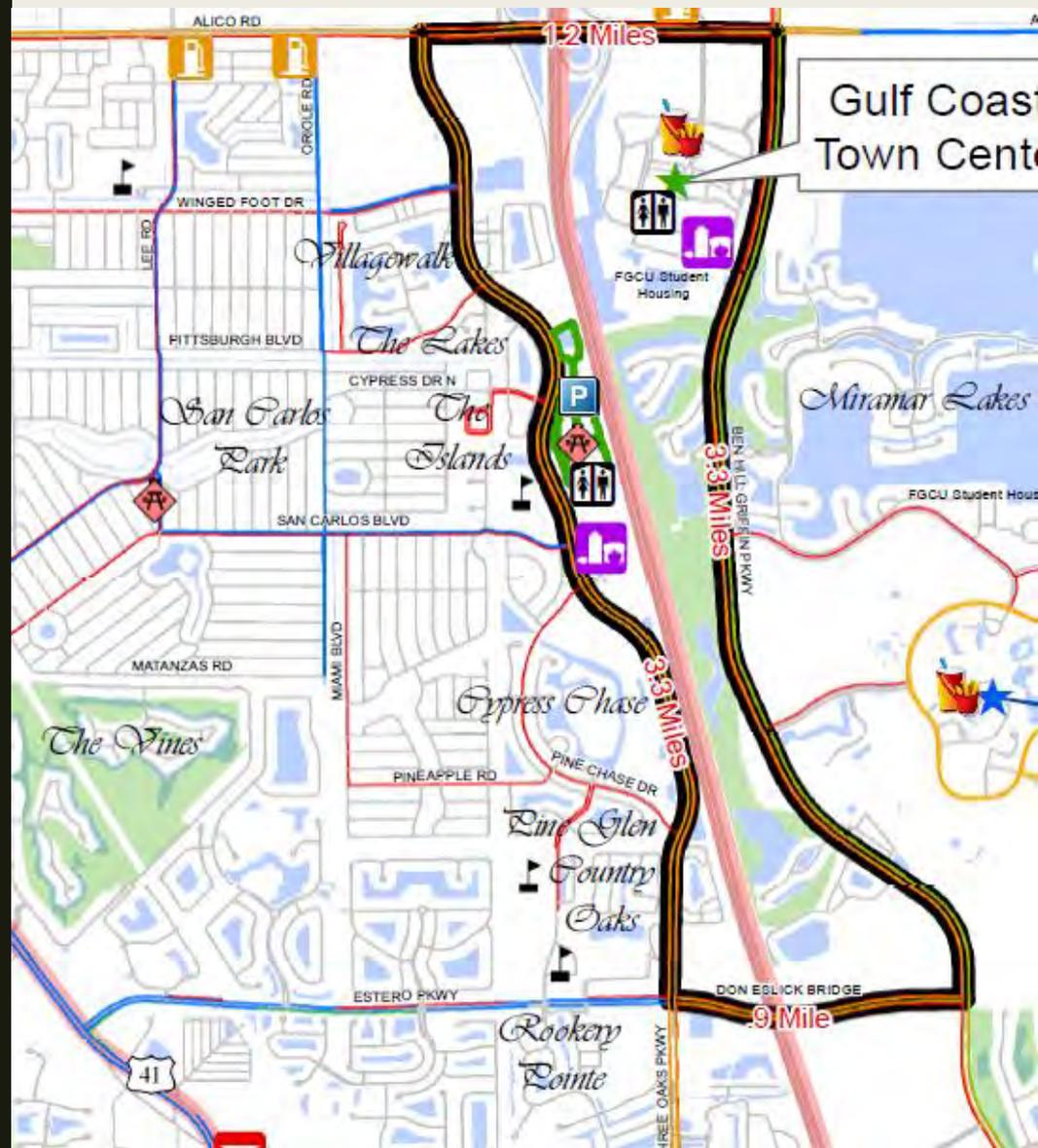
Road / Street	Criteria				Recommendation
	Connect	Usage	Safety	Access	
Estero Parkway (41 to 3 Oaks)	✓	✓	✓	✓	New 10' Shared Use Path Buffered / Marked Lanes
River Ranch Road (Corkscrew to Williams)	✓	✓	✓	✓	New Bike Lanes
Estero Community Park (Corkscrew Existing Entrance)	✓			✓	Bike Lane
Williams Road (River Ranch to Via Coconut Point)	✓	✓	✓	✓	Bike Lanes
Broadway (Estero Bay Preserve State Park to 41)	✓			✓	Paved Shoulder
Sandy Lane (Broadway to Corkscrew)	✓		✓	✓	Paved Shoulder
Corkscrew Road (41 to Miromar Mall Area)	✓	✓	✓	✓	New 10' Shared Use Path
3 Oaks Parkway (South of Estero Parkway to Village Boundary)			✓		Consider buffered bike lanes & lane diets
Village Center		✓		✓	Consider slow streets / sharrows

