



Fiscal Year 2020-2021
Capital Improvement Project Descriptions

April 14, 2020

Table of Contents

i	Report Outline
Section	
A	Roadway Improvements
B	Intersection Improvements
C	Bicycle & Pedestrian Improvements
D	Landscape Improvements
E	Parks & Recreation Improvements
F	Stormwater Improvements
G	Building Projects
H	Land Acquisitions
Appendices	
1	Village of Estero Area-Wide Traffic Study
2	Coconut Roadway Traffic Study
3	KCA Coconut Road from Estero Bay to US 41 Traffic Study
4	Village of Estero Bicycle & Pedestrian Master Plan
5	Village of Estero Parks, Recreation, and Open Space Master Plan
6	Village of Estero Stormwater Master Plan

Report Outline

This document is intended to provide Village Council and Estero Residents information about each Capital Improvement Project (CIP) currently contemplated by the Village of Estero. The projects identified within the CIP were generally identified through public input/comments and Village of Estero commissioned Master Plans. Village of Estero Commissioned Master Plans include the following:

- FGCU Village of Estero Roadway Conditions
- Village Wide Traffic Study
- Coconut Road Traffic Studies
- Village of Estero Stormwater Master Plan
- Village of Estero Bicycle & Pedestrian Master Plan
- Village of Estero Parks, Recreation, and Open Space Master Plan

Projects have been separated into eight general categories:

- Roadway Improvements
- Intersection Improvements
- Bicycle & Pedestrian Improvements
- Landscape Improvements (including monument signage)
- Parks & Recreation Improvements
- Stormwater Improvements
- Building Projects
- Land Acquisitions

Each category is provided as a separate section within this report. For each project, details including potential sources of funding, a brief description of the project, a justification for the project, estimated project costs and expected maintenance impacts are provided. The second page of the project summary includes a project specific location map, if the project location is defined. The last page(s) under each section is an overall map that includes all projects within that specific category.

At the end of this report, within Appendices 1 - 6, are excerpts from each of the Village's reports and master plans that relate to the CIP. Following is a list of those that are attached:

- Village of Estero Area-Wide Traffic Study
- Coconut Roadway Traffic Study
- KCA Coconut Road from Estero Bay to US 41 Traffic Study
- Village of Estero Bicycle & Pedestrian Master Plan
- Village of Estero Parks, Recreation, and Open Space Master Plan
- Village of Estero Stormwater Master Plan

Section A
Roadway Improvements

CIP Project Summary - Roadway Improvements
(1) Estero Parkway Improvements

CIP Category: Roadway
Funding Source: Road Impact Fee, Gas Tax, General Fund, Lee County

Design :	\$	757,724.00
Construction :	\$	8,970,516.00
Total:	\$	9,728,240.00

Project Description:

Construct the following improvements along Estero Parkway from US-41 to Three Oaks Parkway

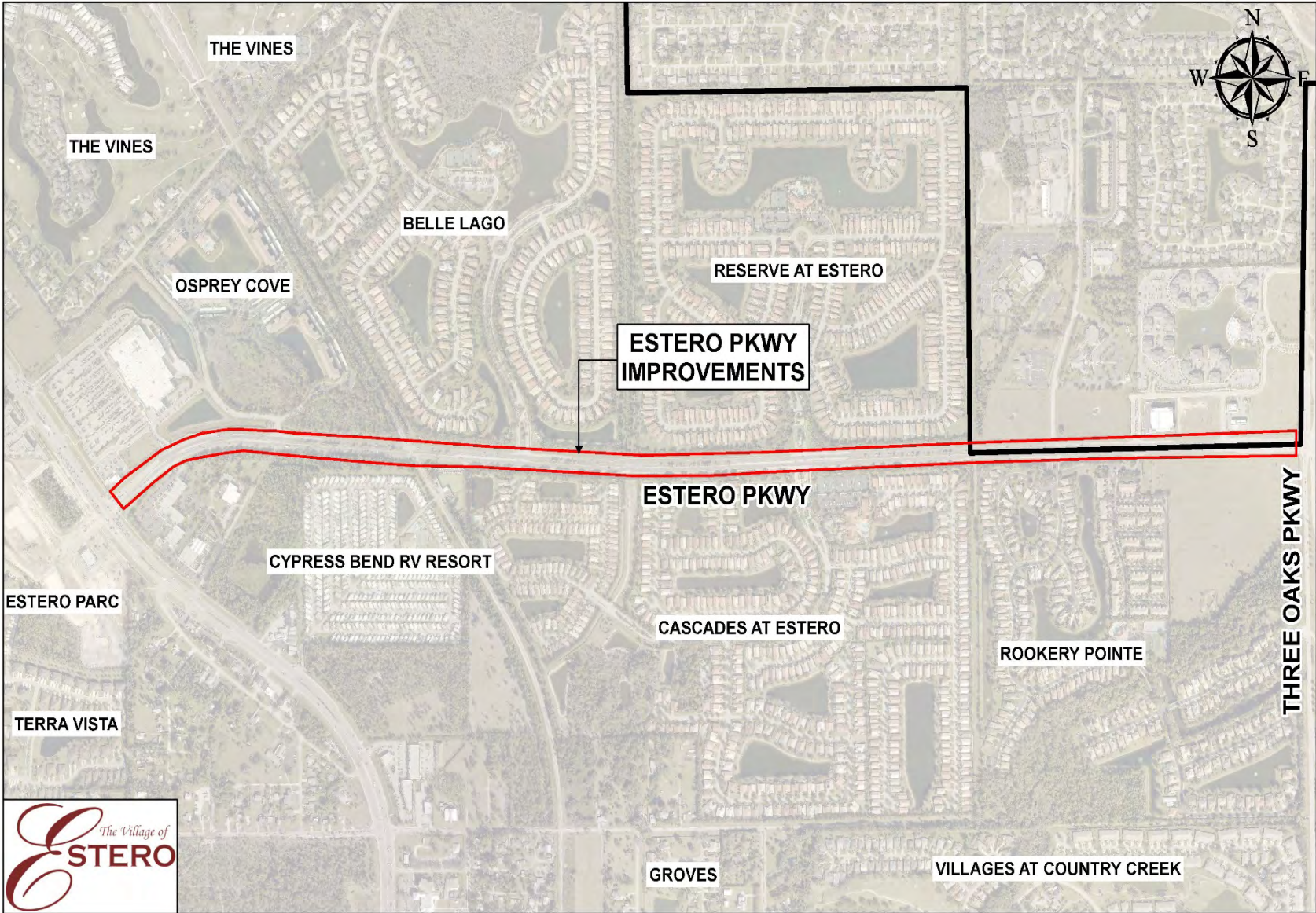
- Road resurfacing
- Addition of 7-ft buffered bike lane (striping)
- Concrete curb along a portion of roadway
- Sidewalks along both sides of road
- Intersection improvements
- Drainage improvements
- Landscape Improvements
- Street Lighting
- Utility relocation as needed

Project Justification:

As outlined in FGCU's Road Conditions Study, the existing Estero Parkway roadway surface is in poor conditions and in desperate need of resurfacing. Resident are not able to walk, run or bike along the roadway due to the lack of continuous bicycle and pedestrian facilities. These improvements are required provide an adequate roadway surface and safe bicycle and pedestrian facilities.

Maintenance:

The proposed Estero Parkway improvements will increase the costs to maintain the landscaping and sidewalks along the roadway. Roadway maintenance costs will only increase marginally due to the increased pavement associated with turn lanes and bike lanes. These costs are included under The Village's General Maintenance Budget.



CIP Project Summary - Roadway Improvements
(2) Corkscrew Road Widening (East of Ben Hill Griffin Pkwy)

CIP Category: Roadway

Funding Source: Road Impact Fee, Gas Tax, General Fund

Design :	\$	816,000.00
Construction :	\$	7,061,900.00
Total:	\$	7,877,900.00

Project Description:

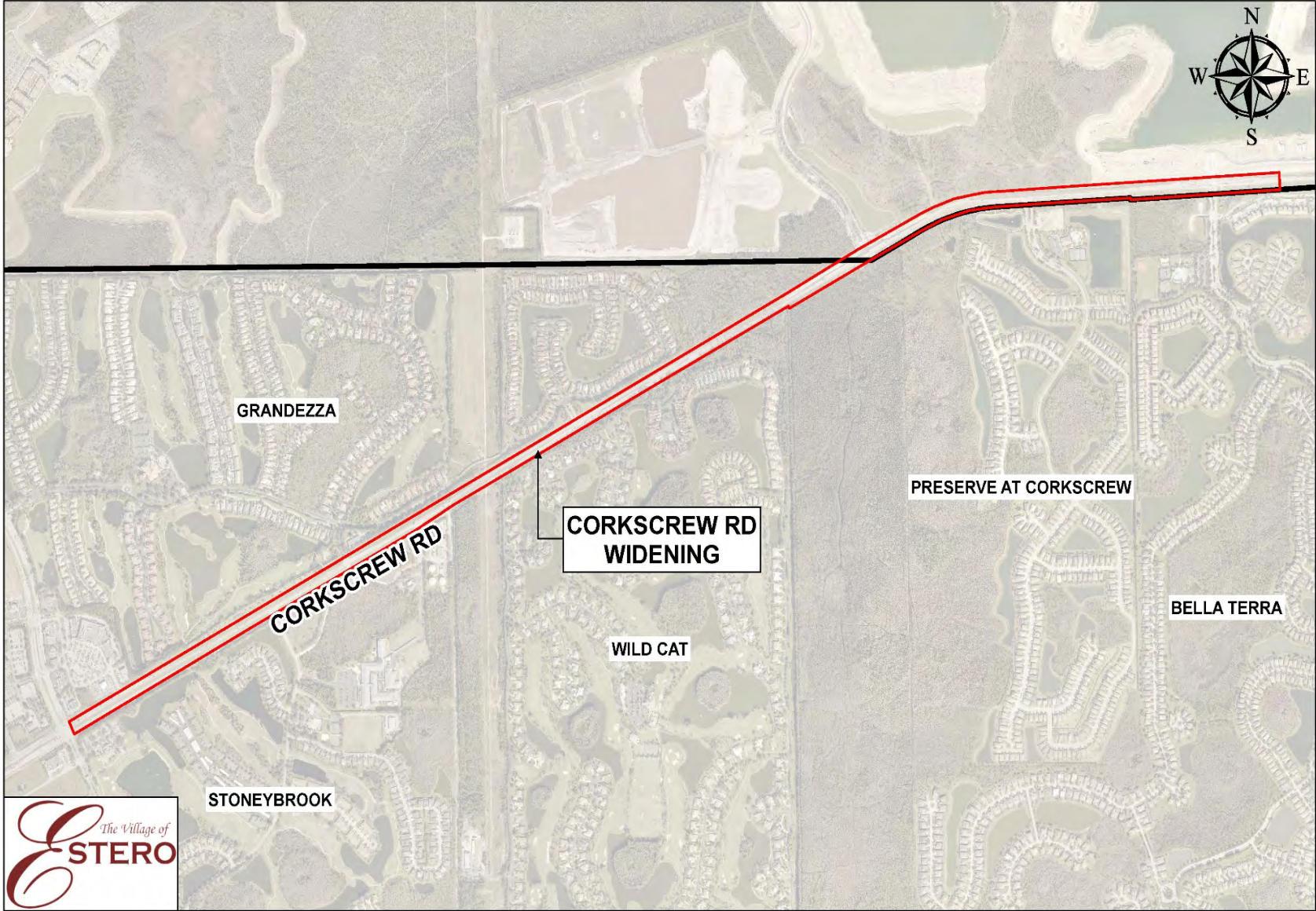
Design and construct street lighting, landscaping and pedestrian enhancements along Corkscrew Road with Lee County's roadway widening project.

Project Justification:

Lee County will be widening Corkscrew Road east of Ben Hill Griffin Parkway. The widening project will include street lights, landscape, and sidewalk improvements. Cost and timing advantages would be realized by working with Lee County to enhance the street lights, landscaping, and sidewalks the County will be installing instead of coming back later and modifying their improvements.

Maintenance:

As part of this project the Village of Estero will take over operation and maintenance of the landscaping, irrigation, street lighting and sidewalks located along this section of Corkscrew Road within the Village of Estero. These costs will be included in the General Maintenance Budget.



CIP Project Summary - Roadway Improvements
(3) River Ranch Road Improvements

CIP Category: Roadway
Funding Source: Road Impact Fee, Gas Tax, General Fund

Design :	\$	618,000.00
Construction :	\$	1,535,100.00
Total:	\$	2,153,100.00

Project Description:

Roadway, drainage and bicycle/pedestrian improvements along River Road to include the following:

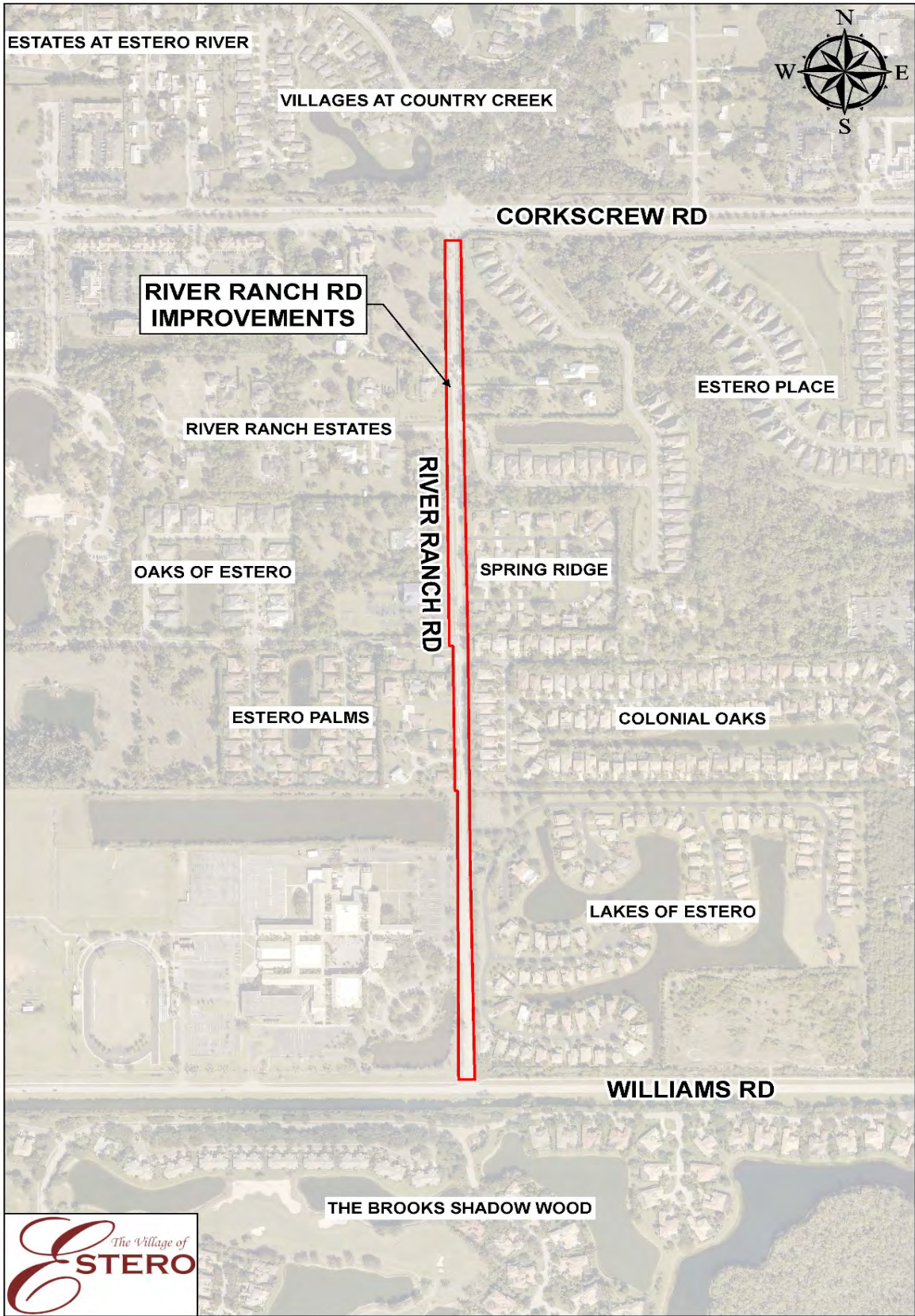
- Resurfacing
- Widening to add shoulders
- Sidewalks & crosswalks
- Drainage improvements
- Estero High turn lane improvements
- Williams Road Intersection Improvements.

Project Justification:

River Ranch Road was identified in the Bicycle & Pedestrian Master Plan and Stormwater Master Plan as requiring improvements. In addition, Estero High School creates traffic issues that could be improved by roadway and intersection modifications. The project will address several issues that impact River Ranch Road including; reducing flooding by implementing drainage improvements; increase bike and pedestrian safety by adding sidewalks and/or bike paths; and improve traffic flow around Estero High School to reduce impact seen during student drop off and pick up.

Maintenance:

The Village's sidewalk maintenance costs will increase slightly as this project will increase the length of sidewalk along River Ranch Road. If a roundabout is selected at the intersection of River Ranch Road and Williams Road the Village will incur costs to maintain the street lights, landscaping, and irrigation that will be installed at the roundabout. These costs will be included in the General Maintenance Budget once they are known.



CIP Project Summary - Roadway Improvements
(4) Broadway West Improvements

CIP Category: Roadway
Funding Source: Road Impact Fee, Gas Tax, General Fund

Design :	\$	316,200.00
Construction :	\$	1,053,800.00
Total:	\$	1,370,000.00

Project Description:

This project will include roadway and drainage improvements along Broadway W from US-41 west to the Estero Bay Preserve. The project will first determine the improvements that can be accommodated along Broadway West. Improvements could include the following:

- Resurfacing
- Widening
- Drainage Improvements

Project Justification:

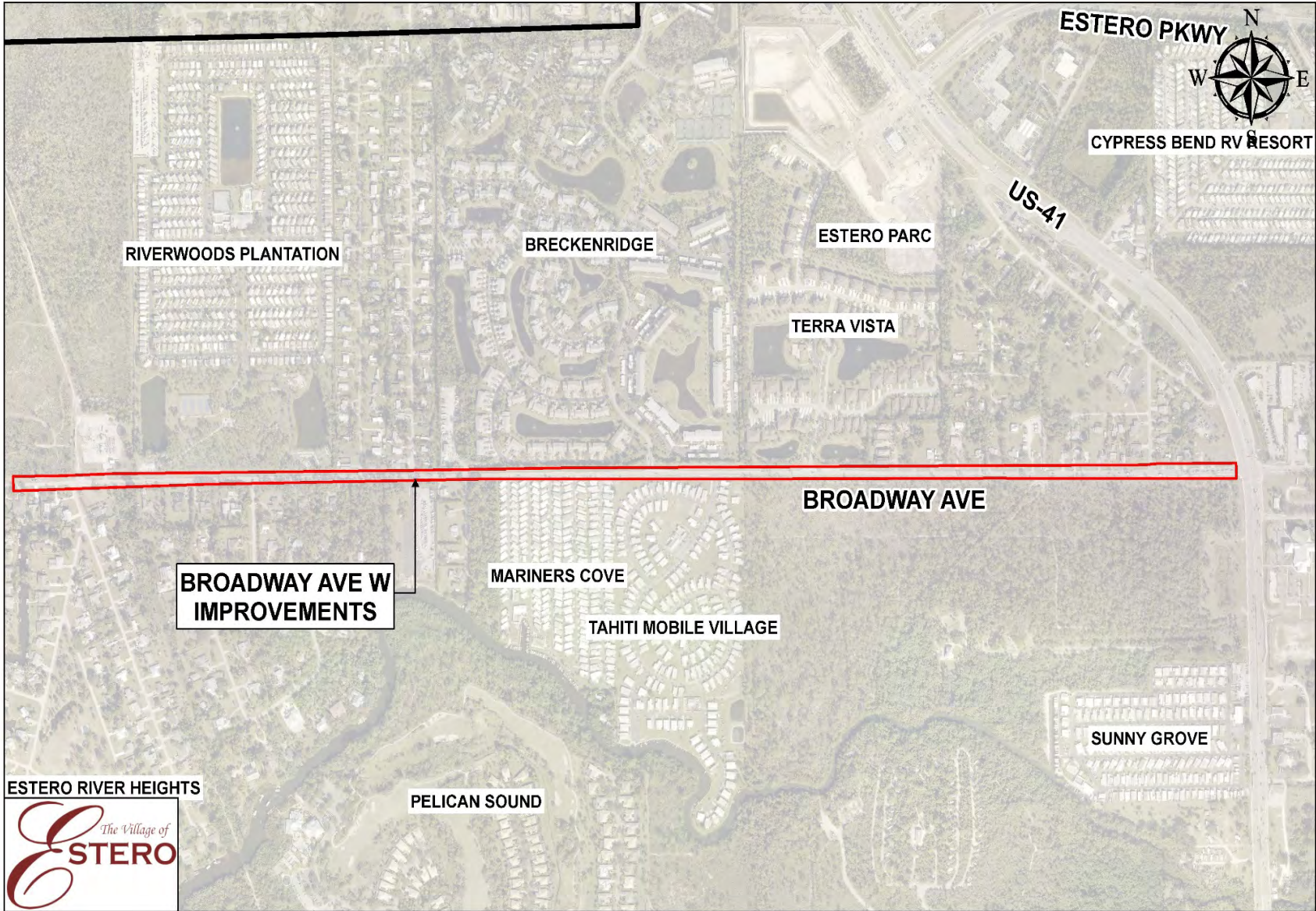
The Village of Estero has received many resident complaints about road safety, the roadway width and drainage along Broadway West.

This project could improve roadway safety by increasing the roadway width. The roadway is currently somewhat narrow compared to other roadways.

Several communities north of Broadway drain into the roadside ditch. Improvements could be made to the ditch to increase the flow and treatment of water in the ditch. The existing ditch slope off the roadway are relatively steep. The project will try to flatten the slopes to improve traffic safety.

Maintenance:

The proposed improvements along Broadway West are not expected to increase maintenance costs.



CIP Project Summary - Roadway Improvements (5) Williams Road Widening (US41 - Via Coconut)

CIP Category: Roadway

Funding Source: Road Impact Fee, Gas Tax, General Fund

Design :	\$	822,000.00
Construction :	\$	2,739,900.00
Total:	\$	3,561,900.00

Project Description:

Widen Williams Road from US-41 to Via Coconut Point from the existing two lanes to 4-lane divided.

The scope will include the following:

- 4-lane widening
- Additional right of way (assumed to be donated)
- Second westbound left
- Exclusive westbound right
- Street Lights
- Landscaping

Project Justification:

As additional development occurs along Williams Road and Via Coconut Point, traffic is expected to increase to the point where additional capacity is required on Williams Road from US-41 to Via Coconut Point.

Maintenance:

This project will increase the major roadway maintenance costs as it will increase the width of pavements along Williams Road. These costs will be included in the Major Roadway Maintenance and General Maintenance Budgets.

This project will also include increased general maintenance costs associated with potential street lights and/or landscaping. These costs will be included in the General Maintenance Budget once they are known.



CIP Project Summary - Roadway Improvements
(6) Via Coconut Point Street Lights

CIP Category: Street Lights
Funding Source: Gas Tax, General Fund

Design :	\$	205,200.00
Construction :	\$	2,160,000.00
Total:	\$	2,365,200.00

Project Description:
Install street lights along Via Coconut Point from Williams Road to Coconut Road

Project Justification:
Via Coconut Point has existing sidewalks and bike lanes along both sides of the road. Installation of street lights along the corridor will improve safety and promote usage of the sidewalks during night time hours.

Maintenance:
The additional operation and maintenance costs associated with the street lights including power, general maintenance, and repair will be included in the Village's General Maintenance Budget.



CIP Project Summary - Roadway Improvements
(7) Three Oaks Parkway Street Lights

CIP Category: Street Lights
Funding Source: Gas Tax, General Fund

Design :	\$	60,900.00
Construction :	\$	640,000.00
Total:	\$	700,900.00

Project Description:

Install street lights along Three Oaks Parkway from Corkscrew Road to Williams Road.

Project Justification:

This is the only section of Three Oaks Parkway without street lights. Installation of street lights will improve safety and fill this gap, allowing pedestrians to utilize the entire length of Three Oaks Parkway at night.

Maintenance:

The additional operation and maintenance costs associated with the street lights including power, general maintenance, and repair will be included in the Village's General Maintenance Budget.



CIP Project Summary - Roadway Improvements
(8) Corkscrew Road Street Lights (US41-I75)

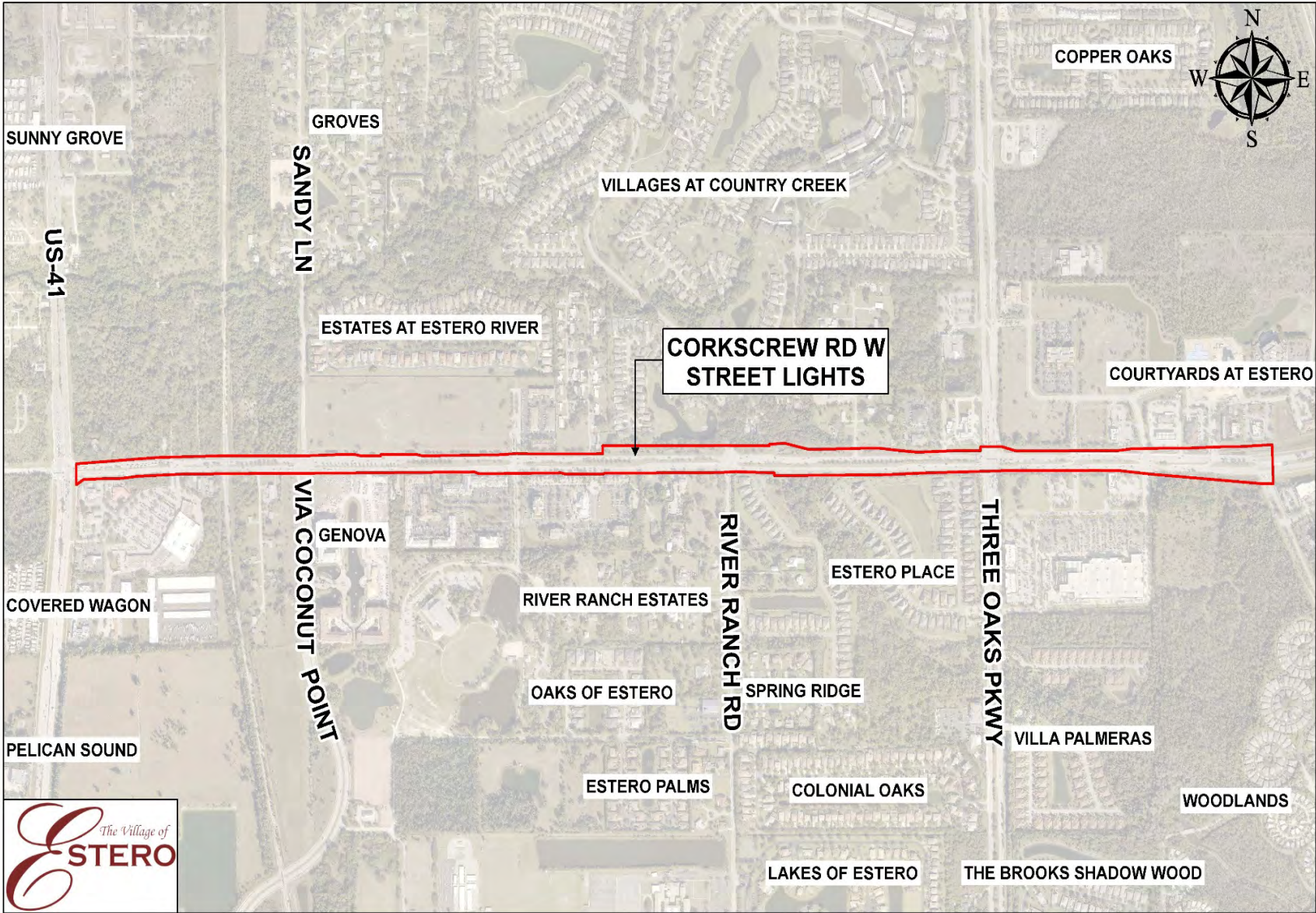
CIP Category: Street Lights
Funding Source: Gas Tax, General Fund

Design :	\$	145,200.00
Construction :	\$	1,528,000.00
Total:	\$	1,673,200.00

Project Description:
Install street lights on Corkscrew Road from US-41 to I-75

Project Justification:
Corkscrew Road has existing sidewalk along the south side of the roadway the entire roadway length and existing sidewalk on the north side of the road a portion of the roadway length. The Bike Ped Master Plan proposes improvements along the corridor including completing the sidewalk on the north side of the roadway. Installation of street lights along the corridor will improve safety along Corkscrew Road and promote usage of the sidewalks during night time hours.

Maintenance:
The additional operation and maintenance costs associated with the street lights including power, general maintenance, and repair will be included in the Village's General Maintenance Budget.



**CORKSCREW RD W
STREET LIGHTS**



CIP Project Summary - Roadway Improvements
(9) Coconut Road Street Lights

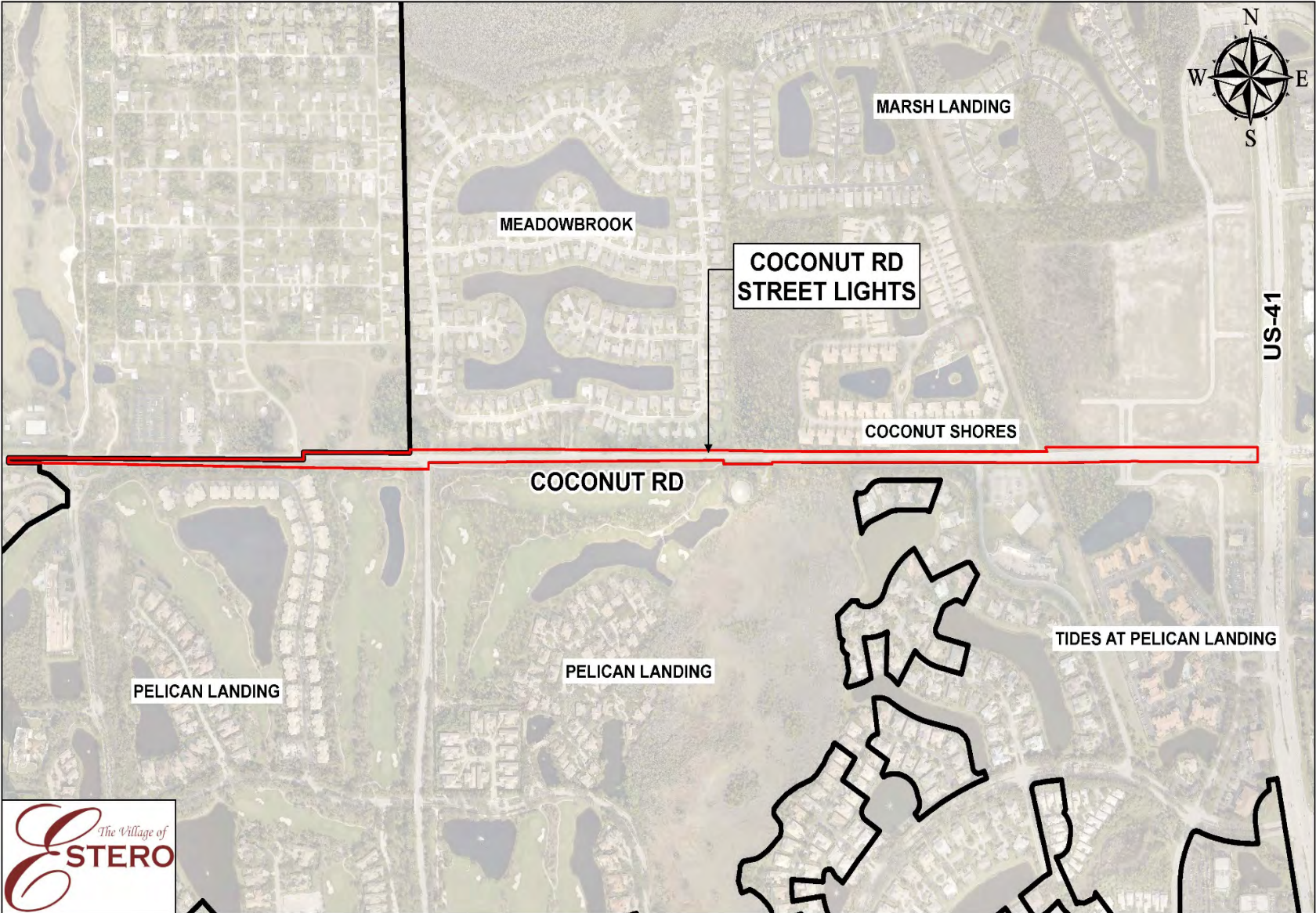
CIP Category: Street Lights
Funding Source: Gas Tax, General Fund

Design :	\$	53,300.00
Construction :	\$	560,000.00
Total:	\$	613,300.00

Project Description:
Install street lights along Coconut Road west of US41

Project Justification:
Coconut Road has an existing sidewalk on the south side of the road and the Bicycle and Pedestrian Master Plan recommends installing a shared used path. The installation of street lights will improve safety and allow the sidewalks to be used at night.

Maintenance:
The additional operation and maintenance costs associated with the street lights including power, general maintenance, and repair will be included in the Village's General Maintenance Budget.



CIP Project Summary - Roadway Improvements
(10) Williams Road Street Lights

CIP Category: Street Lights
Funding Source: Gas Tax, General Fund

Design :	\$	57,000.00
Construction :	\$	600,000.00
Total:	\$	657,000.00

Project Description:

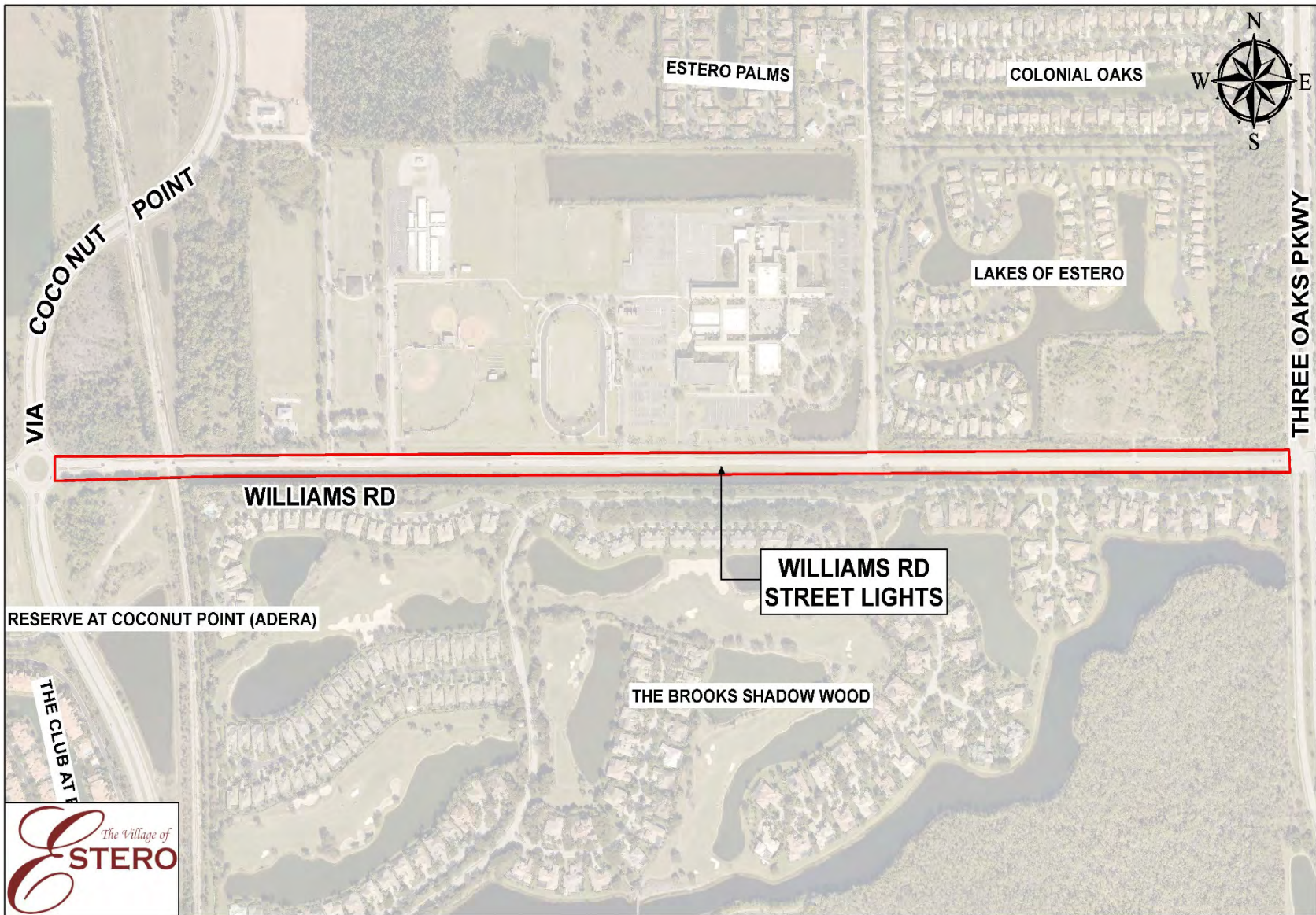
Install street lights along Williams Road from Via Coconut Point to Three Oaks Parkway.

Project Justification:

Williams Road has an existing sidewalk on the north side of the road east of Via Coconut Point. The Bicycle and Pedestrian Master Plan recommends adding protected bike lanes and sidewalks on both sides of the road. Installation of street lights will improve safety along the corridor and promote usage of the sidewalks during night time hours.

Maintenance:

The additional operation and maintenance costs associated with the street lights including power, general maintenance, and repair will be included in the Village's General Maintenance Budget.



A-20

4/14/2020

CIP Project Summary - Roadway Improvements (11) River Ranch Road Street Lights

CIP Category: Street Lights
Funding Source: Gas Tax, General Fund

Design :	\$	30,500.00
Construction :	\$	320,000.00
Total:	\$	350,500.00

Project Description:
Install street lights along River Ranch Road

Project Justification:
Estero High School and several elementary & high school bus stops are located along River Ranch Road. At times students walk to Estero High School or their bus stop in the dark. In addition, there is an existing sidewalk along a portion of the road and the Bicycle and Pedestrian Master Plan recommends adding a shared use path and completing the existing sidewalk. Providing street lights along River Ranch Road would improve safety for the students in the area and allow the sidewalks to be used at night.

Maintenance:
The additional operation and maintenance costs associated with the street lights including power, general maintenance, and repair will be included in the Village's General Maintenance Budget.



CIP Project Summary - Roadway Improvements
(12) Broadway Street Lights

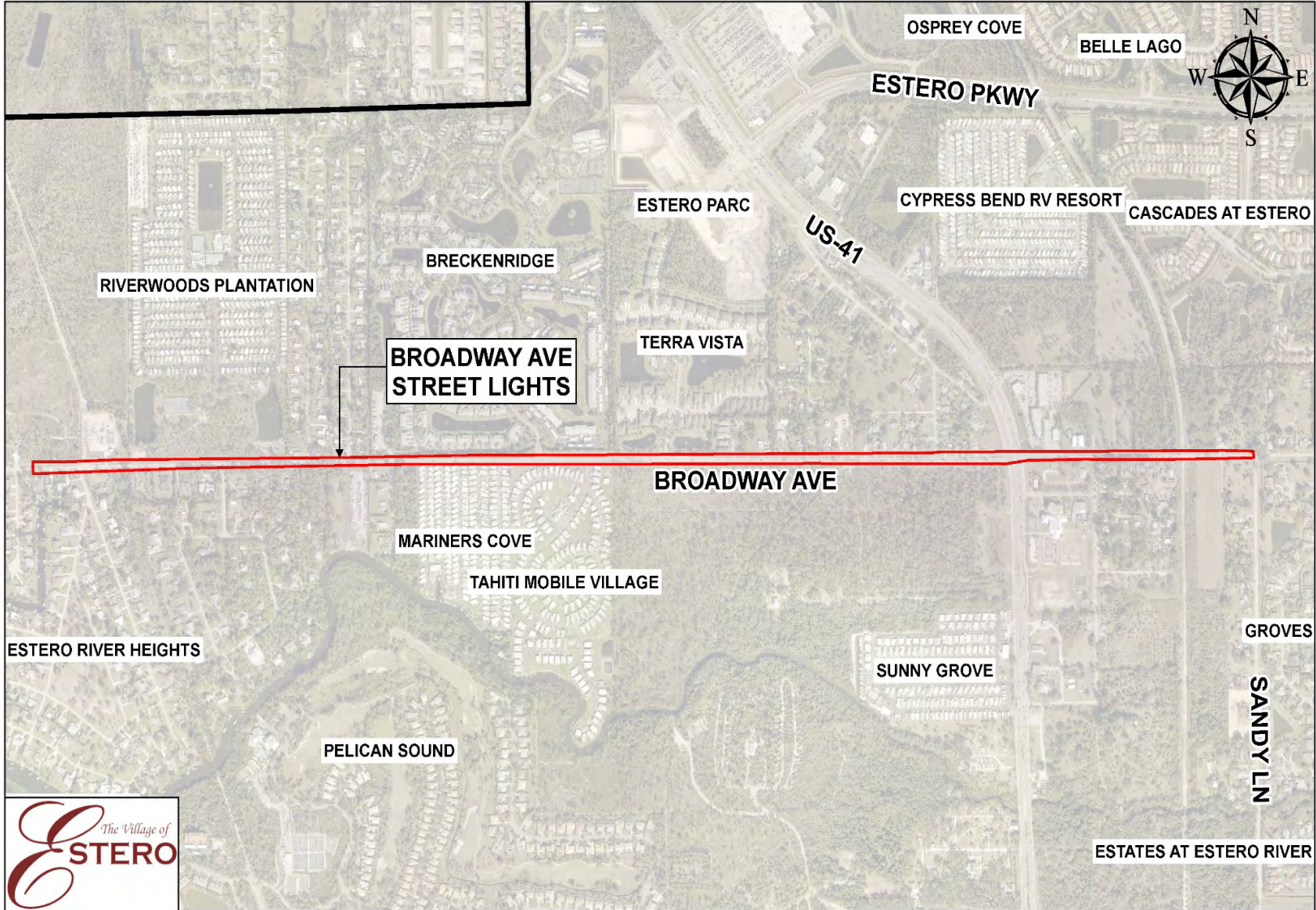
CIP Category: Street Lights
Funding Source: Gas Tax, General Fund

Design :	\$	72,300.00
Construction :	\$	760,000.00
Total:	\$	832,300.00

Project Description:
Install street lights along Broadway from Armada Court to Sandy Lane

Project Justification:
There is an existing sidewalk on the south side of Broadway west of US41 and the Bicycle and Pedestrian Master Plan recommends adding a shared used path. Installation of street lights would improve roadway safety and allow bicycles and pedestrians to use the sidewalk and/or shared used path at night.

Maintenance:
The additional operation and maintenance costs associated with the street lights including power, general maintenance, and repair will be included in the Village's General Maintenance Budget.



CIP Project Summary - Roadway Improvements
(13) Sandy Lane Street Lights

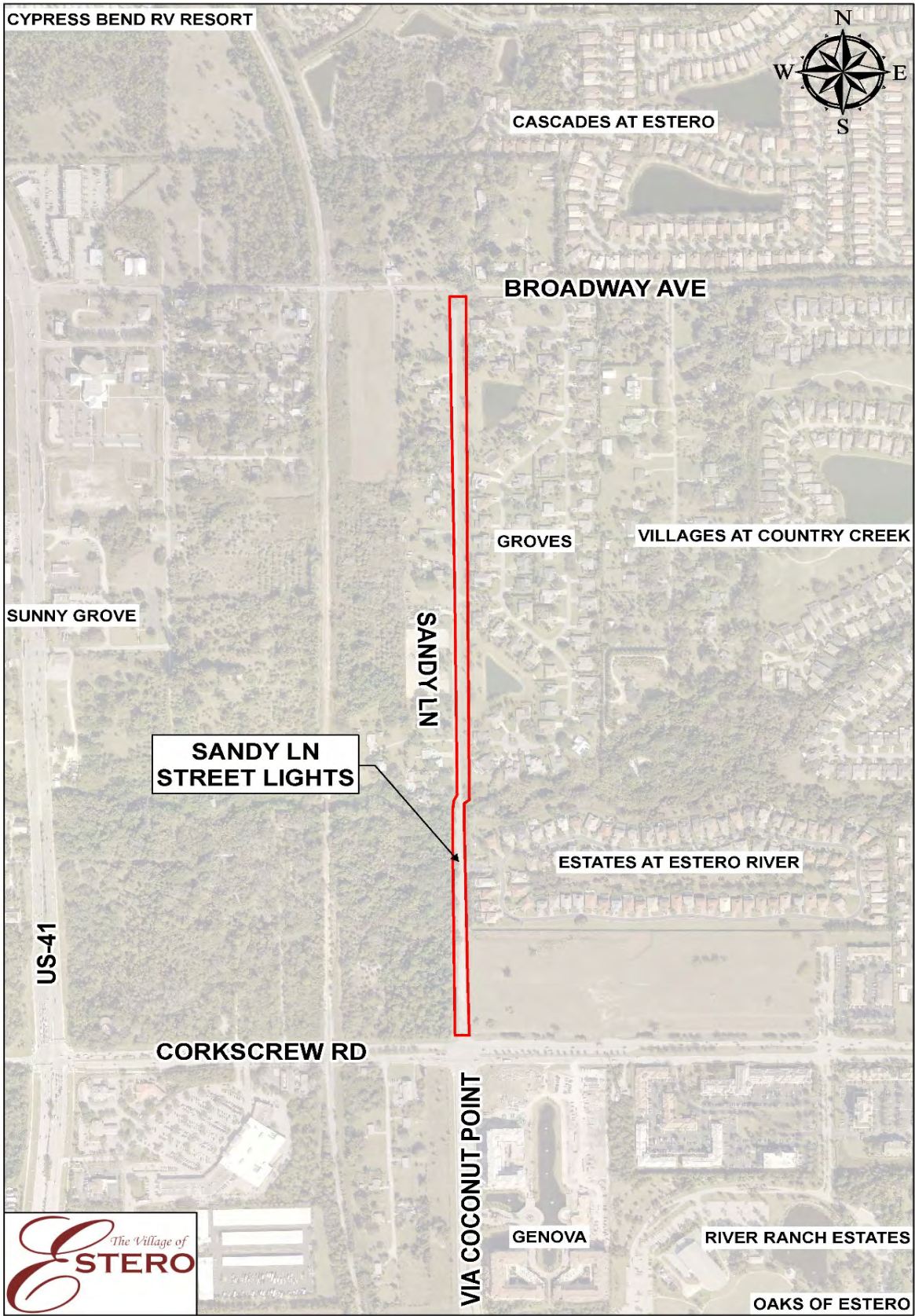
CIP Category: Street Lights
Funding Source: Gas Tax, General Fund

Design :	\$	28,600.00
Construction :	\$	300,000.00
Total:	\$	328,600.00

Project Description:
Install street lights along Sandy Lane.

Project Justification:
While Sandy Lane does not currently have bike/ped facilities, the Bicycle and Pedestrian Master Plan recommends installation of shared used path. Street lights would improve roadway safety and after a multi-use path is installed, street lights will allow bicycles and pedestrians to use the path at night.

Maintenance:
The additional operation and maintenance costs associated with the street lights including power, general maintenance, and repair will be included in the Village's General Maintenance Budget.



CIP Project Summary - Roadway Improvements (14) Via Coconut Point Extension (South)

CIP Category: Roadway
Funding Source: Road Impact Fee, Gas Tax, General Fund

Design :	\$	438,000.00
Construction :	\$	1,811,000.00
Total:	\$	2,249,000.00

Project Description:

Extend Via Coconut Point south from Pelican Colony Blvd. to the Village of Estero/City of Bonita Springs jurisdictional boundary.

This project will need to be designed, permitted and constructed in conjunction with The City of Bonita Spring's work to connect Via Coconut Point with Old US-41 from the jurisdictional boundary to Old US-41.

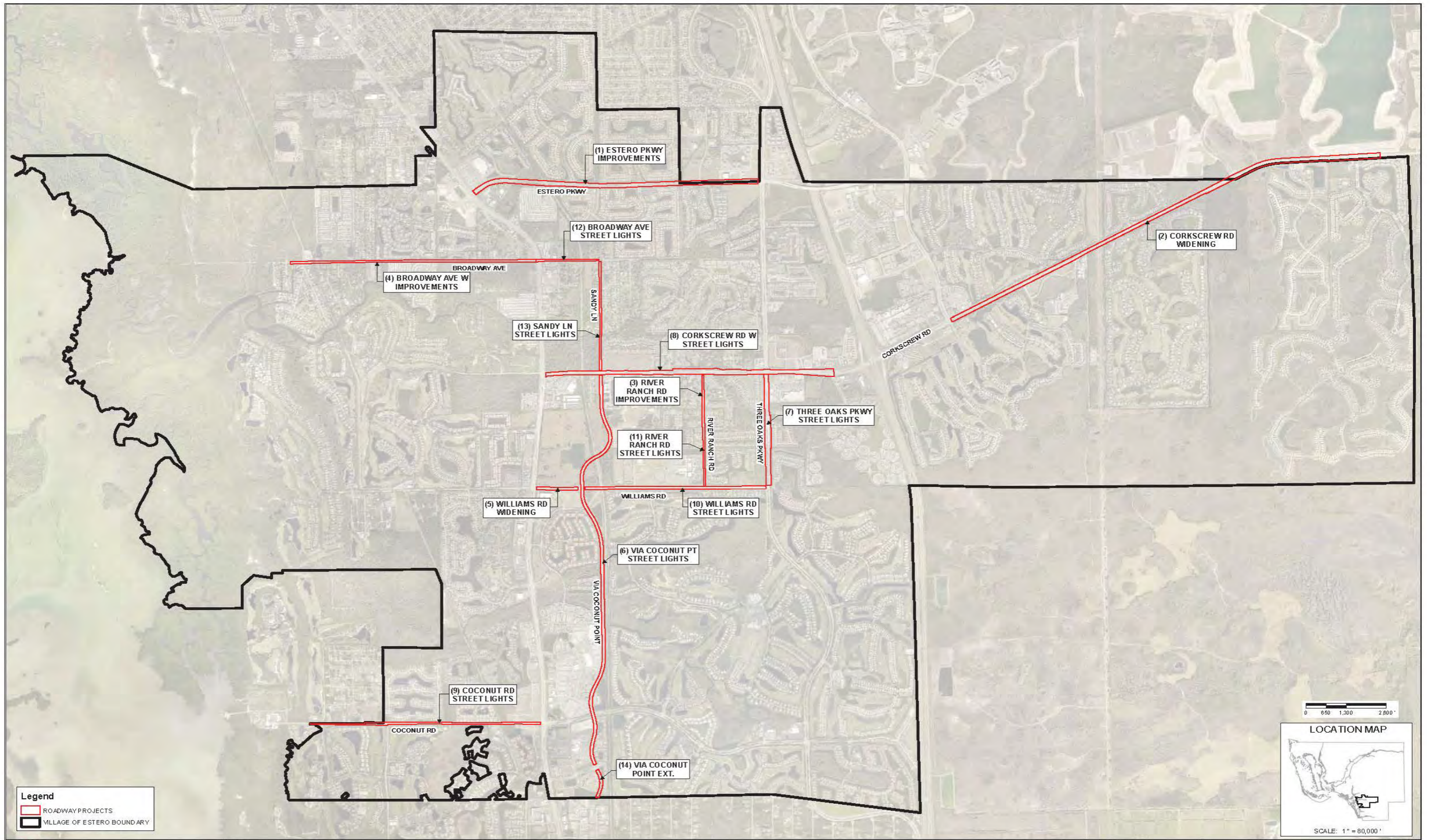
Project Justification:

Extending Via Coconut Point in Estero to Old US-41 in Bonita Springs will provide an alternate route to US-41. This project will add another connection from Coconut Road in Estero to Bonita Beach Road in Bonita Springs and US-41 in Collier County.

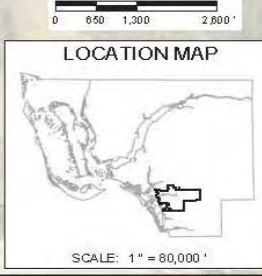
Maintenance:

The Village of Estero will maintain the roadway, landscaping, irrigation and roadway after construction. These costs will be included in the Village's general maintenance and major roadway maintenance budgets.





Legend
 ROADWAY PROJECTS
 VILLAGE OF ESTERO BOUNDARY



NOTES:
 1. 2019 AERIAL IMAGES FROM LEE COUNTY
 2. COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA WEST FIPS 5002 FEET

CAPITAL IMPROVEMENT PROGRAM ROADWAY PROJECTS

VILLAGE OF ESTERO \ FLORIDA



SCALE: 1" = 1,300'
 DRAWN BY: EJR
 CHECKED BY: -----
 DATE: 4/9/2020
 SHEET: 1 of 1

ESTERO
 9401 CORKSCREW PALMS CIRCLE
 ESTERO, FL 33928
 P. 239.221.5035
<http://estero-fl.gov>

Section B
Intersection Improvements

CIP Project Summary - Intersection Improvements
(1) Corkscrew Rd/Town Commons Signal

CIP Category: Intersection
Funding Source: Developers

Design :	\$	220,000.00
Construction :	\$	842,600.00
Total:	\$	1,062,600.00

Project Description:

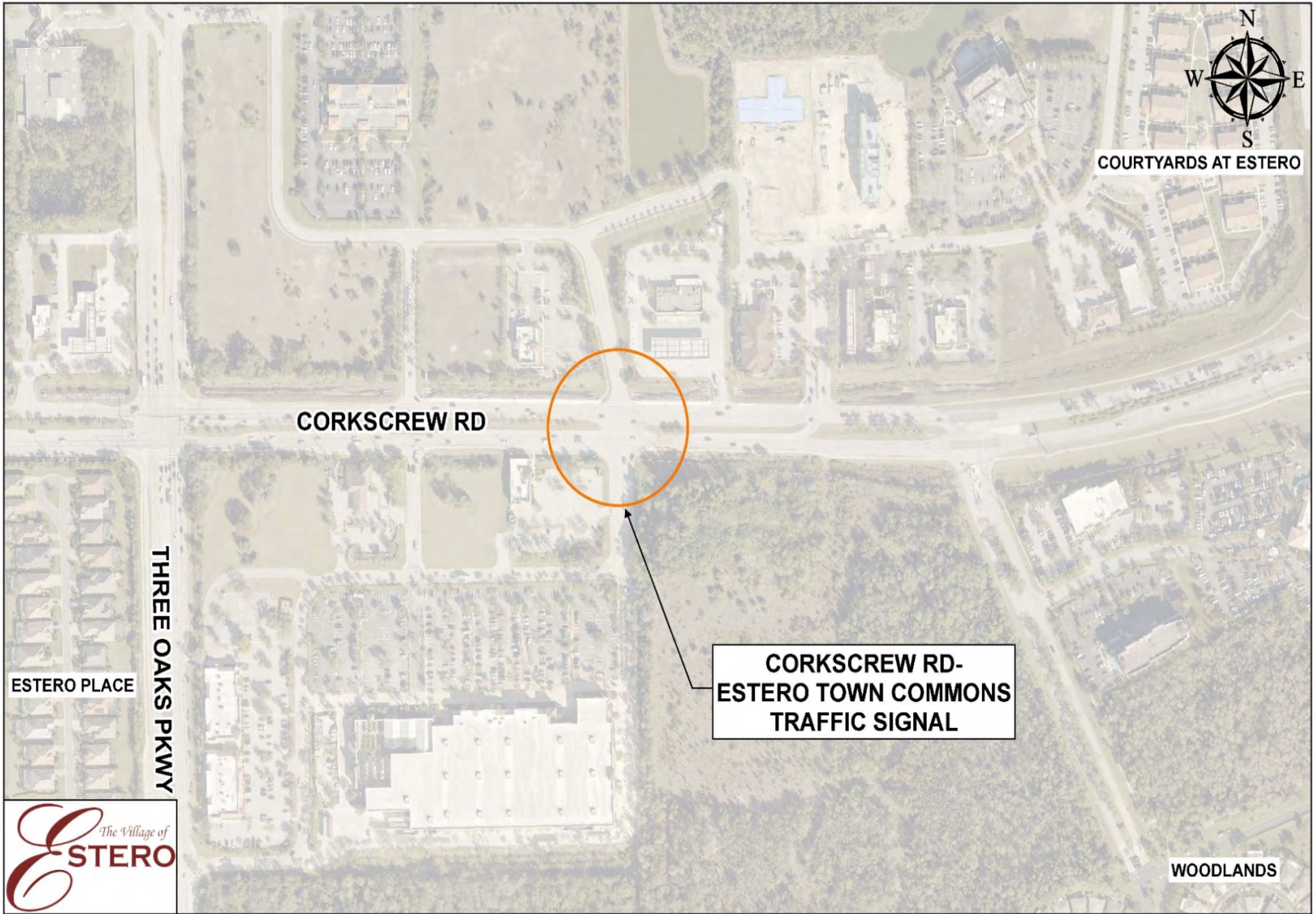
Three commercial developments along Corkscrew Road have previously agreed to pay for the design, permitting, and installation of a traffic signal on Corkscrew Road at Puente Lane. To date the developers have not come forward to pay for the traffic signal. The Village of Estero has stepped in to pay for the design of the project. All costs incurred by the Village are expected to be reimbursed by the Developers.

Project Justification:

Traffic warrants for the installation of a traffic signal at Corkscrew Road and Estero Town Commons/Puente Lane have been met, according to Lee County DOT. Lee County has agreed to install the traffic signal after developer payments have been received. This traffic signal will work in conjunction with the proposed frontage road in the Estero Crossing project. The traffic signal is expected to improve safety by allowing vehicles to enter Corkscrew Road at a controlled intersection and allow the elimination of left turns out of Corkscrew Woodlands Blvd.

Maintenance:

The proposed traffic signal will be owned, operated and maintained by Lee County. The Village of Estero will not incur maintenance costs.



CIP Project Summary - Intersection Improvements
(2) Corkscrew Rd - Corkscrew Woodlands Intersection Improvements

CIP Category: Intersection
Funding Source: Lee County

Design :	\$	10,800.00
Construction :	\$	46,400.00
Total:	\$	57,200.00

Project Description:

After the Estero Crossing frontage road and Puente Lane/Estero Town Commons traffic signal are installed, the left turn out of Corkscrew Woodland Blvd. will be closed by Lee County. Residents will be redirected to the Puente Lane/Estero Town Commons signal to make left turns at the proposed traffic signal.

Project Justification:

The Village Wide Traffic Study recommends closing the intersection of Corkscrew Road & Corkscrew Woodlands Blvd. after the frontage road is completed. This will improve traffic safety by eliminating an unsignalized left hand turn and redirecting traffic to a signalized intersection.

Maintenance:

The Village of Estero will not incur additional maintenance costs associated with this project.



CIP Project Summary - Intersection Improvements
(3) US-41 & Pelican Colony Traffic Signal

CIP Category: Intersection

Funding Source: Developer

Design :	\$	132,000.00
Construction :	\$	552,000.00
Total:	\$	684,000.00

Project Description:

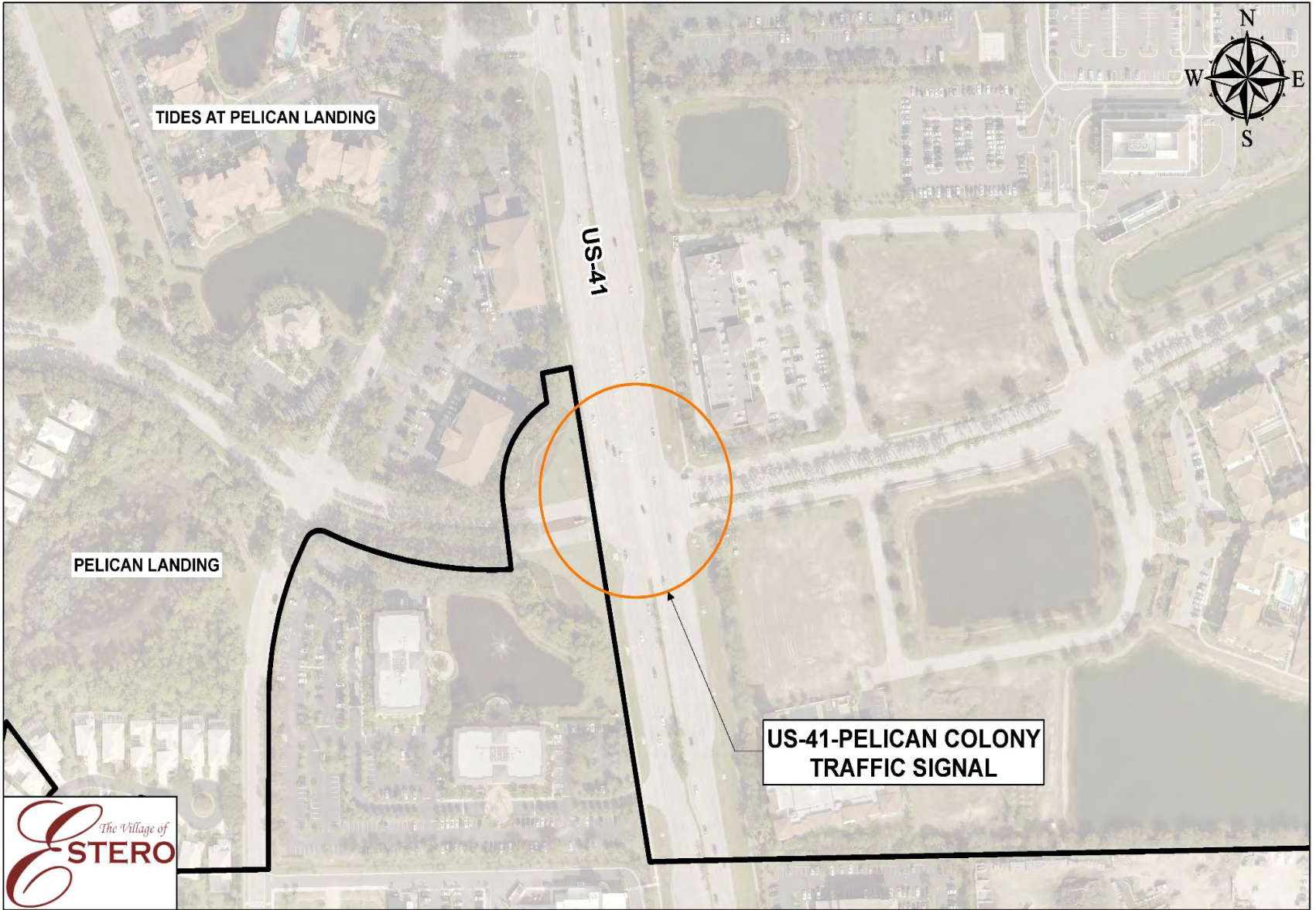
Adjacent developments will design, permit, and construction a traffic signal at the intersection of US-41 and Pelican Colony Blvd.

Project Justification:

Payment for the traffic signal by the adjacent developments after the signal is warranted is outlined in their prospective zoning documents. According to FDOT, the traffic signal is now warranted. The traffic signal is expected to improve safety and traffic flow on Pelican Colony Blvd. and Coconut Road.

Maintenance:

The Village of Estero will not incur additional maintenance costs associated with this project.



CIP Project Summary - Intersection Improvements
(4) US41/ Williams Road / Atlantic Gulf Intersection Improvements

CIP Category: Intersection
Funding Source: Road Impact Fee, Gas Tax, General Fund

Design :	\$	586,560.00
Construction :	\$	2,924,760.00
Total:	\$	3,511,320.00

Project Description:

Construct roadway intersection improvements on Williams Road east of US-41 to prevent illegal left turns out of the Walgreens parking lot and improve left turn vehicle stacking at US-41. Potential improvements include the following:

- Install traffic separator to prevent left turn out of Walgreen and Atlantic Gulf Drive
- Construct roundabout at Life Care Center
- Extend east bound left turn at US-41

Project Justification:

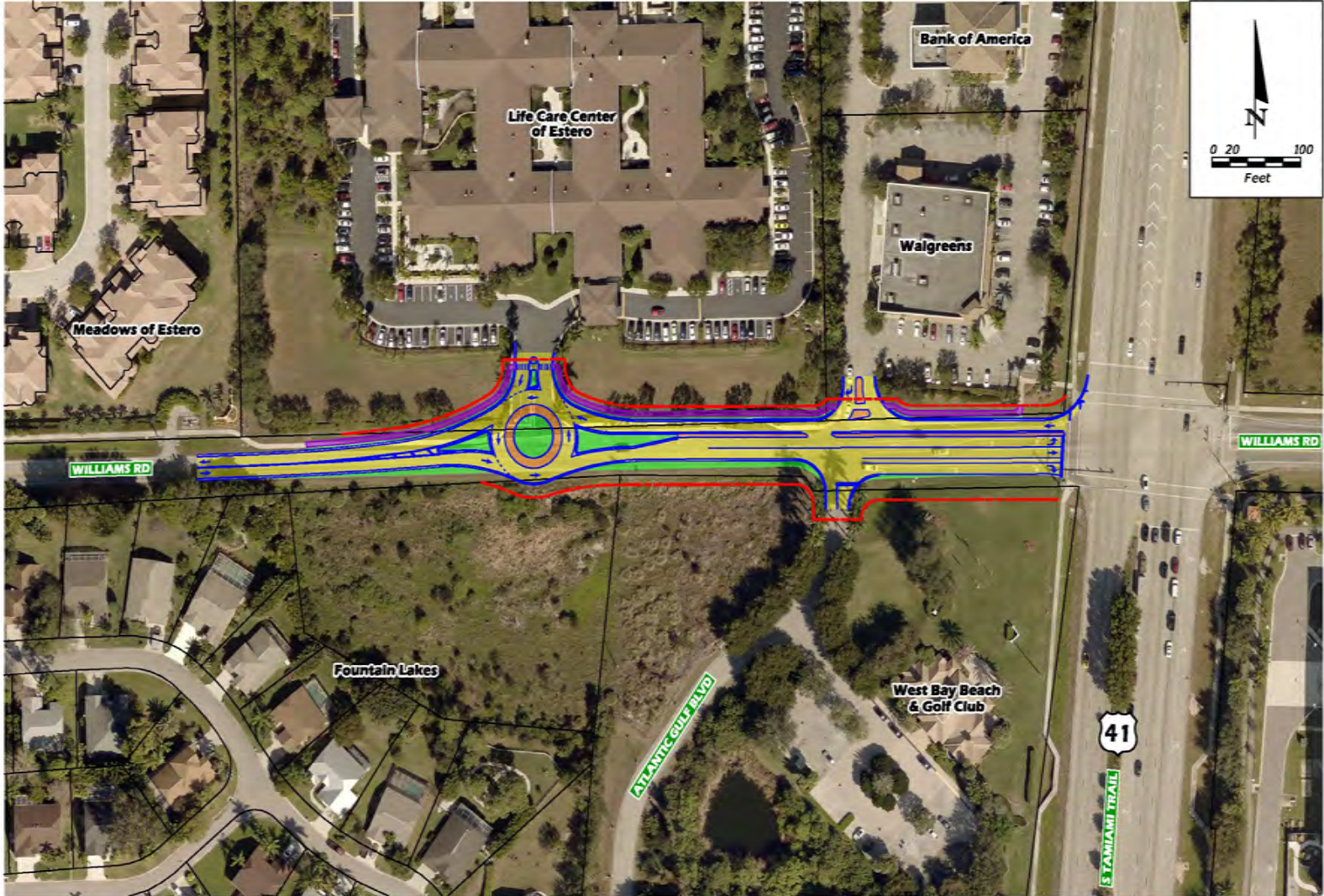
The Village of Estero receives many complaints about the intersection of Williams Road and Atlantic Gulf Drive. Vehicles regularly make illegal left turns out of Walgreens and the short left turn lane at US-41 contributes to traffic back ups. The Village Wide Traffic Study identified issues at this location and recommends closing the westbound left turn from Williams Rd to Atlantic Gulf Drive. The proposed improvements will improve safety and traffic flow.

Maintenance:

The Village of Estero will incur additional maintenance costs associated with the street lights, landscaping and irrigation. These additional costs will be included in the General Maintenance Budget

PRELIMINARY

AERIAL FLIGHT DATE: 2017



OPTION 4A - ROUNDABOUT (95-FT INSCRIBED DIAMETER)

- EXISTING PROPERTY LINE
- PROPOSED R/W LINE
- PROPOSED ROADWAY
- PROPOSED SIDEWALK
- PROPOSED TRAFFIC SEPARATOR
- PROPOSED SOD

AIM ENGINEERING & SURVEYING
 3802 CORPOREX PARK DRIVE
 SUITE 225
 TAMPA, FL 33619

VILLAGE OF ESTERO

ROAD NO.	COUNTY	CONTRACT No.
N/A	LEE	CN2018-02

**WILLIAMS RD / ATLANTIC GULF BLVD
 INTERSECTION IMPROVEMENTS**
 CONCEPT PLAN

SHEET NO.
4A

\\s01-2017-000001\work\2018\20180417\20180417_04A_20180417.dwg 4/14/2020 10:10:10 AM

CIP Project Summary - Intersection Improvements
(5) Corkscrew Rd/Three Oaks Pkwy Intersection Improvements

CIP Category: Intersection
Funding Source: Lee County

Design :	\$	78,000.00
Construction :	\$	352,200.00
Total:	\$	430,200.00

Project Description:

Construct intersection improvements at Corkscrew Road and Three Oaks Parkway. Improvements will include the following:

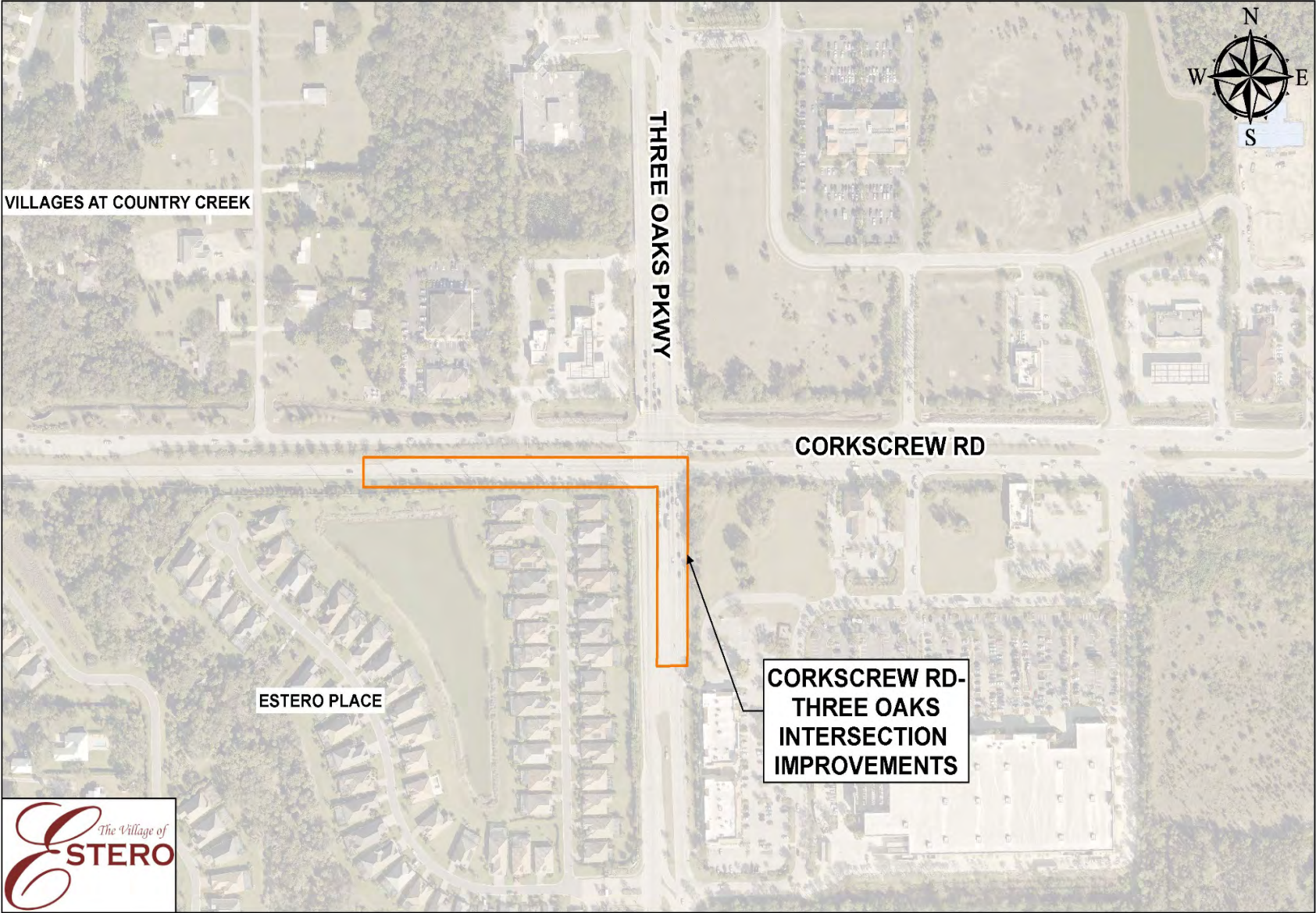
- Extend eastbound left turn lanes by 600LF.
- Extend northbound right turn and add second northbound right turn.

Project Justification:

As outlined in the Village Wide Traffic Study, at times of higher traffic volumes, there is insufficient stacking and capacity on Three Oaks Parkway for north bound right turn and on Corkscrew Road for east bound left turn. These improvements will improve the flow of traffic through the intersection and reduce traffic delays.

Maintenance:

The Village of Estero will not incur additional maintenance costs associated with this project.



CIP Project Summary - Intersection Improvements (6) US-41/Coconut Road Intersection Improvements

CIP Category: Intersection
Funding Source: Other

Design :	\$	186,200.00
Construction :	\$	387,900.00
Total:	\$	574,100.00

Project Description:

Construct intersection improvements at Coconut Road and US-41 intersection to improve traffic flow and increase vehicle stacking at US-41. Improvement could include the following:

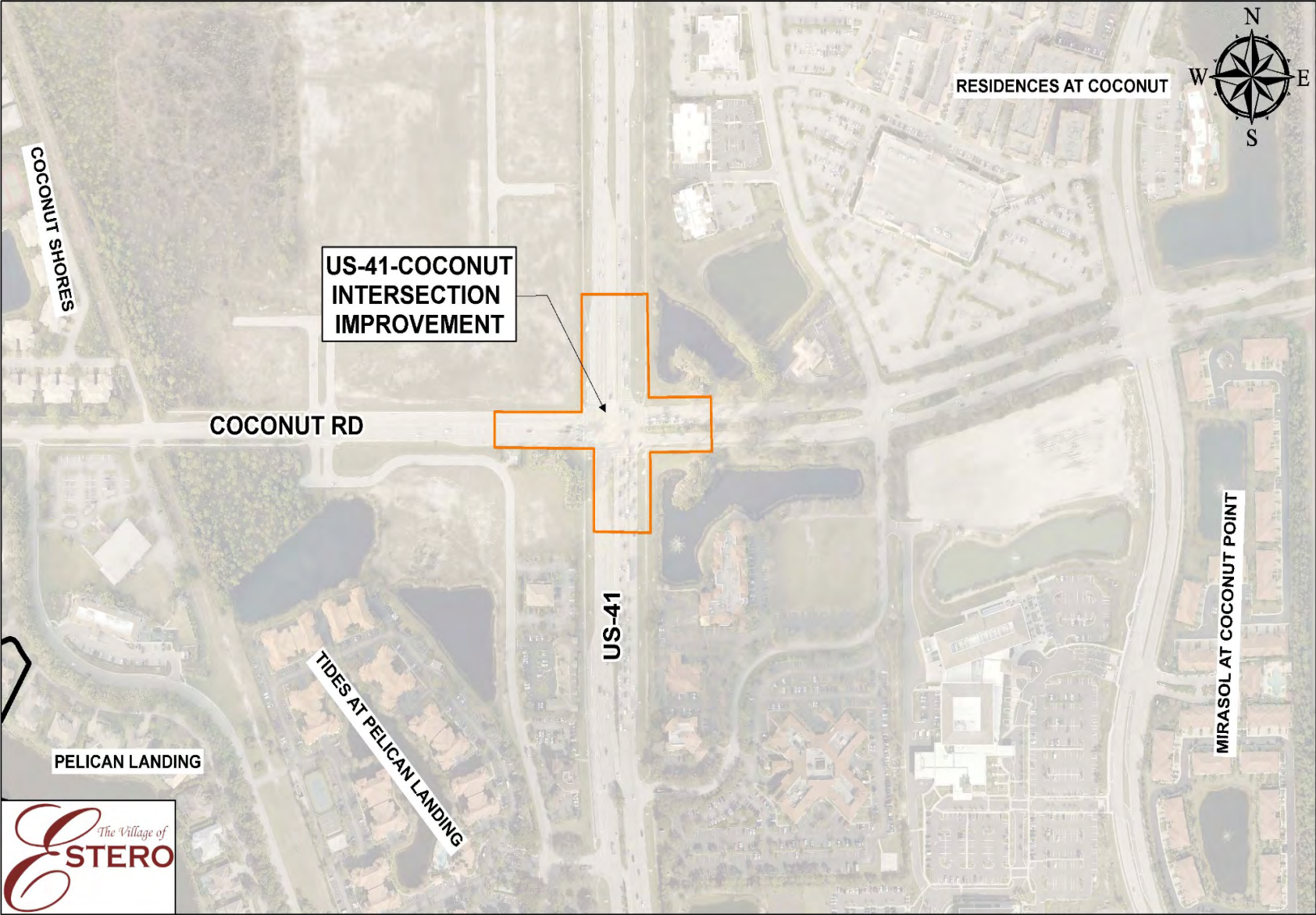
- Signal Retiming
- Extend EB right turn lane
- Extend WB dual left turn lanes
- Extend SB right turn lane
- Add second NB left turn lane

Project Justification:

As outlined in the Coconut Road Traffic Study, the Coconut Road/US-41 intersection is nearing/exceeding the traffic volume that can be accommodated by the existing lanes of traffic. Improvements will be required to increase the volume of traffic through the intersection to reduce traffic delays.

Maintenance:

The Village of Estero will experience a slight increase in pavement maintenance costs due to the increased paved surface. These costs will be budgeted within the Major Roadway Maintenance Budget.



CIP Project Summary - Intersection Improvements (7) US-41/Williams Rd Intersection Improvements

CIP Category: Intersection
Funding Source: Road Impact Fee, Gas Tax, General Fund

Design :	\$	210,000.00
Construction :	\$	60,400.00
Total:	\$	270,400.00

Project Description:

Construct intersection improvements at the intersection of US-41 and Williams Road. Improvements could include the following:

Convert the gore area into a second southbound left turn lane

Project can only start after Williams Rd east of US 41 is widened to accommodate the second lane of traffic from US41.

Project Justification:

The Village Wide Traffic Study identified the need for an additional southbound turn lane at US41 and Williams Road. As traffic volumes continue to increase at the intersection of US-41 and Williams Road, traffic volumes will exceed the intersections capacity. The proposed intersection improvements will increase the volume of traffic that can be accommodated by the intersection, reducing traffic delays.

Maintenance:

The Village of Estero will not incur additional maintenance costs associated with this project.



CIP Project Summary - Intersection Improvements
(8) Coconut Rd - Coconut Shores Roundabout

CIP Category: Intersection
Funding Source: Other, Road Impact Fee, Gas Tax, General Fund

Design :	\$	307,500.00
Construction :	\$	662,400.00
Total:	\$	969,900.00

Project Description:

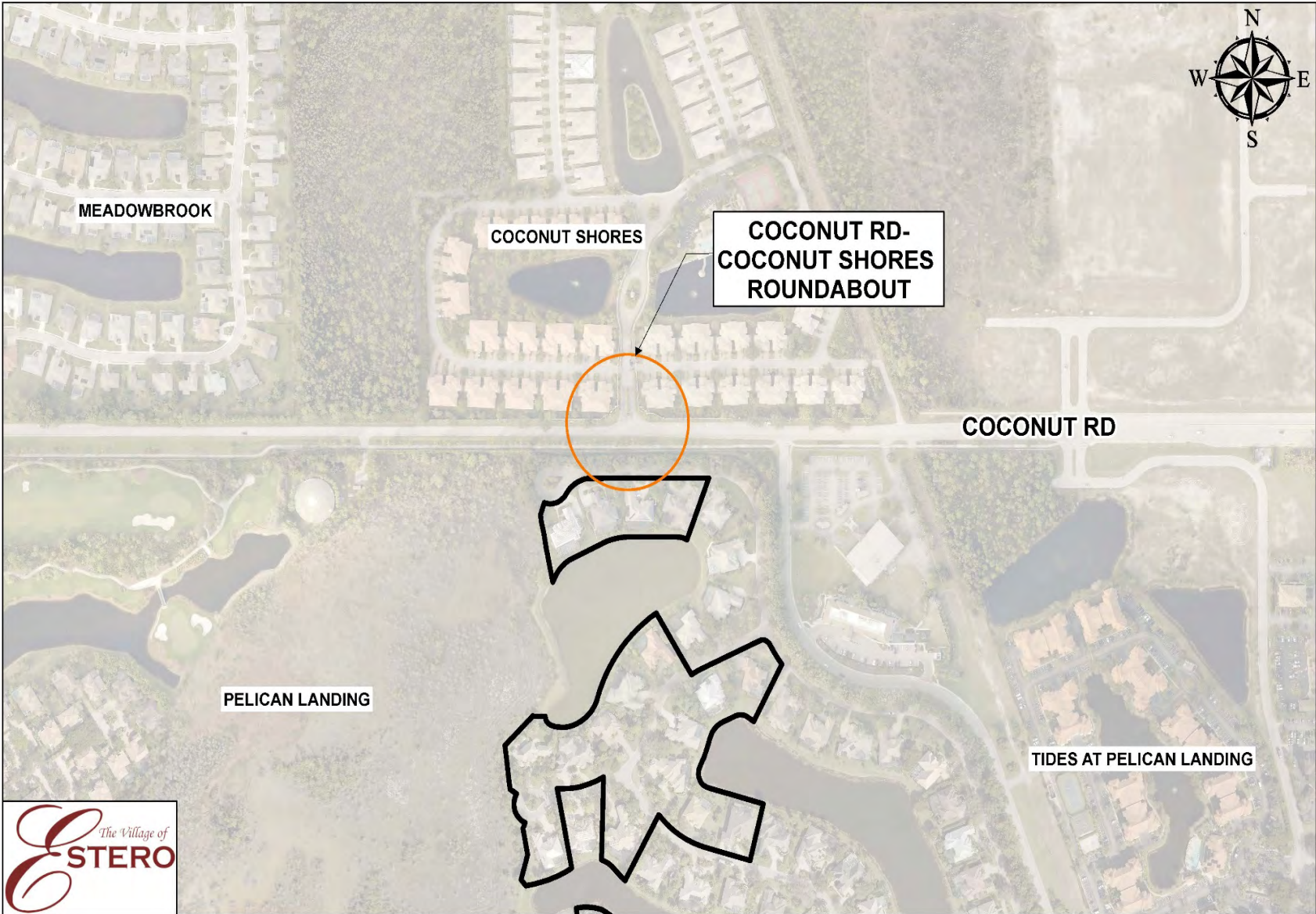
Construct a roundabout at the intersection of Coconut Road and Coconut Shores.

Project Justification:

The Coconut Road Traffic Study recommends the installation of three roundabouts (Coconut Shores, Meadowbrook and El Dorado) along Coconut Road, west of US-41. The Study indicates the existing intersection will reach capacity in 2027. As traffic along Coconut Road increases with future development, making southbound left turns (the predominate movement at each intersection) onto Coconut Road will become more difficult. The Coconut Shores, Meadowbrook and El Dorado entrance are expected to fail. Roundabouts were recommended to improve these intersections, allowing vehicles and pedestrians to more safely cross Coconut Road.

Maintenance:

Landscape, irrigation, and street light maintenance costs will increase after completion of this project. Those costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Intersection Improvements
(9) US-41/Pelican Sound Intersection Improvements

CIP Category: Intersection
Funding Source: Developer

Design :	\$	277,100.00
Construction :	\$	577,300.00
Total:	\$	854,400.00

Project Description:

Intersection improvements will be required to accommodate the additional traffic associated with the North Point DRI. Improvements could include the following:

- Traffic Signal
- Southbound left turn
- Northbound right turn
- Westbound left turn
- Westbound through lane
- Westbound right turn

Project Justification:

The Village Wide Traffic Study recommends intersection improvements at US 41 and Pelican Sound. The improvements are required to accommodate the existing traffic on US-41 and the additional traffic associated with the North Point DRI, after it is developed.

Maintenance:

The roadways affected by the proposed improvements are located on FDOT or private roadways. As a result, the Village of Estero will not incur additional maintenance costs associated with this project.



CIP Project Summary - Intersection Improvements
(10) US 41 - Corkscrew Rd Intersection Improvements

CIP Category: Intersection

Funding Source: Other

Design :	\$	127,300.00
Construction :	\$	265,200.00
Total:	\$	392,500.00

Project Description:

At the intersection of US 41 and Corkscrew Road, construct a second westbound to north bound right turn and extend the length to be equal to the existing left turn lane length.

Project Justification:

The Village Wide Traffic Study recommends adding a second westbound right turn lane and lengthen the turn lanes to increase traffic capacity at US 41 and Corkscrew Road.

Maintenance:

The Village of Estero will not incur additional maintenance costs as a result of this project.



CIP Project Summary - Intersection Improvements (11) Coconut Rd - Meadowbrook Roundabout

CIP Category: Intersection
Funding Source: Other, Road Impact Fee, Gas Tax, General Fund

Design :	\$	307,500.00
Construction :	\$	662,400.00
Total:	\$	969,900.00

Project Description:

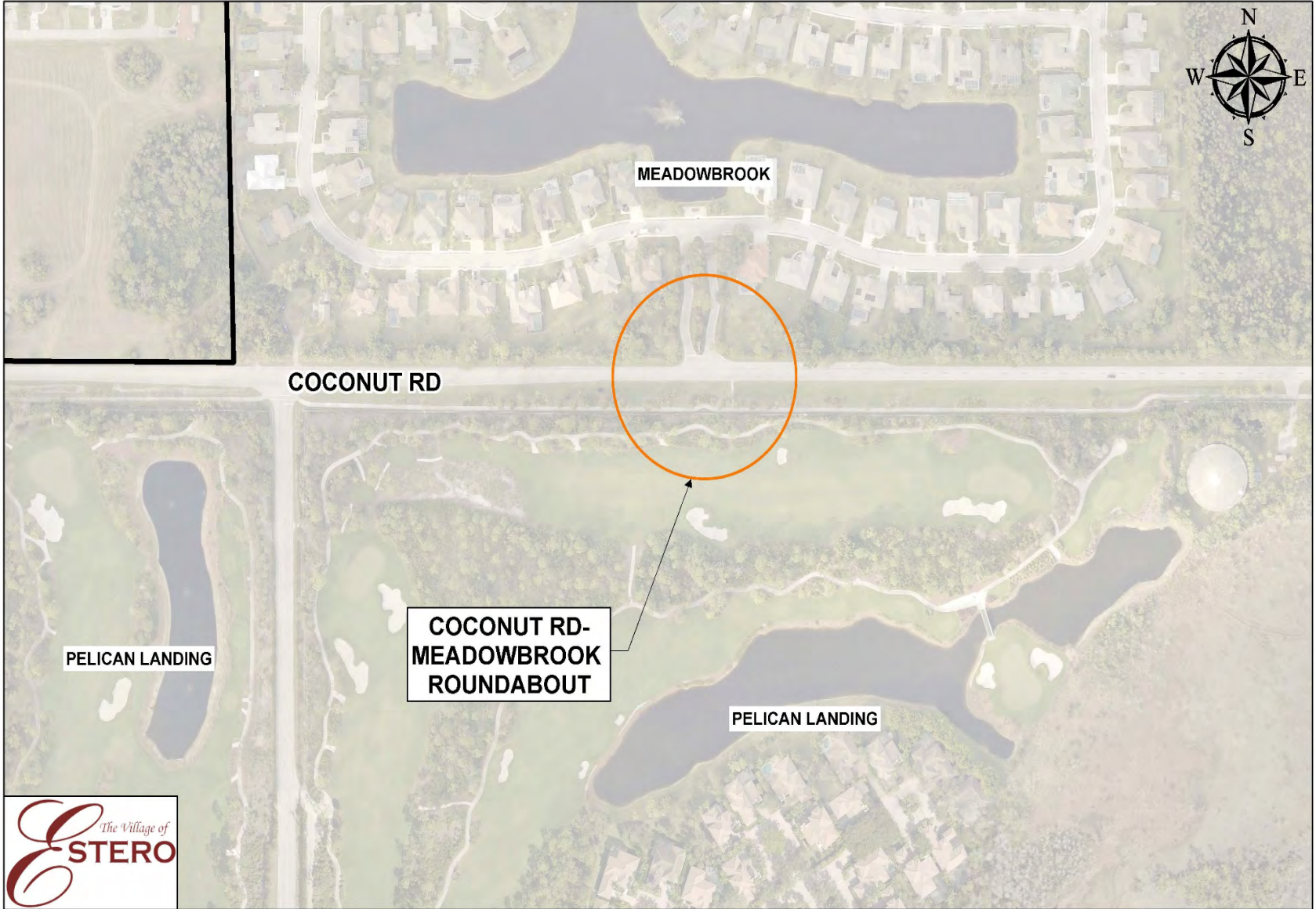
Construct a roundabout at the intersection of Coconut Road and Olde Meadowbrook Blvd.

Project Justification:

The Coconut Road Traffic Study recommends the installation of three roundabouts (Coconut Shores, Meadowbrook and El Dorado) along Coconut Road, west of US-41. The Study indicates the existing intersection will reach capacity in 2028. As traffic along Coconut Road increases with future development, making southbound left turns (the predominate movement at each intersection) onto Coconut Road will become more difficult. The Coconut Shores, Meadowbrook and El Dorado entrance are expected to fail. Roundabouts were recommended to improve these intersections, allowing vehicles and pedestrians to more safely cross Coconut Road.

Maintenance:

Landscape, irrigation, and street light maintenance costs will increase after completion of this project. Those costs will be included in the Village's General Maintenance Budget.



B-22

4/14/2020



CIP Project Summary - Intersection Improvements
(12) North Point Railroad Crossing

CIP Category: Intersection
Funding Source: Road Impact Fee, General Fund

Design :	\$	-
Construction :	\$	-
Total:	\$	1,000,000.00

Project Description:

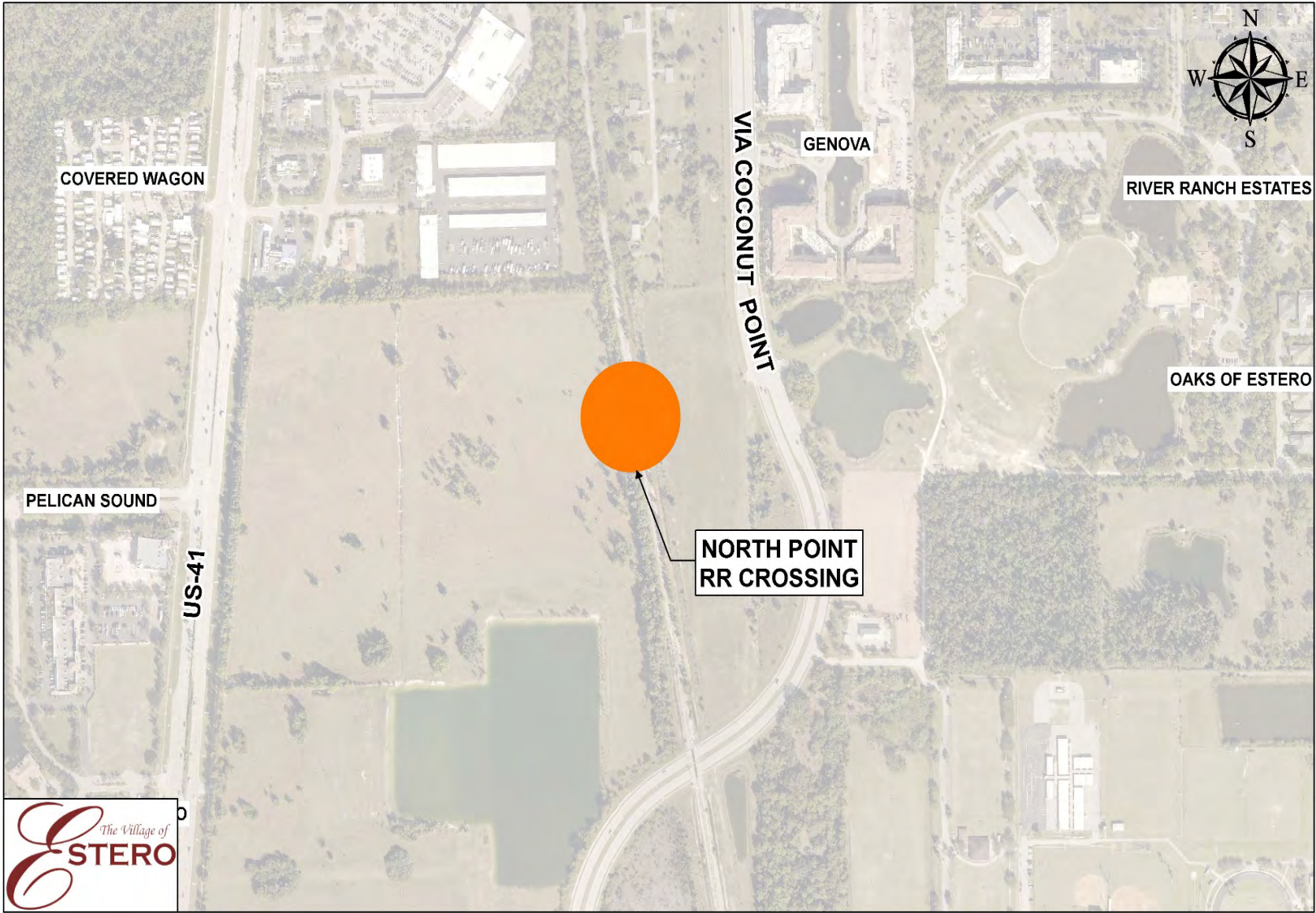
To build a roadway from Via Coconut Point to US-41 through the North Point Development, Seminole Gulf Railway property will need to be crossed. This budget item will pay for the costs required to cross the railroad property.

Project Justification:

A roadway connection from US-41 and Pelican Sound Drive to Via Coconut Point is desired to provide a connection through the North Point Development.

Maintenance:

The Village of Estero will be required to make annual payments to Seminole Gulf Railway to maintain the roadway crossing. This will be budgeted within the Village's General Maintenance Budget.



COVERED WAGON

GENOVA

RIVER RANCH ESTATES

VIA COCONUT POINT

OAKS OF ESTERO

PELICAN SOUND

US-41

NORTH POINT
RR CROSSING



CIP Project Summary - Intersection Improvements
(13) Coconut Rd - El Dorado Roundabout

CIP Category: Intersection
Funding Source: Other, Road Impact Fee, Gas Tax, General Fund

Design :	\$	307,500.00
Construction :	\$	662,400.00
Total:	\$	969,900.00

Project Description:

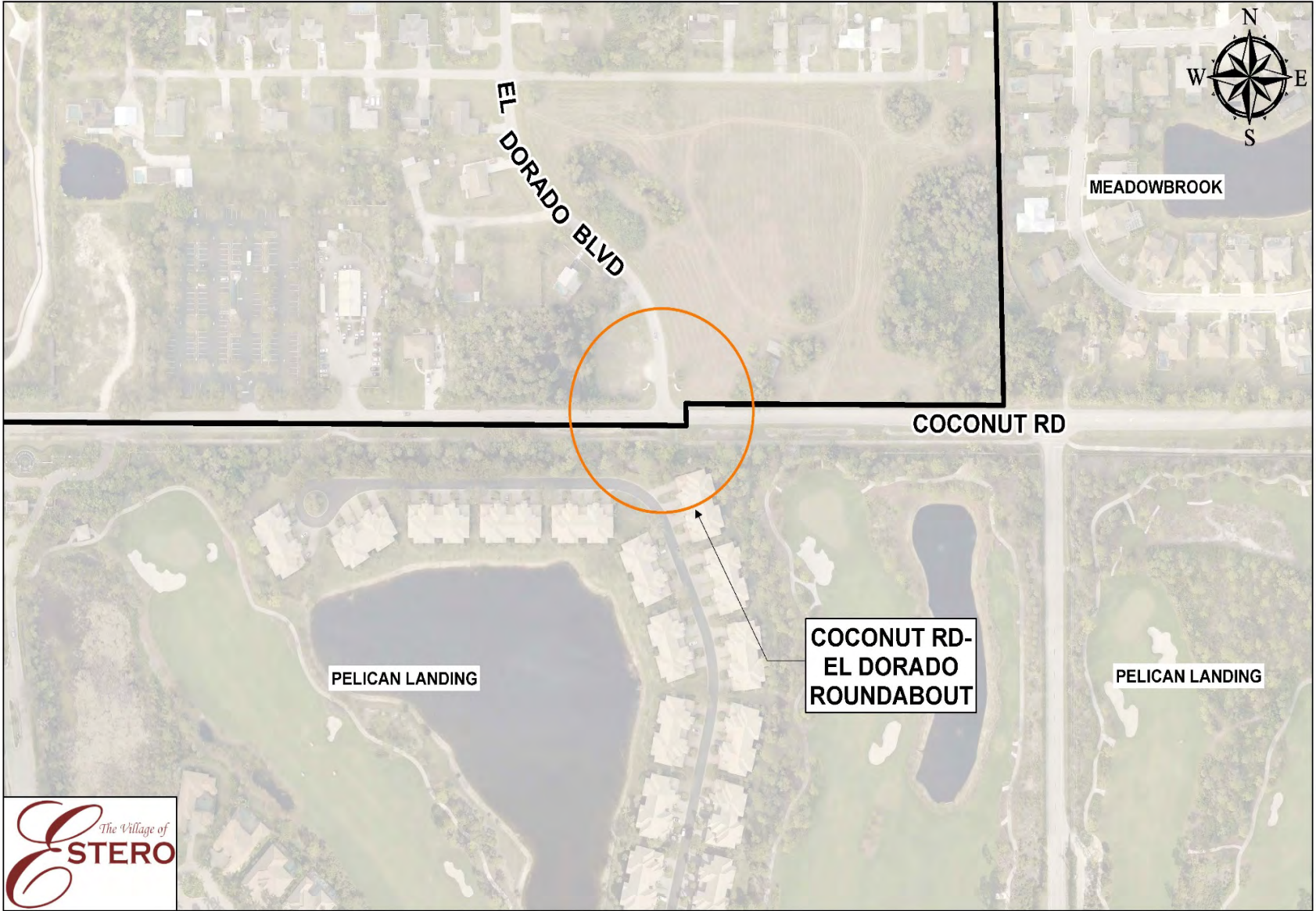
Construct a roundabout at the intersection of Coconut Road and El Dorado Blvd.

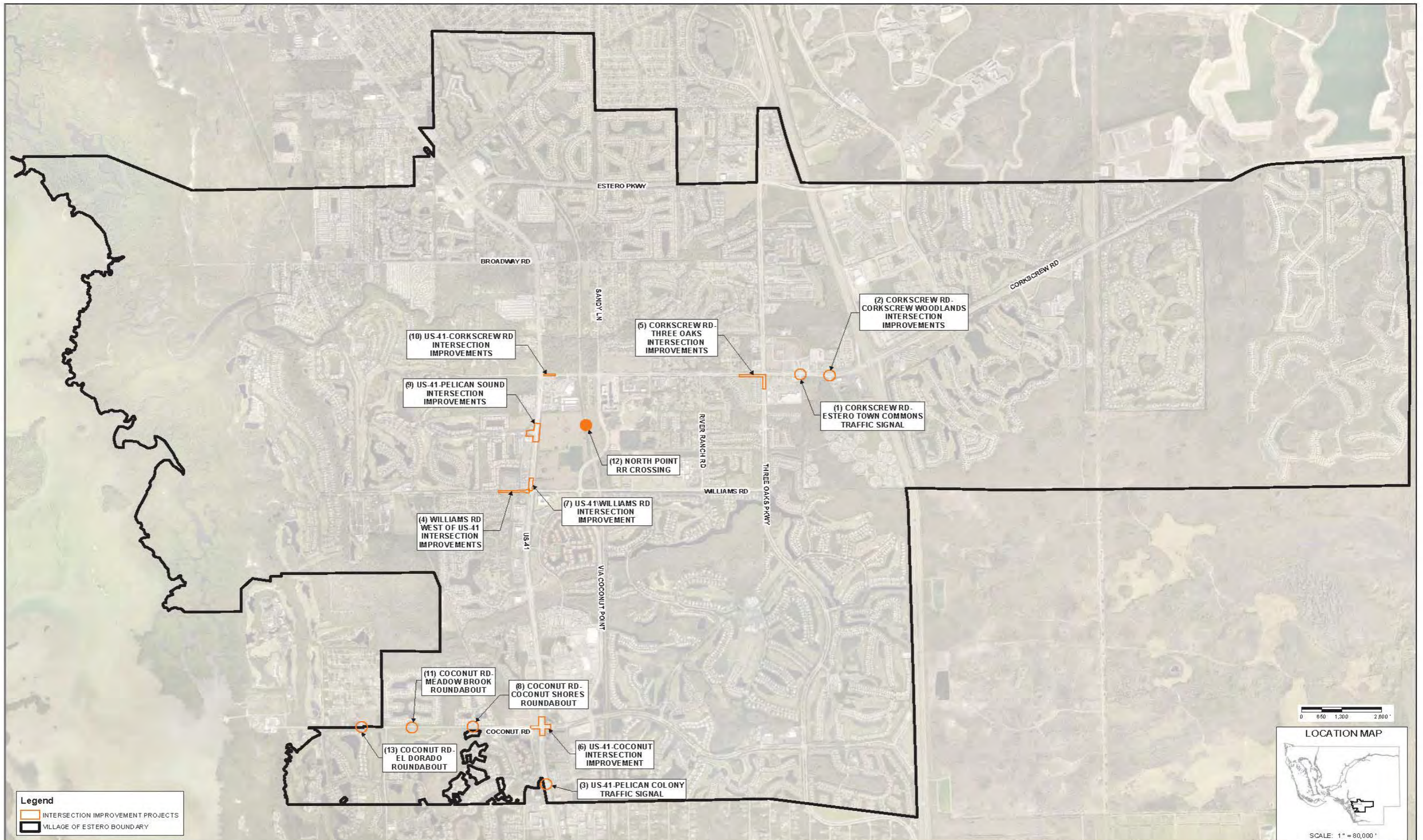
Project Justification:

The Coconut Road Traffic Study recommends the installation of three roundabouts (Coconut Shores, Meadowbrook and El Dorado) along Coconut Road, west of US-41. The Study indicates the existing intersection will reach capacity in 2029. As traffic along Coconut Road increases with future development, making southbound left turns (the predominate movement at each intersection) onto Coconut Road will become more difficult. The Coconut Shores, Meadowbrook and El Dorado entrance are expected to fail. Roundabouts were recommended to improve these intersections, allowing vehicles and pedestrians to more safely cross Coconut Road.

Maintenance:

Landscape, irrigation, and street light maintenance costs will increase after completion of this project. Those costs will be included in the Village's General Maintenance Budget.