Opportunities for Improvement



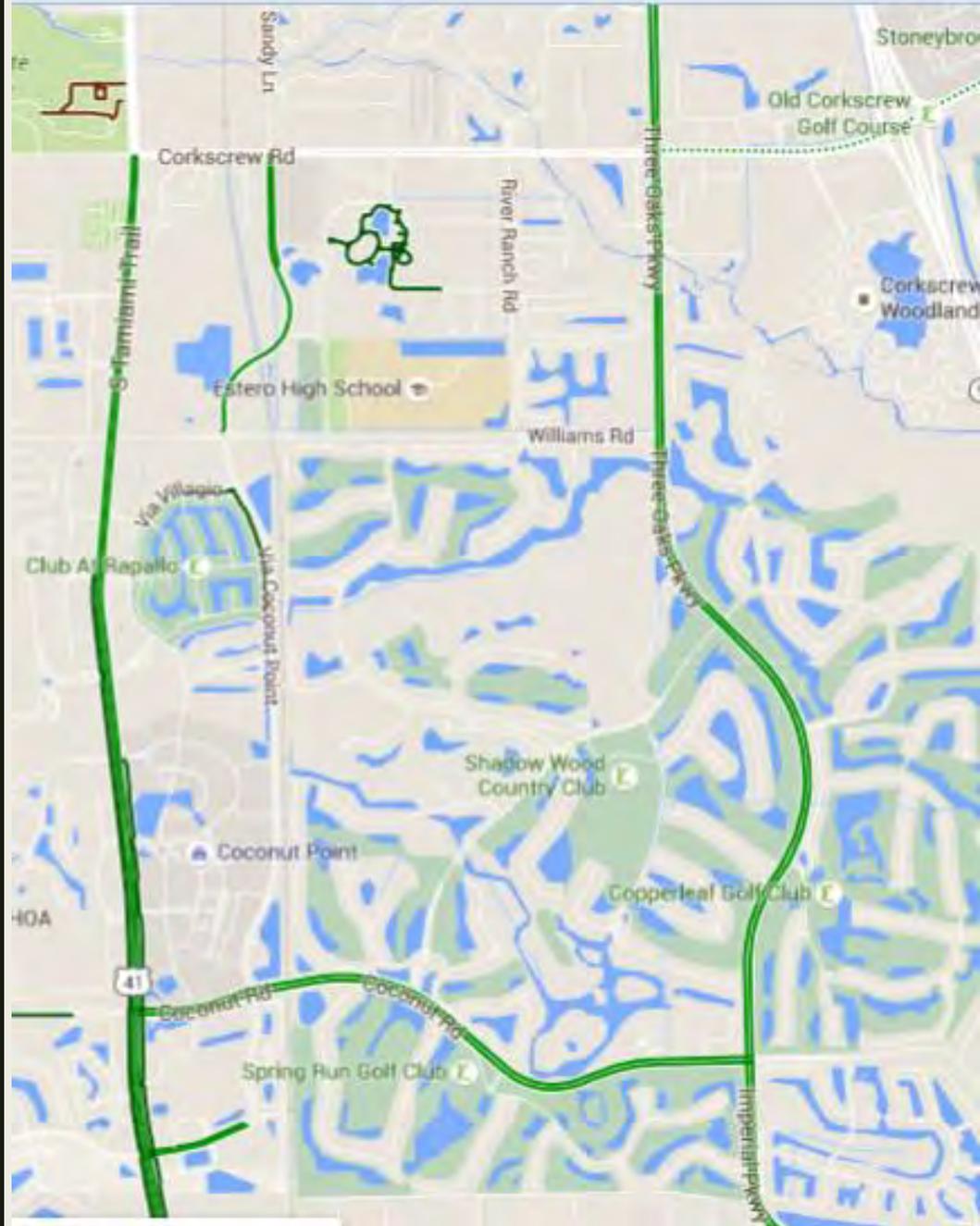
Opportunities for Increased Connectivity

Estero Parkway & the “University Loop”



Opportunities for Increased Connectivity

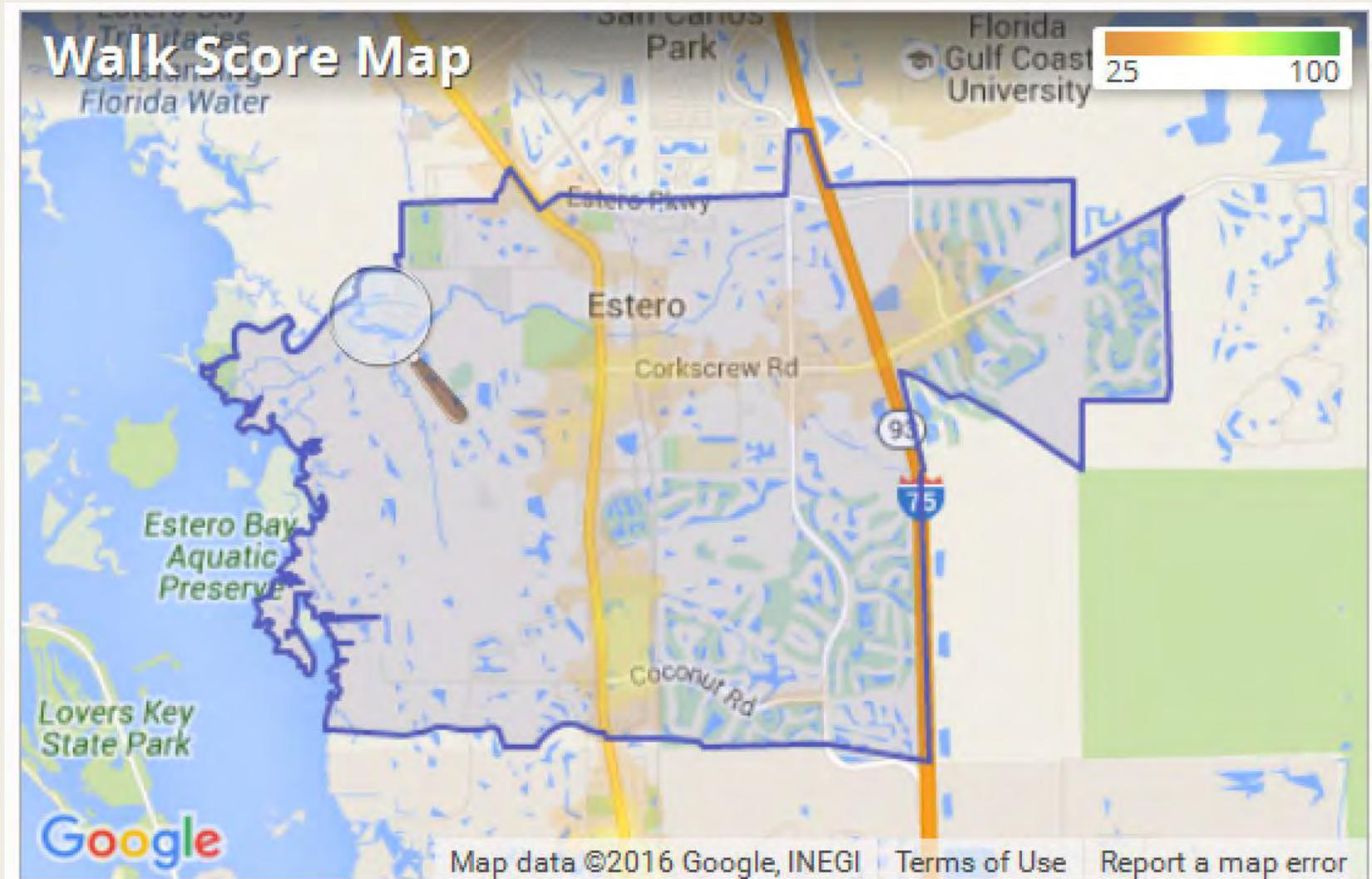
Williams Road to the “South Estero Loop”



Bike/Ped Recommendations Summary

- Increase safe conditions
- Calm traffic through intersection and lane treatments
- Increase connectivity
- Bridge gaps
- Develop a bike/ped master plan
- Recognize opportunities for improvements as new communities and the Village Center develop
 - *Add facilities*
 - *Increase safety of facilities*
- Use “heat map” to assist with prioritization process