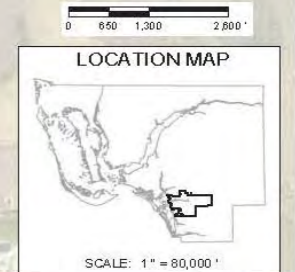


Legend
 INTERSECTION IMPROVEMENT PROJECTS
 VILLAGE OF ESTERO BOUNDARY

NOTES:
 1. 2019 AERIAL IMAGES FROM LEE COUNTY
 2. COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA WEST FIPS 5002 FEET

CAPITAL IMPROVEMENT PROGRAM INTERSECTION IMPROVEMENT PROJECTS

VILLAGE OF ESTERO \ FLORIDA



SCALE: 1" = 1,300'
 DRAWN BY: EJR
 CHECKED BY: _____
 DATE: 4/3/2020
 SHEET: 1 of 1

The Village of ESTERO
 9401 CORKSCREW PALMS CIRCLE
 ESTERO, FL 33928
 P. 239.221.5035
<http://estero-fl.gov>

Section C
Bicycle & Pedestrian Improvements

CIP Project Summary -Bike/Ped Improvements
(1) Coconut Road Pedestrian Improvements

CIP Category: Bicycle & Pedestrian

Funding Source: General Fund

Design :	\$	75,000.00
Construction :	\$	177,800.00
Total:	\$	252,800.00

Project Description:

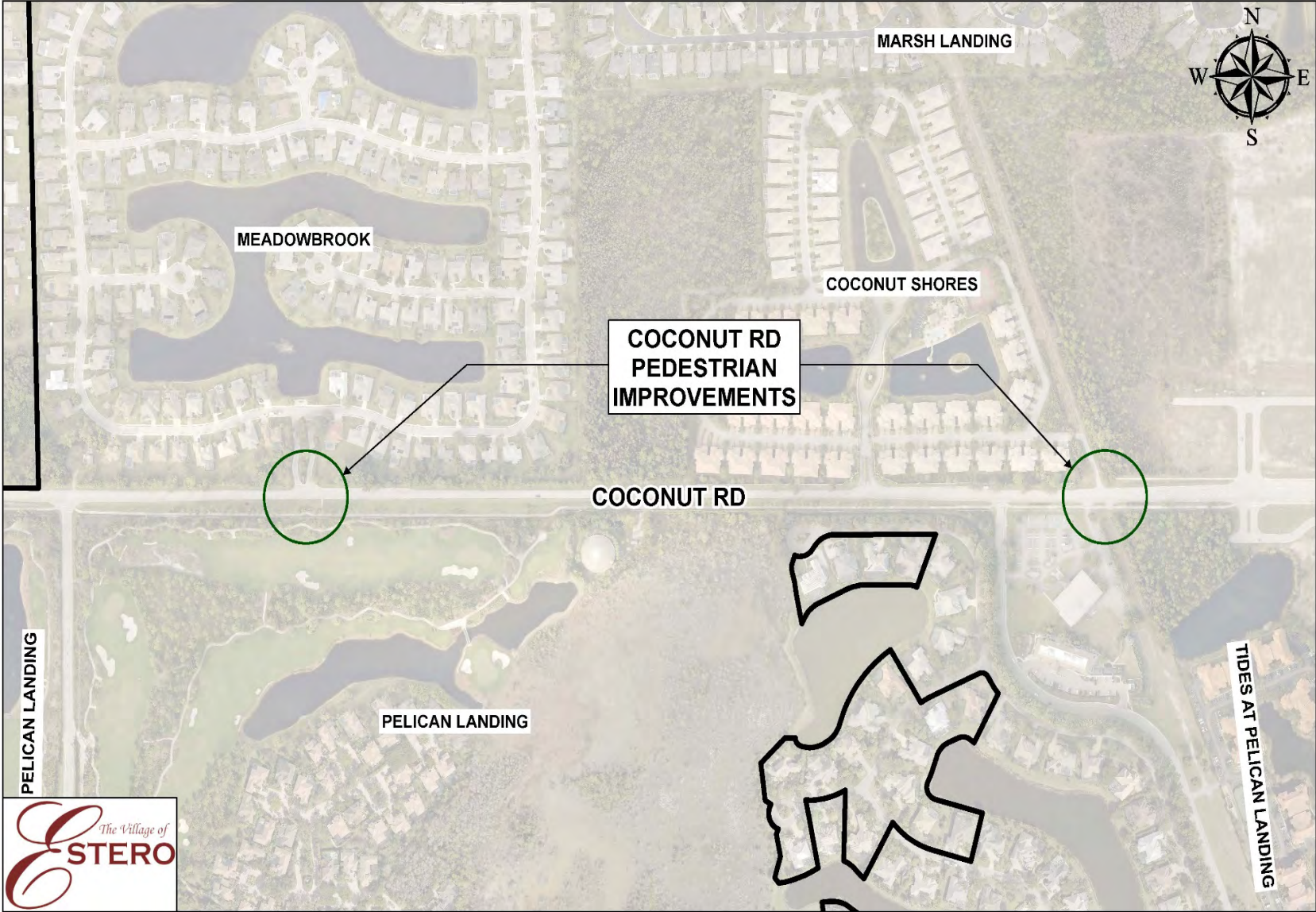
Install a crosswalk for pedestrian access to the sidewalk on the south side of the roadway at Old Meadowbrook Blvd and extend the existing sidewalk east of Coconut Shores to their back gate driveway located on FPL property.

Project Justification:

The residents on the north side of Coconut Road, east of US-41 do not have access to any sidewalks along Coconut Road without crossing Coconut Road. The proposed project will improve their access to the existing sidewalks.

Maintenance:

The Village will incur minor maintenance costs associated with the pedestrian crossing and additional sidewalk. These costs are included in the General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements
(2) Williams Road Bike/Ped Improvements (East of Via Coconut.)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	300,000.00
Construction :	\$	1,162,400.00
Total:	\$	1,462,400.00

Project Description:

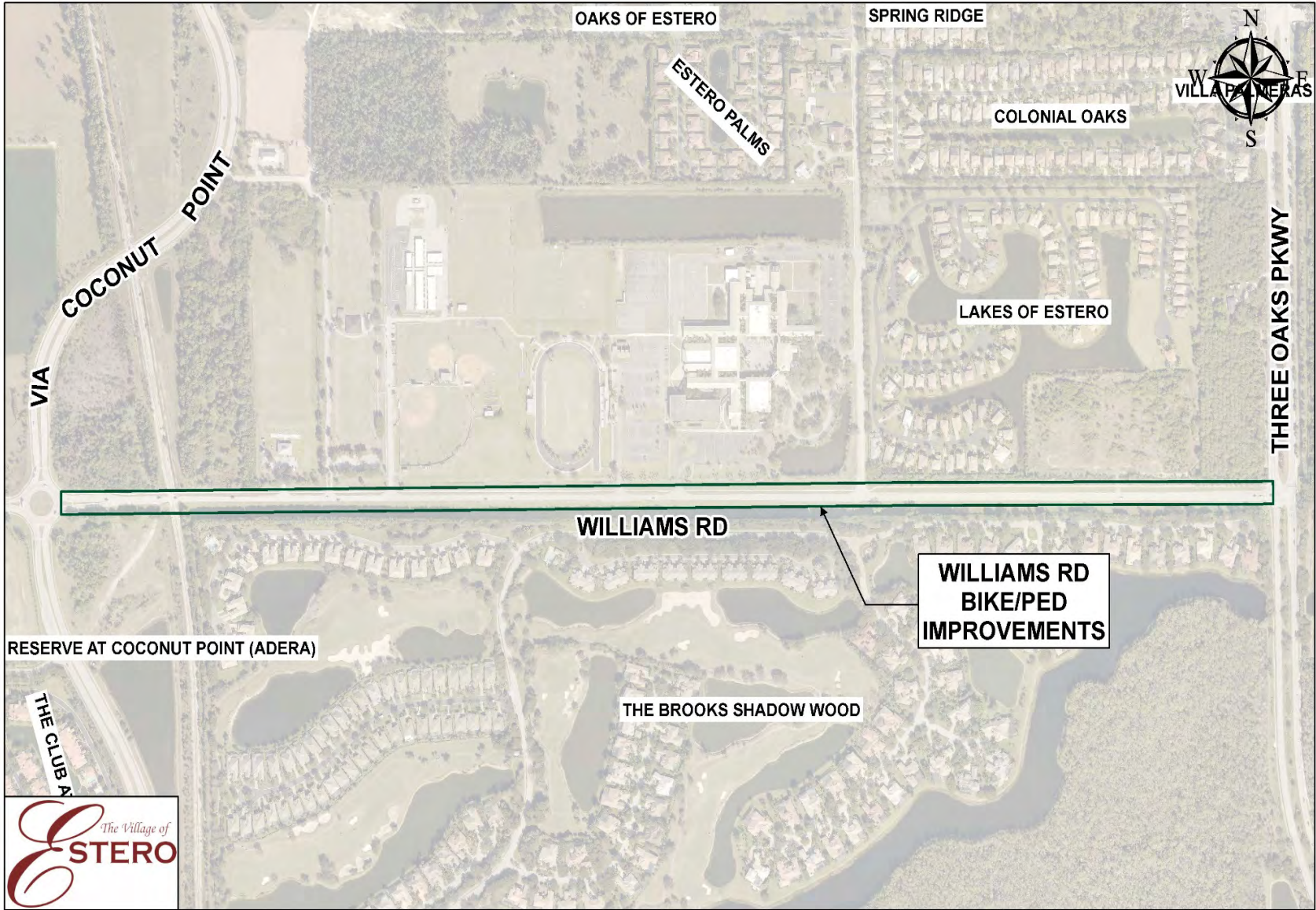
Install bicycle and pedestrian improvements along Williams Road from Via Coconut Point to Three Oak Parkway.

Project Justification:

The Village of Estero's Bike/Ped Master Plan identified the lack of safe east/west bicycle and pedestrian corridors as a major deficiency in Estero. Construction of bicycle and pedestrian improvements along Williams Road will provide a safe east/west corridor between two major north south corridors, Via Coconut Point and Three Oaks Parkway. It will also improve access to Estero High School and the potential future elementary and middle school.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements
(3) Intersection Safety Study

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	110,000.00
Construction :	\$	-
Total:	\$	-

Project Description:

Prepare a study of bicycle and pedestrian safety at US-41 intersections and provide recommendations to improve safety.

Project Justification:

The Bicycle and Pedestrian Master Plan recommended additional study of bicycle and pedestrian safety at various intersections along US-41. This project will fulfill that recommendation.

Maintenance:

No additional maintenance is required.

CIP Project Summary - Bike/Ped Improvements (4) Sandy Lane Bike/Ped Improvements

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	312,000.00
Construction :	\$	1,526,300.00
Total:	\$	1,838,300.00

Project Description:

Construct a shared use path along the east side of Sandy Lane from Corkscrew Road to Broadway East

Project Justification:

Estero residents along Broadway (East & West) and Sandy Lane have limited access to bicycle and pedestrian facilities. The Bicycle and Pedestrian Master Plan recommends the addition of a shared use path along Sandy Lane and facilities along Broadway East to connect these residents to a larger network of bicycle and pedestrian facilities along Via Coconut Point and Corkscrew Road. This project will improve bicycle/pedestrian access and safety.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements
(5) Broadway E Shared Use Path (US 41 to Sandy Ln)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	234,000.00
Construction :	\$	1,666,000.00
Total:	\$	1,900,000.00

Project Description:

Construct a shared use path and sidewalk along Broadway East from US-41 to Sandy Lane

Project Justification:

Estero residents along Broadway (East & West) have limited access to bicycle and pedestrian facilities. The Bicycle and Pedestrian Master Plan recommends the addition of a shared use path along Broadway E and a shared use path along Sandy Lane that will connect these residents to a larger network of bicycle and pedestrian facilities along Via Coconut Point and Corkscrew Road. This project will improve bicycle/pedestrian access and safety.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements
(6) Corkscrew Road Shared Use Path (Three Oaks-Sandy Ln)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	516,000.00
Construction :	\$	3,723,600.00
Total:	\$	4,239,600.00

Project Description:

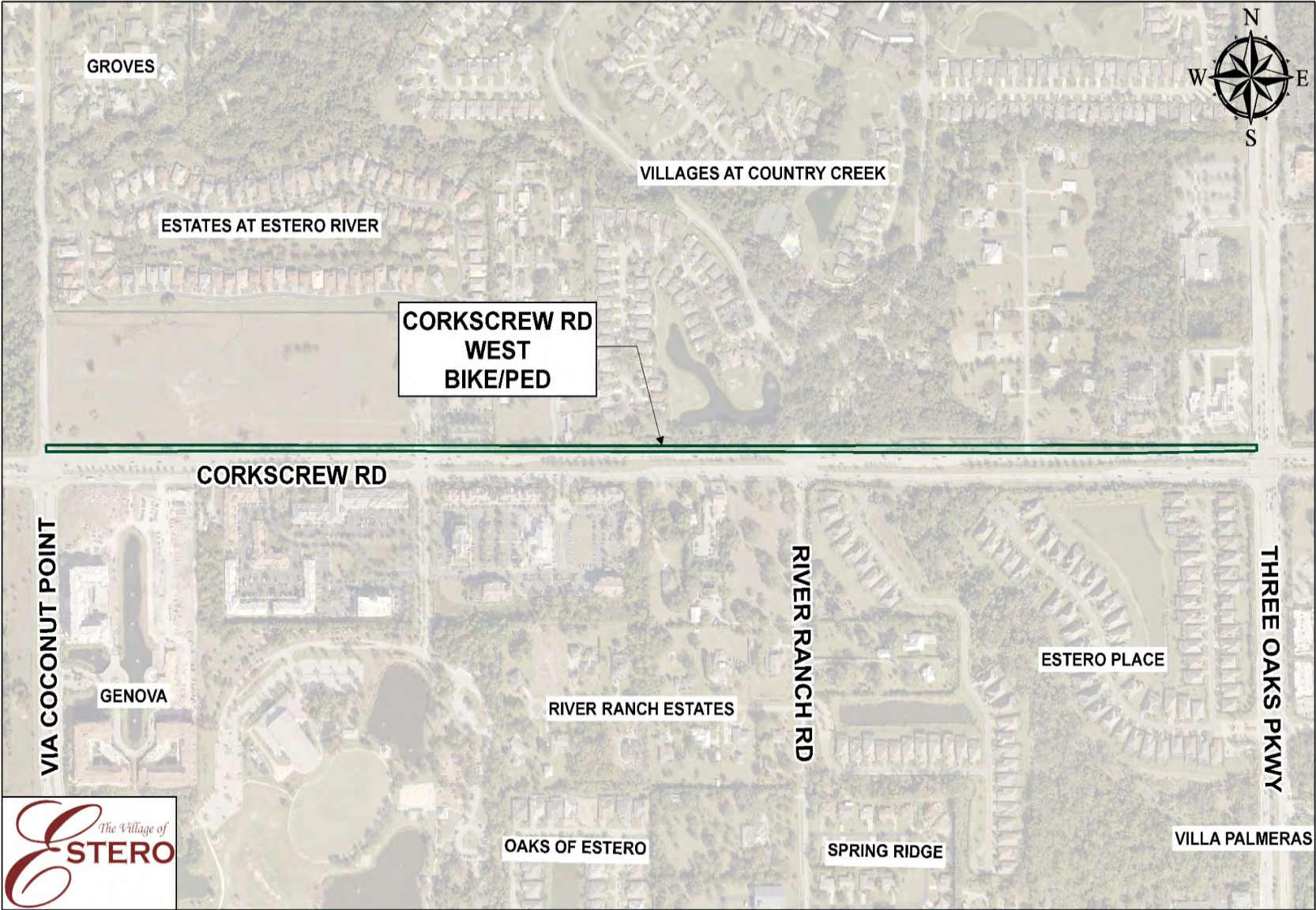
Construction of a 10-12 ft wide shared use path on the north side of Corkscrew Road from Three Oaks Parkway to Sandy Lane

Project Justification:

The Bicycle & Pedestrian Master Plan identified a lack of east-west corridors as a major impediment to bicycle and pedestrian travel in Estero. Corkscrew Road was identified as the preferred main corridor. There are no bicycle or pedestrian facilities on the north side of Corkscrew Road from Three Oaks Parkway to Sandy Lane. This project will provide those facilities and improve bicycle/pedestrian access and safety.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements
(7) Coconut Road Sidewalk (Oakwild - Via Coconut)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	138,000.00
Construction :	\$	753,500.00
Total:	\$	891,500.00

Project Description:

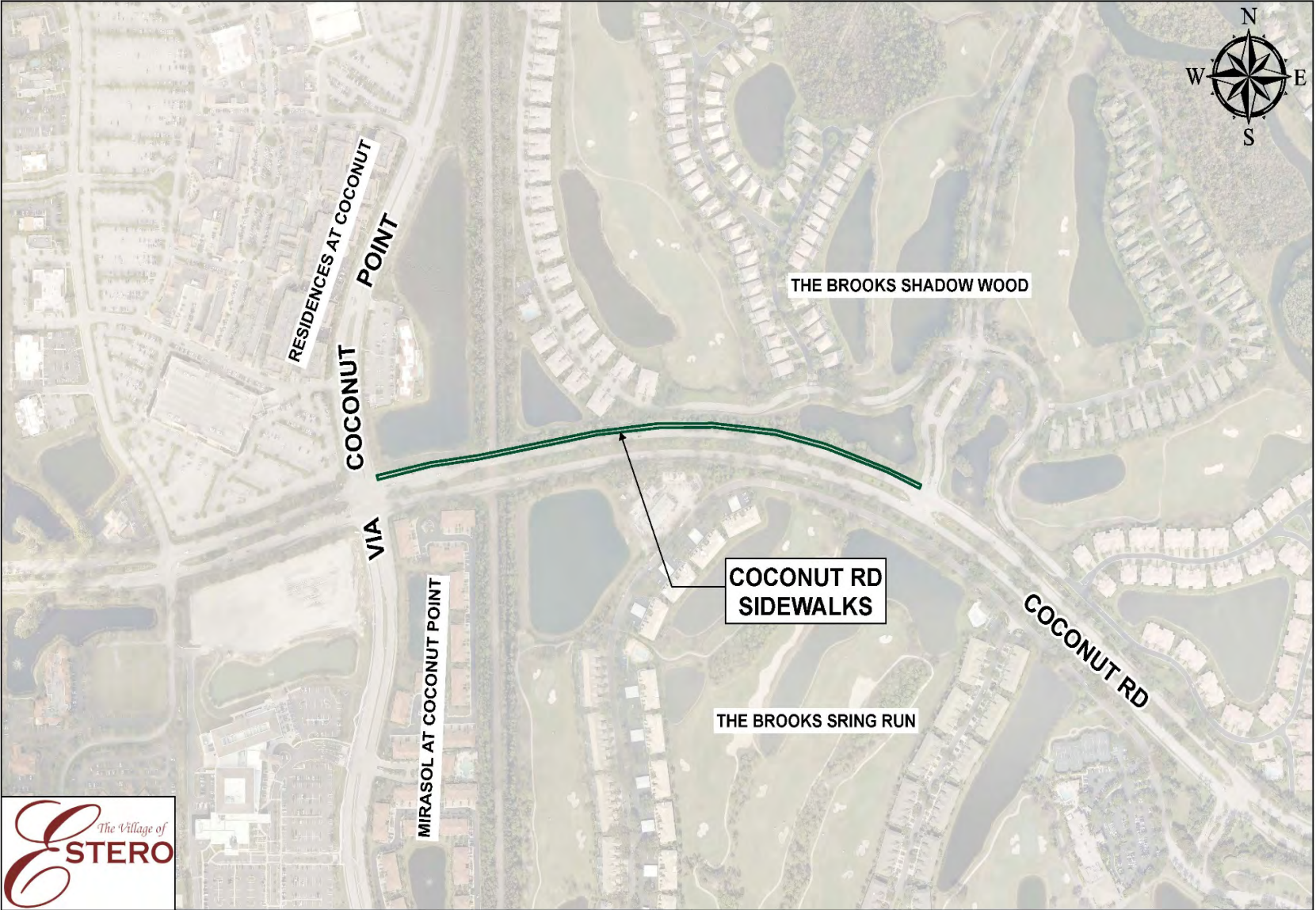
Install a sidewalk on the north side of Coconut Road from Oakwild Blvd. to Via Coconut Point

Project Justification:

The sidewalk on the north side of Coconut Road ends at Oakwild Blvd. Pedestrians must cross Coconut Road at a mid-block crossing to continue further west. The Bicycle and Pedestrian Master Plan recommends the extension of the sidewalk from Oakwild Blvd. to Via Coconut Point to improve pedestrian safety and access.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements
(8) Corkscrew Palms Blvd. Sidewalks

CIP Category: Bicycle & Pedestrian

Funding Source: Lee County

Design :	\$	48,000.00
Construction :	\$	55,400.00
Total:	\$	103,400.00

Project Description:

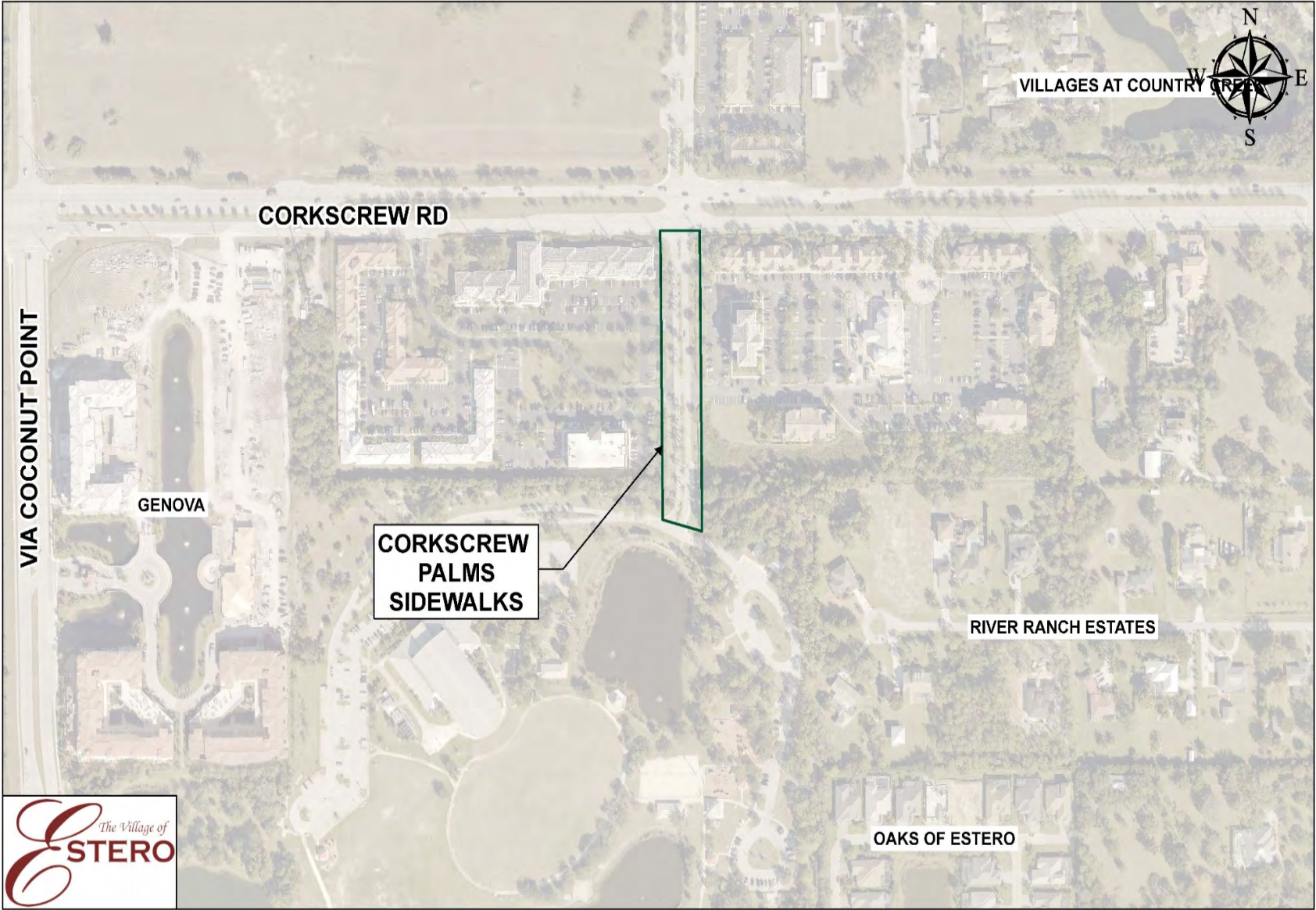
Construction of sidewalks along both sides of Corkscrew Palms Blvd.

Project Justification:

There is currently no pedestrian access to the Estero Community Park. The Bicycle & Pedestrian Master Plan recommends providing bicycle and pedestrian access to the park. This project will provide bicycle/pedestrian access to the park and improve safety for those that bike and walk to the park.

Maintenance:

Maintenance for this project will be performed by Lee County



CIP Project Summary -Bike/Ped Improvements (9) Via Coconut Point RAB Improvements

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	162,000.00
Construction :	\$	303,900.00
Total:	\$	465,900.00

Project Description:

Modify the two roundabouts on Via Coconut Point (Williams Road and Pelican Colony Blvd.) to improve bicycle and pedestrian safety. Improvements would include the following:

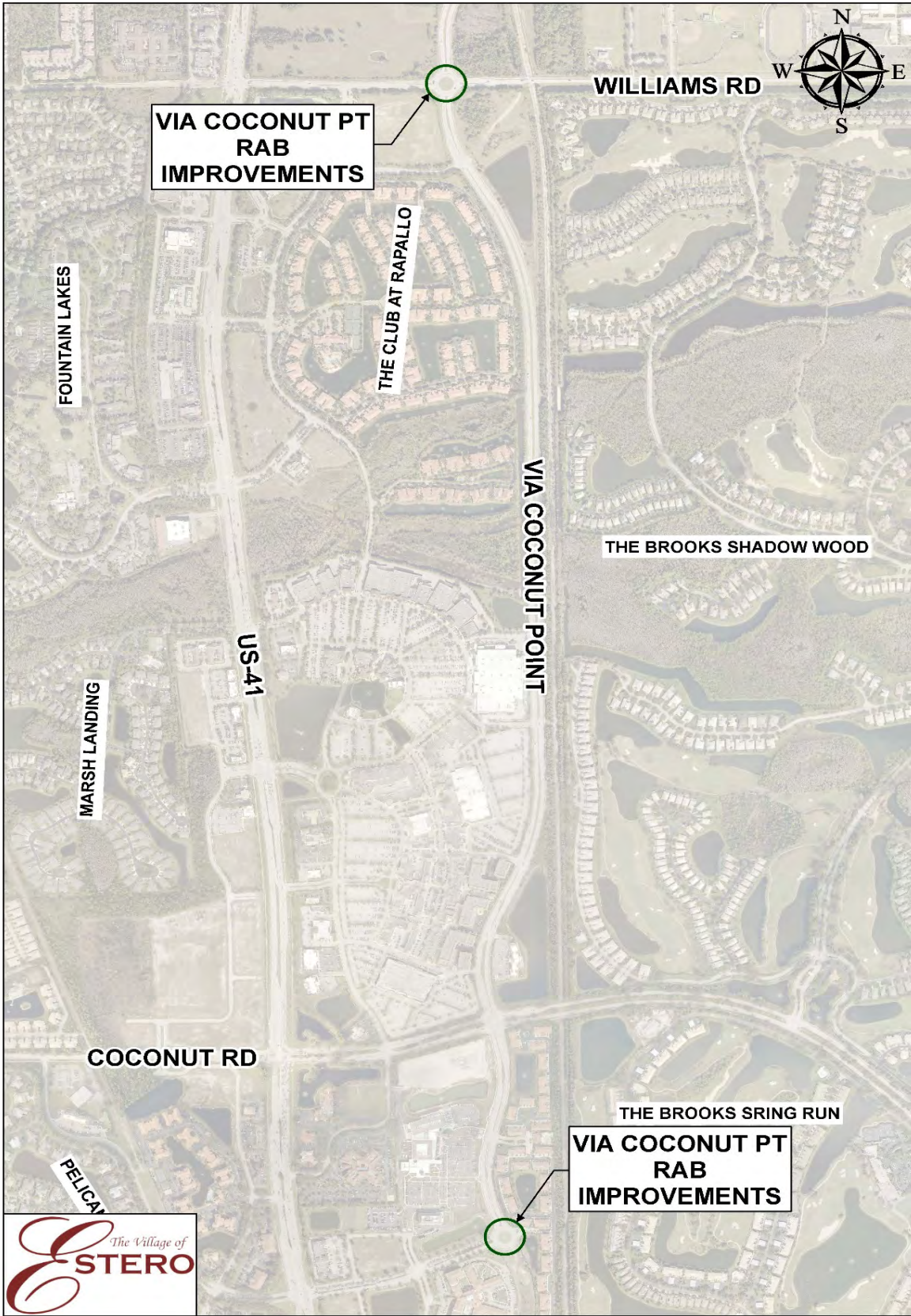
- Bicycle ramps
- Expand sidewalks around each roundabout to 10-ft
- Relocated crosswalk closer to roundabout to improve pedestrian visibility

Project Justification:

As more development occurs along Via Coconut Point, bicycle and pedestrian traffic is expected to increase. The existing roundabouts do not meet current standards for bicycle and pedestrian facilities. The proposed project will improve the bicycle and pedestrian safety at the roundabouts.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements
(10) Corkscrew Road Bike/Ped Improvements (East of US-41)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund, Lee County

Design :	\$	978,000.00
Construction :	\$	10,330,600.00
Total:	\$	11,308,600.00

Project Description:

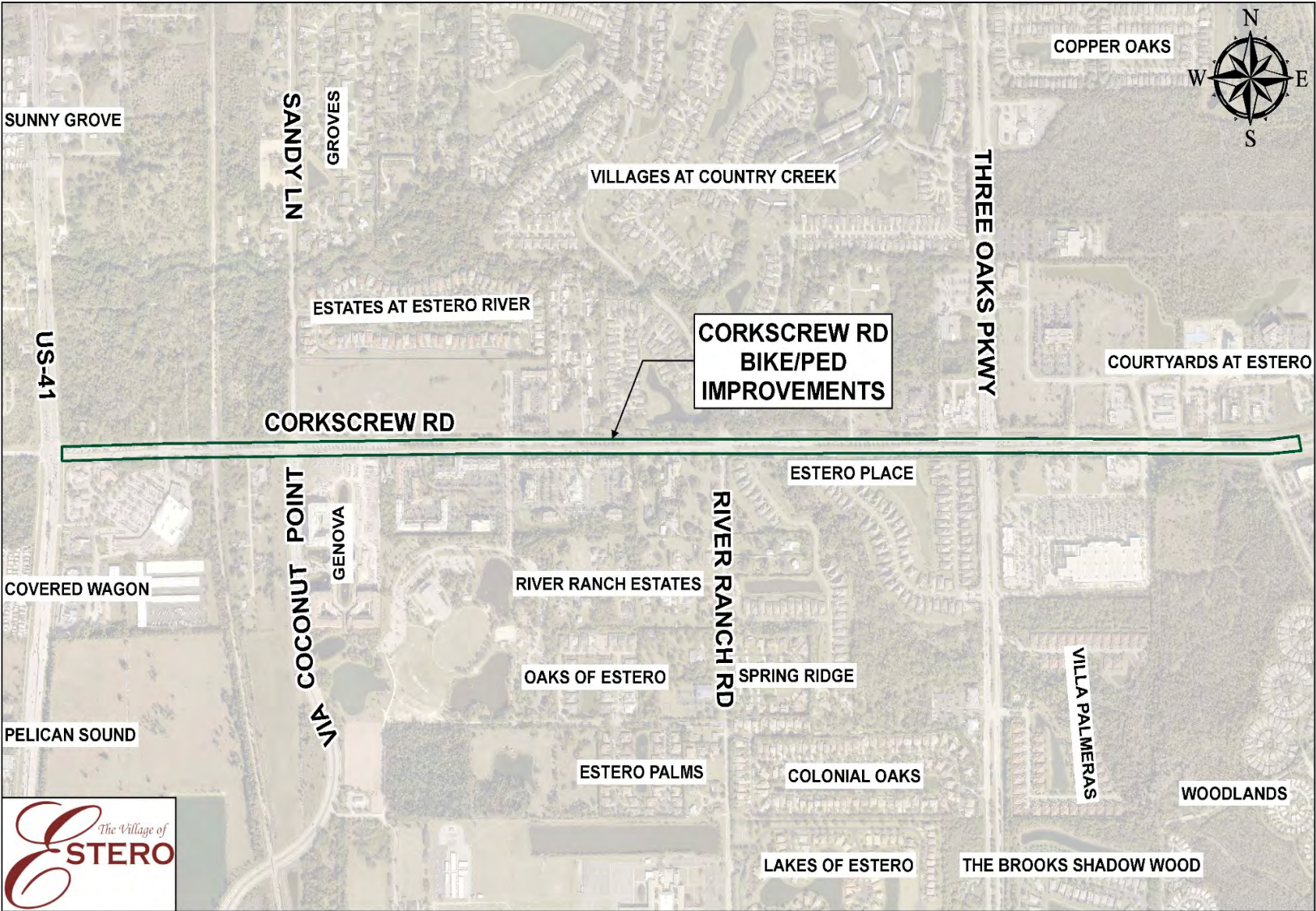
Install bike lanes on Corkscrew Road between US-41 and Ben Hill Griffin Parkway, where they currently do not exist. Excluding the shared use path proposed in the Coconut Road Shared Use path project.

Project Justification:

The Bicycle & Pedestrian Master Plan identified a lack of east-west corridors as a major impediment to bicycle and pedestrian travel in Estero. Corkscrew Road was identified as the preferred main corridor. There are no bicycle facilities along the entire section from US-41 to Ben Hill Griffin Parkway, excluding the bike lanes being installed with the Interchange project. This project will add bike lanes along the roadway and improve the existing pedestrian facilities. This project will improve bicycle/pedestrian access and safety along Corkscrew Road.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements
(11) Broadway W Shared Use Path

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	252,000.00
Construction :	\$	883,200.00
Total:	\$	1,135,200.00

Project Description:

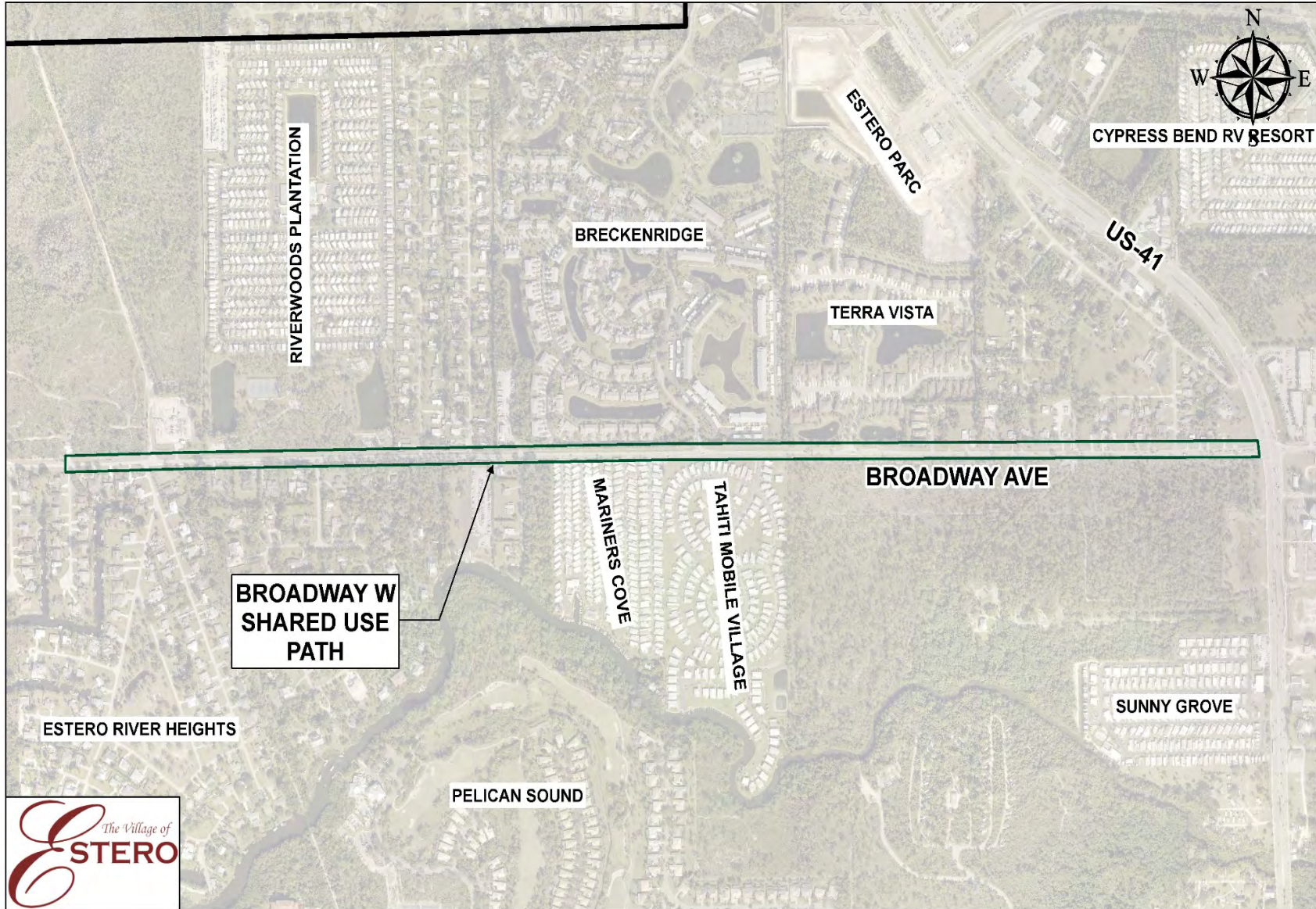
Widen existing sidewalk on Broadway W to a shared use path and install a sidewalk on the north side of the road, if room is available.

Project Justification:

Broadway West has limited bicycle facilities. The narrow roadway and sidewalk widths can make bicycling challenging. To address this, the Bicycle and Pedestrian Master Plan recommends widening the existing sidewalk to a shared use path and installing a sidewalk on the north side of the road, if room is available.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements (12) Coconut Road Shared Use Path

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	324,000.00
Construction :	\$	910,800.00
Total:	\$	1,234,800.00

Project Description:

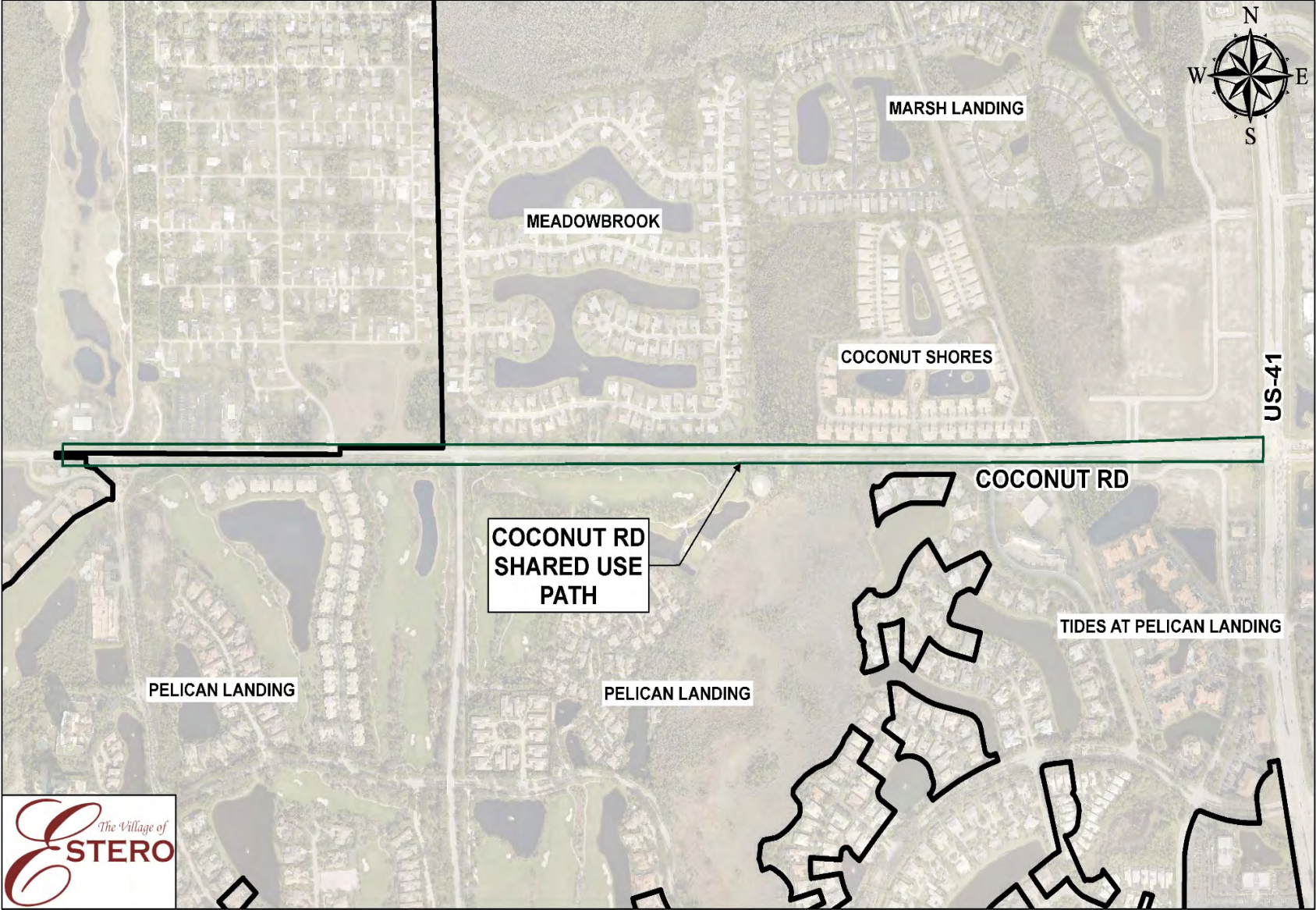
Expand the existing sidewalk on the south side of Coconut Road to a wider shared use path

Project Justification:

The Bicycle and Pedestrian Master Plan recommends a shared use path and sidewalk along Coconut Road. The narrow roadway width and limited right of way likely prevent the ability to install on street bike lanes or a sidewalk on the north side of Coconut Road. To improve bicycle and pedestrian access and safety along Coconut Road a wider shared use path is proposed along the south side of the road.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



C-24

4/14/2020



CIP Project Summary -Bike/Ped Improvements
(13) Corkscrew Rd West Bike/Ped Improvements

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	225,600.00
Construction :	\$	345,000.00
Total:	\$	570,600.00

Project Description:

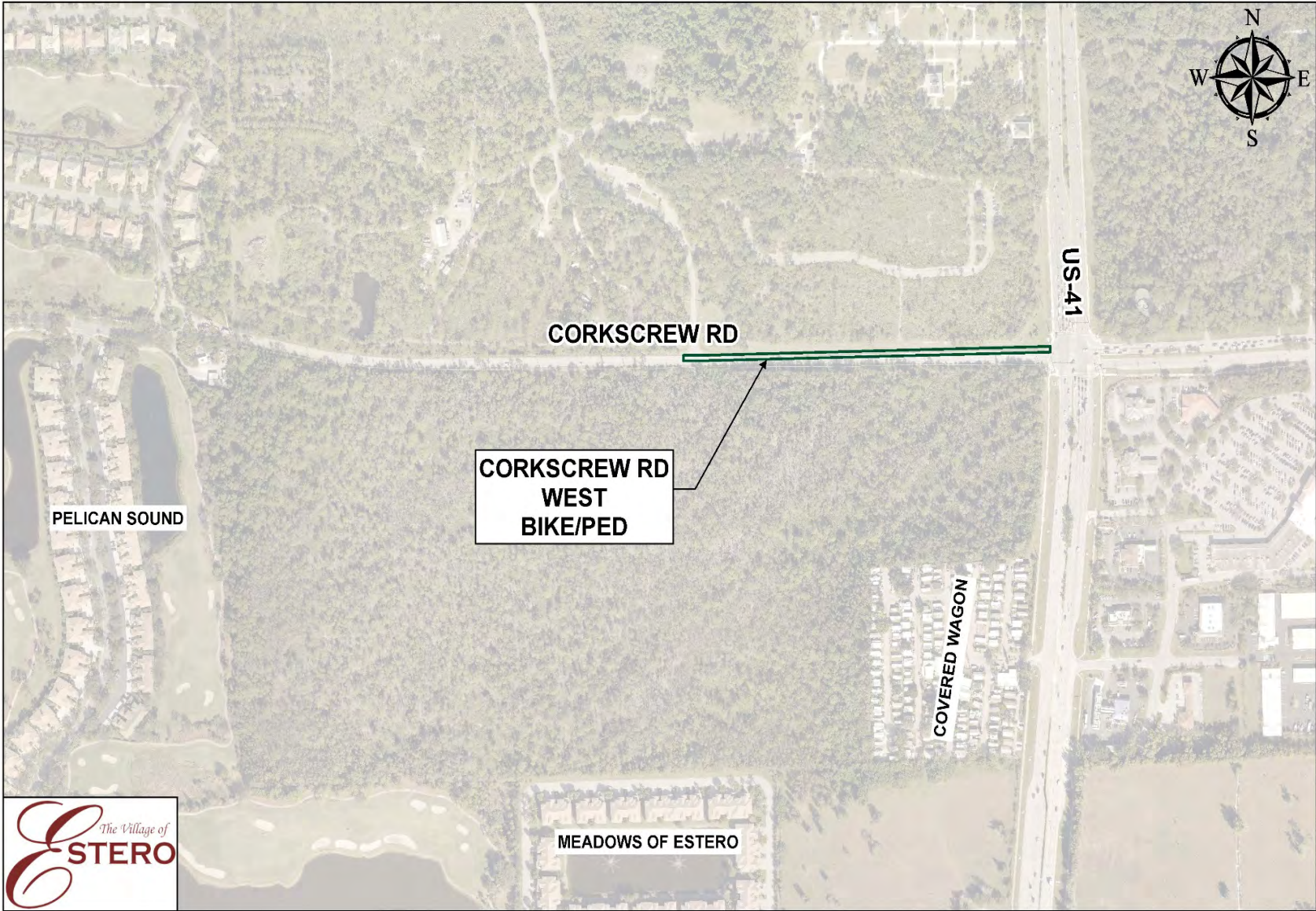
Construct improved bicycle and pedestrian facilities along Corkscrew Road from Koreshan State Park to US-41.

Project Justification:

The Bicycle and Pedestrian Master Plan recommends a shared use path and sidewalk along Corkscrew Road from Koreshan State Park to improve access to the park and bicycle/pedestrian safety.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CORKSCREW RD

US-41

PELICAN SOUND

CORKSCREW RD
WEST
BIKE/PED

COVERED WAGON

MEADOWS OF ESTERO



CIP Project Summary -Bike/Ped Improvements
(14) Williams Road West Bike/Ped Improvements (West of US41)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	252,000.00
Construction :	\$	830,300.00
Total:	\$	1,082,300.00

Project Description:

Install bicycle and pedestrian improvements along Williams Road from West Bay Club to US41.

Project Justification:

The Village of Estero's Bike/Ped Master Plan recommends installing bicycle and pedestrian improvements along Williams Road to improve access and safety.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



PELICAN SOUND

MEADOWS OF ESTERO

WILLIAMS RD
WEST BIKE/PED
IMPROVEMENTS

FOUNTAIN LAKES

US-41



CIP Project Summary -Bike/Ped Improvements
(15) Broadway E Shared Use Path (Sandy Ln to Three Oaks)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	402,000.00
Construction :	\$	1,757,500.00
Total:	\$	2,159,500.00

Project Description:

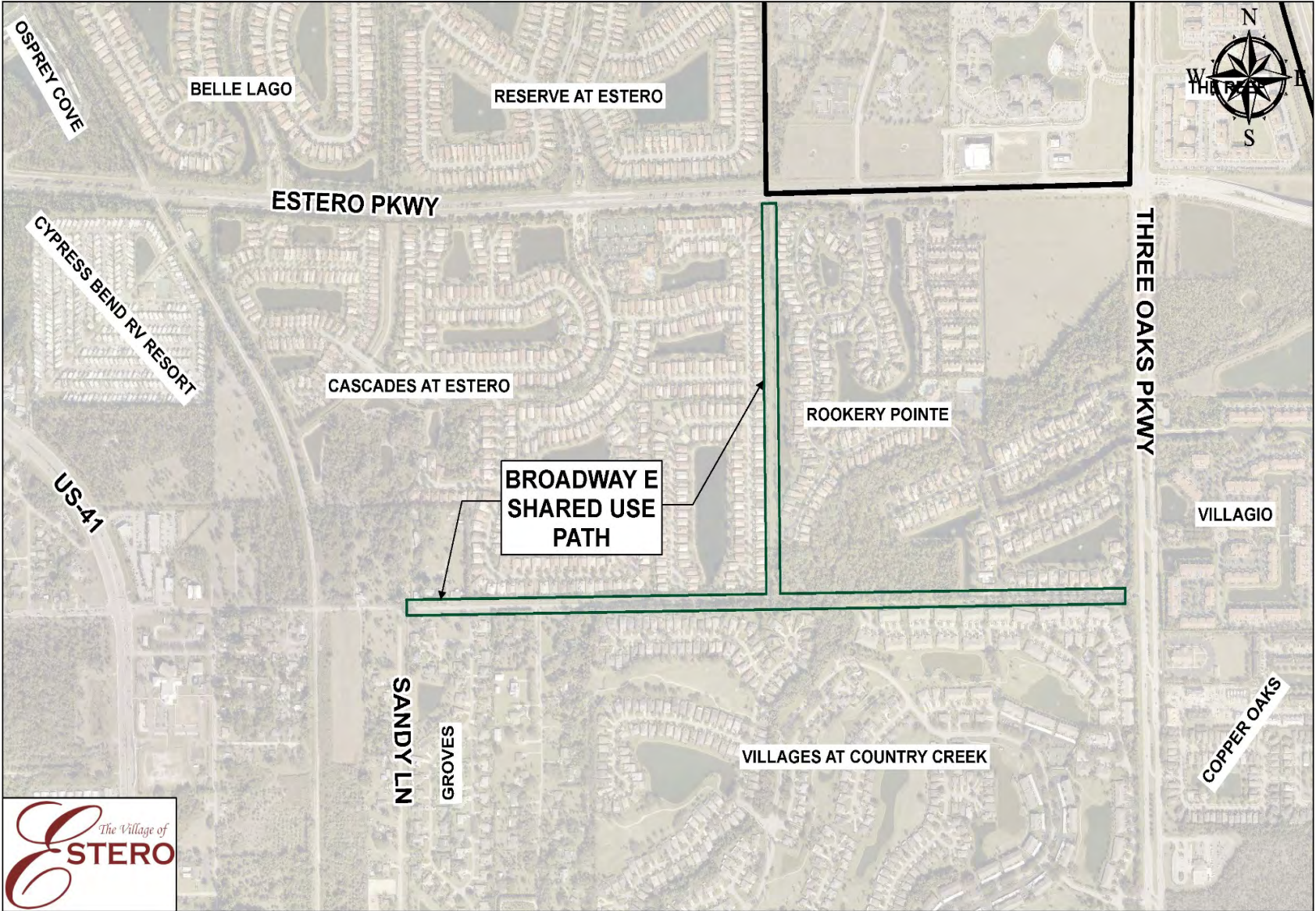
Construct a shared use path network from Sandy Lane to Three Oaks Parkway and Estero Parkway. This project will require coordination with private land owners as portions of the path would be located on private property.

Project Justification:

As outlined in the Bicycle & Pedestrian Master Plan, virtually all bicycle and pedestrian facilities within Estero are located along Roadways. This project corridor offers the potential to build bicycle and pedestrian facilities that are located off road. This project will improve bicycle/pedestrian access and safety.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements (16) SUN Trail South

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	1,188,000.00
Construction :	\$	4,241,000.00
Total:	\$	5,429,000.00

Project Description:

The construction of an off roadway multi-use pathway on the existing Seminole Gulf Railway right of way from the Village's southern limits to Estero Parkway. Project costs do not include land acquisition or easements. That is budgeted separately.

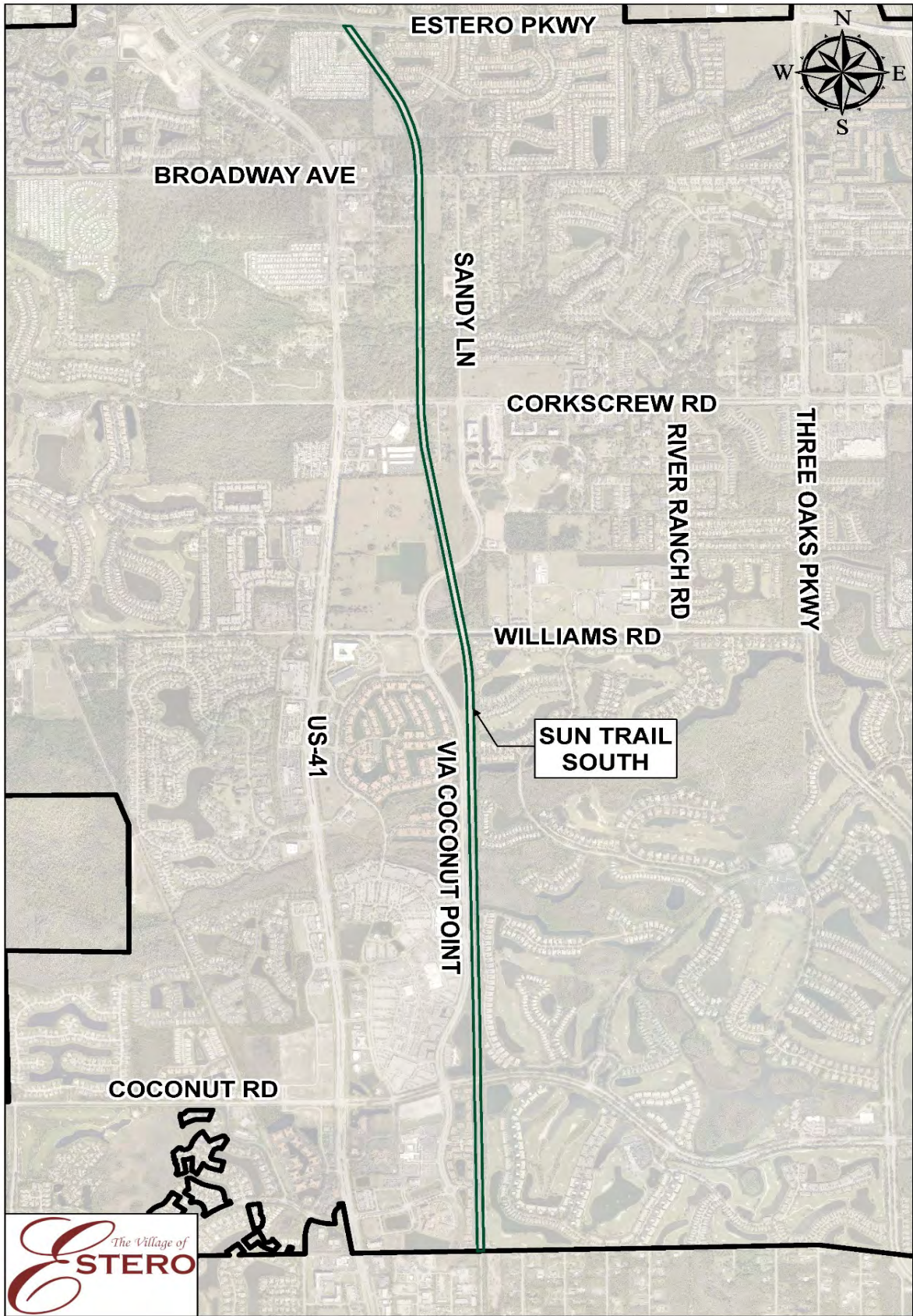
Project includes a bridge crossing of the Estero River.

Project Justification:

The Village of Estero Bike/Ped Master Plan identified the lack of off roadway bicycle and pedestrian facilities as a weakness for Estero. The Master Plan recommends the construction of a major off roadway bicycle and pedestrian corridor along the existing railroad to improve the bicycle and pedestrian experience and safety in Estero.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements (17) SUN Trail North

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	816,000.00
Construction :	\$	3,537,200.00
Total:	\$	4,353,200.00

Project Description:

The construction of an off roadway multi-use pathway on the existing Seminole Gulf Railway right of way from Estero Parkway, north to the Village's northern limit. Project costs do not include land or easement acquisition. That is budgeted separately.

Construction will require two bridge crossings. One over Vintage Trace Circle and one over the Vines County Club cart path. The two bridges through the Vines Community will be designed to prevent access from the trail to the Community.

Construction of these improvements north of Estero Parkway must occur in conjunction with similar improvements in Unincorporated Lee County north of the Village boundary.

Project Justification:

The Village of Estero Bike/Ped Master Plan identified the lack of off roadway bicycle and pedestrian facilities as a weakness for Estero. The Master Plan recommends the construction of a major off roadway bicycle and pedestrian corridor along the existing railroad to improve the bicycle and pedestrian experience and safety in Estero.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



BRECKENRIDGE

ESTERO PARC
TERRA VISTA

CYPRESS BEND RV RESORT

CASCADAS AT ESTERO

CIP Project Summary -Bike/Ped Improvements
(18) FPL Shared Use Path (East of I75)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	546,000.00
Construction :	\$	1,327,300.00
Total:	\$	1,873,300.00

Project Description:

Construction of a shared use path along the FPL corridor located east of I-75. The path could extend from Bonita Springs to the northern Village of Estero limits.

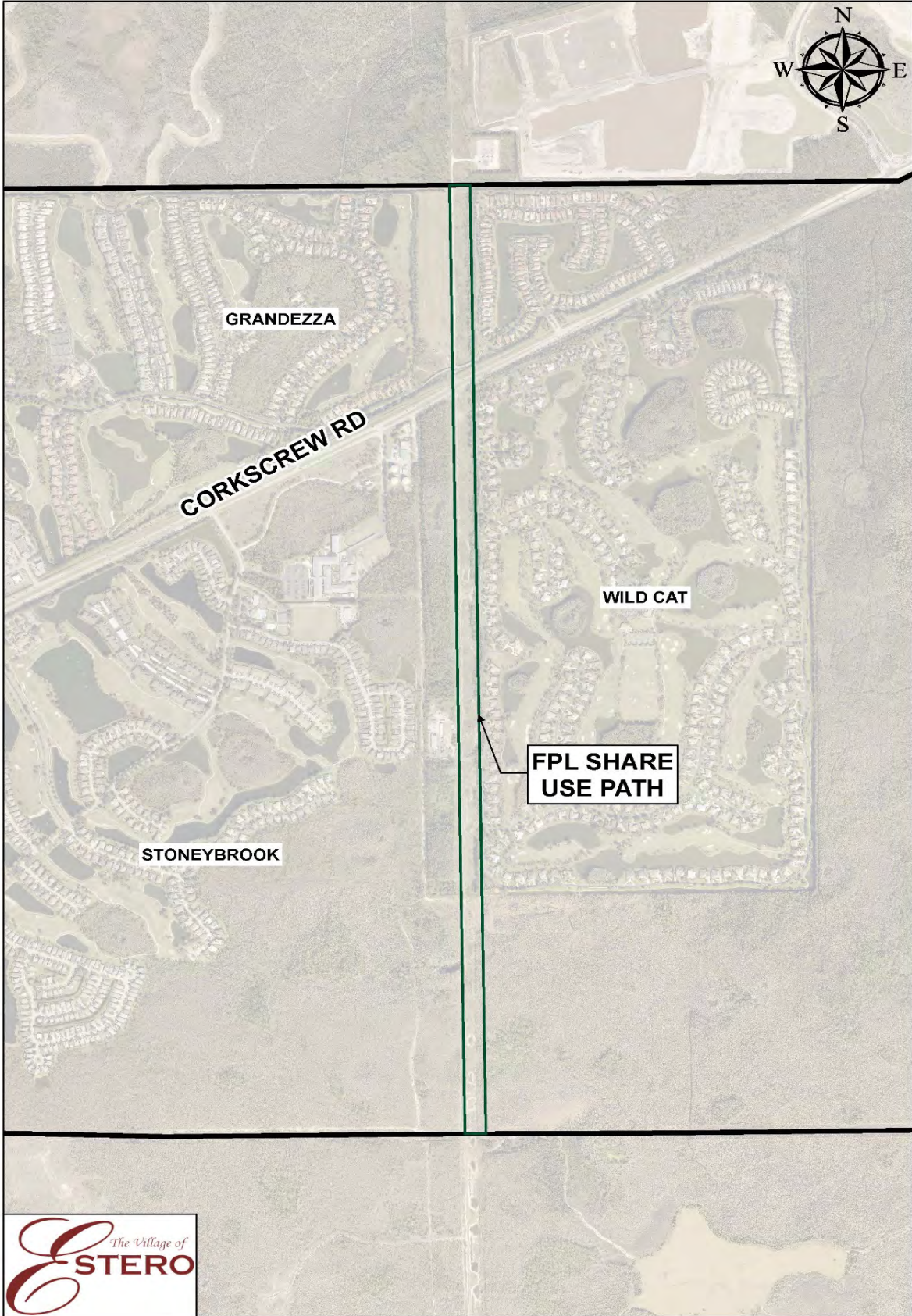
Construction of similar facilities north and south of the proposed improvements within unincorporated Lee County and City of Bonita spring may be required to justify this project.

Project Justification:

The Village of Estero Bike/Ped Master Plan identified the lack of off roadway bicycle and pedestrian facilities as a weakness for Estero. Construction of a major off roadway bicycle and pedestrian corridor along the existing FPL corridor would provide an alternative to on-roadway facilities. This project would improve bicycle/pedestrian access and safety.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.



CIP Project Summary -Bike/Ped Improvements (19) Utility Corridor Shared Use Path (West US-41)

CIP Category: Bicycle & Pedestrian
Funding Source: Road Impact Fee, General Fund

Design :	\$	852,000.00
Construction :	\$	3,189,800.00
Total:	\$	4,041,800.00

Project Description:

Construction of a shared use path along the utility corridor located west of US-41. The path could extend from Bonita Springs to Broadway W.

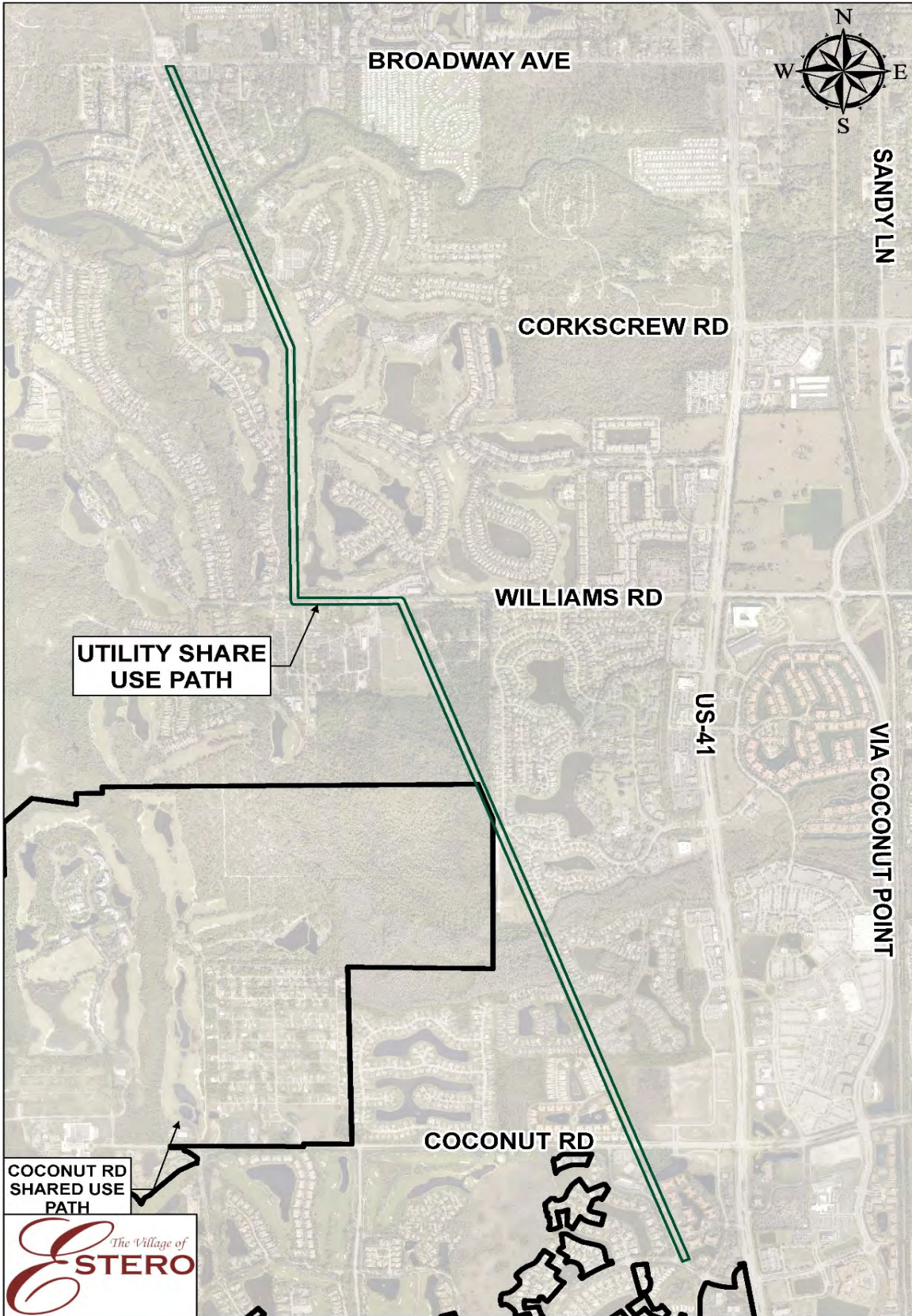
This project will require extensive coordination with the residents and communities along the corridor before the project can move forward. Portions of the project are located on private property.

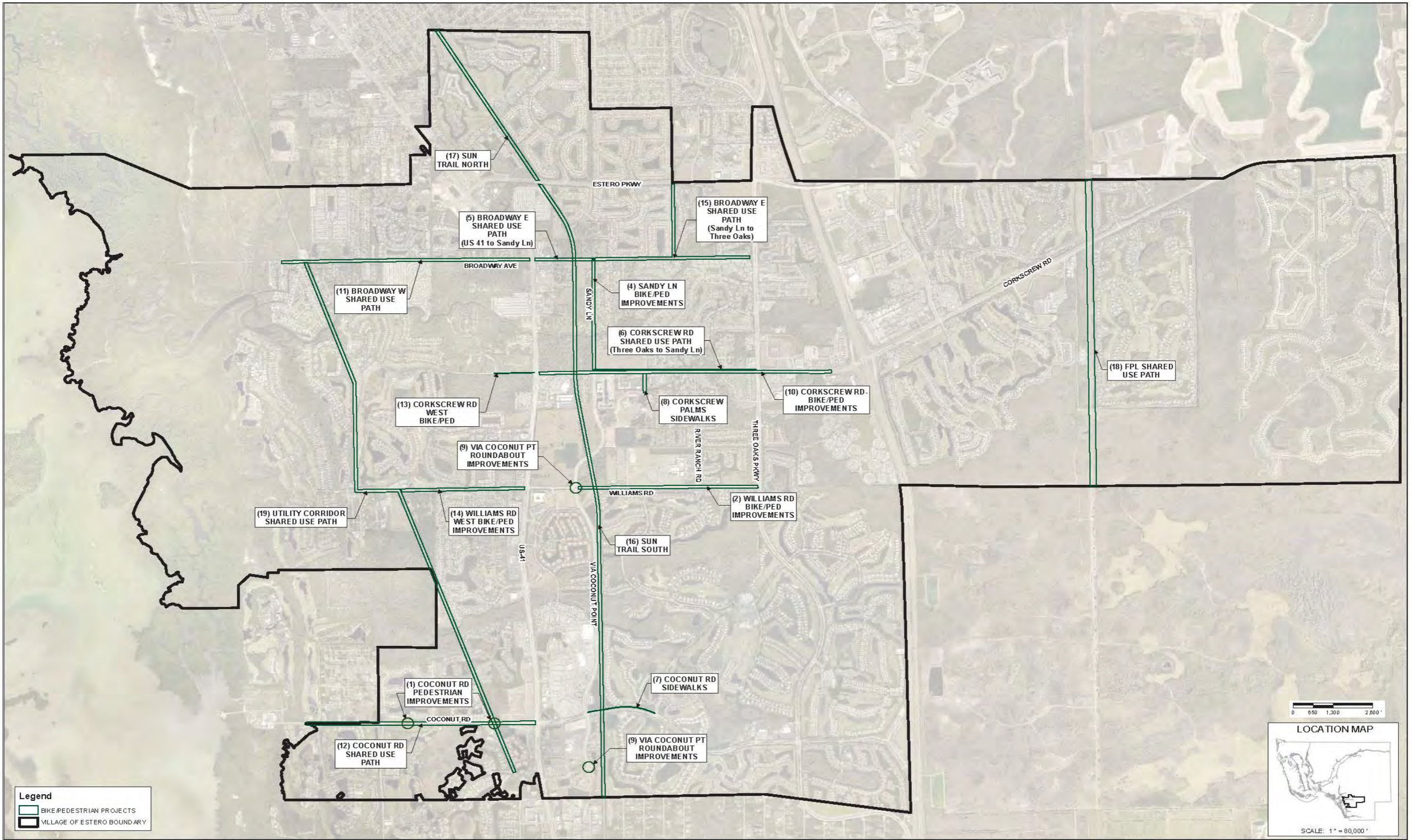
Project Justification:

The Village of Estero Bike/Ped Master Plan identified the lack of off roadway bicycle and pedestrian facilities as a weakness for Estero. Construction of a major off roadway bicycle and pedestrian corridor along the existing utility corridor would provide an alternative to on-roadway facilities. This project would improve bicycle/pedestrian access and safety.

Maintenance:

The proposed bicycle and pedestrian facilities will require maintenance on an as needed basis. This will be budgeted in the Village's General Maintenance Budget.





Legend
 BIKE/PEDESTRIAN PROJECTS
 VILLAGE OF ESTERO BOUNDARY



NOTES:
 1. 2019 AERIAL IMAGES FROM LEE COUNTY
 2. COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA WEST FIPS 5002 FEET

CAPITAL IMPROVEMENT PROGRAM BIKE/PEDESTRIAN IMPROVEMENT PROJECTS
 VILLAGE OF ESTERO \ FLORIDA

ESTERO
 9401 CORKSCREW PALMS CIRCLE
 ESTERO, FL 33928
 P. 239.221.5035
<http://estero-fl.gov>

SCALE: 1" = 1,300'
 DRAWN BY: EJR
 CHECKED BY: _____
 DATE: 4/2/2020
 SHEET: 1 of 1

Section D
Landscape Improvements

CIP Project Summary - Landscape Improvements
(1) US-41 Median Landscaping

CIP Category: Landscape
Funding Source: FDOT, General Fund

Design :	\$	-
Construction :	\$	-
Total:	\$	-

Project Description:

Install Landscaping within the US-41 Medians. Project will be completed prior to the 2020/2021 fiscal year.

Project Justification:

Project construction is complete. Currently in maintenance phase.

Maintenance:

Additional landscaping along US 41 will increase the associated landscape and irrigation maintenance costs for the Village of Estero. These costs have been budgeted as part of the Village's General Maintenance Budget.

CIP Project Summary - Landscape Improvements
(2) US-41 Monument Sign

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	36,000.00
Construction :	\$	120,000.00
Total:	\$	156,000.00

Project Description:

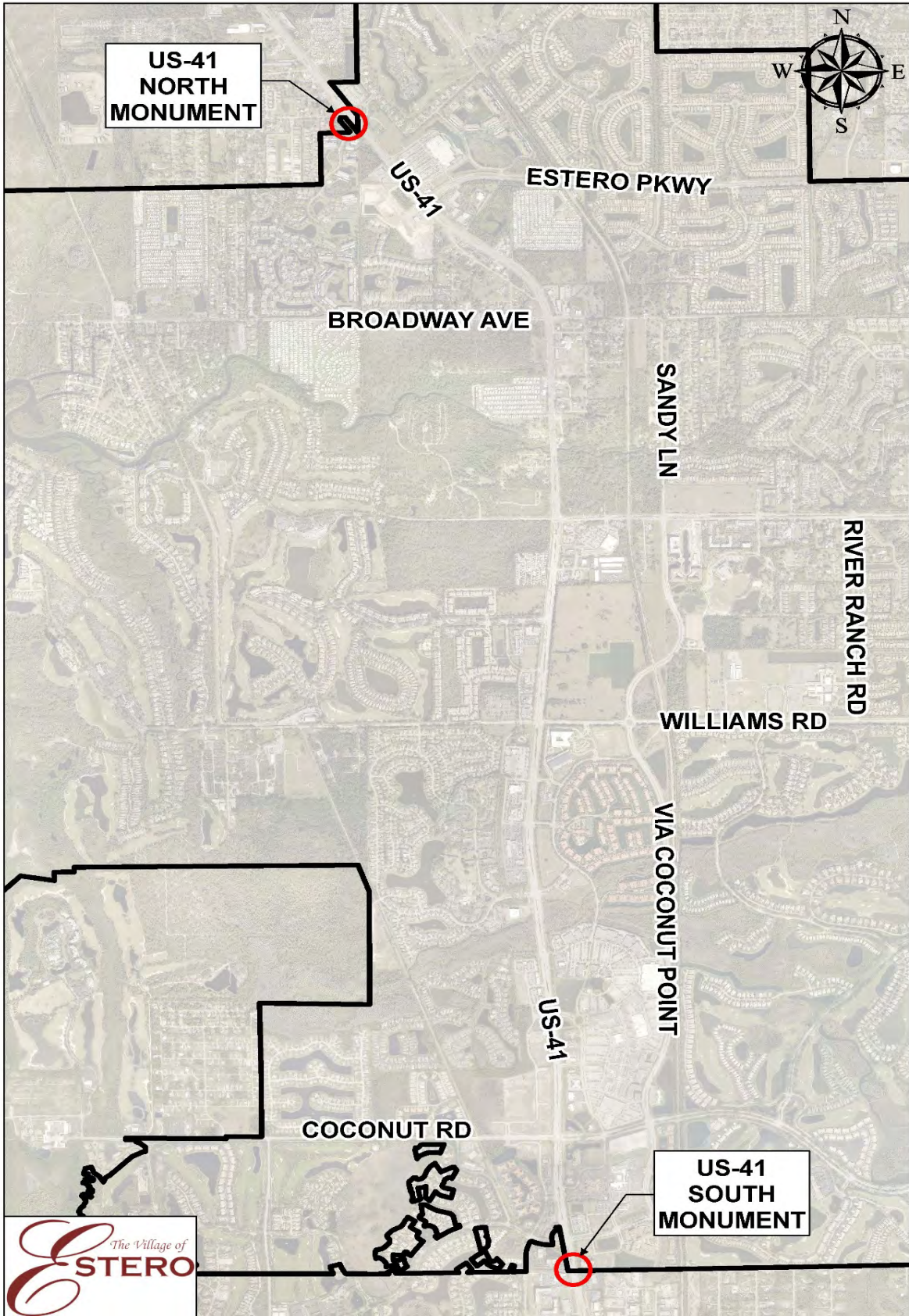
Install Village of Estero monument signs at both ends of US 41 in Estero.

Project Justification:

To identify the Village of Estero limits, monument signs are required at entry points around Estero.

Maintenance:

The Village of Estero is expected to incur minor maintenance costs associated with the monument sign. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(3) I 75 Monument Sign

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	48,000.00
Construction :	\$	168,000.00
Total:	\$	216,000.00

Project Description:

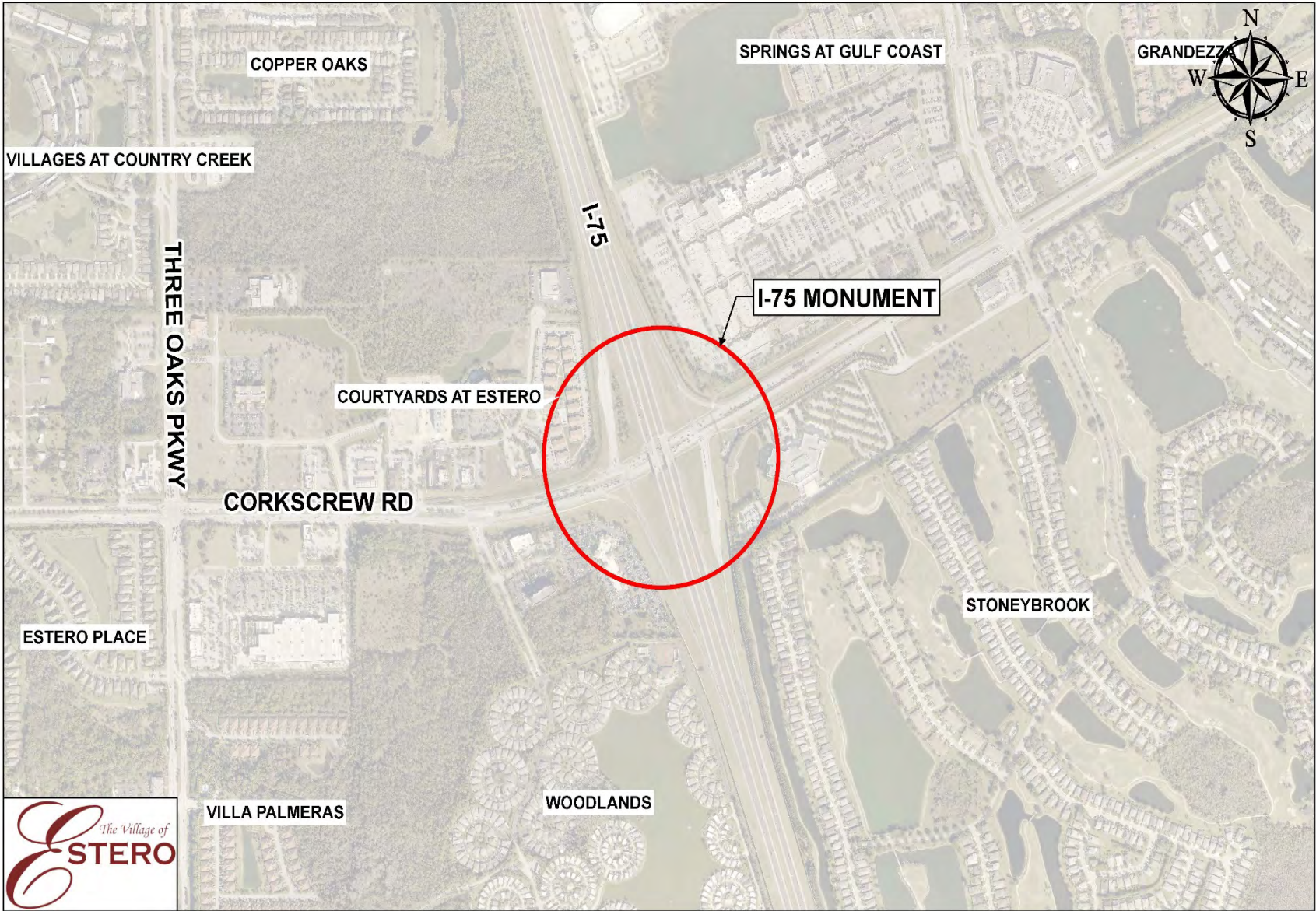
Install Village of Estero monument signs at both I 75 off ramps.

Project Justification:

To identify the Village of Estero limits, monument signs are required at entry points around Estero.

Maintenance:

The Village of Estero is expected to incur minor maintenance costs associated with the monument sign. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(4) Thee Oaks Parkway Monument Sign

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	36,000.00
Construction :	\$	120,000.00
Total:	\$	156,000.00

Project Description:

Install Village of Estero monument signs at both ends of Three Oaks Parkway in Estero.

Project Justification:

To identify the Village of Estero limits, monument signs are required at entry points around Estero.

Maintenance:

The Village of Estero is expected to incur minor maintenance costs associated with the monument sign. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(5) Ben Hill Griffin Parkway Monumnet Sign

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	18,000.00
Construction :	\$	60,000.00
Total:	\$	78,000.00

Project Description:

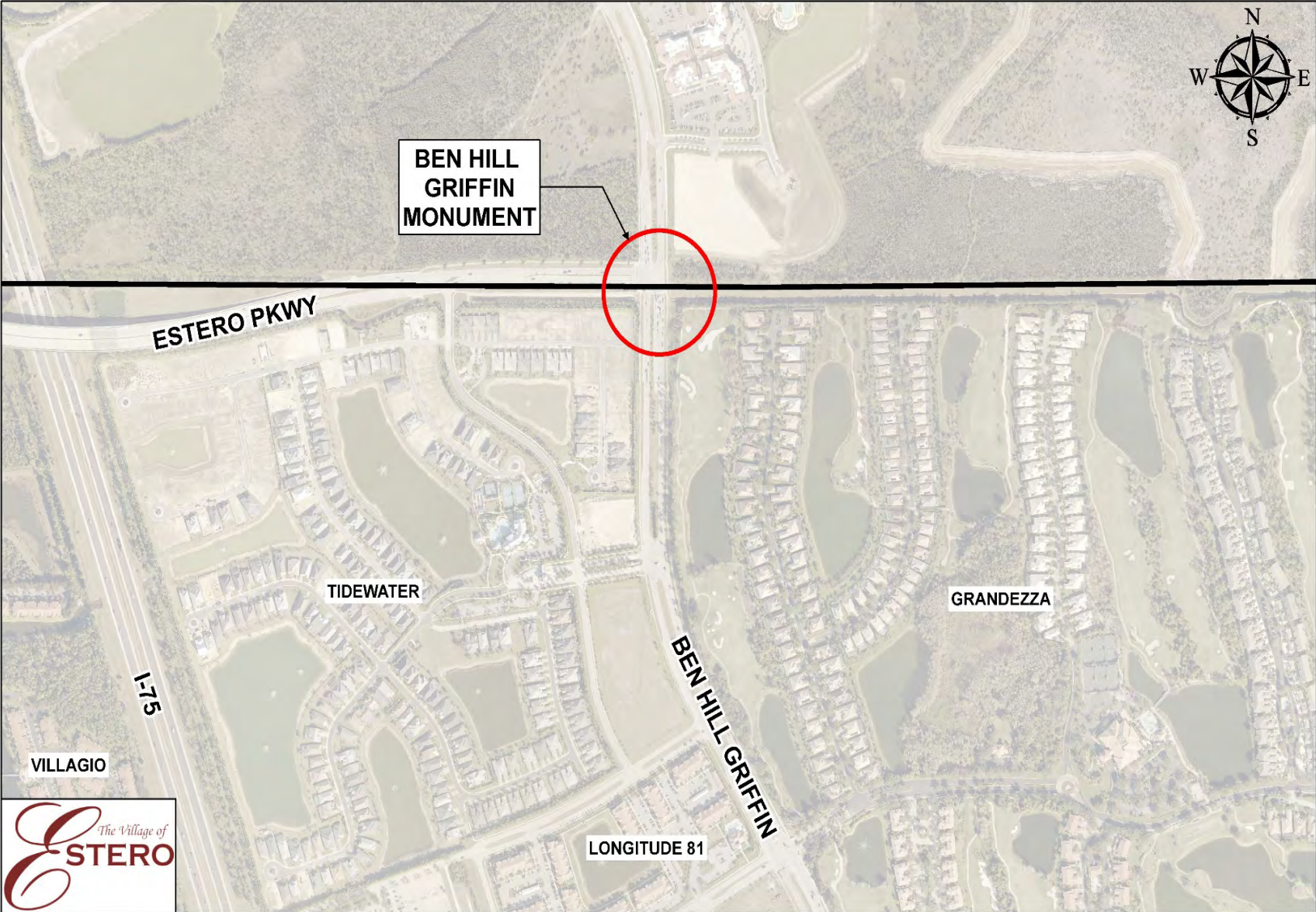
Install Village of Estero monument sign along Ben Hill Griffin Parkway at Estero Parkway.

Project Justification:

To identify the Village of Estero limits, monument signs are required at entry points around Estero.

Maintenance:

The Village of Estero is expected to incur minor maintenance costs associated with the monument sign. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(6) Corkscrew Road Monumnet Sign

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	18,000.00
Construction :	\$	60,000.00
Total:	\$	78,000.00

Project Description:

Install Village of Estero monument sign along Corkscrew Road at the eastern Village limits.

Project Justification:

To identify the Village of Estero limits, monument signs are required at entry points around Estero.

Maintenance:

The Village of Estero is expected to incur minor maintenance costs associated with the monument sign. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements (7) Via Coconut Point Landscape Improvements

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	276,000.00
Construction :	\$	2,509,100.00
Total:	\$	2,785,100.00

Project Description:

Master plan Via Coconut Point Landscaping and install landscaping from Coconut Road to Williams Road.

Project Justification:

Via Coconut Point is mostly un-landscaped, with the exception of the area adjacent to Genova. Additional landscaping is needed along Via Coconut Point to meet landscaping expectations and standards set by other roadways within Estero. Additional landscaping will provide traffic calming, provide shade for pedestrians and improve aesthetics. A master plan is required to create a consistent plan for landscaping the entire roadway. The Village of Estero will install the landscaping from Williams Road to Coconut Road. It is anticipated, adjacent developments will install the remaining landscaping.

Maintenance:

Installing additional landscaping along Via Coconut Point will increase the Village's landscape and irrigation maintenance costs. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(8) Ben Hill Griffin Parkway Landscape Improvements

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	130,000.00
Construction :	\$	2,090,900.00
Total:	\$	2,220,900.00

Project Description:

Install additional landscaping along Ben Hill Griffin Parkway.

Project Justification:

Ben Hill Griffin Parkway current has only limited landscaping. Additional landscaping is needed along Ben Hill Griffin Parkway to meet landscaping expectations and standards set by other roadways within Estero. Additional landscaping will provide traffic calming, provide shade for pedestrians and improve aesthetics.

Maintenance:

Installing additional landscaping along Ben Hill Griffin Parkway will increase the Village's landscape and irrigation maintenance costs. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(9) I-75 Landscape Improvements

CIP Category: Landscape
Funding Source: FDOT, General Fund

Design :	\$	120,000.00
Construction :	\$	1,410,000.00
Total:	\$	1,530,000.00

Project Description:

FDOT is scheduled to design, permit and install landscaping at the Corkscrew Road Interchange. The Village is expected pay for the design and construction of enhanced landscaping above what is typically provided by FDOT.

Project Justification:

The Corkscrew Road Interchange is where many residents and visitors enter and exit Estero. It is important to beautify the interchange to better reflect Estero. Enhanced landscaping will better identify Estero and provide traffic calming and shade along Corkscrew Road.

Maintenance:

Maintenance of the I-75 landscaping and irrigation is expected to be handled by FDOT.



CIP Project Summary - Landscape Improvements
(10) US-41 Shoulder Landscape Improvements

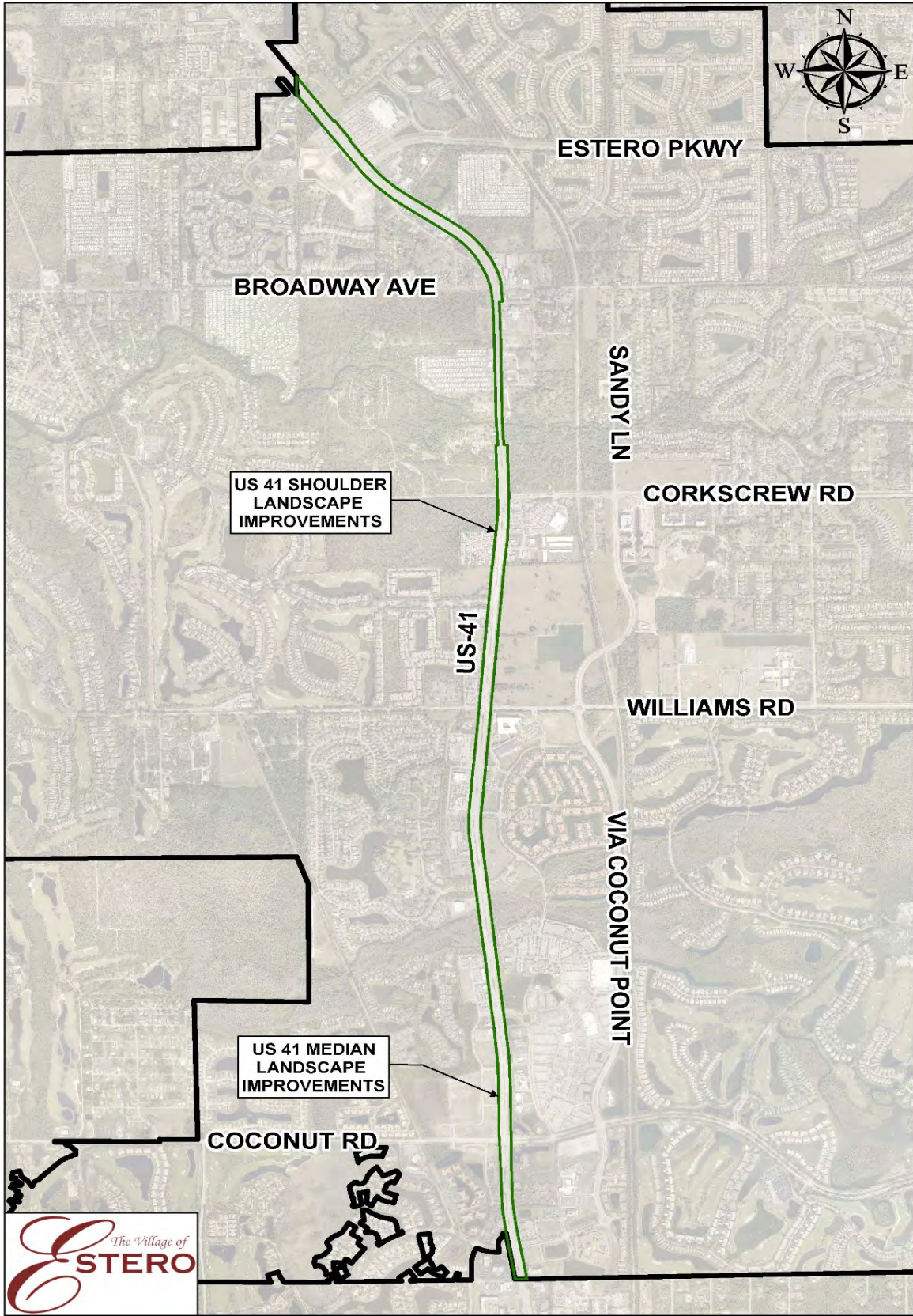
CIP Category: Landscape
Funding Source: General Fund

Design :	\$	444,000.00
Construction :	\$	3,293,200.00
Total:	\$	3,737,200.00

Project Description:
Install landscaping along the US-41 outside edge of pavement.

Project Justification:
Additional landscaping is required along the US-41 roadway shoulders to beautify the roadway, better identify Estero, and help promote slower vehicular speeds. Landscaping will also provide shade for pedestrians.

Maintenance:
Installing additional landscaping along US 41 will increase the Village's landscape and irrigation maintenance costs. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(11) Three Oaks Parkway Landscape Improvements

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	325,000.00
Construction :	\$	5,227,200.00
Total:	\$	5,552,200.00

Project Description:

Enhance existing landscaping along Three Oaks Parkway from Estero Parkway to the Brooks.

Project Justification:

Three Oaks Parkway is one of the major roadways in Estero and portions of the roadway currently only has limited landscaping. Beatification of the roadway is important to better identify Estero. Additional landscaping is needed to meet landscaping expectations and standards set by other roadways within Estero. Additional landscaping will provide traffic calming, provide shade for pedestrians and improve aesthetics.

Maintenance:

Installing additional landscaping along Three Oaks Parkway will increase the Village's landscape and irrigation maintenance costs. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(12) Corkscrew Road Landscape Improvements East
(I-75 to East Village Boundary)

CIP Category: Landscape
Funding Source: General Fund

Design :	\$	-
Construction :	\$	-
Total:	\$	-

Project Description:

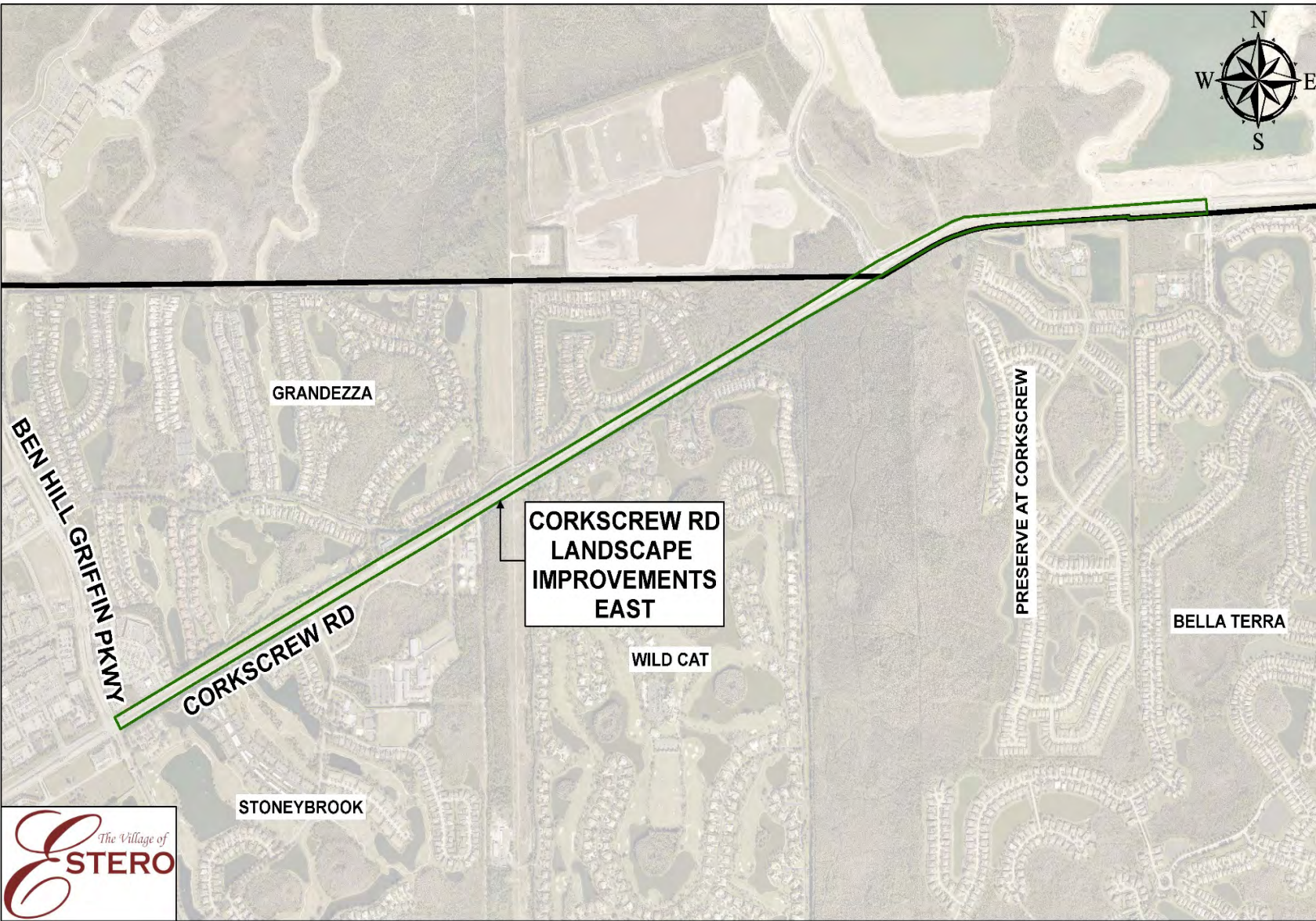
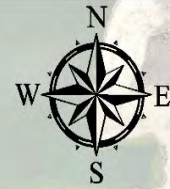
Project is now part of the Corkscrew Road widening project.

Project Justification:

Corkscrew Road is one of the major roadways in Estero and is currently mostly un-landscaped. Lee County will be providing some landscaping as part of their widening project. Landscaping above the Lee County standards are needed to better identify Estero. Additional landscaping is needed to meet landscaping expectations and standards set by other roadways within Estero. Additional landscaping will provide traffic calming, provide shade for pedestrians and improve aesthetics.

Maintenance:

Installing additional landscaping along Corkscrew Road, east of I 75, will increase the Village's landscape and irrigation maintenance costs. These costs will be included in the Village's General Maintenance Budget.



**CORKSCREW RD
LANDSCAPE
IMPROVEMENTS
EAST**

GRANDEZZA

WILD CAT

BELLA TERRA

STONEYBROOK

PRESERVE AT CORKSCREW

BEN HILL GRIFFIN PKWY

CORKSCREW RD



CIP Project Summary - Landscape Improvements
(13) Corkscrew Road Landscape Improvements West (US41-I75)

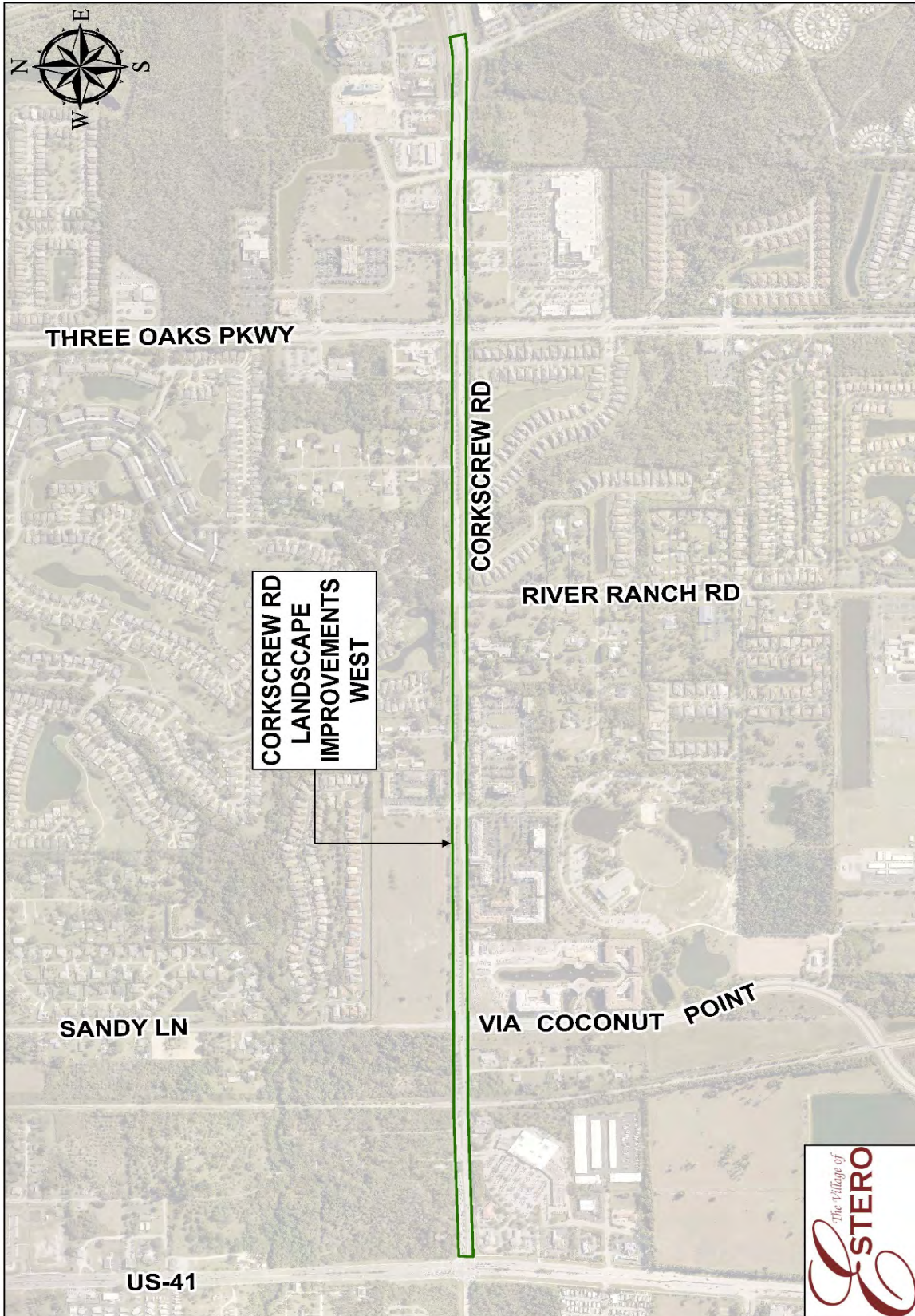
CIP Category: Landscape
Funding Source: General Fund

Funding Source:	General Fund	
Design :	\$	234,000.00
Construction :	\$	3,763,600.00
Total:	\$	3,997,600.00

Project Description:
Enhance existing landscaping along Corkscrew Road from US-41 to I-75.

Project Justification:
Corkscrew Road is one of the major roadways in Estero. The roadway median is currently landscaped with trees and some shrubs. Beautification of the roadway is important to better identify Estero. Additional landscaping is needed to meet landscaping expectations and standards set by other roadways within Estero. Additional landscaping will provide additional traffic calming, provide shade for pedestrians and improve aesthetics.

Maintenance:
Installing additional landscaping along Corkscrew Road, west of I 75, will increase the Village's landscape and irrigation maintenance costs. These costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Landscape Improvements
(14) Williams Road Landscape Improvements (Via Coconut to Three Oaks)

CIP Category: Landscape
Funding Source: General Fund

Funding Source:	General Fund	
Design :	\$	143,000.00
Construction :	\$	1,341,700.00
Total:	\$	1,484,700.00

Project Description:

Install landscaping along Williams Road from Via Coconut Point to Three Oaks Parkway

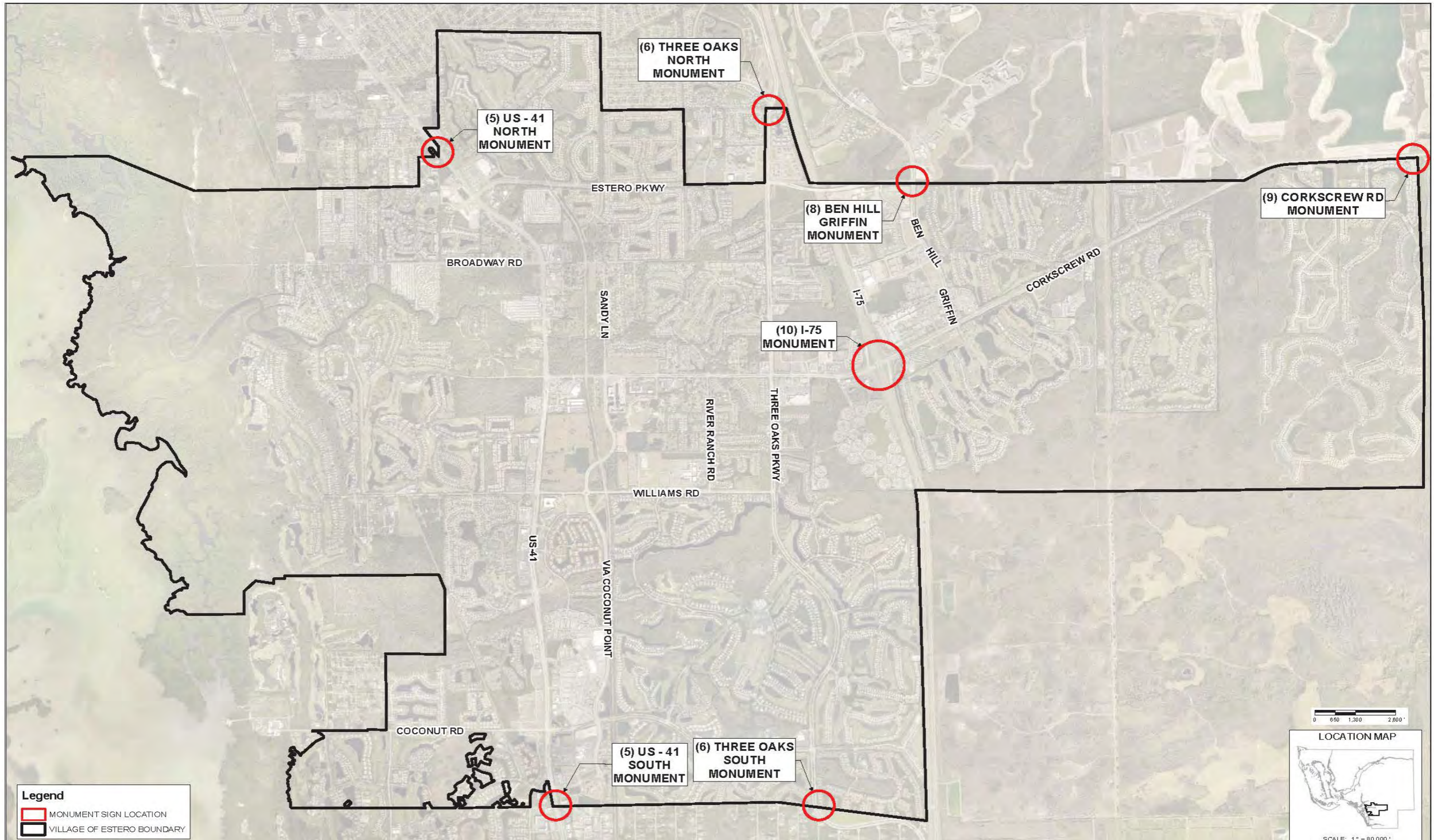
Project Justification:

Williams Road was identified in the Bicycle and Pedestrian Master Plan as one of the potential east/west pedestrians corridors through Estero. Additional landscaping is needed to meet landscaping expectations and standards set by other roadways within Estero. Additional landscaping will provide traffic calming, provide shade for pedestrians and improve aesthetics.