Walk Score “Heat Map”



Landscape Priorities

Road / Street	Recommendation	Criteria			Priority
		Cost	Aesthetic	Image	
Estero Parkway at US 41	Plant median	✓	✓	✓	1
Via Coconut Point	Median planting	✓	✓	✓	2
Estero Community Park	Enhanced landscaping at entrance		✓	✓	3
Corkscrew Road	Median planting		✓	✓	3
Oakbrook	Median planting	✓	✓	✓	4
Williams Road	Planting on south side of ROW		✓	✓	5
Village Center	Consider incentives for enhanced landscaping	✓	✓	✓	
Other	Consider tree planting programs for private properties	✓	✓		

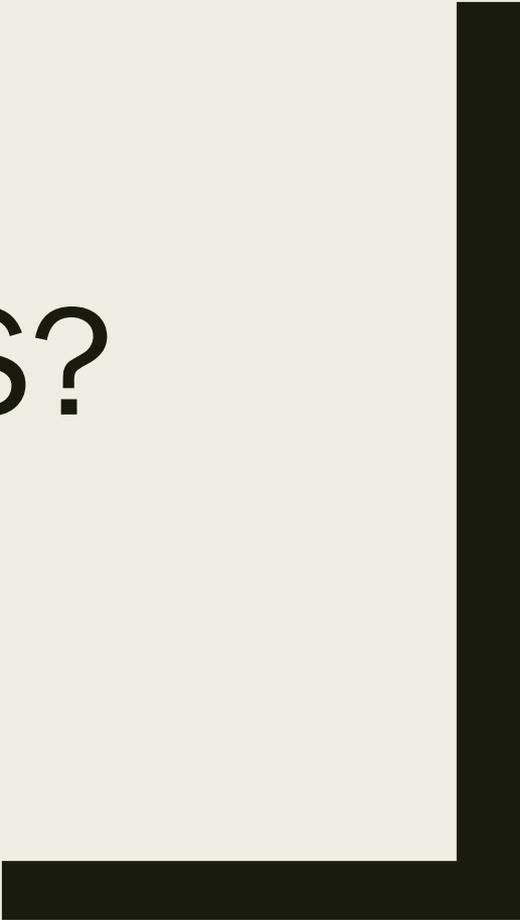
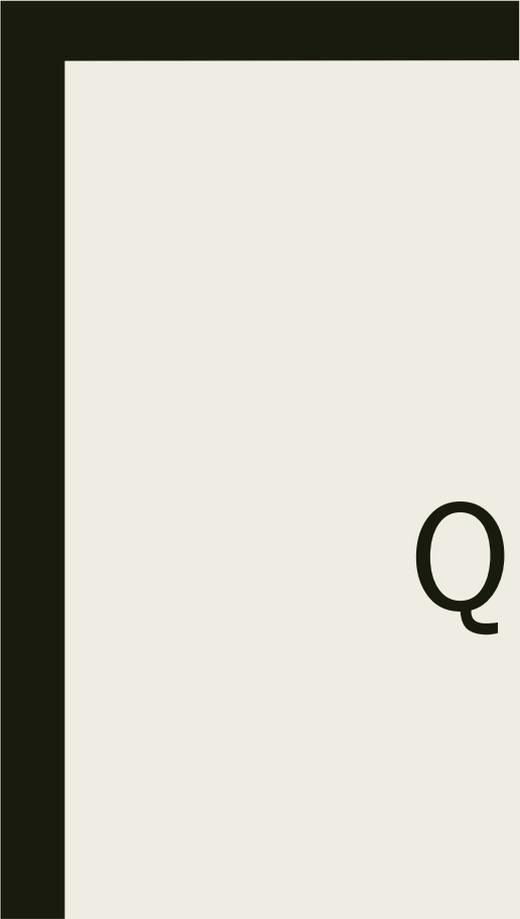
CONCLUSIONS



Conclusions & Next Steps

- Attention needed for several roads within the Village
 - *Approximately 68% are in good condition*
 - *Approximately 20% need monitoring*
 - *Approximately 12% need immediate attention*

- Connections in areas of high usage with safety issues should be priority
- Intersections and crossings will help reduce conflicts
- Connecting gaps in the bicycle network would significantly improve the opportunities to access a much larger system within and outside the Village
- Bike / Ped Master Plan recommended
- Landscaping opportunities exist where public / private partnership for water is available



QUESTIONS?