Maintenance:

Installing additional landscaping along Williams Road will increase the Village's landscape and irrigation maintenance costs. These costs will be included in the Village's General Maintenance Budget.





Legend
 MONUMENT SIGN LOCATION
 VILLAGE OF ESTERO BOUNDARY

NOTES:
 1. 2019 AERIAL IMAGES FROM LEE COUNTY
 2. COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA WEST FIPS 0902 FEET

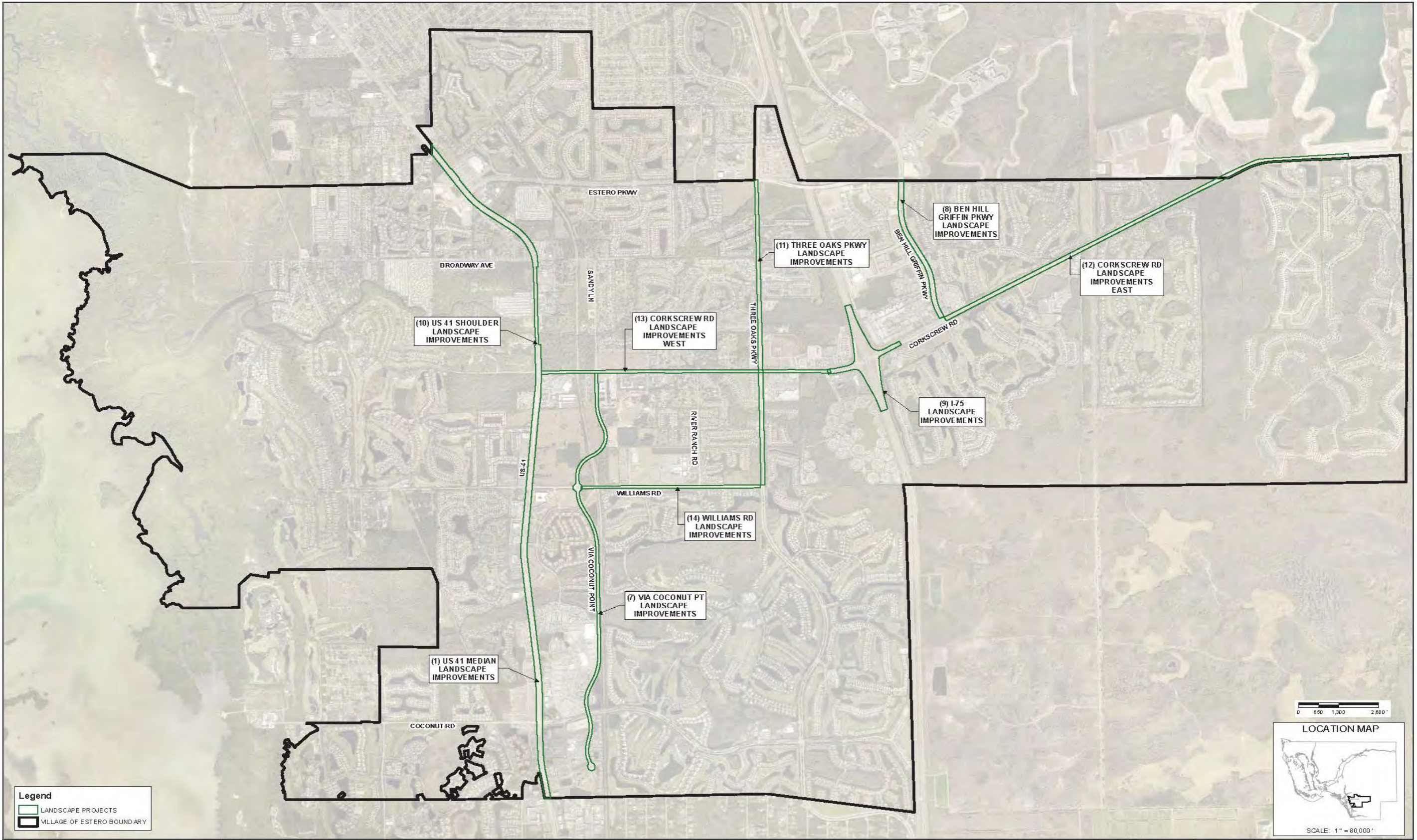
CAPITAL IMPROVEMENT PROGRAM MONUMENT SIGN LOCATIONS

VILLAGE OF ESTERO \ FLORIDA

SCALE: 1" = 1,300'
 DRAWN BY: EJR
 CHECKED BY: _____
 DATE: 4/3/2020
 SHEET: 1 of 1



9401 CORKSCREW PALMS CIRCLE
 ESTERO, FL 33928
 P. 239.221.5035
<http://estero-fl.gov>



Legend
 [Green Line] LANDSCAPE PROJECTS
 [Black Outline] VILLAGE OF ESTERO BOUNDARY

ESTERO
 9401 CORKSCREW PALMS CIRCLE
 ESTERO, FL 33928
 P. 239.221.5035
<http://estero-fl.gov>

NOTES:
 1. 2019 AERIAL IMAGES FROM LEE COUNTY
 2. COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA WEST FIPS 5002 FEET

CAPITAL IMPROVEMENT PROGRAM LANDSCAPE PROJECTS
 VILLAGE OF ESTERO \ FLORIDA

SCALE: 1" = 1,200'
DRAWN BY: EJR
CHECKED BY: -----
DATE: 4/13/2020
SHEET: 1 of 1

Section E
Parks & Recreation Improvements

CIP Project Summary - Parks & Rec. Improvements
(1) Estero on the River Master Plan

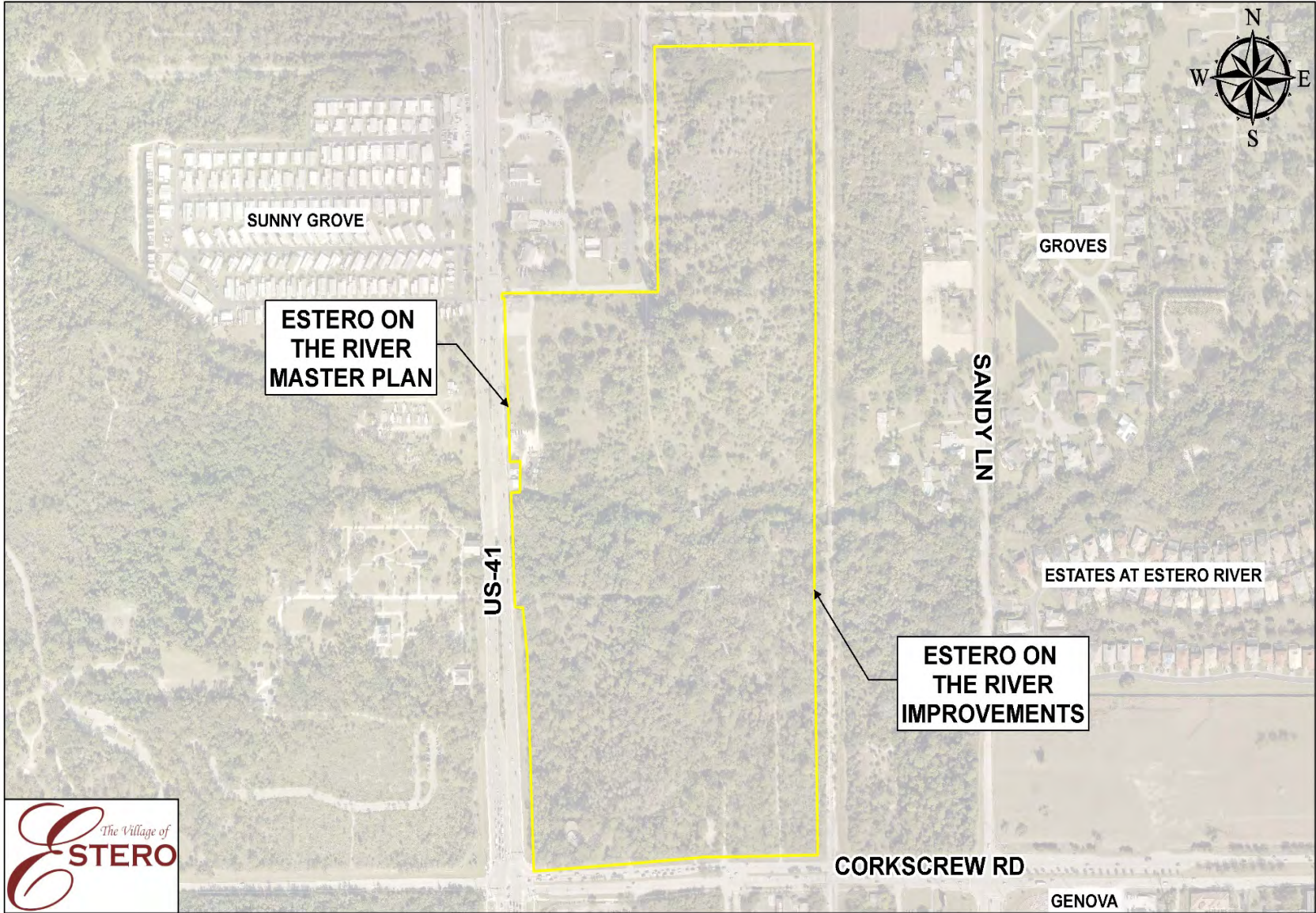
CIP Category: Parks & Recreation
Funding Source: Park Impact Fee, General Fund

Design :	\$	252,000.00
Construction :	\$	-
Total:	\$	-

Project Description:
Prepare Master Plan for the Estero on the River property

Project Justification:
The Village of Estero owns approximately 66 acres of land north of Corkscrew Road between US-41 and Seminole Gulf Railroad. The intended use for the project has not yet been determined. A project master plan that involves significant public input will provide a plan for the property going forward.

Maintenance:
No additional maintenance will be required as a result of this master plan.



CIP Project Summary - Parks & Rec. Improvements (2) Estero Community Park Expansion Master Plan

CIP Category: Parks & Recreation
Funding Source: Park Impact Fee, General Fund

Design :	\$	150,000.00
Construction :	\$	-
Total:	\$	-

Project Description:

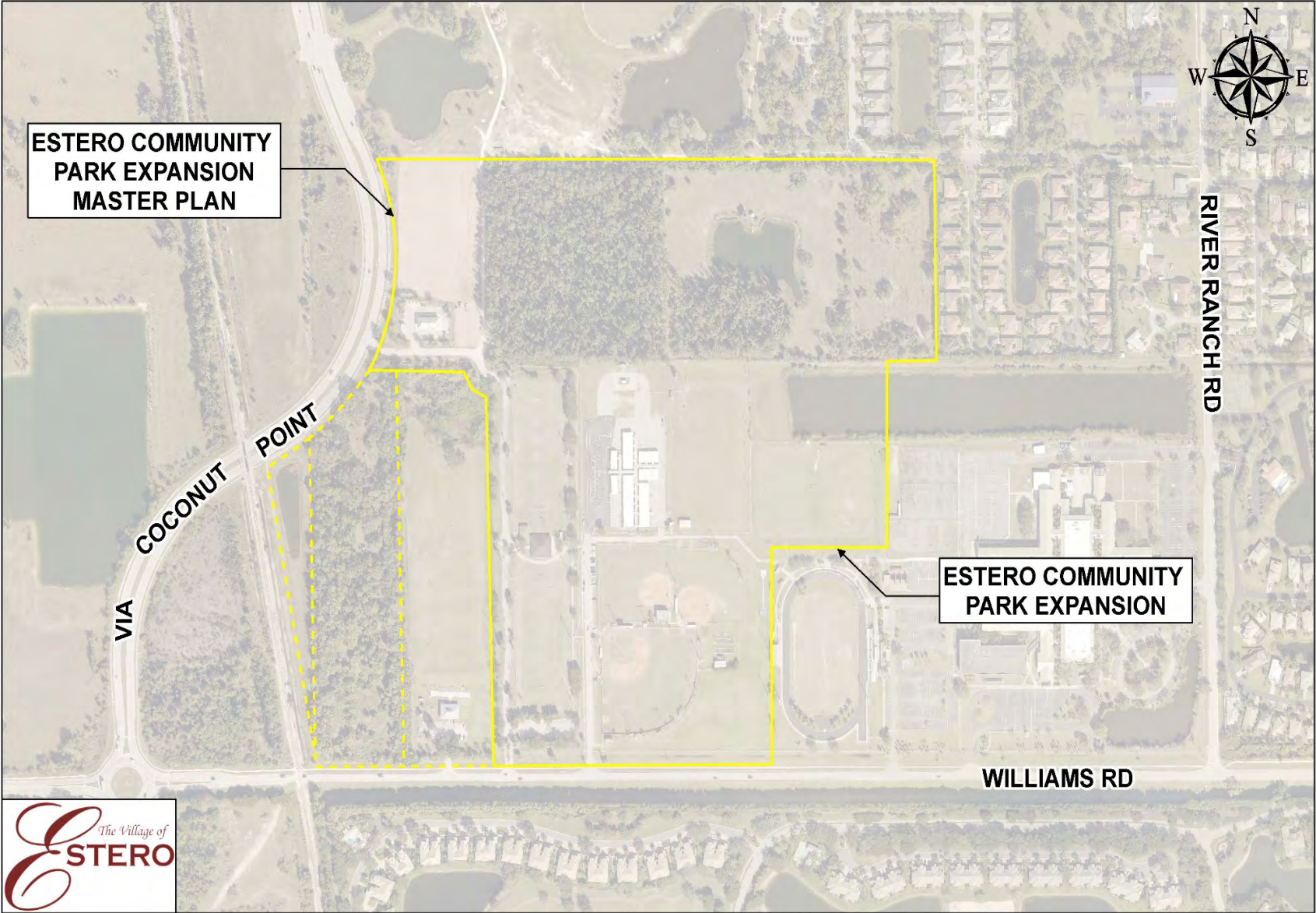
Prepare master plan for potential park improvements on Estero Community Park property, School District property and potential additional land purchases.

Project Justification:

The Park, Recreation, and Open Space Master Plan recommended coordinating park facilities at the Estero Community Park / Estero High School Property. A project master plan is required to work through the potential project alternatives and identify alternatives the Village, Lee County and School District of Lee County can proceed with.

Maintenance:

No additional maintenance will be required as a result of this master plan.



**ESTERO COMMUNITY
PARK EXPANSION
MASTER PLAN**

**ESTERO COMMUNITY
PARK EXPANSION**



CIP Project Summary - Parks & Rec. Improvements (3) Estero Community Park Expansion - Option A

CIP Category: Parks & Recreation

Funding Source: Partners, Park Impact Fee, Road Impact Fee (sidewalks), General Fund

Design :	\$	738,000.00
Construction :	\$	10,113,600.00
Total:	\$	10,851,600.00

Project Description:

The exact extent of park improvements are not yet know and will be determined during the Estero/School/Park Master Plan. For cost estimating purposes the following improvements were used:

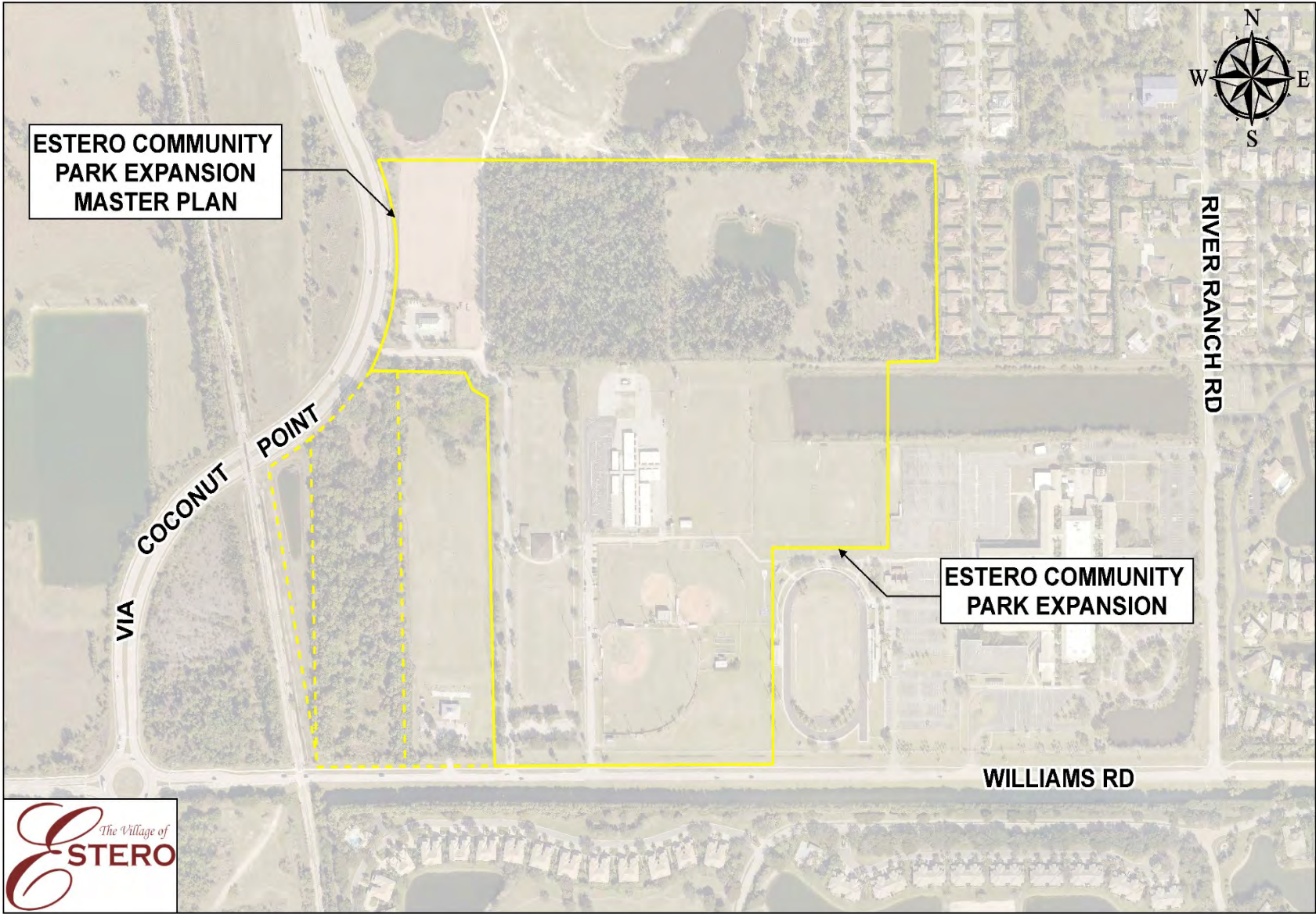
- 6 Pickleball courts
- 4 Multi-purpose fields
- 1 Baseball Field
- 1 Softball Field
- 2 mi. Walking paths
- 3 New restroom facilities
- Covered Shelters
- Parking lots
- Landscaping
- Water management facilities

Project Justification:

The Village of Estero's Park, Recreation, Open Space Master Plan identified areas where additional park facilities are needed to meet resident expectations and needs. Some of these could be met through a Village of Estero, Lee County and School District of Lee County partnership on the Estero Community Park/Estero High School Property.

Maintenance:

The operation and maintenance costs associated with an expansion of the Estero Community Park are not yet know. Costs will be determined after the project is designed. Partnerships will Lee County or the School District could help reduce costs incurred by the Village of Estero. Any additional maintenance costs will be included in the Village's General Maintenance Budget.



**ESTERO COMMUNITY
PARK EXPANSION
MASTER PLAN**

**ESTERO COMMUNITY
PARK EXPANSION**



CIP Project Summary - Parks & Rec. Improvements (3) Estero Community Park Expansion - Option B

CIP Category: Parks & Recreation

Funding Source: Partners, Park Impact Fee, Road Impact Fee (sidewalks), General Fund

Design :	\$	738,000.00
Construction :	\$	11,288,300.00
Total:	\$	12,026,300.00

Project Description:

The exact extent of park improvements are not yet know and will be determined during the Estero/School/Park Master Plan. For cost estimating purposes the following improvements were used:

The elementary and middle school move from the Estero High School property. Estero purchases School District property at the end of Block Lane.

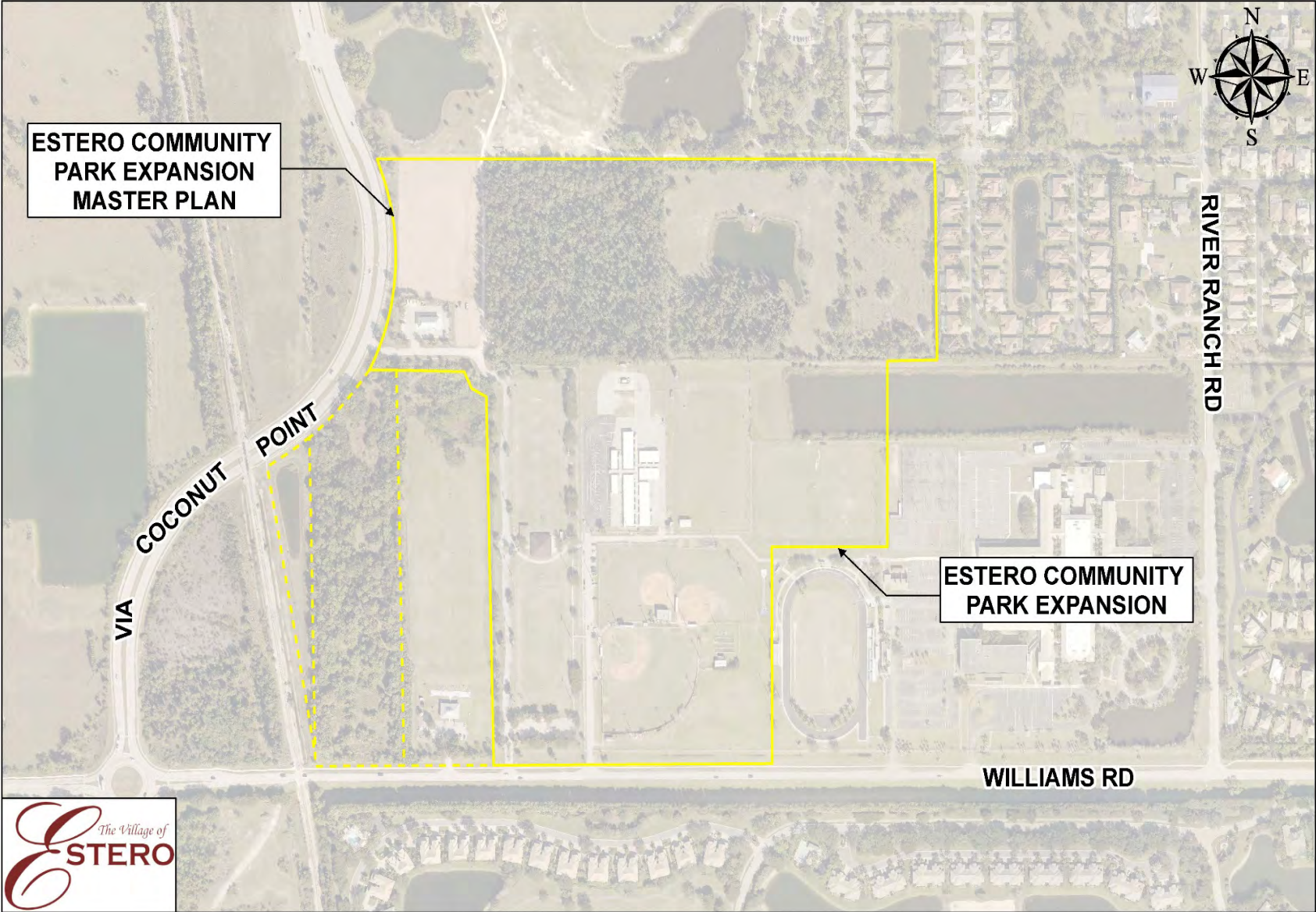
- | | | |
|-------|-----------------------------|---------------------------------------|
| 6 | Pickleball courts | |
| 4 | Multi-purpose fields | Addition facilities over current plan |
| 1 | Baseball Field | |
| 1 | Softball Field | 2 Youth Baseball Fields |
| 2 mi. | Walking paths | |
| 3 | New restroom facilities | |
| | Covered Shelters | |
| | Parking lots | |
| | Landscaping | |
| | Water management facilities | |

Project Justification:

The Village of Estero's Park, Recreation, Open Space Master Plan identified areas where additional park facilities are needed to meet resident expectations and needs. Some of these could be met through a Village of Estero, Lee County and School District of Lee County partnership on the Estero Community Park/Estero High School Property.

Maintenance:

The operation and maintenance costs associated with an expansion of the Estero Community Park are not yet know. Costs will be determined after the project is designed. Partnerships with Lee County or the School District could help reduce costs incurred by the Village of Estero. Any additional maintenance costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Parks & Rec. Improvements
(4) Estero on the River Improvements

CIP Category: Parks & Recreation

Funding Source: Park Impact Fee, Road Impact Fee (sidewalks), General Fund

Design :	\$	378,000.00
Construction :	\$	4,140,000.00
Total:	\$	4,518,000.00

Project Description:

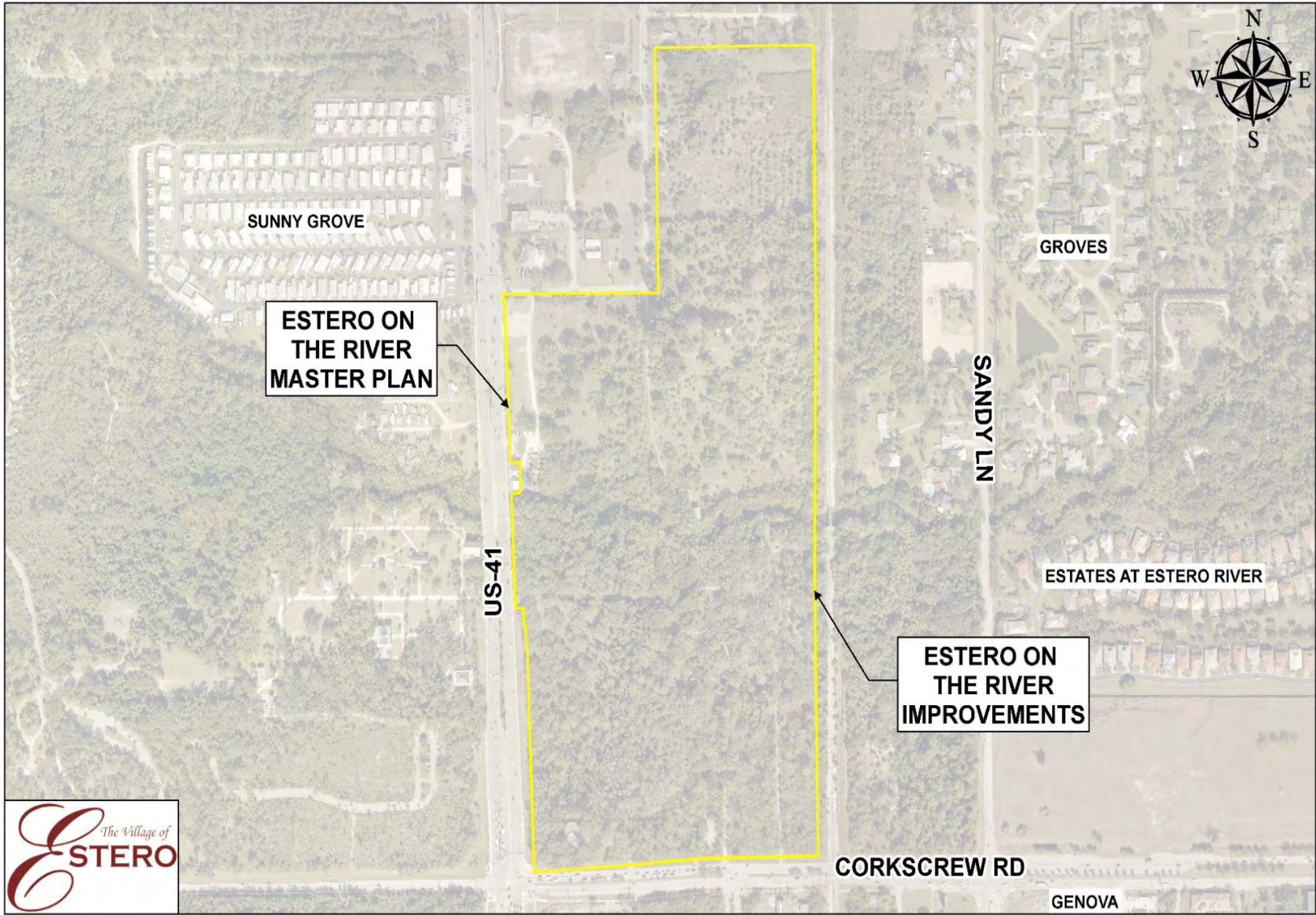
Construct park, recreation, open space improvements on the Estero on the River Property. The extend of improvements will be determined as part of the Estero on the River Master Planning process. This budget item is meant as a place holder until the master plan is completed.

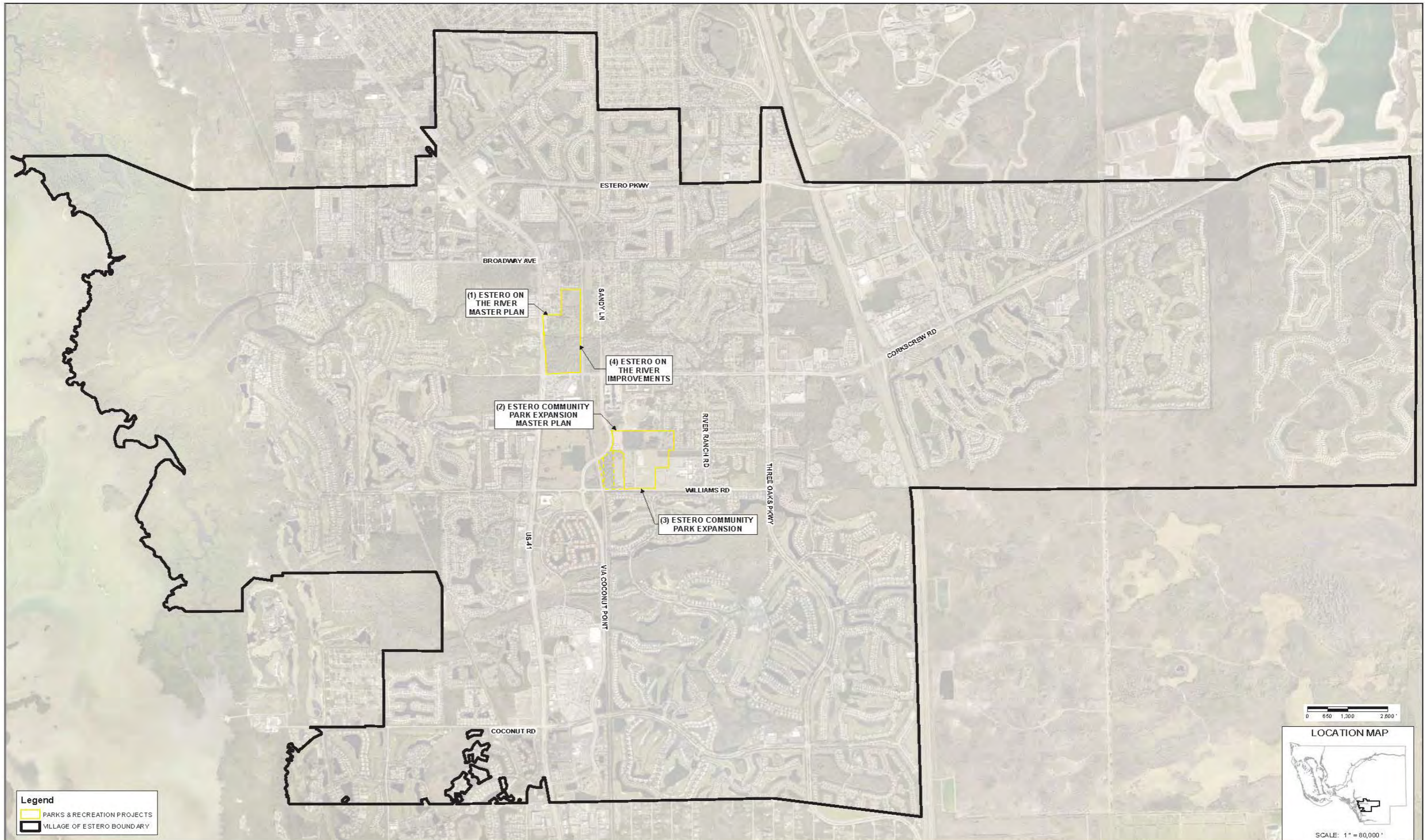
Project Justification:

The Estero Parks, Rec., Open Space Master Plan identified preservation and passive recreation as important to Estero residents. This project will help provide some of those facilities.

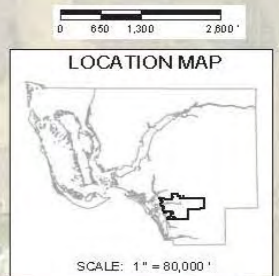
Maintenance:

The operation and maintenance costs associated with improvements to the Estero on the River property are not yet known. Costs will be determined after the project is designed. Any additional maintenance costs will be included in the Village's General Maintenance Budget.





Legend
 [Yellow Box] PARKS & RECREATION PROJECTS
 [Black Outline] VILLAGE OF ESTERO BOUNDARY



The Village of ESTERO
 9401 CORKSCREW PALMS CIRCLE
 ESTERO, FL 33928
 P. 239.221.5035
<http://estero-fl.gov>

NOTES:
 1. 2019 AERIAL IMAGES FROM LEE COUNTY
 2. COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA WEST FIPS 5002 FEET

CAPITAL IMPROVEMENT PROGRAM PARKS & RECREATION PROJECTS
 VILLAGE OF ESTERO \ FLORIDA

SCALE: 1" = 1,300'
 DRAWN BY: EJR
 CHECKED BY: _____
 DATE: 4/10/2020
 SHEET: 1 of 1

Section F
Stormwater Improvements

CIP Project Summary - Stormwater Improvements
(1) Villages at Country Creek Bypass Swale Improvements

CIP Category: Stormwater
Funding Source: General Fund

Design :	\$	192,000.00
Construction :	\$	501,600.00
Total:	\$	693,600.00

Project Description:

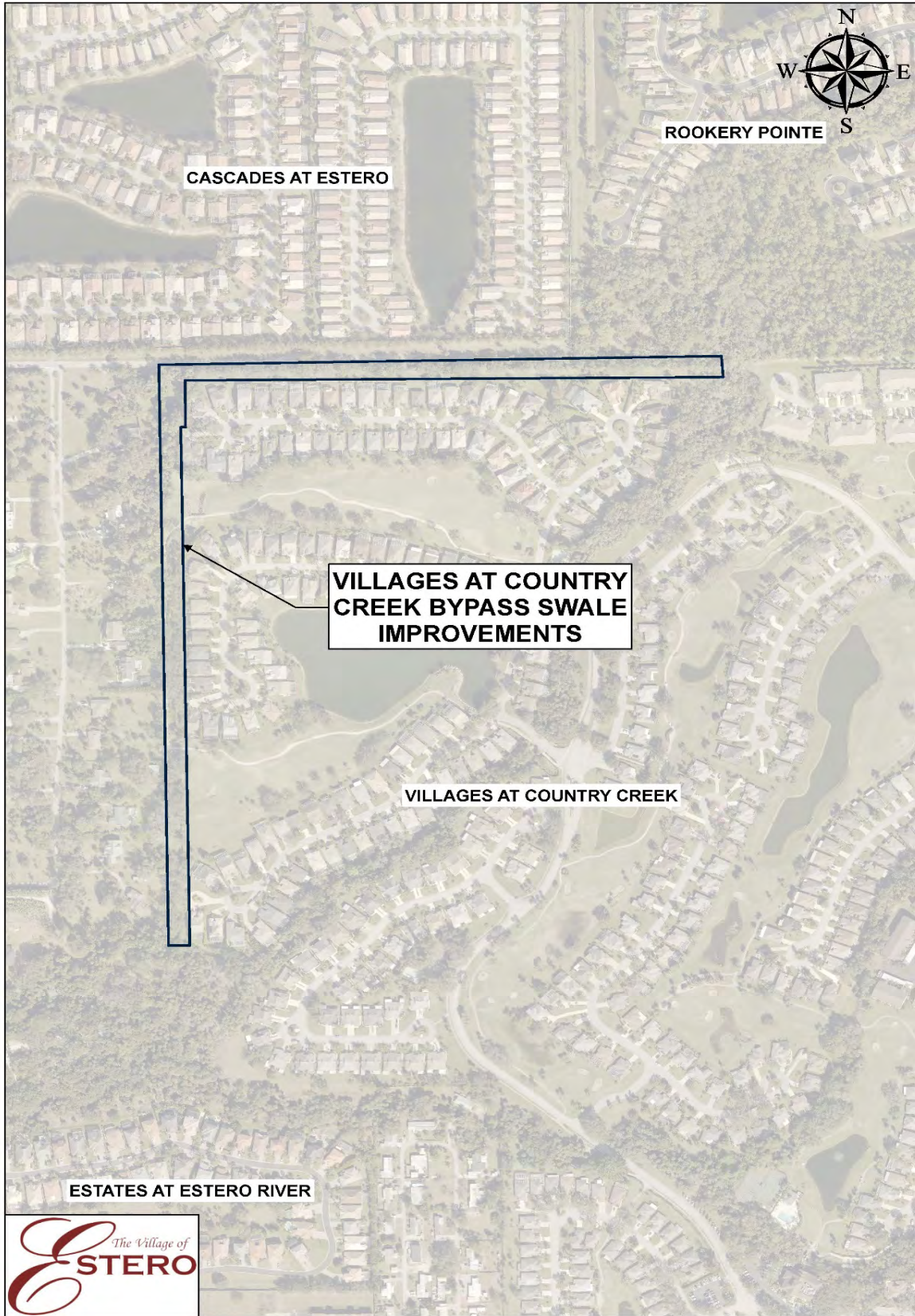
Modify the swale around Villages at County Creek to increase the amount of water that flows around the community and bypasses the relatively narrow section of the Estero River that runs through the community.

Project Justification:

The Village's Stormwater Master Plan identified a constriction of flow within the North Branch of the Estero River through Village at Country Creek as a contributing factor to high water levels. Increasing the flow around the community should reduce flooding within the community and upstream of the community. It will also provide increased capacity to allow other upstream improvements to be implemented.

Maintenance:

Operation and maintenance of the improved swale could continue to be handled by the Villages of Country Creek or transferred to the Village of Estero. This will be determined during project planning and design. Any additional maintenance costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Stormwater Improvements
(2) Dry Creek Bed Sediment Removal

CIP Category: Stormwater
Funding Source: General Fund

Design :	\$	150,000.00
Construction :	\$	282,000.00
Total:	\$	432,000.00

Project Description:

Remove sediment from a dry river bed that historically connected the North and South Branches of the Estero River to reduce water levels within the North Branch.

Project Justification:

The North and South Branches of the Estero River were historically connected just west of Village of Country Creek. The river bed silted in and water no longer flows south through this areas. The Villages Stormwater Master Plans recommends reestablishing this connection.

Maintenance:

The Village of Estero will add this section of the Estero River to the annual drainage observations. Debris and sediment will be removed on an as needed basis. Any additional maintenance costs will be included in the Village's General Maintenance Budget.



CIP Project Summary - Stormwater Improvements (3) Estero River Sediment Removal (RR - Sandy Ln)

CIP Category: Stormwater
Funding Source: General Fund

Design :	\$	162,000.00
Construction :	\$	604,800.00
Total:	\$	766,800.00

Project Description:

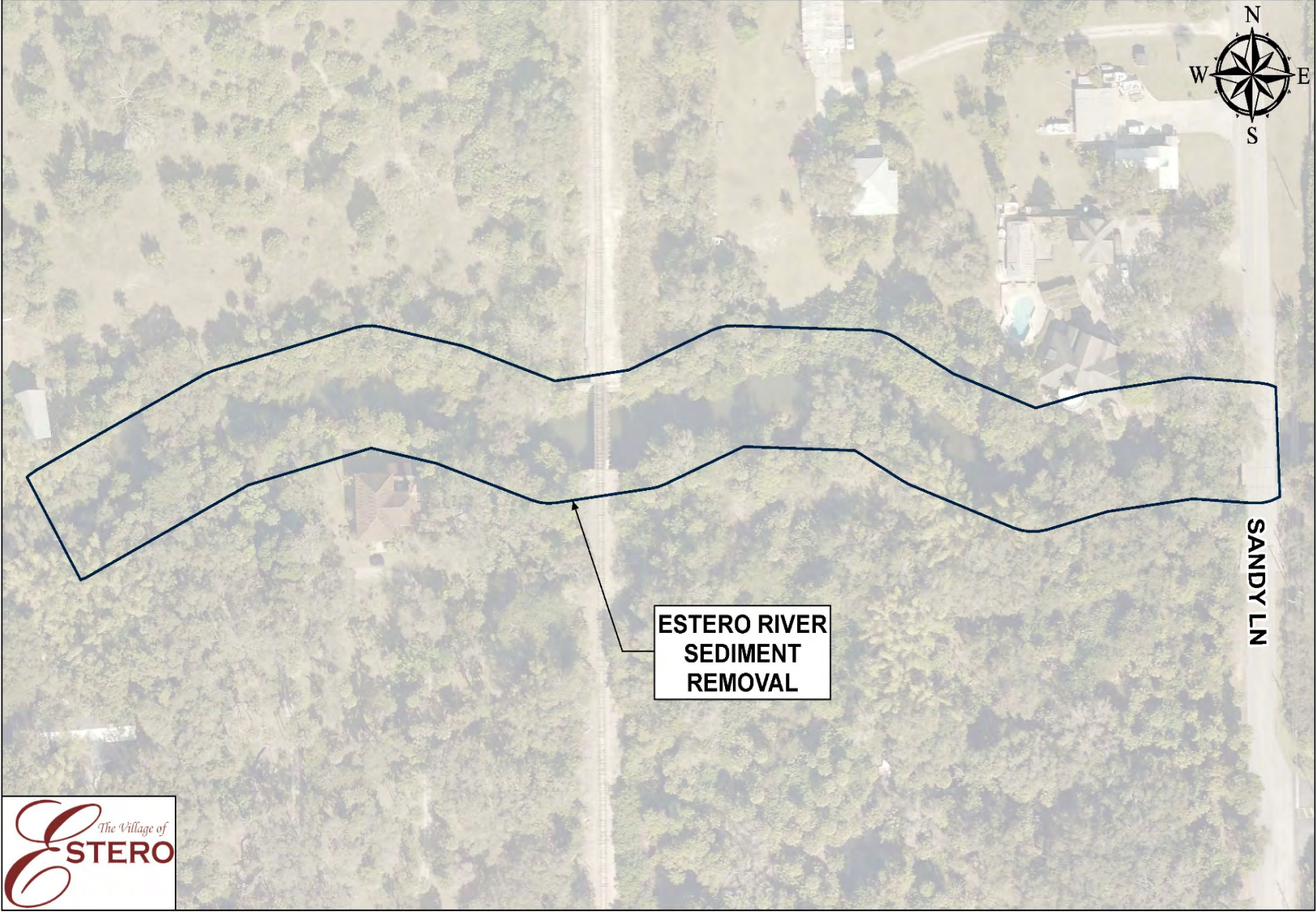
Remove sediment that has built up in the Estero River between the railroad and Sandy Lane.

Project Justification:

Sediment within the Estero River can limit flow through the River and create flooding. The Village's Stormwater Master Plan recommends removing some sediment build up in the river.

Maintenance:

The project will not increase other maintenance costs.



CIP Project Summary - Stormwater Improvements (4) Trailside Drainage Improvements

CIP Category: Stormwater
Funding Source: General Fund

Design :	\$	114,000.00
Construction :	\$	1,073,900.00
Total:	\$	1,187,900.00

Project Description:

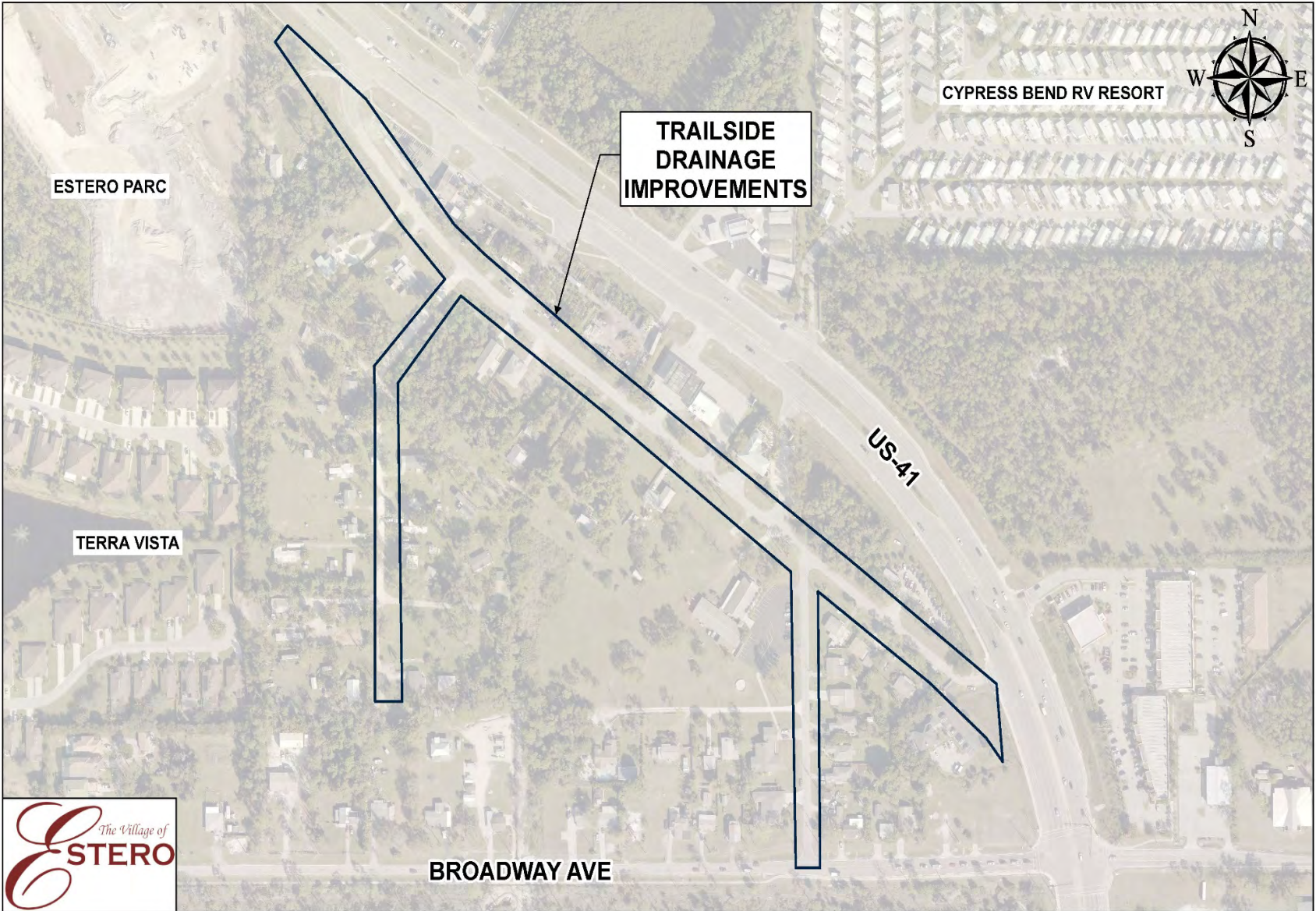
Improve drainage within the Trailside community by regrading swales and ditches and replacing drainage culverts.

Project Justification:

To improve flood protection in the Trailside Community, the Village's Stormwater Master plans recommends improving the roadside drainage to Broadway West.

Maintenance:

The proposed improvements are not expected to increase maintenance costs.



CIP Project Summary - Stormwater Improvements (5) Villagio/Estero Pkwy Drainage Improvements

CIP Category: Stormwater

Funding Source: Lee County

Design : \$ 216,000.00

Construction : \$ 1,411,200.00

Total: \$ 1,627,200.00

Project Description:

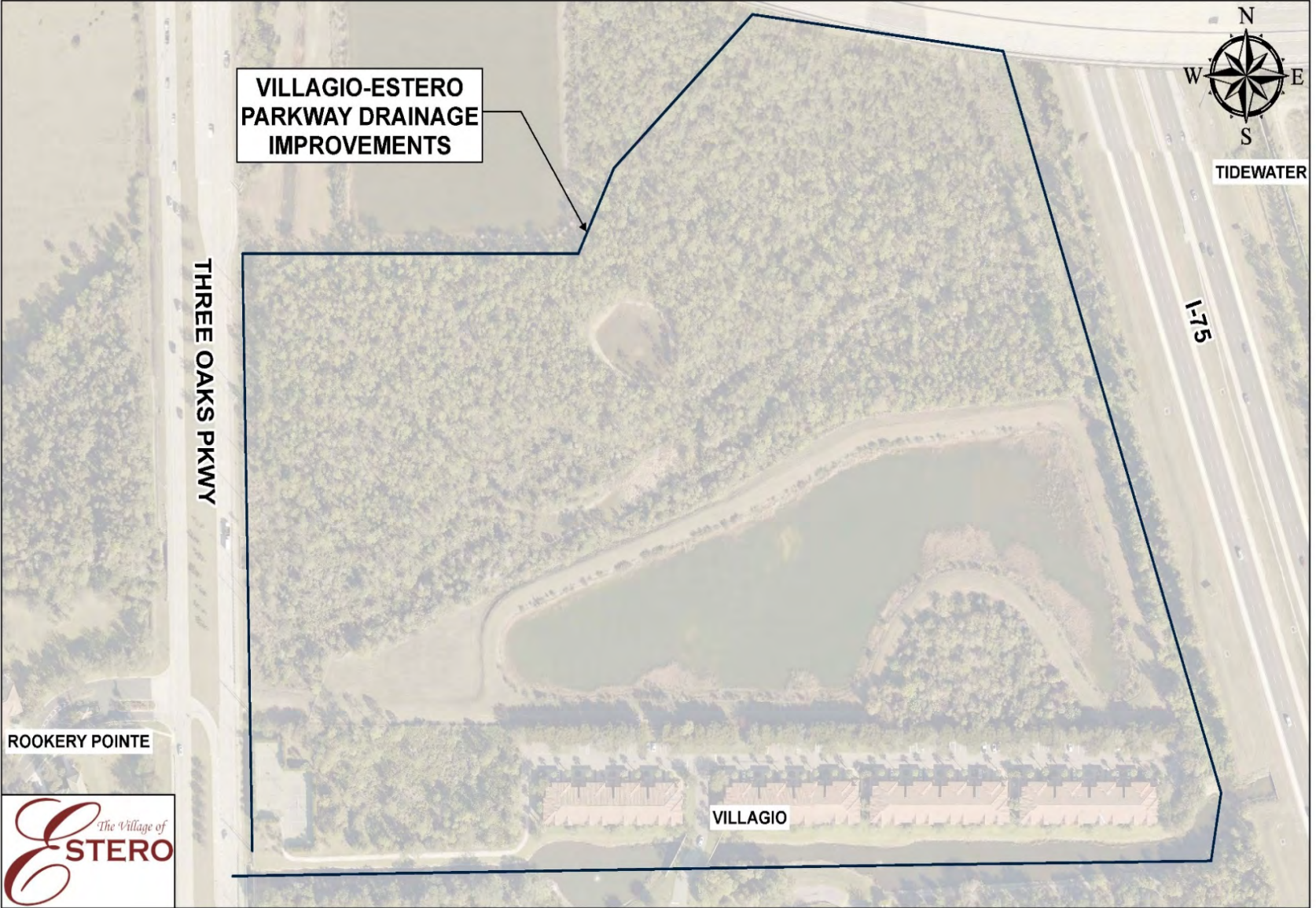
Improve drainage around Villagio south of Estero Parkway to better distribute flows to the two sets of box culverts under Three Oaks Parkway.

Project Justification:

Observations after Hurricane Irma and the Stormwater Master Plan indicate water is not evenly distributed between the two sets of culverts under Three Oaks Parkway. The majority of the flow is directed to the southern culverts due to the better conveyance through the Villagio ditch. Better distributing flow should improve drainage and reduce flooding.

Maintenance:

The proposed improvements will required increased maintenance by Lee County.



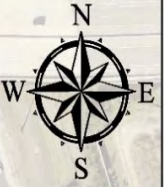
VILLAGIO-ESTERO
PARKWAY DRAINAGE
IMPROVEMENTS

THREE OAKS PKWY

ROOKERY POINTE



VILLAGIO



TIDEWATER

I-75

CIP Project Summary - Stormwater Improvements
(6) US-41 Drainage Improvements Design (Williams - Corkscrew)

CIP Category: Stormwater

Funding Source: FDOT

Design :	\$	72,000.00
Construction :	\$	-
Total:	\$	72,000.00

Project Description:

Design improvements to US-41 drainage to eliminate sidewalk flooding between Williams Road and Corkscrew Road.

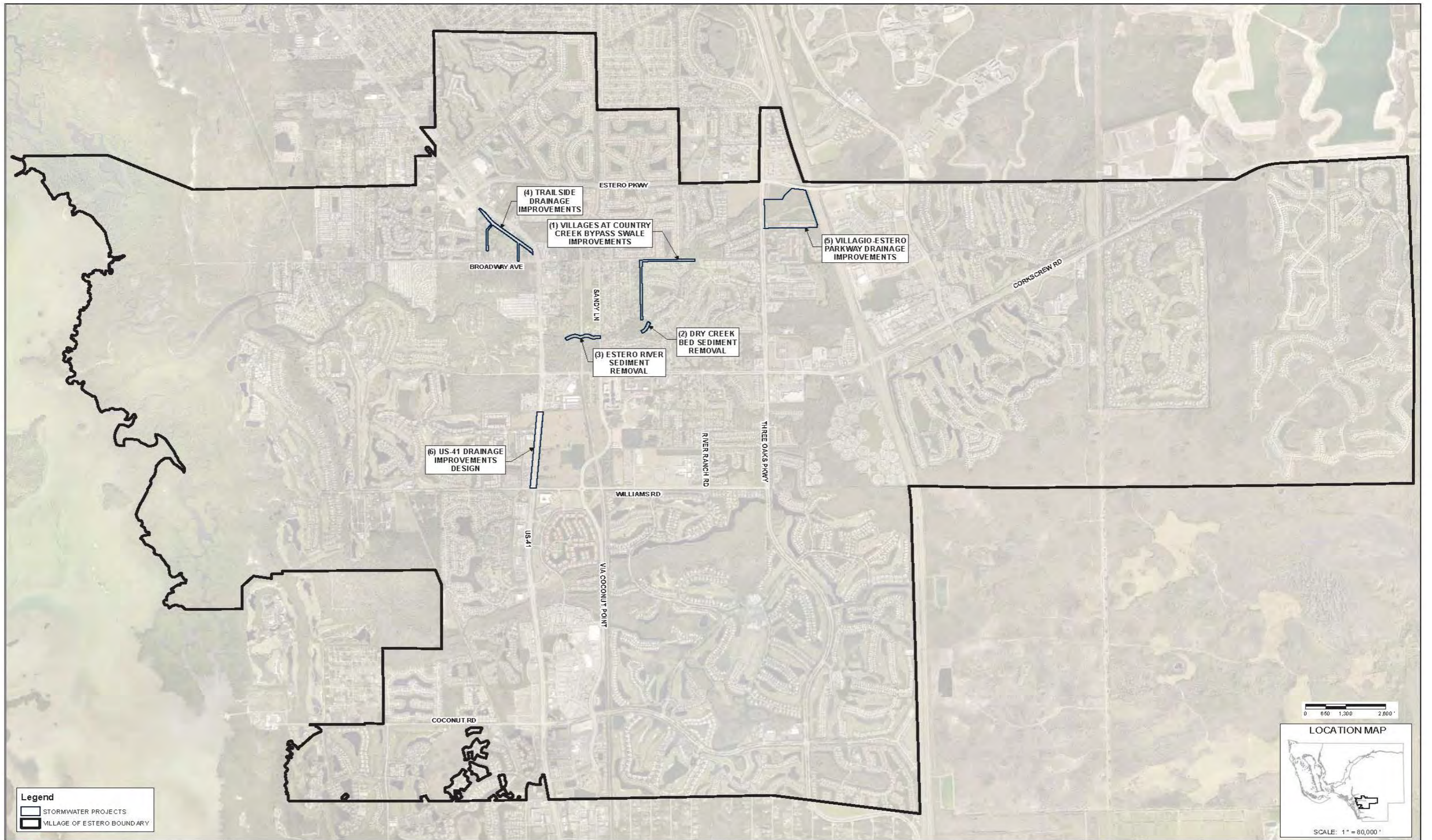
Project Justification:

The sidewalk on the east side of US-41 is often flooded during the wet season. As recommended in the Village's Stormwater Master Plan, drainage improvements are required to reduce or eliminate this flooding so the sidewalks can be used during the summer.

Maintenance:

The proposed drainage improvements are not expected to increase FDOT maintenance costs.





Legend
 [Blue Outline] STORMWATER PROJECTS
 [Thick Black Outline] VILLAGE OF ESTERO BOUNDARY

NOTES:
 1. 2019 AERIAL IMAGES FROM LEE COUNTY
 2. COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA WEST FIP9 D502 FEET

CAPITAL IMPROVEMENT PROGRAM STORMWATER PROJECTS

VILLAGE OF ESTERO \ FLORIDA



SCALE: 1" = 1,300'
 DRAWN BY: EJR
 CHECKED BY:
 DATE: 4/2/2020
 SHEET: 1 of 1

The Village of ESTERO
 9401 CORKSCREW PALMS CIRCLE
 ESTERO, FL 33928
 P. 239.221.5035
<http://estero-fl.gov>

Section G
Building Projects

CIP Project Summary - Building Projects
(1) Public Works Storage Facility

CIP Category: Building Facilities

Funding Source: General Fund

Design :	\$	54,000.00
Construction :	\$	300,000.00
Total:	\$	354,000.00

Project Description:

Construct a public works storage facility.

Project Justification:

Public works materials and equipment are currently stored in a private storage facility and at a contractor's yards. A Village owned public works storage facility will eliminate the ongoing payments for a private storage facility and allow the Village to store all material and equipment at one location for easier access.

Maintenance:

Only limited maintenance expenses are anticipated for the public works storage facility. These costs will be handled through the Village's General Maintenance Budget.

CIP Project Summary - Building Projects
(2) Village Hall

CIP Category: Building Facilities

Funding Source: General Fund

Design :	\$	714,000.00
Construction :	\$	4,200,000.00
Total:	\$	4,914,000.00

Project Description:

Construct a Village of Estero Village Hall.

Project Justification:

The current Village Hall location is leased. Construction of a Village Hall would provide a permanent location for Village Hall.

Maintenance:

Site and building operational and maintenance expenses will be required. The extent of these costs will not be known until the facility is designed.

CIP Project Summary - Building Projects
(3) Performing Arts Center

CIP Category: Building Facilities

Funding Source: General Fund

Total: \$ 20,000,000.00

Project Description:

Construct a public Performing Arts Center.

Project Justification:

The Village of Estero Park, Recreation and Open Space Master Plan identified a performing arts center as a top community facility priority. Resident currently must travel outside Estero to attend performing arts events.

Maintenance:

Site and building operational and maintenance expenses will be required. The extent of these costs will not be known until the facility is designed.

Section H
Land Acquisitions

CIP Project Summary- Land Acquisitions
(1) Christ Community Ministries Property

CIP Category: Land Acquisition
Funding Source: Partner, Bonus Density, Park Impact Fee, General Fund

Land Purchase :	\$	3,000,000.00
Construction :	\$	-
Total:	\$	3,000,000.00

Project Description:

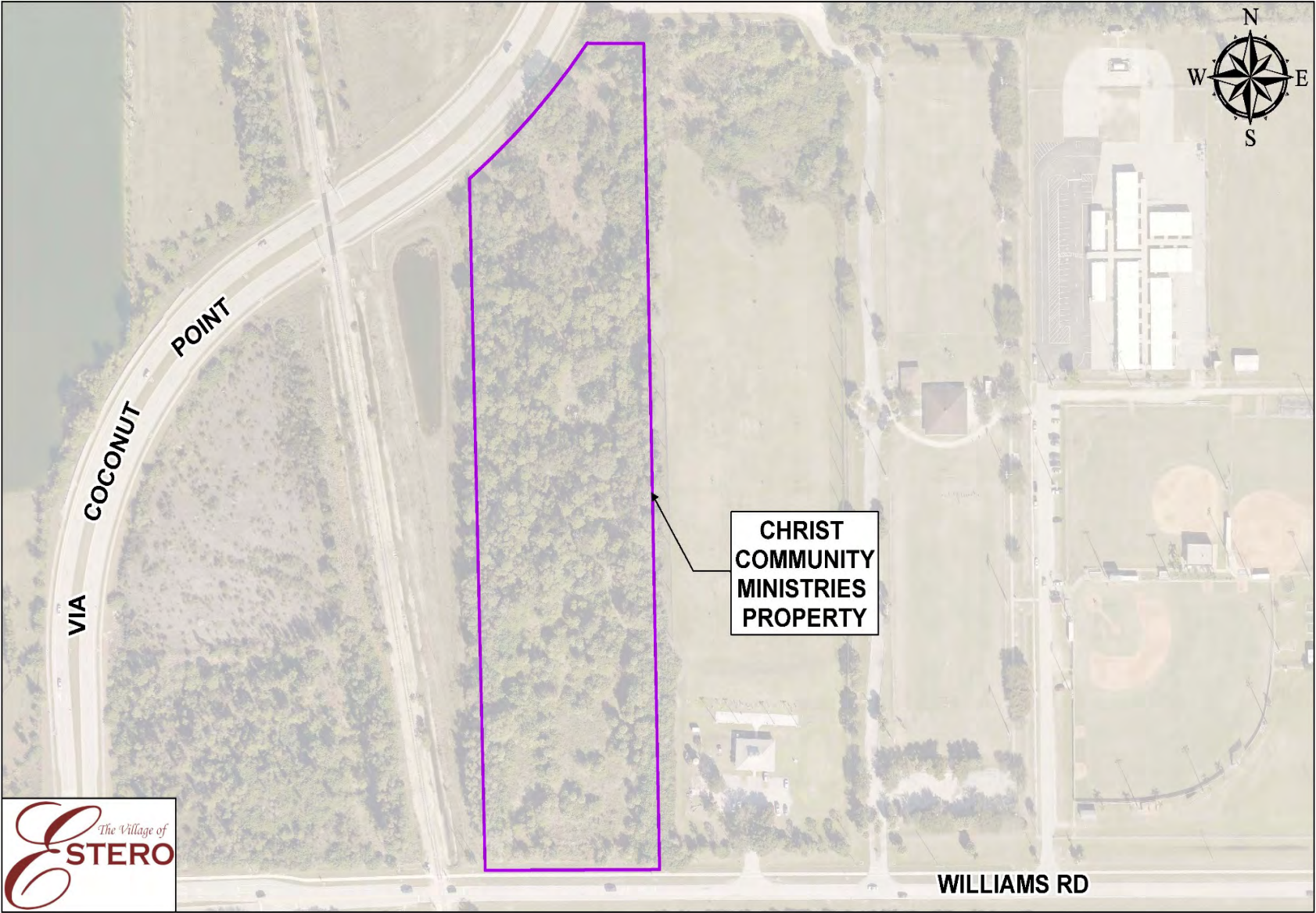
Purchase approximately 8.7 acres of land along Williams Road currently owned by Christ Community Ministries. The land is located adjacent to the existing Community Park and School District of Lee County properties and could be used to expand/improve park facilities.

Project Justification:

The Parks, Recreation & Open space plan has identified a need for additional park, recreation and open space within Estero. The expansion of the community park will provide for many of the Village's active park and recreation needs outlined within the Master Plan.

Maintenance:

Only limited maintenance on the property is expected until the property is developed into park, recreation, open space.



CIP Project Summary- Land Acquisitions
(2) School District of Lee County Property

CIP Category: Land Acquisition
Funding Source: Partner, Bonus Density, Park Impact Fee, General Fund

Land Purchase :	\$	4,000,000.00
Construction :	\$	-
Total:	\$	4,000,000.00

Project Description:

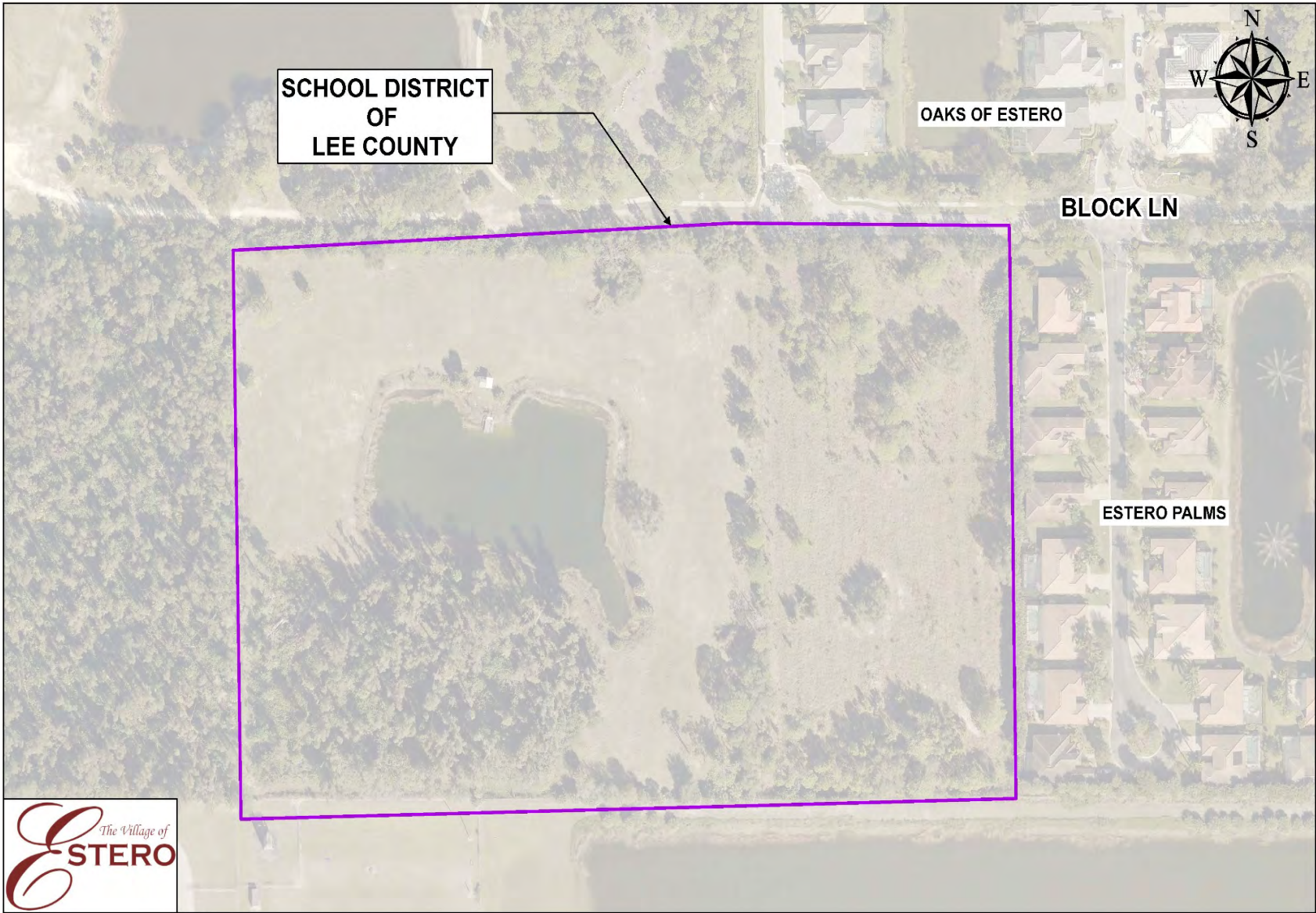
Purchase approximately 15.1 acres of land located at the end of Block Lane currently owned by The School District of Lee County. The land is located adjacent to the existing Community Park and School District of Lee County properties and could be used to expand/improve park facilities.

Project Justification:

The Parks, Recreation & Open space plan has identified a need for additional park, recreation and open space within Estero. The expansion of the community park will provide for many of the Village's active park and recreation needs outlined within the Master Plan.

Maintenance:

Only limited maintenance on the property is expected until the property is developed into park, recreation, open space.



CIP Project Summary- Land Acquisitions
(3) Driving Range Property

CIP Category: Land Acquisition
Funding Source: Partner, Bonus Density, Park Impact Fee, General Fund

Land Purchase :	\$	3,500,000.00
Construction :	\$	-
Total:	\$	3,500,000.00

Project Description:

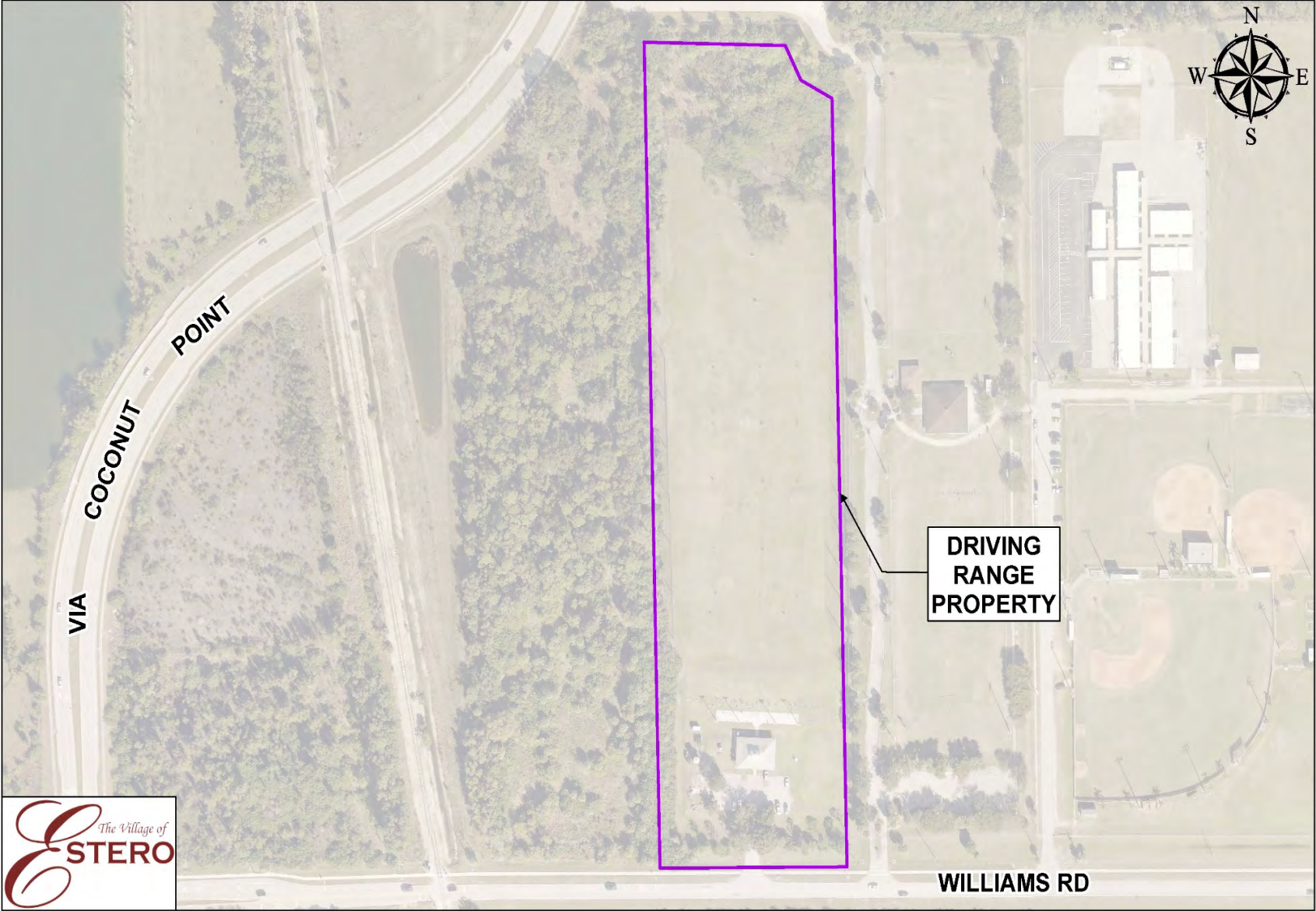
Purchase approximately 9.7 acres of land located along Williams Road. The land is located adjacent to the existing Community Park and School District of Lee County properties and could be used to expand/improve park facilities.

Project Justification:

The Parks, Recreation & Open space plan has identified a need for additional park, recreation and open space within Estero. The expansion of the community park will provide for many of the Village's active park and recreation needs outlined within the Master Plan.

Maintenance:

Minor maintenance such as landscape maintenance and security will be required until the property to converted to park, recreation, or open space. Maintenance costs will be included in the Village's General Maintenance Budget.



CIP Project Summary- Land Acquisitions
(4) River Oaks Preserve

CIP Category: Land Acquisition
Funding Source: Bonus Density, Park Impact Fee, General Fund

Land Purchase :	\$	900,000.00
Construction :	\$	-
Total:	\$	900,000.00

Project Description:

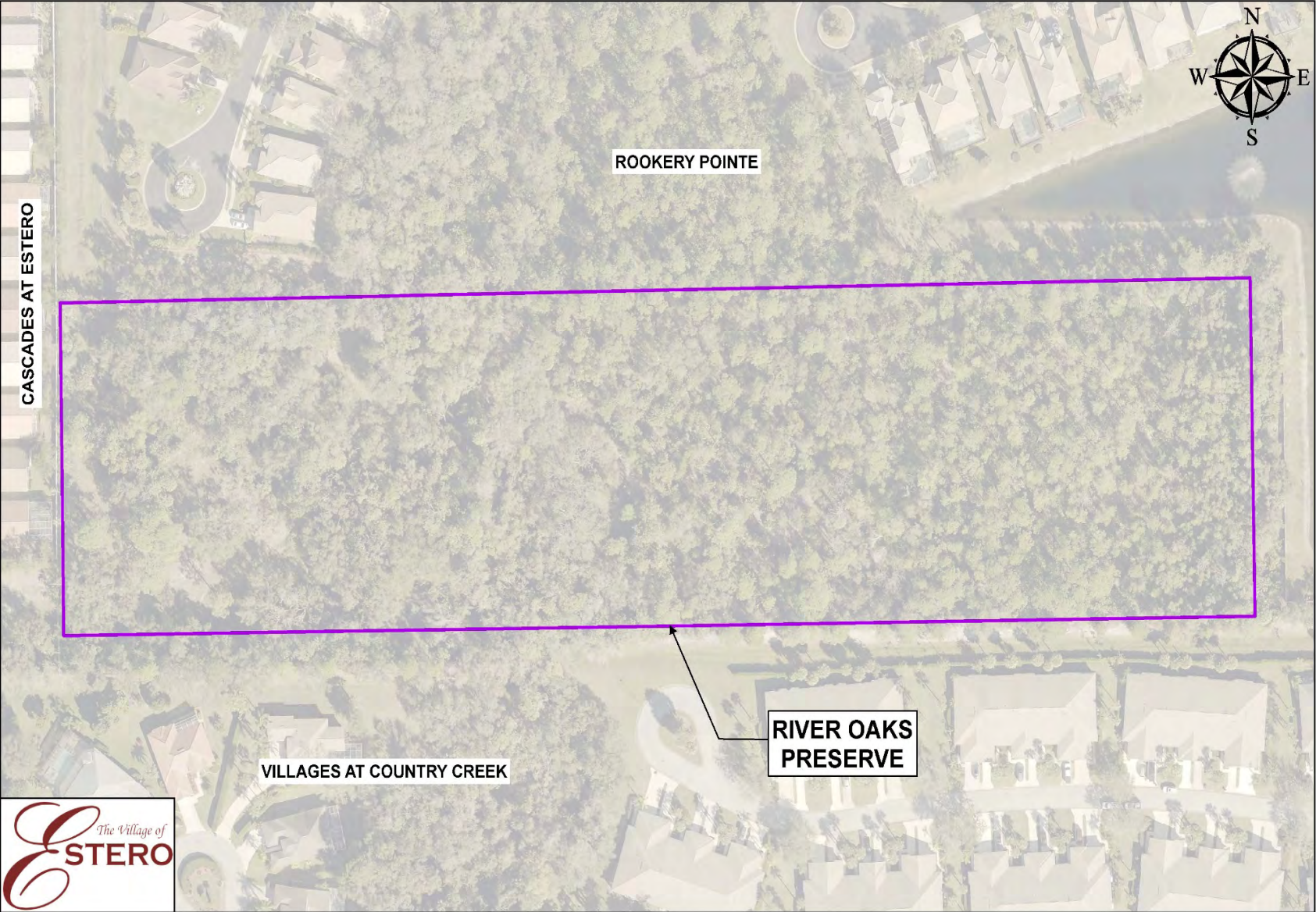
Purchase land at the east end of Broadway E called River Oaks Preserve for preserve/passive recreation purposes.

Project Justification:

River Oaks preserve is located along the Estero River and is one of the only undeveloped privately held properties along the river. Purchasing the land would ensure it remains undeveloped.

Maintenance:

Maintenance of the property will be required after purchase. This will include maintenance of the onsite flow way and removal of exotic vegetation. Maintenance costs will be included in the Village's General Maintenance Budget.



CIP Project Summary- Land Acquisitions
(5) SUN Trail

CIP Category: Land Acquisition
Funding Source: Partner, Bonus Density, Park Impact Fee, General Fund

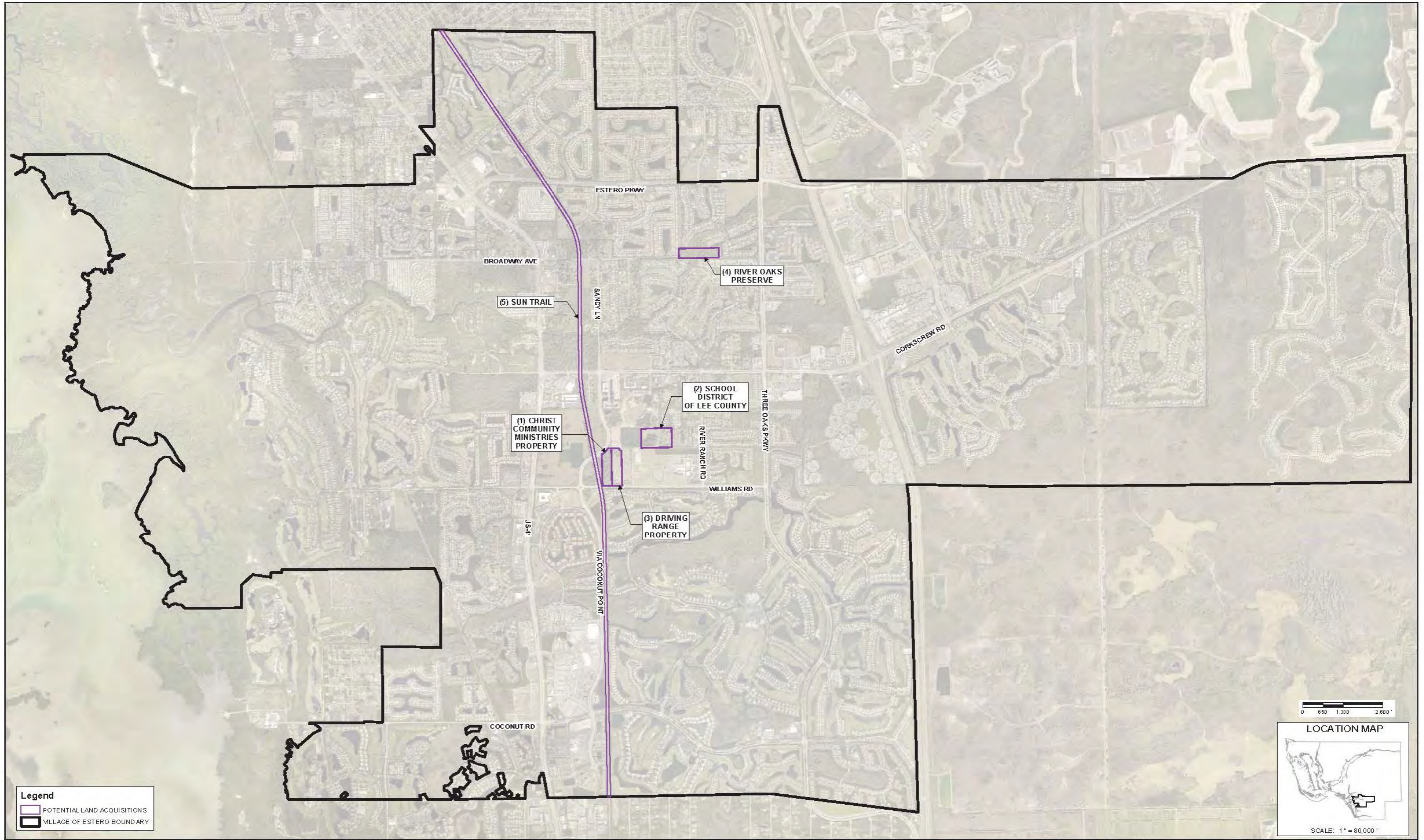
Land Purchase :	\$	30,000,000.00
Construction :	\$	-
Total:	\$	30,000,000.00

Project Description:
Purchase or lease railroad right of way through Estero

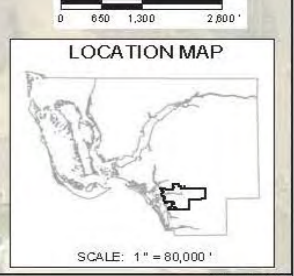
Project Justification:
The Village's Bicycle and Pedestrian Master Plan recommends utilizing the Seminole Gulf Railway property for a regional path. The existing railroad grade would provide for a great off roadway path through Estero that could connect to Bonita Springs and Lee County to create a regional pathway system.

Maintenance:
Right of way maintenance will be required after acquisition. This will include maintenance to improved stormwater flow, debris removal, and erosion control. Maintenance costs will be included in the Village's General Maintenance Budget.





Legend
 [Purple Rectangle] POTENTIAL LAND ACQUISITIONS
 [Thick Black Line] VILLAGE OF ESTERO BOUNDARY



ESTERO The Village of
 9401 CORKSCREW PALMS CIRCLE
 ESTERO, FL 33928
 P. 239.221.5035
<http://estero-fl.gov>

NOTES:
 1. 2019 AERIAL IMAGES FROM LEE COUNTY
 2. COORDINATE SYSTEM: NAD 1983 STATE PLANE FLORIDA WEST FP9 0902 FEET

CAPITAL IMPROVEMENT PROGRAM POTENTIAL LAND ACQUISITIONS
 VILLAGE OF ESTERO \ FLORIDA

SCALE: 1" = 1,300'
 DRAWN BY: EJR
 CHECKED BY: -----
 DATE: 4/13/2020
 SHEET: 1 of 1

Appendix - 1
Village of Estero Area-Wide Traffic Study

Prepared for:



August 14, 2017



EXECUTIVE SUMMARY

This Area-Wide Traffic Study includes an analysis of the existing and projected future roadway and intersection conditions. The results of the analysis are outlined in more detail in the report.

The roadway analysis indicates that Corkscrew Road from Three Oaks Parkway to Bella Terra Boulevard is anticipated to operate over capacity in future conditions during the p.m. peak-hour. Corkscrew Road from Ben Hill Griffin Parkway to Bella Terra Boulevard is currently a two-lane roadway and is anticipated to be over capacity within the ten-year horizon period (2027) analyzed. Based upon discussions with Lee County DOT, the roadway widening is not a scheduled improvement as it is not currently funded as part of the County's five-year capital improvement program. However, concurrently with this analysis, Lee County has contracted with AIM Engineering & Surveying, Inc., to conduct an environmental and traffic study along Corkscrew Road. The study is intended to determine improvements needed to address the increased density along Corkscrew Road, east of I-75, and to identify costs and recommended transportation proportionate fair-share within the Corkscrew Road study area. It is anticipated potential widening of Corkscrew Road and funding will be analyzed as part of the County's study.

The intersection analysis for this study indicates several intersections within The Village of Estero are currently operating with approaches at an unacceptable level of service during the a.m. peak-hour and/or p.m. peak-hour including the following:

- Corkscrew Road & Bella Terra Boulevard
- Corkscrew Road & Cypress Shadows Boulevard
- Corkscrew Road & Ben Hill Griffin Parkway
- Corkscrew Road & I-75 Northbound Ramps
- Corkscrew Road & I-75 Southbound Ramps



- Corkscrew Road & Three Oaks Parkway
- Corkscrew Road & US 41
- US 41 & Estero Parkway
- US 41 & Broadway
- US 41 & Pelican Sound Drive
- US 41 & Williams Road
- US 41 & Fountain Lakes Boulevard

Programmed improvements that are anticipated within the ten-year analysis period of this study, from the FDOT, Lee County DOT, Village of Estero, and various development were included in the analysis.

In addition to the existing intersection deficiencies, the future (2027) analysis indicates the following intersection is anticipated to operate unacceptably during the p.m. peak-hour period.

- Corkscrew Road & Bella Terra Boulevard
- Coconut Road & Three Oaks Parkway

The following potential improvements were recommended to correct existing and future deficiencies (when warranted), for study area intersections in order to improve operations:

- Create median storage for the northbound left-turn at the intersection of Corkscrew Road & Cypress Shadows Boulevard
- Extend the southbound left-turn lane at Corkscrew Road & Ben Hill Griffin Parkway and re-time the intersection
- Provide interim safety improvements at the intersection of Corkscrew Road & Corkscrew Woodlands Boulevard



- Re-time intersection, extend the eastbound left-turn lane at Corkscrew Road & Three Oaks Parkway, and add an additional northbound right-turn lane (for dual northbound right-turn lanes), depending on available right-of way
- Re-time the intersection of US 41 & Corkscrew Road and add an additional westbound right-turn lane (for dual westbound right-turn lanes), depending on available right-of way
- Re-time the intersection of US 41 & Estero Parkway and explore the possibility of an additional westbound right-turn (for dual westbound right-turns)
- Add a right-turn lane at the intersection of US 41 & Williams Road and extend the eastbound left-turn lane (along with the closure of the driveway on the west leg of Williams Road)
- Signalize the intersection of US 41 & Fountain Lakes Boulevard (when warranted)
- Re-time the intersection of Three Oaks Parkway & Coconut Road including changing the signal cycle length

The safety analysis that was conducted as part of the area-wide traffic study indicated that the study intersection signals appear to be in good shape as far as backplates, borders, and signal heads. It is recommended to confirm with Lee County DOT that the signal clearance interval times (yellow and all-red times) are adequate. It is also recommended to consider pavement friction improvements if skid numbers or visual inspection show poor pavement at the intersections of Ben Hill Griffin Parkway & Estero Parkway and Three Oaks Parkway & Williams Road. It is also recommended to consider lighting improvements at the intersection of Ben Hill Griffin Parkway & Estero Parkway and Three Oaks Parkway & Estero Parkway.



CONCLUSION

This report documents the existing conditions (2017), and anticipated future conditions (2027) of intersections and study area roadways with The Village of Estero. The analysis of future conditions includes identification of future travel demand, evaluation of future operating conditions, and future potential operational improvements.

A roadway analysis was included in the analysis for the study roadway segments identified by The Village. To determine future (2027) roadway volumes, corridor growth rates were applied with the highest amount of growth anticipated along Corkscrew Road. Corkscrew Road from Three Oaks Parkway to Bella Terra Boulevard is anticipated to operate over the available peak-hour peak direction capacity in future conditions during the p.m. peak-hour.

The intersection analysis indicates thirteen of the study intersections within The Village of Estero are currently operating with approaches at an unacceptable standard during the a.m. peak-hour and p.m. peak-hour.

Programmed improvements are anticipated within ten years and the following were included in the analysis:

- Signalization of Corkscrew Road & Bella Terra Boulevard
- Interim FDOT improvements to Corkscrew Road & I-75 Ramps
- Signalization of Corkscrew Road & Puente Way including a frontage road to Corkscrew Woodlands Boulevard
- Signalization of US 41 & Pelican Sound Drive (anticipated as part of the North Point DRI)
- Addition of an east leg including westbound through lane, southbound right-turn lane, eastbound left-turn lane, eastbound through lane, and eastbound right-turn lane as part of the Estero Grande project at the intersection of US 41 & Estero Parkway



- Additional southbound left-turn lane (to provide dual southbound left-turn lanes) and additional westbound left-turn lane (to provide dual westbound left-turn lanes) at the intersection of US 41 & Williams Road as part of the North Point DRI

Additional failing movements or approaches are anticipated with the increase in future traffic. The following potential improvements were recommended, when warranted, for study area intersections in order to improve operations:

- Create median storage for the northbound approach at the intersection of Corkscrew Road & Cypress Shadows Boulevard
- Extend the southbound left-turn lane at Corkscrew Road & Ben Hill Griffin Parkway and re-time the intersection
- Provide interim safety improvements at the intersection of Corkscrew Road & Corkscrew Woodlands Boulevard
- Re-time intersection, extend the eastbound left-turn lane at Corkscrew Road & Three Oaks Parkway, and add an additional northbound right-turn lane (for dual northbound right-turn lanes), depending on available right-of way
- Re-time the intersection of US 41 & Corkscrew Road and add an additional westbound right-turn lane (for dual westbound right-turn lanes), depending on available right-of way
- Re-time the intersection of US 41 & Estero Parkway and explore the possibility of an additional westbound right-turn (for dual westbound right-turns)
- Add a right-turn lane at the intersection of US 41 & Williams Road and extend the eastbound left-turn lane (along with the closure of the driveway on the west leg of Williams Road)
- Signalize the intersection of US 41 & Fountain Lakes Boulevard (when warranted)
- Re-time the intersection of Three Oaks Parkway & Coconut Road including changing the signal cycle length



The safety analysis indicated the corridor crash trends are generally indicative of typical arterial congestion. Rear-end and sideswipe crashes are common for signalized intersections, especially during the peak travel demand periods. The signals appear to be in good shape as far as backplates, borders, and signal heads. It is recommended to confirm that the clearance intervals meet current Institute of Transportation Engineers standards to reduce crashes caused by red-light running or early braking.

Appendix - 2
Coconut Roadway Traffic Study



Coconut Road Traffic Study

From Estero Bay to Three Oaks Parkway



Village of Estero, FL
06/08/2016

Prepared for:

Village of Estero
9401 Corkscrew Palms Circle
Estero, FL 33928
Phone: 239.221.5035

Prepared by:

Trebilcock Consulting Solutions, PA
1205 Piper Boulevard, Suite 202
Naples, FL 34110
Phone: 239.566.9551
Email: ntrebilcock@trebilcock.biz

Project Description

Traffic counts on major roadways in Lee County had dropped significantly around 2007-2008 due to the downturn in the economy. With the improved economy, more development activity has been the result. As such, Lee County roadway traffic has been climbing up towards pre-recession levels.

Many roadways in the Village of Estero are faced with increased traffic congestion and delays. The Coconut Road Traffic Study was initiated by the Village of Estero, Department of Community Development, to evaluate the impact of development on this roadway. Coconut Road is an east-west roadway and is located in the southern part of the Village of Estero, within Lee County, Florida (refer to **Fig. 1 – Project Location Map**). Within the Village of Estero the west section of this roadway study runs from the Hyatt Hotel to US 41, a distance of approximately 1.6 miles and the east section of this roadway runs from US 41 to Three Oaks Parkway, a distance of approximately 1.7 miles.

Fig. 1 – Project Location Map



The main objective of this traffic study is to evaluate existing and future traffic conditions and to determine if there are improvement needs for Coconut Road. The study process includes a few steps. The first step involves traffic data collection, to help determine the existing roadway Level of Service (LOS), and estimating future travel demand to evaluate if the existing roadway

LOS will be acceptable in the future. The second step includes evaluating corridor improvement needs and potential conceptual alternative improvements, if needed. A safety review of the roadway is provided as well. Finally, conclusions and recommendations are provided.

Existing Roadway Conditions

Coconut Road is classified as a major collector under the jurisdiction and maintenance of the Lee County Department of Transportation, and it stretches from Estero Bay to the west to just west of Interstate 75 to the east (Pebble Pointe at the Brooks).

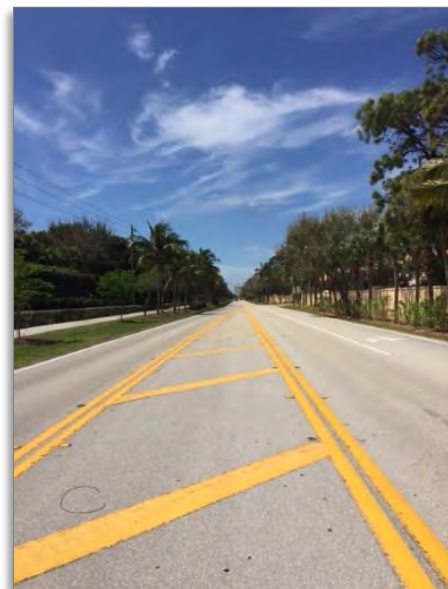
Refer to **Appendix A: Lee County DOT Functional Classification**, **Appendix B: FDOT Federal – Aid Road Report (Excerpts)** and **Appendix C: Lee County Road Maintenance Map**.

Coconut Road is an undivided two-lane roadway at its western terminus and has mainly an open drainage system. East of the Hyatt hotel, the roadway has turn lanes at many access points. There is also a sidewalk along the south side of the roadway. The posted speed limit for the east-west section is 40 mph. About 900 ft. west of the intersection with US 41 the roadway changes to curb and gutter with a closed drainage system and sidewalks on both sides of the roadway. East of US 41, the roadway is a four-lane divided curb and gutter facility with a posted speed limit of 45 mph. In the eastern section (from US 41 to Three Oaks Parkway), there are undesignated on-street bicycle lanes on both sides and an asphalt pathway on the south side. Turn lanes are provided as well.

Lee County develops a concurrency report annually that includes an inventory of the maximum utilized and available capacity of public facilities for which minimum Level of Service (LOS) standards are prescribed. The latest report is the October 2015 Concurrency Report. The transportation inventory from the Concurrency



East-west portion of Coconut Road terminates at the Hyatt Hotel and the roads runs north-south for a short length (<500 ft) and then west for another 2,000 ft.



Coconut Road west of US 41 is mainly an undivided 2-lane section of roadway.

Conclusions and Recommendations

The main objective of this traffic study is to evaluate engineering data, document information, and to determine if there are improvement needs for Coconut Road future traffic conditions.

Once forecasts were developed, a roadway segment analyses was performed for future 2021 and 2026 conditions. The Level of Service E standard was utilized as a screening method to evaluate whether a roadway segment was deficient for the future condition. Based upon the results illustrated in corridor segment level of service analysis, the Coconut Road segment located west of US 41 is anticipated to be over capacity in the year 2021 and 2026 future conditions. All other analyzed segments are projected to the adopted level of service standard at future conditions.

A significant benefit to overall mobility on Coconut Road west of US 41 is provided by a series of roundabouts along this segment. We would recommend analyzing this option as a way to meet the future buildout along this corridor.

We would recommend working with Lee County and the City of Bonita Springs to identify and agree on needed improvements for Coconut Road and for these to be included in future Lee County Metropolitan Planning Organization Long Range Transportation Plan (MPO LRTP) programming.

The operational analyses completed for the intersection of Coconut Road and US 41 indicates the need for future intersection improvements to accommodate future volume growth. These improvements include turn lane extensions on Coconut Rd/US 41 and a dual northbound left on US 41.

To provide adequate operations through the 2026 future traffic conditions, new intersection lane configuration and signal retiming are recommended to produce lower delays, sufficient capacity and an acceptable level of service.

Appendix - 3

KCA Coconut Road from Estero Bay to US 41 Traffic Study

Traffic Technical Memorandum
Coconut Road from Estero Bay to US 41
Lee County

Prepared For:



The Village of Estero

Prepared by:



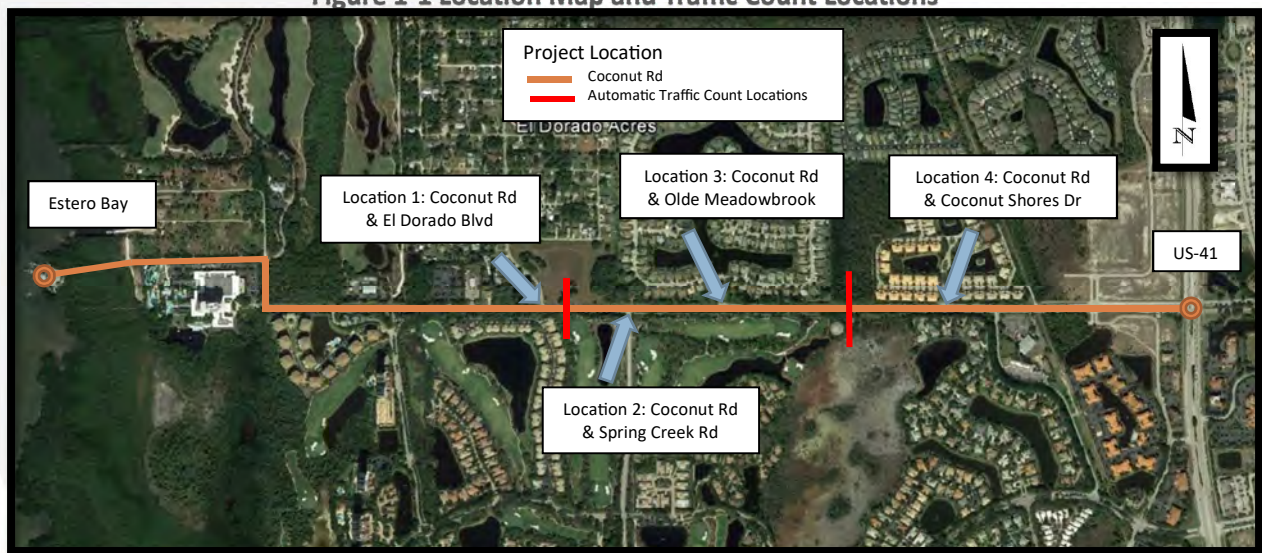
10060 Amberwood Road, Suite 7
Fort Myers, FL 33913

October 2019

1.0 Introduction

This Traffic Technical Memorandum (TTM) summarizes the traffic data collected and the traffic level of service (LOS) analyses for Coconut Road from Estero Bay to US 41 within the Village of Estero located in Lee County, Florida. The objective of this TTM is to evaluate the existing traffic capacity and delays of the four intersections labeled in Figure 1-1. Potential impacts to the operation of the intersection of Coconut Road and US 41 are not included within this TTM. This TTM also evaluates additional capacity needs to maintain acceptable LOS throughout the corridor in the Design Year 2045. Figure 1.1 shows the project location map and locations where traffic counts were conducted.

Figure 1-1 Location Map and Traffic Count Locations



2.0 Existing Conditions

The southbound approaches at locations 1, 3, and 4 are single lane roads that serve left-turn and right-turn movements. The northbound approach at location 2 is a single lane road that serves left-turn and right-turn movements. The eastbound approach at locations 1, 3, and 4 consists of a single through lane serving through and left-turn movements. The eastbound approach at location 2 is a single lane road that serves through and right-turn movements. The westbound approach at location 1 consists of a single lane that serves through and right-turn movements. The westbound approach at location 2 consists of one through lane and one left-turn lane. The westbound approach at location 3 and 4 consists of one through lane and one right-turn lane.

Figure 2-1 Existing Conditions - Location 1



The southbound approach at location 1 is a single lane road that serves left-turn and right-turn movements. The eastbound approach at location 1 consists of a single through lane serving through and left-turn movements. The westbound approach at location 1 consists of a single lane that serves through and right-turn movements.

Figure 2-2 Existing Conditions - Location 2



The northbound approach at location 2 is a single lane road that serves left-turn and right-turn movements. The eastbound approach at location 2 is a single lane road that serves through and right-turn movements. The westbound approach at location 2 consists of one through lane and one left-turn lane.

Figure 2-3 Existing Conditions - Location 3



The southbound approach at location 3 is a single lane road that serves left-turn and right-turn movements. The eastbound approach at location 3 consists of a single through lane serving through and left-turn movements. The westbound approach at location 3 consists of one through lane and one right-turn lane.

Figure 2-4 Existing Conditions - Location 4



The southbound approach at location 4 is a single lane road that serves left-turn and right-turn movements. The eastbound approach at location 4 consists of a single through lane serving through and left-turn movements. The westbound approach at location 4 consists of one through lane and one right-turn lane.

2.1 Traffic Counts

Twenty-four hour automatic machine counts were conducted on Thursday, February 21st, 2019. The weather was clear during the time the traffic count was being conducted. The Average Week-Daily Traffic (AWDT) was calculated by adding the daily directional volumes at each location. **Appendix A** includes a copy of the automatic counts. The two-way 24-hour volumes were subsequently converted into Annual Average Daily Traffic (AADT) volumes using the equation: $AADT = AWDT \times SF$. The weekly seasonal adjustment factor (SF) was obtained from the 2018 FDOT

6.3 Installing Modern One-Lane Roundabouts

The roundabout LOS analysis showed that roundabouts would significantly reduce delay and improve LOS for the three failing intersections within the next 8-10 years. The Step 1 Screening of the Roundabout Analysis, showed that roundabouts are feasible in the selected locations. The intersection at Spring Creek Road was not considered for a roundabout because it is not expected to reach capacity by 2045 with existing conditions.

7.0 Conclusions and Recommendations

The intersections along Coconut Road currently operate at acceptable LOS. The intersections at El Dorado Boulevard, Olde Meadowbrook Boulevard, and Coconut Shores Drive are expected to operate at a failing condition with the existing geometry in the Design Year 2045. Coconut Road from Coconut Shores Drive to US-41 is expected to reach AADT capacity by year 2027.

The intersection improvements at El Dorado Boulevard and Olde Meadowbrook Boulevard are anticipated to be needed by the years 2029 and 2028, respectively. The intersection improvement at Coconut Shores Drive and the additional capacity from Coconut Shores Drive to US-41 are anticipated to be needed by the year 2027.

The proposed geometry includes one-lane roundabouts at the intersections of El Dorado Boulevard, Olde Meadowbrook Boulevard, and Coconut Shores Drive if the right-of-way acquisition cost is feasible. A second alternative would be installing signalization at these intersections.

One-lane roundabouts are recommended for the intersections at El Dorado Boulevard, Olde Meadowbrook Boulevard and Coconut Shores Drive along Coconut Road. The intersection at Spring Creek Road is recommended to extend the WB left turn lane to 280 feet including taper and storage length. The turn lane extension is anticipated to be needed by the year 2028. Coconut Road from Coconut Shores Drive to US-41 is recommended to be widened to four lanes.

Appendix - 4
Village of Estero Bicycle & Pedestrian Master Plan



the Village of
ESTERO

*Bicycle and Pedestrian
Master Plan*

Recommendations by Corridor

Broadway West, from Estero Bay Preserve State Park to US 41 (2.00 miles)

- Shared Use Path on south side of road
- Complete the sidewalk connections on the north side of the road

Broadway East, from Sandy Lane to US 41 (1.00 miles)

- Shared Use Path on south side of road
- Complete the sidewalk connections on the north side of road
- Shared Use Path extension to Three Oaks Parkway
- Shared Use Path extension north from Broadway East to Estero Parkway

Corkscrew Road, from Koreshan State Park to US 41 (0.25 miles)

- Shared Use Path on north side of road
- Complete the sidewalk connections on the south side of road (6 or 8 feet wide)

Corkscrew Road, from US 41 to NE Village Limits (9.50 miles)

- Buffered bike lanes on both sides of road
- Shared Use Path on both sides of road

Coconut Road, from Three Oaks Parkway to US 41 (0.75 miles)

- Shared Use Path on south side of road (widen the existing SUP)
- Reduce travel lanes by two feet total
- Install buffered bike lanes on both sides of road
- Complete the sidewalk connections on the north side of road

Coconut Road, from US 41 to Tuscany Way (1.25 miles)

- Complete sidewalk connections
- Shared Use Path on one side of road

River Ranch Road, from Williams Road to Corkscrew Road (0.75 miles)

- Shared Use Path on west side of road
- Complete the sidewalk connections on the east side of the road

Estero Community Park, access Via Coconut Point and Corkscrew Road (0.70 miles)

- Shared Use Path on one side of entrance
- Complete the sidewalk connections on the other side of the entrance
- Create connection to existing path to Williams Road

Williams Road, from Kings Road to Three Oaks Parkway (2.25 miles)

- Protected bike lanes on both sides of the road
- Complete the sidewalk connections on both sides of the road

Via Coconut Point, from Coconut Road to Corkscrew Road (4.75 miles)

- Reduce travel lanes by one foot each
- Install buffered bike lanes on both sides of road
- Improve connections through roundabout
- Add landscaping

Three Oaks Parkway, from South Village Limits to North Village Limits (9.25 miles)

- Reduce travel lanes by one foot each
- Install buffered bike lanes on both sides of road

Sandy Lane, from Corkscrew Road to Broadway East (0.75 miles)

- Shared Use Path on east side of road

Utility Corridor, from South Village Limits to North Village Limits (4.50 miles)

- Shared Use Path

SUN Trail Rail Corridor, from South Village Limits to North Village Limits (5.25 miles)

- Shared Use Path

Florida Power and Light Utility Line (east of I-75), from South Village Limits to North Village Limits (2.00 miles)

- Shared Use Path

Estero Parkway Extension, from Ben Hill Griffin Parkway to Florida Power and Light Utility Line (1.25 miles)

- Shared Use Path

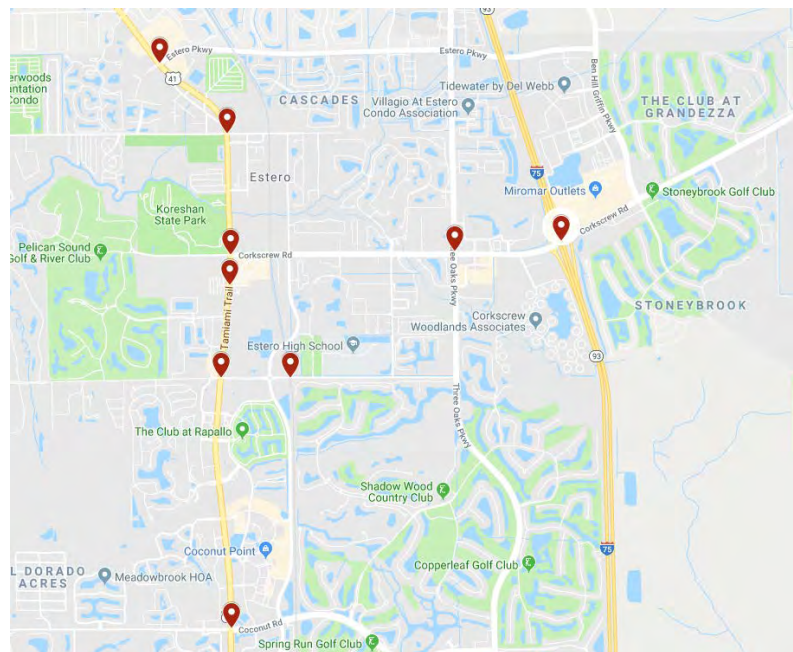
Sandy Lane North Extension, from Broadway East to North Village Limits (1.50 miles)

- Shared Use Path

Intersection Recommendations

The following intersections act as barriers for people walking or riding bikes. Many had safety issues that appeared in the crash analysis.

- US 41 and Estero Parkway
- US 41 and Broadway
- US 41 and Corkscrew Road
- US 41 and Commons Way
- US 41 and Williams Road
- US 41 and Coconut Road
- I-75 and Corkscrew Road interchange
- Williams Road and Grade Crossing
- Three Oaks Parkway and Corkscrew Road



Vision and Goals

This is the Village of Estero’s first plan dedicated to defining its vision, goals, needs, and priority projects for bicycling and walking in the community.

This Bicycle and Pedestrian Master Plan will guide decisions about when, where, why, and how to assemble a bicycle and pedestrian network that promotes a healthy, vibrant, and safe Village of Estero community. The Village of Estero worked in partnership with the Lee County Metropolitan Planning Organization (MPO) to develop the Plan.

The goal of this Plan is to develop a strategic and coordinated vision for bicycle and pedestrian transportation in the Village of Estero. The Plan consists of new and improved bikeways, walkways, trails, and other related biking and walking projects, programs, and policies that will guide decisions and investments in the Village of Estero. The plan focused on filling walking and bicycling gaps that improved connectivity to schools and public parks.

In addition to new and improved facilities, projects include traffic safety and operational improvements at major intersections. All of the proposed facilities will together provide access between neighborhoods and destinations, address gaps in the system, and enhance safety and use of the existing and developing bicycle and pedestrian network.

This plan is intended to be revisited and updated regularly as it needs to change and implementation moves forward. A living, evolving document will serve the town and its residents now and in the future.

Vision

The Village of Estero Bicycle and Pedestrian Master Plan is shaped in part by a communal Vision and associated Goals which were created after outreach activities and discussions at public workshops, Project Advisory Committee (PAC) meetings, and Estero Village Council meetings.

The steps taken to draft the Bicycle and Pedestrian Master Plan are described below.

- Inventory existing bicycle and pedestrian facilities, destinations, crash locations, land use, parks, schools, and transit stops throughout the Village
- Review existing plans that may affect this plan
- Review Land Development Code design provisions for bicycle and pedestrian facilities
- Describe design criteria for bicycle and pedestrian facilities and crossing treatments
- Assess needs and identify gaps in the network
- Identify and recommend bicycle and pedestrian improvements
- Prioritize bicycle and pedestrian projects
- Develop costs estimates and identify funding opportunities

The Vision for walking and biking in the Village of Estero:

Walking or riding a bike in the Village of Estero should be a comfortable, convenient, and safe transportation choice for people of all ages and abilities.

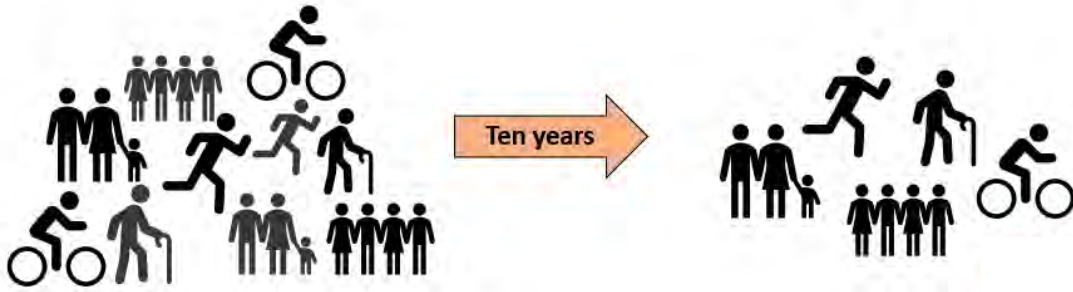
An improved and robust network of walking and biking facilities will enhance the quality of life by providing access to essential daily destinations while programs and policies will encourage increased walking and biking and protection of users. Several key themes are embedded in this vision, including comfortable, convenient, safe, provisions for all ages and abilities, and education:

- **Comfortable** suggests the envisioned network is low stress and an attractive travel option for all users, including people who are new to biking.
- **Convenient** relates to the utility of the network, ensuring that people who are walking and biking do not need to traverse unnecessarily far beyond their path or cross substantial barriers in their journey to reach their destination.
- **Safe** means the future network should be developed to remove hazards to people walking and biking and to prioritize their protection.
- **All Ages and Abilities** emphasizes the need to plan, design and build walking and biking facilities that ARE safe for people to use who have limited mobility.
- **Educate** through events and educational programs oriented towards increasing usage awareness and safe use of facilities by all users.

Goals

When the Estero Bicycle and Pedestrian Master Plan is fully implemented, the following key policy and infrastructure goals will be accomplished:

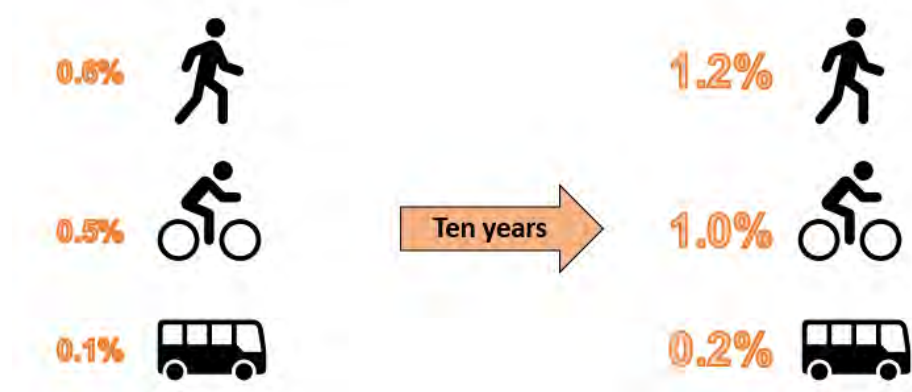
1. Increase the safety for all users of the transportation network – people walking, biking, accessing transit, and driving vehicles. **Reduce the number of crashes involving people walking and biking by half by 2030.**



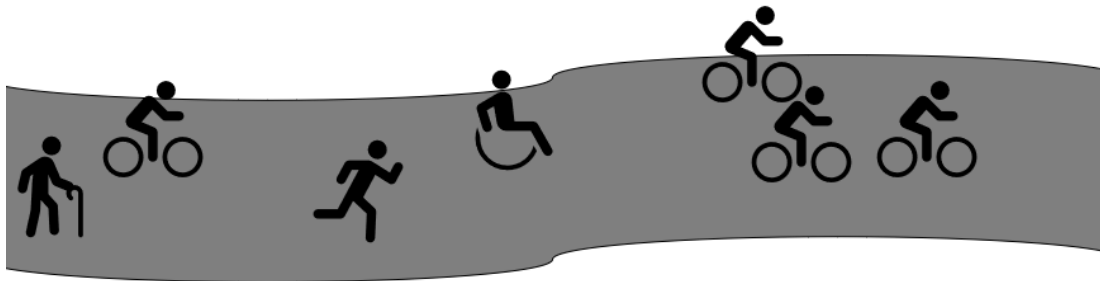
2. Increase the active transportation infrastructure. **Double the number of miles of safe walking and biking facilities in the Village of Estero by 2030.**



- Increase the active transportation options for residents and visitors. **Grow the share of commuters who choose to walk, bike, and use transit by 100 percent by 2030.**



- Complete the Florida SUN Trail link within the Village of Estero by 2030.**



5. **Create at least one new educational campaign** geared towards improving safety in the Village of Estero within five years of adopting this plan.



6. **Create at least one new encouragement program** to increase the number of people using the active transportation network in the Village of Estero within five years of adopting this plan.



Recommendations

The sidewalk and bikeway gaps and the problem intersections identified on **Figures 17** and **18** were brought before the PAC and Village staff for review and reactions. They were asked to think about which gaps are most important to bridge to fulfill the citizens' vision for the Village? What types of projects are best suited to bridge these gaps? The PAC and Village staff agreed with the plan's identified needs and then helped identify the recommendations for walking and biking projects.

The recommended projects reinforce the themes that emerged through the project's process. Each project should:

- Connect to destinations for daily and social needs with special attention to schools and parks
- Create a safe biking and walking network
- Accommodate cyclists of all abilities and levels of confidence
- Elevate the Village of Estero to a cycling destination

Figure 19 illustrates the recommended projects that specifically address walking needs. Project types include both sidewalks and Shared Use Paths. The project numbers in **Figure 19** correspond to descriptions in the table immediately following.

Similarly, **Figure 20** illustrates the project recommendations that specifically address bicycling needs. Project types include bike lanes (buffered and protected) and Shared Use Paths. The project numbers correspond to descriptions in the table immediately following.

Shared Use Paths appear on both maps and project lists because they accommodate both people on foot and people on bikes.

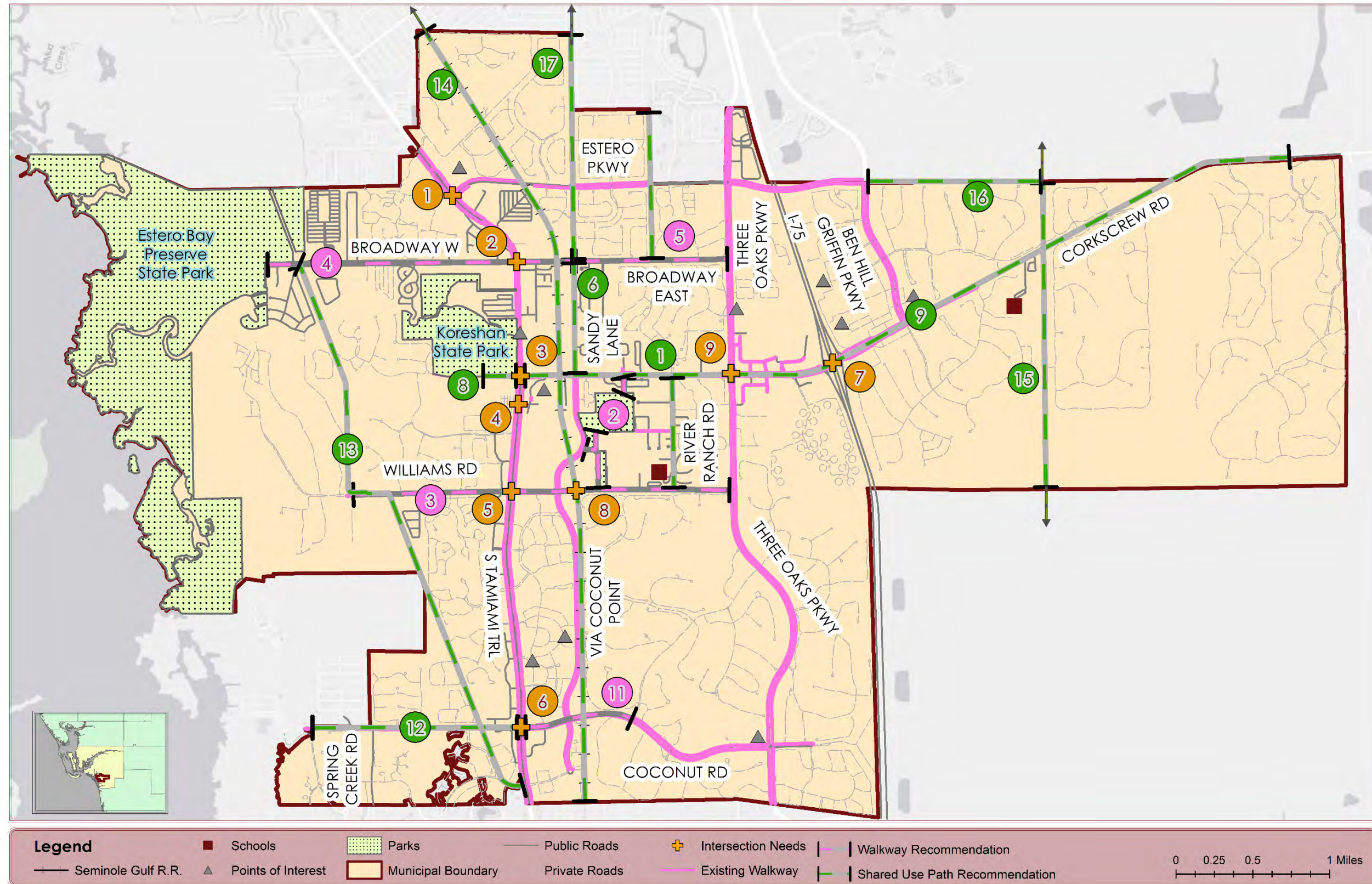


Figure 19. Walkway project recommendations

Draft Walkway Recommendations

#	STREET NAME	FROM	TO	PROJECT RECOMMENDATIONS	APPROX LENGTH (MI)	COMMENTS
1	River Ranch Road	Williams Road	Corkscrew Road (CR 850)	<ul style="list-style-type: none"> Shared Use Path on west side of road Complete sidewalk connection on East side of road 	0.75	
2	Estero Community Park	Access Via Coconut Point & Corkscrew Road	Internal loop	<ul style="list-style-type: none"> Shared Use Path on one side of entrance Sidewalk connection on the other side of entrance Create connection to existing path to Williams Road 	0.70	<ul style="list-style-type: none"> Complete Park's internal network Improve intersection/park access
3	Williams Road	Kings Road	Three Oaks Parkway	<ul style="list-style-type: none"> Protected Bike Lanes on both sides of road Sidewalk connection on both sides of road 	2.25	
4	Broadway W	Estero Bay Preserve State Park Entrance	Sandy Lane	<ul style="list-style-type: none"> Shared Use Path on south side of road Sidewalk connection on north side of road 	2.00	
5	Broadway E	Sandy Lane	U.S. 41 (Tamiami Trl)	<ul style="list-style-type: none"> Shared Use Path on south side of road Sidewalk connection on north side of road Shared Use Path extension to Three Oaks Parkway Shared Use Path extension north from Broadway E to Estero Parkway 	1.00	
6	Sandy Lane	Corkscrew Road (CR 850)	Broadway E	<ul style="list-style-type: none"> Shared Use Path on east side of road 	0.75	<ul style="list-style-type: none"> Bridge crossing needs
8	Corkscrew Road (CR 850)	Koreshan State Park Entrance	U.S. 41 (Tamiami Trl)	<ul style="list-style-type: none"> Shared Use Path no north side of road Sidewalk on south side of road (6 or 8 feet wide) 	0.25	<ul style="list-style-type: none"> High traffic volumes on Corkscrew Road (CR 850)
9	Corkscrew Road (CR 850)	U.S. 41 (Tamiami Trl)	Northeast Village of Estero Limit	<ul style="list-style-type: none"> Buffered Bike Lanes on both sides of road Shared Use Path on both sides of road 	9.50	<ul style="list-style-type: none"> Consider feasibility of bike lanes Coordinate with Lee County
11	Coconut Road	Three Oaks Parkway	U.S. 41 (Tamiami Trl)	<ul style="list-style-type: none"> Shared Use Path on south side of road Narrow travel lanes by 2 feet and install a buffered bike lanes in both directions Complete sidewalk connections on north side of road 	0.75	
12	Coconut Road	U.S. 41 (Tamiami Trl)	Tuscany Way	<ul style="list-style-type: none"> Complete sidewalk connections Shared Use Path on one side 	1.25	
13	Utility Corridor	Southern Village of Estero Limit	Northern Village of Estero Limit	<ul style="list-style-type: none"> Shared Use Path 	4.50	
14	SUN Trail Rail Corridor	Southern Village of Estero Limit	Northern Village of Estero Limit	<ul style="list-style-type: none"> Shared Use Path 	5.25	
15	Florida Power Utility Line	Southern Village of Estero Limit (East of I-75)	Northern Village of Estero Limit (East of I-75)	<ul style="list-style-type: none"> Shared Use Path 	2.00	
16	Estero Parkway Extension	Ben Hill Griffin Parkway	Florida Power Utility Line	<ul style="list-style-type: none"> Shared Use Path 	1.25	
17	Sandy Lane North Extension	Brodway E	Northern Village Boundary	<ul style="list-style-type: none"> Shared Use Path 	1.50	

Intersections

#	INTERSECTION DESCRIPTION	PROJECT RECOMMENDATION
1	U.S. 41 & Estero Parkway	Perform Safety Study to determine which of the most effective countermeasure(s) should be implemented
2	U.S. 41 & Broadway	
3	U.S. 41 & Corkscrew Road	
4	U.S. 41 & Commons Way	
5	U.S. 41 & Williams Road	
6	U.S. 41 & Coconut Road	
7	I-75 & Corkscrew Road Interchange	
8	Williams Road & Grade Crossing	
9	Three Oaks Parkway & Corkscrew Road	



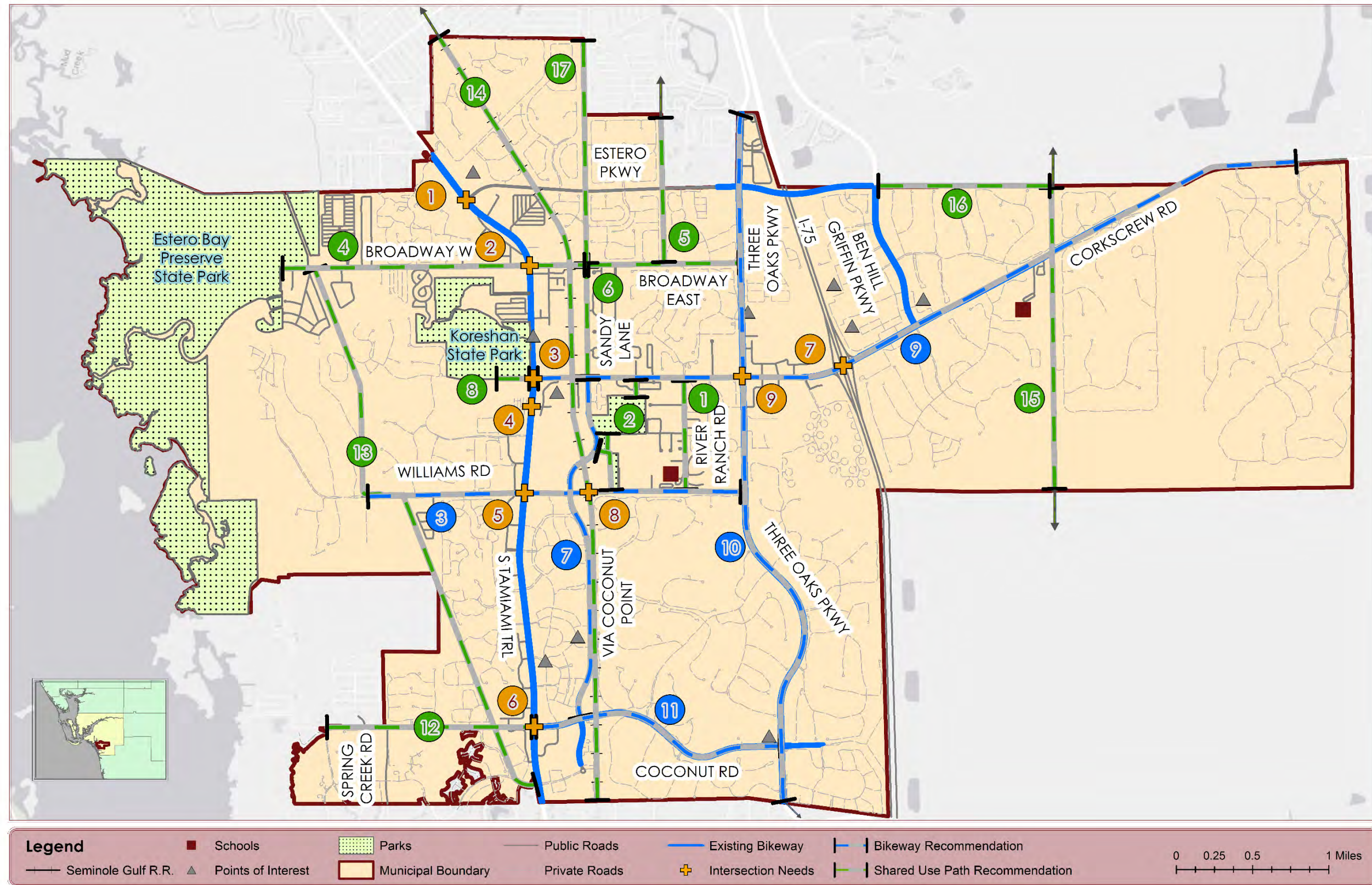


Figure 20. Bikeway project recommendations

Draft Bikeway Recommendations

#	STREET NAME	FROM	TO	PROJECT RECOMMENDATIONS	APPROX LENGTH (MI)	COMMENTS
1	River Ranch Road	Williams Road	Corkscrew Road (CR 850)	<ul style="list-style-type: none"> Shared Use Path on west side of road Complete sidewalk connection on East side of road 	0.75	
2	Estero Community Park	Access Via Coconut Point & Corkscrew Road	Internal loop	<ul style="list-style-type: none"> Shared Use Path on one side of entrance Sidewalk connection on the other side of entrance Create connection to existing path to Williams Road 	1.50	<ul style="list-style-type: none"> Complete Park's internal network Improve intersection/park access
3	Williams Road	Kings Road	Three Oaks Parkway	<ul style="list-style-type: none"> Protected Bike Lanes on both sides of road Sidewalk connection on both sides of road 	5.00	
4	Broadway W	Estero Bay Preserve State Park Entrance	Sandy Lane	<ul style="list-style-type: none"> Shared Use Path on south side of road Sidewalk connection on north side of road 	2.00	
5	Broadway E	Sandy Lane	U.S. 41 (Tamiami Trl)	<ul style="list-style-type: none"> Shared Use Path on south side of road Sidewalk connection on north side of road Shared Use Path extension to Three Oaks Parkway Shared Use Path extension north from Broadway E to Estero Parkway 	2.00	
6	Sandy Lane	Corkscrew Road (CR 850)	Broadway E	<ul style="list-style-type: none"> Shared Use Path on east side of road 	0.75	<ul style="list-style-type: none"> Bridge crossing needs
7	Via Coconut Point	Coconut Road	Corkscrew Road (CR 850)	<ul style="list-style-type: none"> Reduce travel lanes by 1 foot each Install 2-foot buffered bike lanes on both sides of road Improve connections through roundabout Add landscaping 	4.75	
8	Corkscrew Road (CR 850)	Koreshan State Park Entrance	U.S. 41 (Tamiami Trl)	<ul style="list-style-type: none"> Shared Use Path on north side of road Sidewalk on south side of road (6 or 8 feet wide) 	0.25	<ul style="list-style-type: none"> High traffic volumes on Corkscrew Road (CR 850)
9	Corkscrew Road (CR 850)	U.S. 41 (Tamiami Trl)	Northeast Village of Estero Limit	<ul style="list-style-type: none"> Buffered Bike Lanes on both sides of road Shared Use Path on both sides of road 	9.50	<ul style="list-style-type: none"> Consider feasibility of bike lanes Coordinate with Lee County
10	Three Oaks Parkway	South Village of Estero Limit	North Village of Estero Limit	<ul style="list-style-type: none"> Reduce travel lanes by 1 foot each Install 2-foot buffered bike lanes on both sides of road 	9.25	
11	Coconut Road	Three Oaks Parkway	U.S. 41 (Tamiami Trl)	<ul style="list-style-type: none"> Shared Use Path on south side of road Narrow travel lanes by 2 feet and install a buffered bike lanes in both directions Complete sidewalk connections on north side of road 	3.50	
12	Coconut Road	U.S. 41 (Tamiami Trl)	Tuscany Way	<ul style="list-style-type: none"> Complete sidewalk connections Shared Use Path on one side 	1.25	
13	Utility Corridor	Southern Village of Estero Limit	Northern Village of Estero Limit	<ul style="list-style-type: none"> Shared Use Path 	4.50	
14	SUN Trail Rail Corridor	Southern Village of Estero Limit	Northern Village of Estero Limit	<ul style="list-style-type: none"> Shared Use Path 	5.25	
15	Floirda Power Utility Line	Southern Village of Estero Limit (East of I-75)	Northern Village of Estero Limit (East of I-75)	<ul style="list-style-type: none"> Shared Use Path 	2.00	
16	Estero Parkway Extension	Ben Hill Griffin Parkway	Florida Power Utility Line	<ul style="list-style-type: none"> Shared Use Path 	1.25	
17	Sandy Lane North Extension	Brodway E	Northern Village Boundary	<ul style="list-style-type: none"> Shared Use Path 	1.50	

Intersections

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5	U.S. 41 & Williams Road	
6	U.S. 41 & Coconut Road	
7	I-75 & Corkscrew Road Interchange	
8	Williams Road & Grade Crossing	
9	Three Oaks Parkway & Corkscrew Road	



Appendix - 5

Village of Estero Parks, Recreation, and Open Space Master Plan



The Village of Estero Parks, Recreation and Open Space Master Plan

March 2020

EXECUTIVE SUMMARY

The Village of Estero selected Barth Associates to develop the Village's first Parks, Recreation, and Open Space Master Plan in summer 2018. The Master Plan assessed the current conditions, identified and prioritized recreation and open space needs and desires of the community, and addressed future opportunities related to the Estero Community Park and other existing parks. The Parks Master Plan was completed in four phases:



- Phase 1- Existing Conditions Analysis
- Phase 2- Needs and Priorities Assessment
- Phase 3- Long-Range Vision
- Phase 4- Implementation Strategy and Final Master Plan

1. Existing Conditions Analysis

The Village has thousands of acres of public and private natural areas that are protected as State parks, public lands or private preserve areas. These areas offer tremendous ecological, environmental, recreational and community benefits to the Village. The majority of residents live in planned neighborhoods that provide private recreation and amenity areas. There is also a large community park (Estero Community Park) run by Lee County, and another community park (Three Oaks Park) nearby.

The Village has been incorporated for only 5 years and does not own any park or recreation lands. The Village recently purchased approximately 66 acres of land along the Estero River. At the time of this report the property was not yet used for parks, recreation or open space. But, it may likely be used for park and open space in the future.

The Village's population is currently growing at approximately 2.9% per year, which is well above the national annual growth rate. The Village has a median age of 61.3 years old and is projected to continue its current aging trend. Over the next 15 years, the 55+ population is expected to grow to represent nearly two-thirds of the Village's total population. This is largely due to increased life expectancies and the remainder of the Baby Boomer generation shifting into the senior age groups.

2. Existing Parks and Recreation System

Even though the Village does not currently own any parks or recreation areas, residents have access to a wide variety of parks and recreation facilities. The existing parks and recreation system is comprised of the following "subsystems", including both public and private facilities as shown on the following map:

- Local and Community Parks (County, State, Homeowner Associations)
- Recreation Centers (County, Homeowner Associations)
- Athletics Fields (County, School District, Homeowner Associations)
- Trails and Bikeways (Village, Homeowner Associations, County, State)
- Natural Lands (State, County, Homeowner Associations)
- Aquatics (County, Homeowner Associations)
- Water Access (County, State, Homeowner Associations)
- Programs (Village, County, State, Homeowner Associations)



FIGURE 1 - EXISTING VILLAGE OF ESTERO PARKS

PARK TYPES AND NAMES

PRIVATE FACILITIES

COMMUNITIES WITH PARKS

- 1 Bella Terra
- 2 Belle Lago
- 3 Breckenridge
- 4 Cascades
- 5 Coastal Village
- 6 Coconut Point Adult Living Facility
- 7 Coconut Point Mall Apartments
- 8 Coconut Shores
- 9 Colonial Oaks
- 10 Copper Oaks
- 11 Copperleaf at The Brooks
- 12 Country Creek
- 13 Courtyards at Estero
- 14 Covered Wagon RV
- 15 Cypress Bend RV
- 16 Estero River Heights
- 17 Grandezza
- 18 Lakes of Estero
- 19 Lighthouse Bay at The Brooks
- 20 Longitude 81
- 21 Mariners Cove
- 22 Marsh Landing
- 23 Meadows of Estero
- 24 Mirasol at Coconut Point
- 25 Osprey Cove
- 26 Pelican Sound
- 27 Preserve at Corkscrew
- 28 Rapallo
- 29 Reserve
- 30 Riverwoods Plantation
- 31 Rookery Point
- 32 Shadow Wood at The Brooks
- 33 Spring Run at the Brooks
- 34 Stoneybrook
- 35 Sunny Grove RV
- 36 Tahiti Mobile Village
- 37 Terra Vista
- 38 The Colony
- 39 The Reef 1
- 40 The Reef 2
- 41 The Vines
- 42 Tides
- 43 Tidewater
- 44 Villa Palmeras
- 45 Villagio
- 46 Fountain Lakes
- 47 West Bay Club
- 48 Wildcat Run
- 49 Woodlands
- 50 Cranbrook Harbor
- 51 Estero Place
- 52 Meadow Brook
- 53 Pebble Point
- 54 Spring at Gulf Coast

PUBLIC FACILITIES

COUNTY PARKS

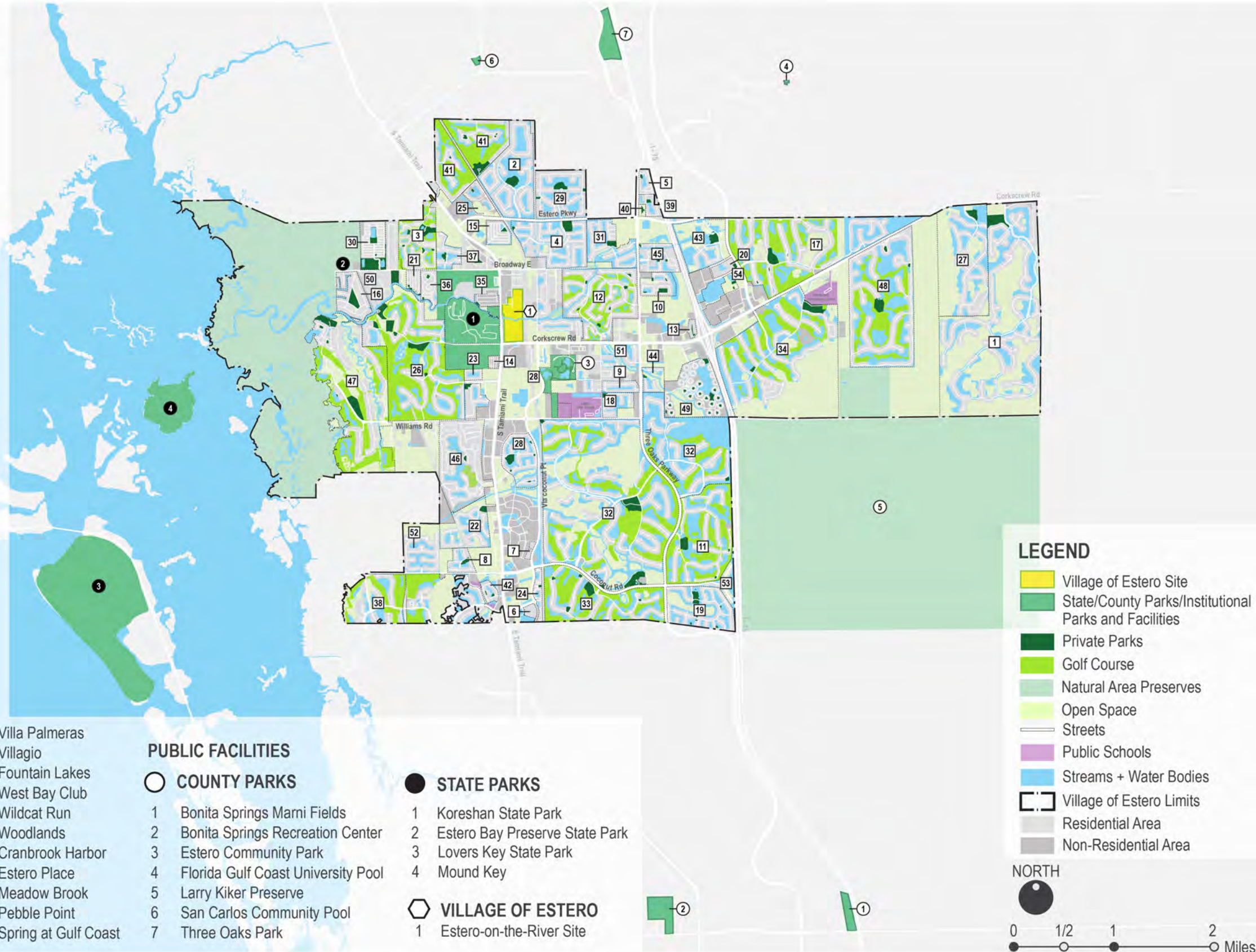
- 1 Bonita Springs Marni Fields
- 2 Bonita Springs Recreation Center
- 3 Estero Community Park
- 4 Florida Gulf Coast University Pool
- 5 Larry Kiker Preserve
- 6 San Carlos Community Pool
- 7 Three Oaks Park

STATE PARKS

- 1 Koreshan State Park
- 2 Estero Bay Preserve State Park
- 3 Lovers Key State Park
- 4 Mound Key

VILLAGE OF ESTERO

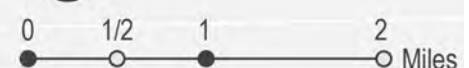
- 1 Estero-on-the-River Site



LEGEND

- Village of Estero Site
- State/County Parks/Institutional Parks and Facilities
- Private Parks
- Golf Course
- Natural Area Preserves
- Open Space
- Streets
- Public Schools
- Streams + Water Bodies
- Village of Estero Limits
- Residential Area
- Non-Residential Area

NORTH





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3. Needs and Priorities Assessment

Barth Associates uses a *mixed-methods, triangulated* approach to needs assessments. Mixed-methods research combines the use of primary data collected through the planning process, and secondary data from other sources such as census data and previous reports. The primary data includes both quantitative and qualitative research techniques and data.

The term *triangulation* refers to the comparison of findings from the various techniques to identify consistent themes and top priorities. For example, the findings from the mail/ telephone survey – the most statistically-valid, quantitative technique available – are compared to the findings from the other techniques to identify consistent priorities. Specific needs assessment techniques used for the Village of Estero parks and recreation system included a Statistically-Representative Mail/Telephone Survey, On-line Survey, Level-of-Service Analysis, Interviews and Focus Groups, and a Public Open House.

Over 800 people participated in the needs assessment process. Based on a review of the findings from all of the needs assessment techniques, residents' top priorities include:

Facility Priorities

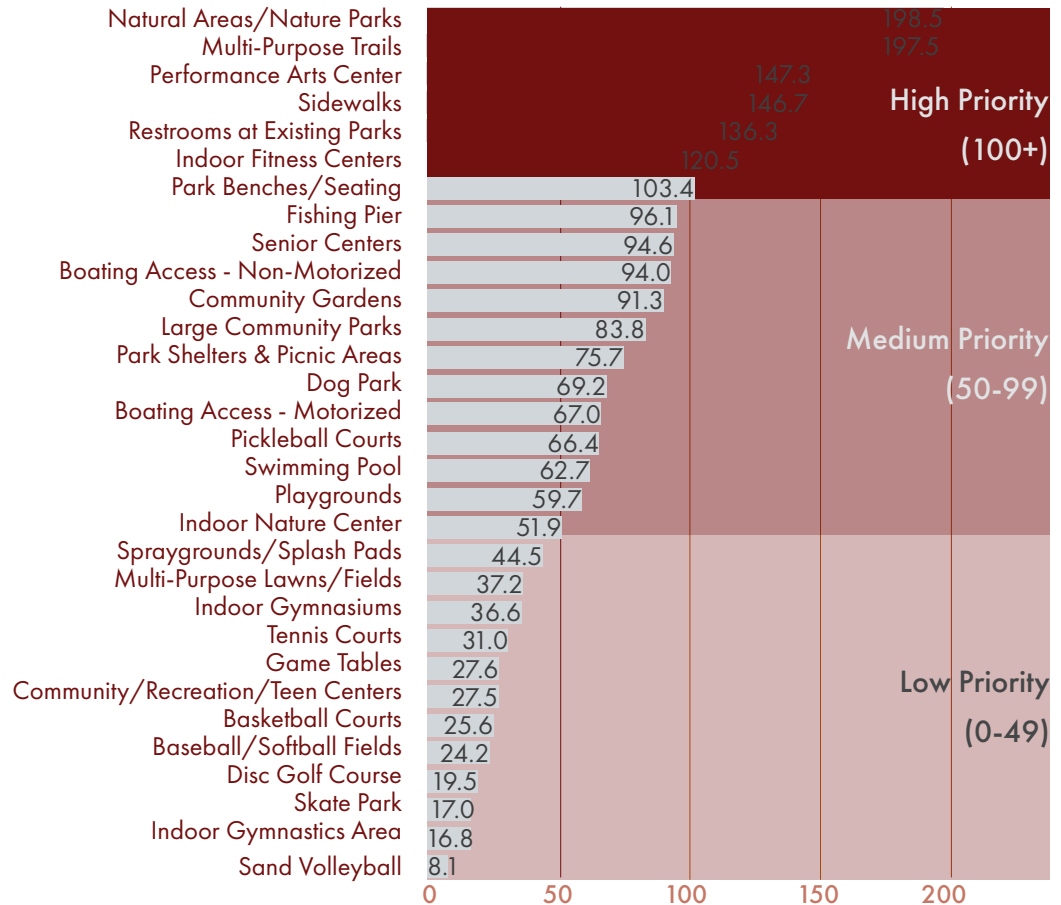
1. Natural Areas/Nature Parks
2. Multi-purpose Trails
3. Performance Arts Center
4. Sidewalks
5. Restrooms for Existing Parks
6. Community Gardens
7. Athletic Fields
8. Boating Access

Program Priorities

1. Community Special Events
2. Fitness/Wellness Programs
3. Nature Programs/Environmental Education
4. Senior Leisure Programs



**FIGURE 2 - TOP PRIORITIES FOR INVESTMENT FOR RECREATION AMENITIES
(STATISTICALLY-VALID SURVEY FINDINGS)**



4. Long-Range Vision

There are no state or national standards to guide the development of a long-range parks and recreation vision in response to residents’ needs and priorities; each community must develop its own vision based on its values, priorities, and resources. Therefore, Village staff and consultants developed a long-range vision that:

- Leverages existing Village, county, state, federal, institutional, and private assets;
- Responds to residents’ top priority needs;
- Reflects the Village’s “government-light” philosophy;
- Is based on sound planning principles and aspirational level-of-service guidelines;
- Respects existing land development patterns and character.

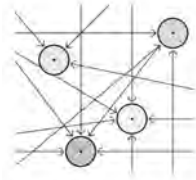
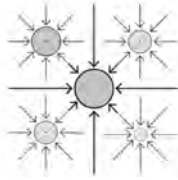
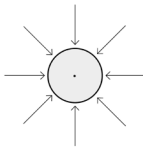
The Village’s vision for its parks and recreation system is to create:

A high-quality, beautifully-maintained parks and recreation system that meets the needs of all Village residents including youth, families, adults, and retirees. The system will include parks, open space, and recreation areas owned by the Village, homeowner associations (HOAs), Lee County, the State of Florida, the Lee County School District, and other facility and program providers.

The Parks and Recreation System can be conceptualized as a network of interconnected “subsystems,” each with its own guiding principles, primary and secondary providers, and service-delivery models. The Village’s proposed subsystems include:

FIGURE 3 - VILLAGE OF ESTERO PARKS AND RECREATION SUBSYSTEMS AND PROVIDERS

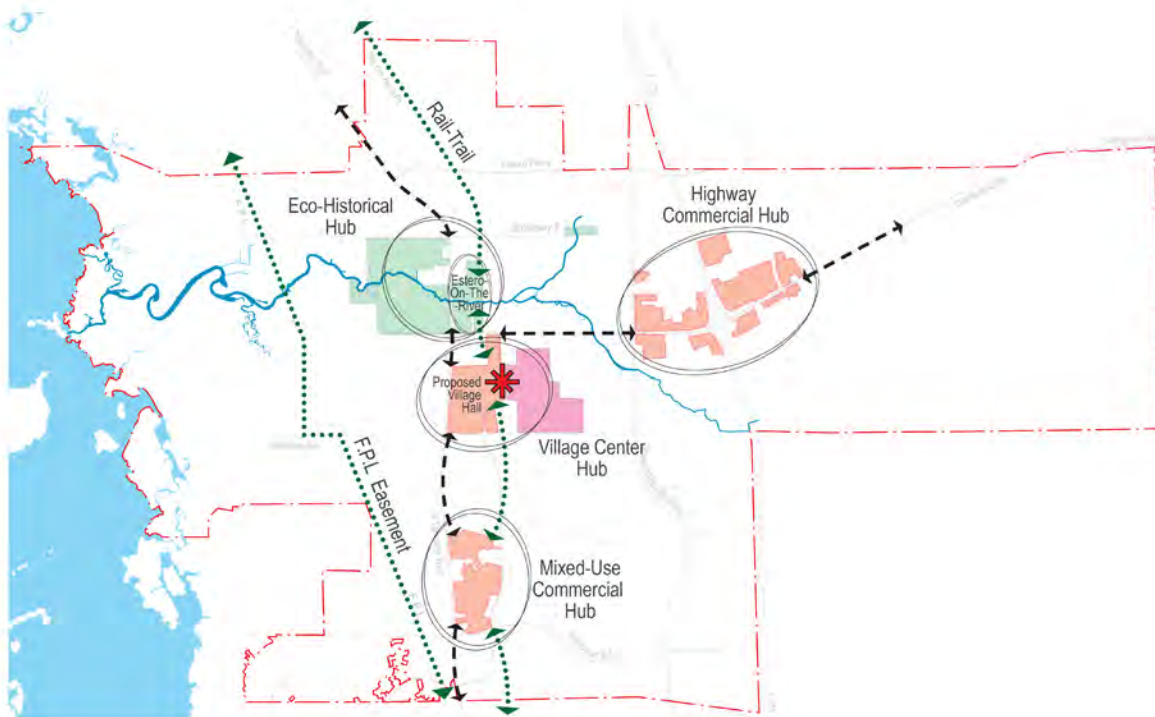
SUBSYSTEM:	PURPOSE/ PRINCIPLE	SERVICE-DELIVERY M	PRIMARY PROVIDER AND/OR FACILITATOR	SECONDARY PROVIDER
1. Local Parks	Serve mainly local needs, easily accessible within a 10-minute walk of most residents	Ec	Homeowner Associations	NA
2. Community Parks	Serve multi-use community-wide needs which typically cannot be provided locally	Ce	Lee County	Village of Estero

SUBSYSTEM:	PURPOSE/ PRINCIPLE	SERVICE-DELIVERY MODEL	PRIMARY PROVIDER AND/OR FACILITATOR	SECONDARY PROVIDER
<p>3.</p> <p>Special Purpose Venues</p>	<p>Serve predominantly single-use needs for the entire community</p>	<p>Venues</p> 	<ul style="list-style-type: none"> • Historic Sites: State of Florida • Swimming: Florida Gulf Coast University • Ice Hockey: Hertz Arena • Concerts: Hertz Arena • Boat Ramps, Water Access: State of Florida, Estero River Outfitters • Performing Arts: Estero High School 	<p>Lee County</p>
<p>4.</p> <p>Recreation Centers</p>	<p>Serve multi-use, indoor community-wide needs which typically cannot be provided locally</p>	<p>Hub & Spoke</p> 	<p>Lee County</p>	<ul style="list-style-type: none"> • Lee County • Homeowner Associations
<p>5.</p> <p>Multi-purpose Athletic Fields</p>	<p>Serve multi-use, outdoor athletics needs for practice and competition</p>	<p>Centralized</p> 	<p>Lee County</p>	<p>Lee County School District</p>
<p>6.</p> <p>Trails and Bikeways</p>	<p>Provide multi-modal access to and between parks and recreation facilities, schools, employment, and entertainment</p>		<ul style="list-style-type: none"> • Village of Estero • Lee County 	
<p>7.</p> <p>Natural Areas</p>	<p>Preserve, protect, and enhance wildlife habitat, outstanding scenic resources, and existing natural systems</p>		<ul style="list-style-type: none"> • Village of Estero • State of Florida • Lee County 	<p>Lee County</p>

SUBSYSTEM:	PURPOSE/ PRINCIPLE	SERVICE-DELIVERY MODEL	PRIMARY PROVIDER AND/OR FACILITATOR	SECONDARY PROVIDER
8. Recreation, Education, Environmental, Cultural, and Social Programs	Enrich residents' lives and improve the overall community		Village of Estero	<ul style="list-style-type: none"> • Lee County • State of Florida • FGCU • Others

Each existing and proposed park and open space should be designed and maintained to be consistent with the character of the surrounding "hub", as illustrated below. For example, the Estero-on-the-River site should be designed to be compatible with the surrounding "Eco-Historical Hub", while the proposed school/park campus in the "Village Center Hub" should be designed as a high-density, active, urban civic space.

FIGURE 4 - ACTIVITY HUBS



In addition to the Estero-on-the-River site and the School/Park campus, the long-range vision also includes:

- Recommendations for enhancement of the Estero River, and protection of other natural areas;
- Expansion of facilities and programs at the existing Estero Community Center, and the development of a new private fitness center in the proposed town center;
- Expansion and improvement of athletic fields at Estero Community Park;
- Continued expansion and improvements to the Village’s bikeways, trails, and greenways system;
- Continued enhancement of opportunities for both motorized and non-motorized water access.

The long-range vision also includes recommendations for operations, maintenance, and programming of the Village’s parks and recreation system, consistent with the Village’s “government-light” management philosophy. The vision for parks and recreation operations and programming is to act as a facilitator and coordinator of recreation programs and special events for



Village residents, rather than as a direct service provider. This can be accomplished by collaborating with the County Parks and Recreation Department, the State Park, and others to provide recreation services for Village residents. For example, the Village could hire private instructors to provide indoor or outdoor programs or events at sites owned by an HOA, the Village, the County, State, or other agency. This will require a Recreation Program Plan for the Village that evaluates what programs exist today, who these programs are provided for, and how to provide additional programs in response to residents’ needs. The program plan should evaluate the quality of existing programs and facilities as well to determine if the Village should help strengthen these programs and facilities financially where appropriate to give residents a better experience.

A notable recommendation is to hire a well-qualified, energetic parks and recreation professional - with proven recreational and parks experience – to serve as the Village’s first parks and recreation staff, a “Recreation Partnering Coordinator” (RPC). The RPC would provide and manage recreation facilities, programs, and special events so that other service providers will respect and appreciate the value this position brings to the area. This position would focus on developing and implementing an approved recreation plan for the Village residents in coordination with the County Parks and Recreation staff and State Parks staff, as well as other recreation providers. Many of these programs can be supported by user fees, based on the value they offer to the user.

FIGURE 5 - LONG-RANGE PARKS AND RECREATION SYSTEM MAP

PARK TYPES AND NAMES

PRIVATE FACILITIES

COMMUNITIES WITH PARKS

- 1 Bella Terra
- 2 Belle Lago
- 3 Breckenridge
- 4 Cascades
- 5 Coastal Village
- 6 Coconut Point Adult Living Facility
- 7 Coconut Point Mall Apartments
- 8 Coconut Shores
- 9 Colonial Oaks
- 10 Copper Oaks
- 11 Copperleaf at The Brooks
- 12 Country Creek
- 13 Courtyards at Estero
- 14 Covered Wagon RV
- 15 Cypress Bend RV
- 16 Estero River Heights
- 17 Grandezza
- 18 Lakes of Estero
- 19 Lighthouse Bay at The Brooks
- 20 Longitude 81
- 21 Mariners Cove
- 22 Marsh Landing
- 23 Meadows of Estero
- 24 Mirasol at Coconut Point
- 25 Osprey Cove
- 26 Pelican Sound
- 27 Preserve at Corkscrew
- 28 Rapallo
- 29 Reserve
- 30 Riverwoods Plantation
- 31 Rookery Point
- 32 Shadow Wood at The Brooks
- 33 Spring Run at the Brooks
- 34 Stoneybrook
- 35 Sunny Grove RV
- 36 Tahiti Mobile Village
- 37 Terra Vista
- 38 The Colony
- 39 The Reef 1
- 40 The Reef 2
- 41 The Vines
- 42 Tides
- 43 Tidewater
- 44 Villa Palmeras
- 45 Villagio
- 46 Fountain Lakes
- 47 West Bay Club
- 48 Wildcat Run
- 49 Woodlands
- 50 Cranbrook Harbor
- 51 Estero Place
- 52 Meadow Brook
- 53 Pebble Point
- 54 Spring at Gulf Coast

PUBLIC FACILITIES

COUNTY PARKS

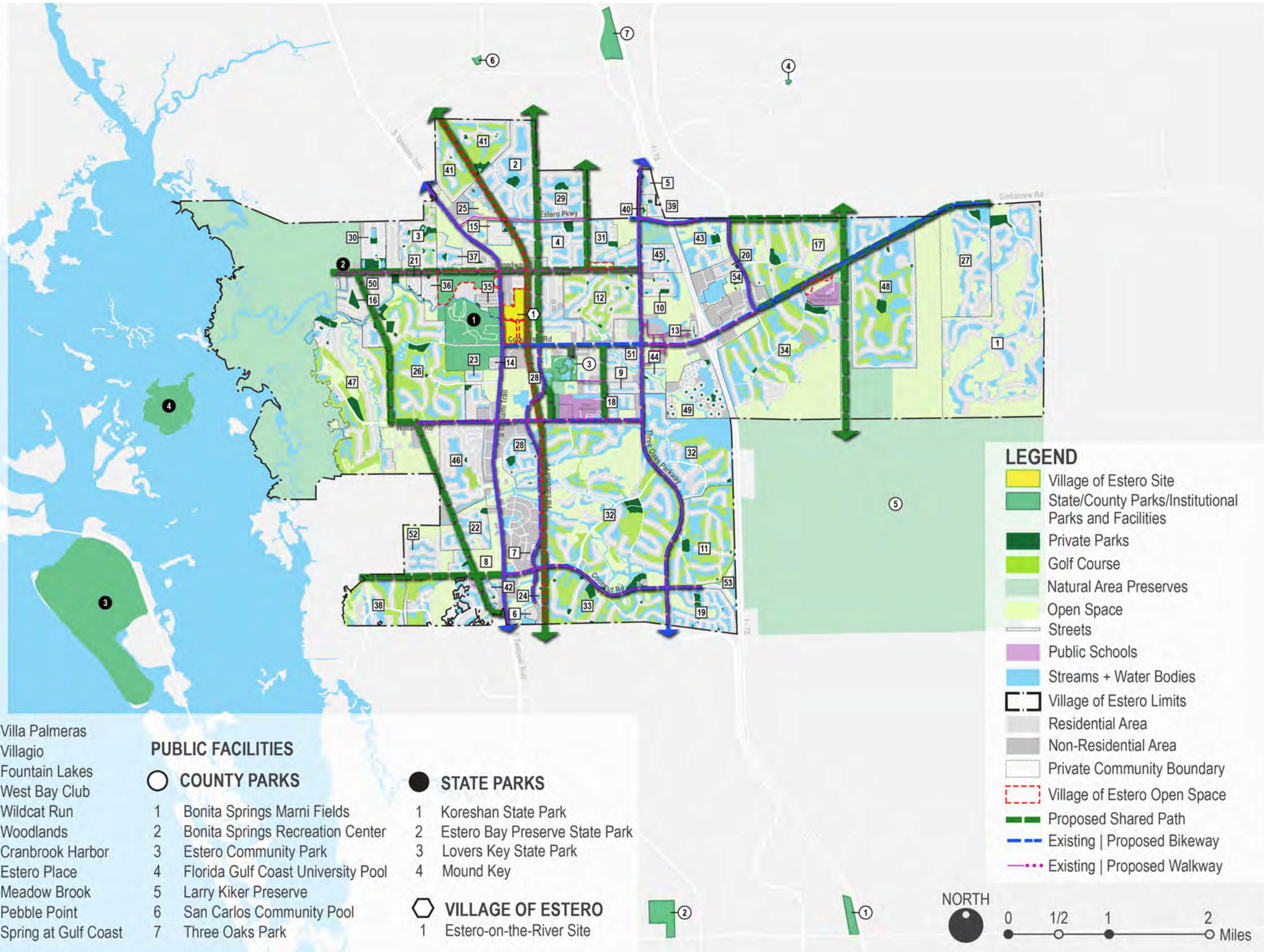
- 1 Bonita Springs Marni Fields
- 2 Bonita Springs Recreation Center
- 3 Estero Community Park
- 4 Florida Gulf Coast University Pool
- 5 Larry Kiker Preserve
- 6 San Carlos Community Pool
- 7 Three Oaks Park

STATE PARKS

- 1 Koreshan State Park
- 2 Estero Bay Preserve State Park
- 3 Lovers Key State Park
- 4 Mound Key

VILLAGE OF ESTERO

- 1 Estero-on-the-River Site



LEGEND

- Village of Estero Site
- State/County Parks/Institutional Parks and Facilities
- Private Parks
- Golf Course
- Natural Area Preserves
- Open Space
- Streets
- Public Schools
- Streams + Water Bodies
- Village of Estero Limits
- Residential Area
- Non-Residential Area
- Private Community Boundary
- Village of Estero Open Space
- Proposed Shared Path
- Existing | Proposed Bikeway
- Existing | Proposed Walkway

NORTH

0 1/2 1 2 Miles



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The vision is to also partner with other agencies to improve the quality of their facilities to meet Estero's standards. This has proven difficult in other communities; the City of Weston, for example, concluded that they need to own their own facilities in order to ensure a level of excellence in both design and maintenance. The challenge will be to not duplicate other providers, but to enhance recreational opportunities by either providing additional programs or facilities, and/or improving the quality of existing programs and facilities.

5. Implementation Strategy

Parks and recreation projects prioritized by residents, staff, and consultants for implementation include:

- **Estero-on-the River** – Create Master Plan, develop site including trails
- **Village Center, Community Park and School Campus** – Create Master Plan for Village Center, including expanded and improved community park, additional athletic fields
- **Performing Arts Center** – Identify potential partners and sites
- **Recreation Program Partner Coordinator** – Hire an energetic parks and recreation professional to coordinate programs with partners
- **Village Program Plan** - Develop a Village Program Plan based on residents' needs (e.g. additional community special events, fitness/wellness programs, nature and environmental education programs, and senior leisure programs)
- **Open Space** – Protect and enhance natural areas, particularly along Estero River Greenway
- **Bicycle and Pedestrian Connectivity** – Continue implementing the Bicycle and Pedestrian Master Plan
- **Boating Access** – Continue seeking opportunities to improve both motorized and non-motorized boating access, e.g. water taxi from Koreshan to Mound Key and Lovers Key

It is anticipated that the Village will use a variety of techniques to implement these, and other components of the long-range vision, in a fiscally conservative manner consistent with the government-light philosophy. Forms of implementation may include the Village's Capital Improvements Plan (CIP) as funding becomes available; partnerships; challenge grants; local, state, and federal grants; updates to the Comprehensive Plan and Land Development Codes; impact fees; roadway funding; other "pay-as-you-go" and "borrowing" funding alternatives; user fees; and philanthropy, including the Estero Forever Foundation. Village Council will strategically prioritize individual park improvements and programs as part of the annual budgeting process, as funding or other opportunities permit.

2.7 Existing Conditions and Needs Assessment Summary

Figure 2.20 on the next page compares the findings from the Statistically-Representative Survey conducted by ETC Institute (Column 1) to the findings from the other needs assessment techniques.

Based on a review of the findings from all of the needs assessment techniques, residents' top priorities appear to include:

Facility Priorities	Program Priorities
1. Natural Areas/Nature Parks	1. Community Special Events
2. Multi-purpose Trails	2. Fitness/Wellness Programs
3. Performance Arts Center	3. Nature Programs/ Environmental Education
4. Sidewalks	4. Senior Leisure Programs
5. Restrooms for Existing Parks	
6. Community Gardens	
7. Athletic Fields	
8. Boating Access	

The next section of the Parks Master Plan process – the Long-Range Vision - will determine the “most appropriate response” from the Village to address these priority needs.

FIGURE 2.20 - NEEDS ASSESSMENT SUMMARY CHART

	Mail Survey (Statistically Representative)	Online Survey (50%+ "need more")	Public Workshops	Interviews and Focus Groups	Level-of-Service Analysis
Recreation Facility Priorities:					
1. Natural Areas/Nature Parks	●	●	●	●	
2. Multi-purpose Trails	●	●		●	●
3. Performance Arts Center	●	●	●		●
4. Sidewalks	●	●			
5. Restrooms for Existing Parks	●	●			
6. Indoor Fitness Centers	●				
7. Park Benches/Seating		●			
8. Community Gardens		●	●		●
9. Fishing Piers		●			●
10. Skate Park			●		
11. Athletic Fields			●	●	●
12. Boating Access		●	●		●
13. Pickleball Courts			●		
14. Aquatics Center				●	
15. Volleyball Courts					●
16. Multi-use Courts					●
17. Splash Pads					●
18. Picnic Areas		●			●
19. Additional Park Land					●
20. Large Community Parks		●			

FIGURE 2.20 - NEEDS ASSESSMENT SUMMARY CHART (CONTINUED)

	Mail Survey (Statistically Representative)	Online Survey (50%+ "need more")	Public Workshops	Interviews and Focus Groups	Level-of-Service Analysis
Recreation Program Priorities:					
1. Community Special Events	●	●	●		na
2. Fitness/Wellness	●	●			na
3. Nature Programs/Environmental Education	●	●			na
4. Senior Leisure Program	●	●			na
5. Movies in the Park		●			na
6. Music Programs		●			na
7. Athletic Leagues			●		na
8. Facilitated Activities between Gated Communities		●			na
9. Education Lecture Series		●			na
10. Community Performing Arts/ Dance		●			na

3.4 Operations and Programming Recommendations

Consistent with the Village’s “government-light” management philosophy, the vision for parks and recreation operations and programming is to act as a facilitator and coordinator of recreation programs and special events for Village residents, rather than as a direct service provider. This can be accomplished by collaborating with the County Parks and Recreation Department, State Park, and others to provide recreation services for Village residents. For example, the Village could hire private instructors to provide indoor or outdoor programs or events at sites owned by an HOA, the Village, the County, State, or other agency. This will require a Recreation Program Plan for the Village that evaluates what programs exist today, where, who these programs are provided for, and who is left out of program services that should be provided, and how the Village could supplement these programs that are missing if appropriate. The program plan should evaluate the quality of existing programs and facilities as well to determine if the Village should help strengthen these programs and facilities financially where appropriate to give residents a better experience.

It is recommended that the Village hire a well-qualified, energetic parks and recreation professional - with proven recreational and parks experience – to serve as the Village’s first parks and recreation staff, a “Recreation Partnering Coordinator” (RPC). The RPC would provide and manage recreation facilities, programs, and special events so that other service providers will respect and appreciate the value this position brings to the area. This position would focus on developing and implementing an approved recreation plan for the Village residents in coordination with the County Parks and Recreation staff and State Parks staff, as well as other recreation providers. Many of these programs can be supported by user fees, based on the value they offer to the user.

The vision is to also partner with other agencies to improve the quality of their facilities to meet Estero’s quality standards. This has proven difficult in other communities; the City of Weston, for example, concluded that they need to own their own facilities in order to ensure a level of excellence in both design and maintenance. The challenge will be to not duplicate other providers, but to enhance recreational opportunities by either providing additional programs or facilities, and/or improving the quality of existing programs and facilities.

The Village’s RPC will need to clearly identify new programs that will support operational costs with other earned income revenues. To do so, the Village will need to determine what constitutes a core program or service, what is an important service, and what is a discretionary service. This will help determine primary and secondary use of each facility or amenity and how to price services correctly.

1. Facility Ownership/Partner Recommendations

As mentioned above, the City of Weston – like many municipalities – provides their own recreation facilities to ensure the desired level of quality of design and maintenance. In addition to the recently-purchased Estero-on-the-River site, the Village should eventually own and manage the Estero Community Center and Park. The Village should focus on providing special events, arts related programs, environmental outdoor adventure programs, and sports tournaments that unify Village residents and create a sense of community pride. Village facilities, sites, and programs would continue to be supplemented by those provided by other agencies.

2. Staffing Recommendations

As mentioned above, the RPC would oversee the development of a Recreation Plan for the Village, including the programs, facilities, and services currently being provided by various agencies; the proposed role of the Village; needed resources; and proposed programs and facilities. The RPC would also evaluate the quality of the services provided as well and where the program, facility, or service could be supplemented by the Village if appropriate to make it stronger and more inviting. The goal is to not duplicate but supplement existing providers' opportunities and to own a limited number of programs. These would primarily be in special events, adventure recreation, arts, and sports tournaments outside of the partnership role identified as the primary responsibilities of the position.

One of the challenges of the "government-light" model is how to create a cost-effective registration system for Village programs and events. The Village could hire part-time registration staff, or hire a second Program Partnering staff member to support the Program Partnering Coordinator in doing contract program development and inspections and supporting development of special events in the Village. This limits the risk of the Program Partnering Coordinator leaving and not having a backup person to pick up where the Village is in meeting residents' expectations to maximize all existing providers' facilities and programs efficiently and effectively. These positions may be difficult to fill and retain in a government-light organization. A part-time volunteer coordinator could also help the Recreation Partnering Director to host special events and sports tournaments in the Village.

3. Village Programming Recommendations

The Village should provide Special Events, Outdoor Adventure, Arts, and Sports Tournaments. These programs will not duplicate what is currently being provided by the County or State.

The following core programs should be considered in the Recreation Program Plan, regardless of who provides the activity to residents:

- | | |
|---|---|
| <ul style="list-style-type: none">• Aquatics programs• Youth and adult sports leagues and tournaments• Programs for active seniors• Special events• Wellness and fitness programs• People with disabilities programs | <ul style="list-style-type: none">• Summer camps and after school programs• Performing and fine arts programs• Nature education programs• Outdoor adventure programs• Youth toddler programs for kids under 5 years old |
|---|---|

The following are options for program and service offerings that the Program Partnership staff position and local stakeholders might consider for the future. The potential is only available if there is the right mix of part-time staff to supplement the Recreation Partnership Coordinator's ability to contract with program providers and volunteers to help provide the programs.

- Harvest Festival
- Summer and fall concert series
- Halloween hayrides
- Christmas events and lighted walking tour of lights
- Beer and Wine Festival
- Craft Beer Festival
- Wild sculpture gardens rebuilt every year at the State Park site
- Garden show
- Art show
- Village of Estero Days
- Running and walking events

- Sports tournaments for kids and adults in the Village using other agencies' facilities
- Habitat management programs
- Community gardens, where people can learn to plant different types of food and teach people gardening
- Cooking classes in conjunction with community gardens
- Adult/youth sport tournaments
- Lawn events, such as Friday night musical groups
- Outdoor adventure programs in kayaking, paddling, boarding
- Eco-tourism and historical interpretive programs
- Wellness and fitness lawn events

4. Program Standards

The following program standards need to be incorporated into each Village program (provided or contracted) to ensure that residents receive the highest level of experience as possible:

- Program will be conducted in an appropriate program space which is safe and clean
- Maximum and minimum numbers of participants are set for the program that will allow for a high-quality experience
- Coordinator/Instructor's qualifications in program area is verified
- New staff, volunteers, and contractors working with children have had and passed background checks

- Contract staff is trained in first aid and CPR. Volunteers are trained in both when appropriate. First aid kits are accessible to staff
- Contract staff will be dressed in appropriate uniform
- Contract staff and volunteers are trained yearly in customer service
- Appropriate support staff/volunteers are in place to assist the contract instructor of the program

- All program policies are made available to contract and non-contract instructors
- Program, curriculum, and work plans will be prepared by instructors prior to program start and is to be signed off by the Village Program Partnership
- Contractors will use established performance measures as part of the evaluation of every program they deliver and report their results on a quarterly basis
- All disciplinary actions taken by contract instructors will be written and documented
- All equipment and supplies will be high quality, safe, and appropriate for the participants to use or consume
- Program space will be inspected prior to program for safety and cleanliness
- Contractors will use established performance measures as part of the evaluation of every program
- Customer feedback methods are in place to evaluate contracted programs
- Appropriate licenses and certifications set by law have been reviewed and filed prior to the start of the program
- All regulatory requirements are completed on time and filed according to established guidelines in the specific program area
- Drivers that transport participants must have the appropriate licenses, certifications, and authorizations

5. Required Facilities

The Village will need access to the following, high quality facilities – as owner, renter, or partner - in order to conduct the core programs listed above:

- Outdoor pools, e.g. FGCU Aquatics Center, San Carlos Community Pool, and/or HOA pools
- Soccer, baseball, softball, and football practice, recreation, and competitive sports fields for youth and adults
- Indoor program space for wellness and fitness programs; life skill programs; sports; senior services; visual and performing arts; after school programs; summer camps; clinic, practice, and competition space for sports such as volleyball, basketball, and wrestling
- Outdoor sports courts for basketball, sand volleyball, pickleball, and tennis
- Hard surface trails for walking, biking, and running
- Environmental education space, such as proposed for the Estero-on-the-River site
- Outdoor adventure play space for youth and adults with access to the Estero River
- Parks and plazas, such as Estero Community Park, that include community gathering spaces for outdoor concerts and special events

6. Increased Coordination, Promotion, and Quality

Many of the core programs suggested for the Village are already being provided by other groups such as the County, schools, YMCAs, HOAs, community colleges, private clubs, churches, and special interest clubs in Estero. These organizations currently do not coordinate their service offerings in a way that best informs community awareness. The lack of coordination potentially leaves community residents without services because people do not know how to access them due to lack of communication and coordination.

The Village's RPC could help coordinate the groups and their programs and facilities to reduce duplication, and to make sure that residents are aware of facility and program offerings. Although an estimated 80% of residents live in HOA environments that provide core program services, there still needs to be consideration for the larger, more organized programs and facilities to be offered in the community, serve the market, and help make Estero a great place to live, work, and play.

As the Village's programs expand, it would be desirable to establish a set of design standards for new or upgraded facilities owned by the Village or other providers to maximize the value, use, and efficiency of the sites. Potential design standards are described in Appendix A.

Section 4:

Implementation Strategy

It is anticipated that the Village will use a variety of techniques to implement the long-range vision described in the previous section, in a fiscally conservative manner consistent with the government-light philosophy. Forms of implementation may include the Village's Capital Improvements Plan (CIP); partnerships; challenge grants; grants; updates to the Comprehensive Plan and Land Development Regulations; and staffing. Village Council will strategically prioritize individual park improvements and programs as part of the annual budgeting process, as funding or other opportunities permit.

4.1 Capital Improvements Plan (CIP)

The Village prepares a capital improvements plan (CIP) each year as part of the annual budget, which is prepared by the Village Manager and staff and adopted by the Village Council after receiving public input. CIP workshops are conducted to review priorities from the bicycle/pedestrian master plan, transportation master plan, stormwater master plan, and this parks and recreation master plan. The proposed FY 2019-2020 CIP, for example, includes more than \$9 million in road, landscaping, and parks projects. The Village also would pay back some of the debt from the purchase of the 62-acre Estero-on-the-River site, which closed earlier this year.

High-priority parks and recreation projects prioritized by residents, staff, and consultants for implementation over the next three years include:

- Master planning and development of the Estero-on-the-River site, including multi-purpose trails
- Protection and enhancement of natural areas along Estero River
- Master planning and expansion of Estero Community Park, including additional athletic fields
- Development of a Performing Arts Center
- Additional community special events, fitness/wellness programs, nature and environmental education programs, and senior leisure programs

Conceptual cost estimates for these, and other proposed projects, are included in Appendix B.

4.2 Partnerships

The Village will continue to meet as many of residents' parks and recreation needs as possible through partnerships. As discussed in the overview, existing and potential partners include:

Private Not-for-Profit Groups:

- Friends of Koreshan
- College of Life Foundation
- Athletic Associations: Gorilla Lacrosse, San Carlos Scorpions, San Carlos Little League, Bonita Springs Little League, Cal Ripken, Estero Mustangs Football, Gulf Coast Swim, Swim Florida
- Jr. Everblades (hockey at Hertz Arena)
- Estero Council of Community Leaders
- Private communities

Public Not-for-Profit Groups:

- Chamber of Commerce
- Gulf Coast Swim, Swim Florida
- Koreshan State Park
- Florida Gulf Coast University
- Lee County
- Lee County School District
- Bike-Walk Lee
- Conservancy of Southwest Florida

Private For-Profit Groups:

- Miromar, Coconut Point Mall
- Hertz Arena

The proposed new Recreation Partnering Director should be tasked with maintaining and strengthening these relationships to increase the number and quality of leisure activities available to Village residents.

4.3 Challenge Grants

Because partnerships are so important to the quality of life for Village residents, it is suggested that the Village budget an annual challenge grant fund to make improvements to partner properties. For example, a boat dock and restroom building at Koreshan State Park are needed to accommodate residents desiring to take water taxis to Lover's Key. Similarly, improvements could be made at Estero High School to serve as an interim performing arts center, or a non-gated HOA could build or expand a publicly-accessible neighborhood park.

4.4 Grants

The Village should continue to leverage available funds through local, state, federal, and private grants. Grant-writing and administration firms, such as RMPK Funding in Jupiter, suggest that an aggressive grants program could potentially secure up to several million dollars in grants each year. Appendix C lists grants identified by RMPK that could be pursued for different types of parks, recreation, culture, and green infrastructure projects.

4.5 Level-of-Service Guidelines

The Village's Comprehensive Plan notes that the master planning process will "determine minimum recommended recreational and open space service and facilities guidelines, to prioritize recreation and open space needs in the five-year Capital Improvements Plan." Such guidelines can help inform the CIP, impact fees, and land development regulations.

However, there are no nationally-accepted standards or guidelines for open space services and facilities, and no State mandates for concurrency (the provision of new park and recreation facilities concurrent with new growth and development). The last set of guidelines published by the National Recreation and Park Association in 1996 states that "a standard for parks and recreation cannot be universal, nor can one city be compared with another even though they are similar in many respects." Therefore, each community must decide on its own service and facility guidelines based on their values, priorities, and policies.

Key considerations for establishing LOS guidelines include:

- Do the metrics reflect the values, needs, and desired future conditions (DFCs) that are most important to residents?
- Are the LOS standards, metrics, and definitions logical and easy to understand?
- Is accurate data available for each metric and relatively easy to collect?
- Collectively, do the metrics and standards provide a comprehensive perspective of LOS, including quantity, quality, and access to facilities and programs, as well as other factors that are important to the community?
- Do the metrics reflect all of the various dimensions of parks and recreation, including sustainability and resiliency goals, in addition to traditional parks and recreation levels-of-service?

Establishing LOS metrics for the Village of Estero, however, is difficult for several reasons. First, as mentioned above, there are no universally accepted guidelines; the NRPA states that "an open space standard is not so much an exemplary measure to be used in some form of comparison or judgment of adequacy or accomplishment, but is an expression of a community consensus of what constitutes an acceptable level of service." Second, the Village's population is considerably older, wealthier, and less-diverse than other similar-sized communities, so benchmarking against comparable communities may not be as useful an exercise to determine LOS. And third, most LOS metrics are based on the land and facilities owned by the community. However, as mentioned in Section 2, the Village's parks and recreation system is comprised primarily of parks and recreation facilities owned and managed by other agencies such as HOAs, Lee County, and the State of Florida.

LOS metrics can be mandatory or aspirational. Aspirational metrics for the Village, based on the needs assessment and long-range vision, could include:

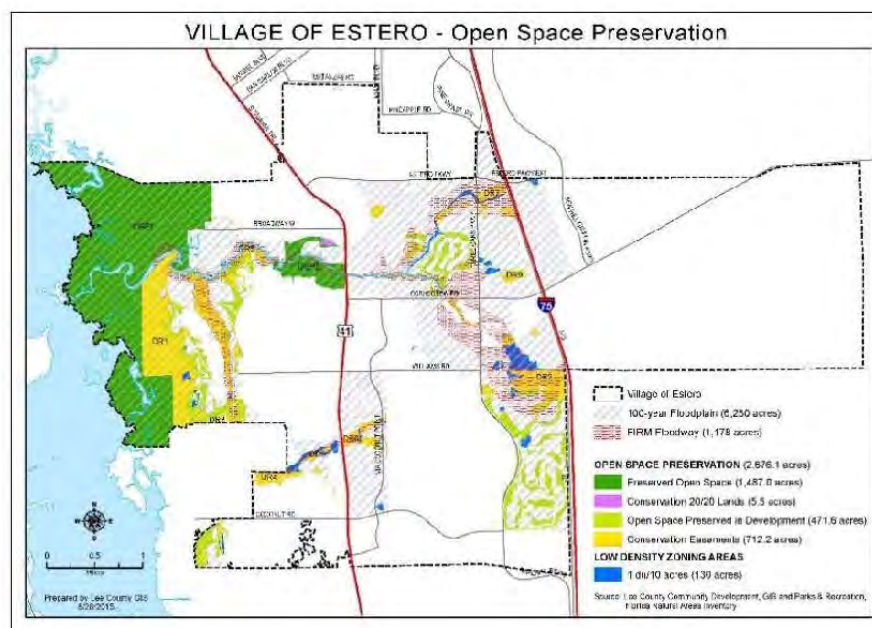
- Every resident should be able to walk to a meaningful park or green space within 10 minutes or ½ mile from their home, using safe and comfortable sidewalks and trails
- Every child should have access to a playground and multi-purpose open space within 10 minutes or ½ mile from their home, using safe and comfortable sidewalks and trails
- Every resident should be able to bicycle or drive to an indoor recreation center within 3 miles of their home, totaling at least 1–2 square feet of indoor recreation space per capita

- Every resident should be able to bicycle or drive to sports fields and swimming pools within 3 miles of their home
- There should be adequate capacity of indoor recreation centers, sports fields, and swimming pools to meet the needs of Village residents
- Every resident should have access to a centrally-located performing arts center
- A significant percentage of the Village should remain in natural open space

These aspirations can be converted into the following open space service and facilities guidelines, which are “grounded” on existing conditions:

- **Developable Acreage:** The Village should provide at least 2 acres of public, developable park space per 1,000 residents for playgrounds, athletic fields, indoor recreation centers, and other “active” or “user-based” recreation. Based on the estimated 2018 population of +/-34,000, this equates to approximately 68 acres of developable parkland. This is consistent with the amount of parkland the Village currently owns, or is proposing to own, including the 62-acre Estero-on-the-River site and the proposed Estero Community Park expansion.
- **Natural Open Space Acreage LOS:** At least 1/3 of the land mass of the Village shall remain in natural, undeveloped open space. This is consistent with the 2018 Data and Analysis report for the Village of Estero Comprehensive Plan, which states that “emphasis on open space is a hallmark of the development pattern of the Village. Of the 16,400± acres encompassed by the Village, the greatest share (37%) is devoted to open space type uses. These include the natural, conservation, and buffer areas along the western shoreline, the Larry Kiker Preserve located just outside the Village, and the public and private recreation and buffer areas within the major residential developments,” as illustrated in the following map.

FIGURE 4.1 - VILLAGE OF ESTERO - OPEN SPACE PRESERVATION



- **Indoor Recreation Space LOS:** The Village should provide at least 1 square foot of indoor recreation space per resident, which would equate to 34,000 square feet of space based on the 2018 population. Residents have access to the 40,000 sf. Estero Community Center, as well as numerous private recreation centers and fitness clubs.
- **Access LOS:** Consistent with the aspirational goals, every resident of Estero should have equitable access to the following facilities:
 - a multi-purpose park and playground within ½ mile of their home, connected by bikeways, trails, and/or sidewalks;
 - a swimming pool (adequate for swimming laps or exercise) within 3 miles of their home;
 - a public recreation center within 3 miles of their home;
 - athletic fields within 3 miles of their home; and
 - a performing arts center within 5 miles of their home.

It is important to note that these aspirational open space service and facilities guidelines should not be viewed as absolute or static. They should be reviewed and recalculated annually, and updated every five years (at a minimum), in conjunction with a needs assessment process, to ensure that they remain reflective of the community's needs, values, and goals. They should also be reviewed as part of the Comprehensive Plan update every five to seven years through the Evaluation and Appraisal Report (EAR) process.

4.6 Land Development Codes (LDCs)

Although the Village will gradually run out of vacant land for development, opportunities still remain to meet residents' needs through the land development process. The LDCs should be updated to be more prescriptive, illustrating the specific parks and open spaces to be provided by developers to meet the local recreation needs of new residents in accordance with the level-of-service guidelines.

The Village of Estero Land Development Code Assessment (September 2018) currently states that the Comprehensive Open Space Set-Aside Standards should "ensure that required open space set-asides are usable and functional for designated open space purposes—and do not merely consist of undevelopable 'leftover' land. This can be achieved by adding locational and design rules governing the location, configuration, and usability of the open space" (pp. 11-62, 63). For example, below is a prototype for a small neighborhood park, requiring the developer to provide a large multi-purpose field, playground, restrooms, picnic pavilions, multi-purpose court, and a wide sidewalk/multi-purpose paved trail within a 5-10-minute walk from every new home.

FIGURE 4.2 - PROTOTYPE FOR A SMALL NEIGHBORHOOD PARK**Example Park Amenities**

- | | |
|--------------------------------------|---|
| 1. Pavilion + concession + restrooms | 8. Basketball/Tennis/Pickleball/Multi-purpose court |
| 2. Playground + shade structure | 9. Pavilion |
| 3. Chess + checker table games | 10. Park zone traffic calming |
| 4. Outdoor foosball table | 11. Crosswalk |
| 5. Outdoor ping-pong table | 12. On-street parking |
| 6. Multi-purpose open space | 13. Sidewalk + tree zone/buffer |
| 7. Picnic table(s) | |

4.7 Impact Fees

The Village should continue to work with Lee County to update its Park Impact Fees to ensure that new development is “paying its fair share” for the new community-wide parks and facilities required to accommodate growth – particularly the larger facilities such as the proposed performing arts center, multi-purpose trails, river access, and athletic fields desired by residents. The County recently conducted studies to update its impact fees in January and February 2018. The findings from the study could also be used to update the level-of-service and fee-in-lieu requirements for park land in the City’s Comprehensive Plan and LDCs.

4.8 Roadway Funding

As discussed in Section 2 – Needs Assessment, the mail survey indicated that multi-purpose trails are residents' second priority for park and recreation improvements, and the Village has identified potential corridors in its recently completed Bicycle/Pedestrian Plan. It is anticipated that the Village will continue working with the County, the Metropolitan Planning Organization (MPO), and the State Department of Transportation to secure funding for priority trails and greenways improvements.

4.9 Additional Funding Sources

In addition to the funding/implementation sources discussed above, other potential sources include parks and recreation user fees, special assessments, sales tax, and bonds. The user fees can be established by the Village, while the other techniques generally require voter approval.

4.10 Prioritization Criteria

It is anticipated that Village staff and Council will prioritize individual park improvements and programs as part of the annual budgeting process, based on available funding and/or other opportunities. Preliminary prioritization criteria include:

- The proposed project/improvement will help meet residents' high priority need(s)
- The proposed project/improvement is "standard" for the Village of Estero parks
- The proposed project/improvement corrects an existing deficiency
- The proposed project/improvement is funded fully or in-part through grants, partnerships, and/or other funding sources
- The proposed project/improvement will improve the equitable distribution of parks and recreation facilities
- The proposed project/improvement will increase residents' awareness of existing parks and recreation facilities
- The proposed project/improvement is mandated by grants, donations, or funding requirements
- The proposed project/improvement will decrease operations and maintenance costs
- The proposed project/improvement will generate greater economic, social, and/or environmental benefits for the entire community

Appendix - 6
Village of Estero Stormwater Master Plan



Village of Estero Stormwater Master Plan

October, 2018



Prepared By:



Executive Summary

This Stormwater Master Plan provides the details of the current regional hydrology affecting the Village and the current conditions of stormwater/surface water networks within the Village. The important benefit of this Master Plan is the development of an updated regional-scale model and detailed local-scale model. Both models can be utilized to evaluate the impacts of infrastructure projects or development projects on the existing stormwater system. Additional goals of the Stormwater Master Plan project are as follows:

- Provide a framework for evaluating Stormwater improvement projects and new developments;
- Identify drainage issues;
- Identify flood mitigation projects;
- Identify locations where additional water level/flow monitoring stations should be installed; and
- Develop regulatory standards and guidelines.

The initial task of the project included an evaluation of the existing data available for the stormwater facilities within the Village of Estero, verifying the data and obtaining new/updated data. The collected data provides an accurate record of the physical properties and conditions of the system and a record of more recent surface water levels and flows within the system. The data collected included the following:

- Inventory of all structures (culverts, bridges, pipes) located within the main conveyances;
- Flow and Stage Data from USGS Gages, The Brooks system gages and other surface water observation stations within the study area;
- Surveyed cross-section data;
- Soil Data;
- Current Land Use/Land Cover Data;
- 2007 LiDAR (Topographic) Data;
- Existing vegetation and site conditions; and
- High-water Mark Surveys and Documentation for the August/September 2017 Rainfall Events.

The data is a vital component of the project and provides a basis of established existing conditions to properly create and calibrate the master surface water management model. As previously mentioned, the latest regional study that includes the Estero River and Halfway Creek watersheds is the 2008 Update to the South Lee County Watershed Master Plan. The 2008 Update study reviewed the findings of the original 1999 South Lee County Watershed Master Plan and provided additional recommendations to address concerns with surface water flow and flooding within the study area. Numerous recommendations were provided from the 2008 Update and a portion have been implemented since the completion of the study.

There are four (4) distinct sub-watershed areas located within the Village of Estero jurisdiction. The watersheds within the Village are predominantly natural stream conveyances. The two (2) major natural conveyances within The Village are the Estero River and Halfway Creek. The Estero River is divided into two (2) branches at the location of Bamboo Island just west of the Villages at Country Creek development, the North Branch and South Branch. Each of these creek conveyances travel through the Village, meandering through residential and commercial developments, community parks, conservation areas, etc. and into the main branch of the Estero River. Halfway Creek is also a tributary to the Estero River Main Branch, connecting to the River at approximately 2.5 miles from Estero Bay.

From a regional perspective, the overall Estero River watershed covers approximately 39,163 acres. The watershed includes quarries, Florida Gulf Coast University, Gulf Coast Town Center, Miromar Outlet Mall, and numerous residential communities. The Estero River North Branch sub-watershed begins at State Road 82 and extends southwest towards I-75 and then westward until it reaches the junction with the Estero River (Main Branch). The Estero River South Branch sub-watershed (South Branch) extends east of I-75 along the Corkscrew Road corridor, south of the Stoneybrook development and west to the junction point with the North Branch sub-watershed. The Halfway Creek main stream originates in a broad marsh system located east of I-75. The watershed boundary for Halfway Creek extends to the southern boundary of The Brooks, runs west of US-41, extends north at El Dorado Acres and continues north containing portions of West Bay Club and Pelican Sound before reaching the limits of the Estero River Main Branch watershed. The eastern southern boundary of the Estero River watershed is adjacent to the Imperial River watershed. Based on conditions east of I-75 and south of Corkscrew Road, there are no known barriers or structures to separate the flow. Surface water can interact between the Estero River/Halfway Creek and Imperial River watersheds.

Once the data collection was completed, the project focused on preparing updates to the Regional-Scale model that was developed for the 2008 South Lee County Watershed Master Plan Update (SLCWM). The purpose of the modeling assessment was to evaluate the regional hydrology and provide the conditions that will be used in the detailed local-scale modeling assessment. The regional model used the integrated surface and ground water model MIKE SHE/MIKE 11. The updates to the Regional-Scale model included recently acquired data sources, recalibration of the model to known hydrologic data, and development of boundary conditions for the Village ICPR model based on the updated SLCWM. The model contains over 400 square miles and includes the drainage basins of the Estero River, Halfway Creek, Spring Creek, and the Imperial River.

Outlined below is the purpose and main goals of the Regional-Scale model.

The Regional-Scale model:

- Provides boundary conditions from the regional model calibrated to over 200 calibration stations for the local-scale modeling effort;
- Provides base information for the development of a local-scale ICPR model to be utilized as an appropriate tool for evaluating development proposals located west of I-75;
- Utilized recent information from two large rainfall events in 2017, including Hurricane Irma, to support the calibration effort;
- Was used to identify areas with regional drainage problems; and
- Can be used to evaluate proposed improvement projects and impact of drainage changes on wet season water levels near the area of the proposed improvements.

west of Interstate I-75.

The main goals of the Local-Scale model include the following:

- Assess the existing conditions of the stormwater facilities;
- Identify stormwater deficiencies;
- Provide a framework for evaluating projects and new developments; and

The Local-Scale model was created using Interconnected Channel and Pond Routing (version 4.03.02), known as ICPR4. ICPR is a widely used and accepted modeling platform throughout Florida for hydrologic and hydraulic analyses. The ICPR4 platform is also integrated with GIS (Graphical Information System) data so that the model is properly geo-referenced and can be easily updated with new data as it becomes

available. The Local-Scale model includes the contributing watersheds for all four (4) main waterways: Estero River Main Branch, Estero River North Branch, Estero River South Branch and Halfway Creek. The Local-Scale model also includes secondary conveyances, other critical major conveyances, discharge control structures from permitted developments, overland flow from uncontrolled parcels and major network components such as culverts, bridges, and weirs. The secondary conveyances include critical roadways or ditch systems with known drainage issues, such as: Three Oaks Parkway, River Ranch Road, Estero Parkway, Corkscrew Road, Broadway Avenue, and the Seminole Gulf Railroad ditch system. The Local-Scale model is an accurate representation of the stormwater network located within the Village and the contributing watershed areas adjacent to the Village.

The Local-Scale model of the study area considers the data collected from available plans, permits, record information, ground surveys, and field reconnaissance. The hydrologic and hydraulic parameters used to develop the Local-Scale ICPR model included the following:

- Assess the existing conditions of the stormwater facilities;
- Identify stormwater deficiencies;
- Provide a framework for evaluating projects and new developments; and

The Local-Scale model was created using Interconnected Channel and Pond Routing (version 4.03.02), known as ICPR4. ICPR is a widely used and accepted modeling platform throughout Florida for hydrologic and hydraulic analyses. The ICPR4 platform is also integrated with GIS (Graphical Information System) data so that the model is properly geo-referenced and can be easily updated with new data as it becomes available. The Local-Scale model includes the contributing watersheds for all four (4) main waterways: Estero River Main Branch, Estero River North Branch, Estero River South Branch and Halfway Creek. The Local-Scale model also includes secondary conveyances, other critical major conveyances, discharge control structures from permitted developments, overland flow from uncontrolled parcels and major network components such as culverts, bridges, and weirs. The secondary conveyances include critical roadways or ditch systems with known drainage issues, such as: Three Oaks Parkway, River Ranch Road, Estero Parkway, Corkscrew Road, Broadway Avenue, and the Seminole Gulf Railroad ditch system. The Local-Scale model is an accurate representation of the stormwater network located within the Village and the contributing watershed areas adjacent to the Village.

The Local-Scale model of the study area considers the data collected from available plans, permits, record information, ground surveys, and field reconnaissance. The hydrologic and hydraulic parameters used to develop the Local-Scale ICPR model included the following:

- Topographic Data/Terrain Data: 2007 LiDAR data with a 0.5 ft contour resolution;
- Land Use/Land Cover: Updated to reflect current conditions;
- Soil Data;
- Runoff Curve Numbers: Categorized per Land Use and Soil Combination;
- Time of Concentration (Tc): Applied for each sub-basin;
- Rainfall Data and Design Storms: Obtained for the 5-year, 1-day; 10-year, 1-day; 25-year, 3-day; and 100-year, 3-day events;
- Upstream Boundary Conditions (Flow and Stage) from Regional-Scale Model;
- Downstream Boundary Condition (Stage) from Regional-Scale Model; and
- Structure Inventory.

Utilizing the collected data, including permit records, as-built plans, and field visits, a delineation of the overall contributing areas to each main stream was prepared. Within each of the four (4) watersheds, sub-basins were defined, and the network of the stormwater infrastructure was detailed. For the hydraulic network, model links were used to connect the sub-basin nodes and nodes along the conveyances. The links were in the form of pipes, weirs, control structures, etc. based upon the structure inventory and record information.

At the completion of the Local-Scale ICPR4 model development, the calibration process was conducted. The calibration process consisted of making slight changes to model inputs, iteratively, until the simulated peak stages of the 25-year, 3-day and 100-year, 3-day design storms were reasonably close to the observed peak stages during the late August 2017 and early September 2017 rainfall events. The amount of rainfall during these significant events varied across the Lee County area. Within the Estero River watershed, the August 2017 storm event resulted in an estimated total of 11.4 inches of rainfall over a 5-day period, which is similar to the 11.2 inches of rainfall used in the 25-year, 3-day design storm.

For the Local-Scale ICPR4 model calibration effort, a comparison was made between the simulation results of the 25-year, 3-day and 100-year, 3-day events to the recorded values at key locations. The goal of the calibration effort was to achieve peak stages that were reasonably close, within 1 foot, of the observed/recorded values.

The observed/recorded data include the following sources of data:

- USGS Gage Stations - North Branch and South Branch;
- USGS Gage Stations - North Branch and South Branch;
- The Brooks Gage Stations - North and South Outfall Weirs;
- South Florida Water Management (FWMD) High Water Mark Report, Post Irma (12/8/17);
- Lee County Post-Irma Assessment Report (02/28/18); and
- Field Observations and Data Collection by J. R. Evans Engineering (8/29/17 and 09/18/17)

Model inputs that were considered for adjustment in the calibration process to achieve results consistent with the observed late August 2017 and early September 2017 observed data were the following:

- Upstream and downstream boundary conditions, both stage and flow;
- Roughness coefficients (Manning's n) for the conveyance links;
- Runoff curve numbers per drainage basin;
- Time of concentration per drainage basin; and
- Initial conditions within the main conveyance channels, both stage and flow.

To aid in the calibration process, the model simulations were setup so that the initial stages within the main conveyances during the model simulations were approximately equal to the typically observed wet season stages. Data from the Estero River North Branch USGS gage and the Estero River South Branch USGS gage were used for calibrating the initial stage parameters. The calibration effort also included adjusting the roughness coefficients, Manning's " n " values, within the main conveyance routes. Particularly, the Manning's " n " values for the channel and overbank areas of the Estero River Main Branch, North Branch and South Branch were adjusted to reflect conditions favorable to achieve peak water surface stages closer to the observed/recorded stages.

Once the Local-Scale model calibration was concluded, performance evaluations were conducted for each of the sub-watershed areas for each design storm event. In each of the evaluations, the main conveyance

was analyzed in sections for each design storm, attention given to average channel velocities, maximum flow rates, peak water surface stages and any significant increases in peak stages along the channel or conveyance. In addition, for each design storm peak water surface stages were evaluated at key locations within the network and compared with existing elevations of roadways, homes, etc. to determine the level of flooding risk. The performance evaluations of the main conveyance system were beneficial in identifying locations of potential issues and providing a basis for evaluating mitigation and improvement projects.

For the Halfway Creek existing conditions analysis, the critical portion of the creek is the area located between the south end of the West Bay Club community and the U.S 41 crossing. This portion of the creek is a large natural area containing wetlands and uplands and the creek is not well-defined. The model results reflect significant increases in peak water surface elevations within this area. This is an area of concern since there are residential communities, such as Marsh Landing and Fountain Lakes, that discharge to this portion of Halfway Creek. The analyses of the other portions of Halfway Creek did not present any concerns.

For the Estero River South Branch existing conditions analysis, the most critical portion of the waterway is the area located upstream of the Three Oaks Parkway crossing to the Sanctuary Drive crossing. Within this portion, the waterway channel becomes narrower, forcing water to flow within the over banks that contain more vegetation and debris. The existing conditions model results reflect significant increases in peak water surface elevations within this area.

The existing conditions analysis for the Estero River North Branch identified several areas of concern within the waterway. One of the areas of concern is located within the Villages at Country Creek community. Within this area, there are significant increases in water levels along the river. Another portion of the North Branch that presented concerns is the section located between the north boundary of Villages at Country Creek and the Rookery Drive crossing. The model indicates significant increases in water levels through this portion of the North Branch. Within the north diversion portion of the North Branch, which extends from Rookery Pointe, under Three Oaks Parkway and along the north side of Villaggio, the model presents another condition of significant increases in water levels. Specifically, the increases in peak stages occur in the section of the north diversion that travels through the natural area north of Villaggio.

The existing conditions analysis for the Estero River Main Branch identified a couple of concerns. During the 25-year and 100-year design storm simulations, the model indicates moderate velocities of flow within the channel, located downstream of the U.S. 41 crossing. The high velocities allow the potential of the flow to transport sediments from upstream and into the Bay. During all four (4) design storm simulations, the model indicates significant increase in water levels within the section of the river located between the Seminole Gulf Railroad crossing and the Sandy Lane crossing. This is an area where the river channel begins to change, becoming narrower, which cause water to flow within and above the banks of the river where there is more vegetation.

In addition to performance evaluations for the existing surface water system, an evaluation of build-out conditions was conducted. Consideration was given to the vacant parcels that could potentially be developed. The selection of vacant, to-be-developed parcels did not include government-owned or public parcels, conservation parcels, State-owned lands, or out-parcels that were already part of a master plan development. The goal of the Build-out scenario was to evaluate the potential impacts on the main conveyance systems within The Village with the development of the build-out parcels under the current design criteria. An evaluation was conducted which simulated discharge rates from each build-out parcel, based on the current regionally accepted design criteria for the 25-year, 3-day storm event. The results of the evaluation and comparison of peak stages indicate that the development of the vacant parcels does impact the existing conveyance systems in varying ways. Existing low-lying areas with uncontrolled

discharge may have a lower discharge rate when developed. Conversely, vacant areas of higher elevation and less connectivity to the main conveyance systems may have a higher discharge rate once developed. This evaluation of the build-out conditions supports the aspect that plans for development of vacant parcels within The Village should be reviewed thoroughly with respect to the impacts to the existing stormwater facilities. The ICPR4 Local-Scale model is a tool that can be utilized to conduct the evaluations of proposed development projects within The Village.

As part of this Stormwater Master Plan, the existing stormwater infrastructure conditions were evaluated to determine potential improvement projects. Local flooding during the late August and early September 2017 rainfall events aided in the identification of areas in need of improvements. The evaluation resulted in the identification of a total of ten (10) potential improvement projects. Eight (8) of the projects were evaluated through additional hydraulic modeling. The improvement projects were grouped by the sub-watershed in which they are located. The projects are as follows:

Estero River Main Branch

- Project Seven: Estero River Side Bank Sediment Removal
- Project Eight: Broadway Ave. Main Tributary
- Project Ten: Maintenance of the Seminole Gulf Railroad Ditch
- Project Nine: U.S. 41 Roadside Drainage Modifications

Estero River North Branch

- Project One: Villages at Country Creek Bypass Swale
- Project Two: Three Oaks Parkway Drainage Improvements
- Project Three: Villagio / Estero Parkway Drainage Improvements
- Project Four: Estero Parkway Culvert
- Project Six: Dry Creek Bed Sediment Removal

Estero River South Branch

- Project Five: River Ranch Road Drainage Improvements
- Project Ten: Maintenance of the South Branch south of Corkscrew Road

Halfway Creek

- Project Ten: Maintenance of Halfway Creek West of U.S. 41

The potential projects include improvements to portions of the North Branch channel, re-establishing the Bamboo Island bypass to provide better flow distribution, and improving the River Ranch road drainage system with additional cross-culverts. One of the recommended projects includes a regular maintenance program for portions of the Halfway Creek, Estero River North Branch and South Branch waterways. Keeping these conveyances maintained with minimal vegetation debris and exotics will improve flow conveyance, capacity and distribution. The proposed projects were further evaluated with preliminary costs, including construction, permit and engineering/design costs. The projects were ranked by priority, with the highest priority being a project to be implemented within 1-5 years. The ranking of the projects was based upon the following factors:

- Magnitude of Potential Benefits to the Overall System;
- Estimated Construction Cost for the Improvements or Activities;
- Ease or Difficulty of Implementing the Improvements or Activities: Permit Requirements, Coordination with Other Entities, etc.

In addition to recommended improvement projects, there are other activities the Village can implement to mitigate issues with negative impacts on the stormwater management system and damages related to flooding. These activities include placing language within the Land Development Code and Comprehensive

Plan documents to establish policies and guidelines with respect to stormwater management. The recommended rule changes include minimum finished floor elevation criteria and setting a criterion for allowable discharge rates for new development projects. All the recommended rule changes and improvement projects will further aid the Village in addressing current and potential stormwater system issues.

In March 2017, the Village of Estero officially became a participating community in the National Flood Insurance Program (NFIP). As a new community within the NFIP, the Village is responsible for maintaining floodplain management policies and flood mapping products. To better understand the effects of potential riverine flooding within the Village, the 100-year riverine floodplain associated with the Estero River and Halfway Creek waterways were evaluated as part of the Master Plan. The Local-Scale ICPR model was used to support the riverine floodplain analyses. The floodplain analyses were created in the modeling programs HEC-RAS (Hydrologic Engineering Center's River Analysis System) and GeoHECRAS. The HEC-RAS program is designed to perform hydraulic calculations for a full network of natural and manmade channels. The GeoHECRAS software allows the user to properly geo-reference the HEC-RAS model. Halfway Creek was modeled as one (1) stream and Estero River was modeled as one (1) stream with two (2) branches, North and South Branch, connecting at a common junction along the river.

Using the Local-Scale ICPR model and the flow results from the 100-year, 3-day design storm, flow values were selected at specific locations along the main waterway and provided as input for the HEC-RAS model. The floodplain was delineated using the available Digital Elevation Model (DEM) prepared for the ICPR Local-Scale model along with additional as-built data for newly developed properties. The riverine floodplain delineation is based upon the peak 100-year water surface elevations determined in the HEC-RAS analysis and were determined as reasonably consistent with the peak 100-year design stages in the Local-Scale ICPR model.

The preparation of the Stormwater Master Plan successfully resulted in a greater understanding of the regional hydrology affecting the Village of Estero and the existing stormwater facilities within the Village. Collecting data of the Village's existing land uses, soil types, main drainage conveyance systems, conveyance structures and the conditions of the Estero River and Halfway Creek, allowed for the creation of the Local-Scale ICPR4 model.

4.2. Stormwater Projects

Understanding the historic problem areas and assessing the areas of concern with respect to the behavior of the stormwater management system within The Village greatly improves the evaluation of the system for potential improvement projects. Knowing where the problem areas are located aides in focusing the improvement projects to those locations. In addition to the observed conditions, a review of the model results during the 25-year design storm was conducted with evaluating hydraulic profiles of the main streams and major conveyances and noting significant “jumps” in water surface elevations.

Based on the evaluations, a selection of potential improvement projects was defined for each watershed area. Outlined below are the general description of each potential project grouped by watershed. The following report sections detail the ICPR4 modeling that was completed for the studied projects.

Project 1 - Villages at Country Creek Bypass:

Improve ditch cross-sections and install weir to better control flows. Redirect flow from the ditch between Cascades and Rookery Point to send large flows directly to the bypass. Reference Figure 4-7.

Project 2 - Three Oaks Parkway Drainage Improvements:

Improved pipe connections, weir controls and provide additional storage for better flow distribution. Reference Figure 4-8.

Project 3 - Villagio/Estero Parkway Drainage Improvements:

Improved flow-way through natural area located between Villagio and Estero Parkway. Reference Figure 4-9.

Project 4 - Estero Parkway Culvert:

Increase culvert size to reduce head loss. Reference Figure 4-10.

Project 5 - River Ranch Road Drainage Improvements:

Improve drainage along River Ranch Road. This could include additional cross-culvert connections and larger pipes and/or swales along the roadway. Reference Figure 4-11.

Project 6 - Dry Creek Bed Sediment Removal:

Removed sediment from a historical connection between the north and south branch of the Estero River, located between Bamboo Island and Villages at Country Creek. Reference Figure 4-13.

Project 7 – Estero River Side Banks Sediment Removal:

Remove sediment along the banks between the Sandy Lane bridge to the SGLR Railroad bridge to increase flow capacity. Reference Figure 4-16.

Project 8 - Broadway Ave. Main Tributary:

Engineered Design for Tributary Cross-sections

This project was partially completed with a prior hydrologic/hydraulic study specifically for the Broadway Ave. Tributary watershed. It is recommended that the improvements proposed in the Broadway Ave study are completed, particularly the proposed swale from Broadway Ave north to Trailside Drive. Reference Figure 4-17.

Project 9 - U.S. 41, North of Williams Rd. and South of Corkscrew Road:

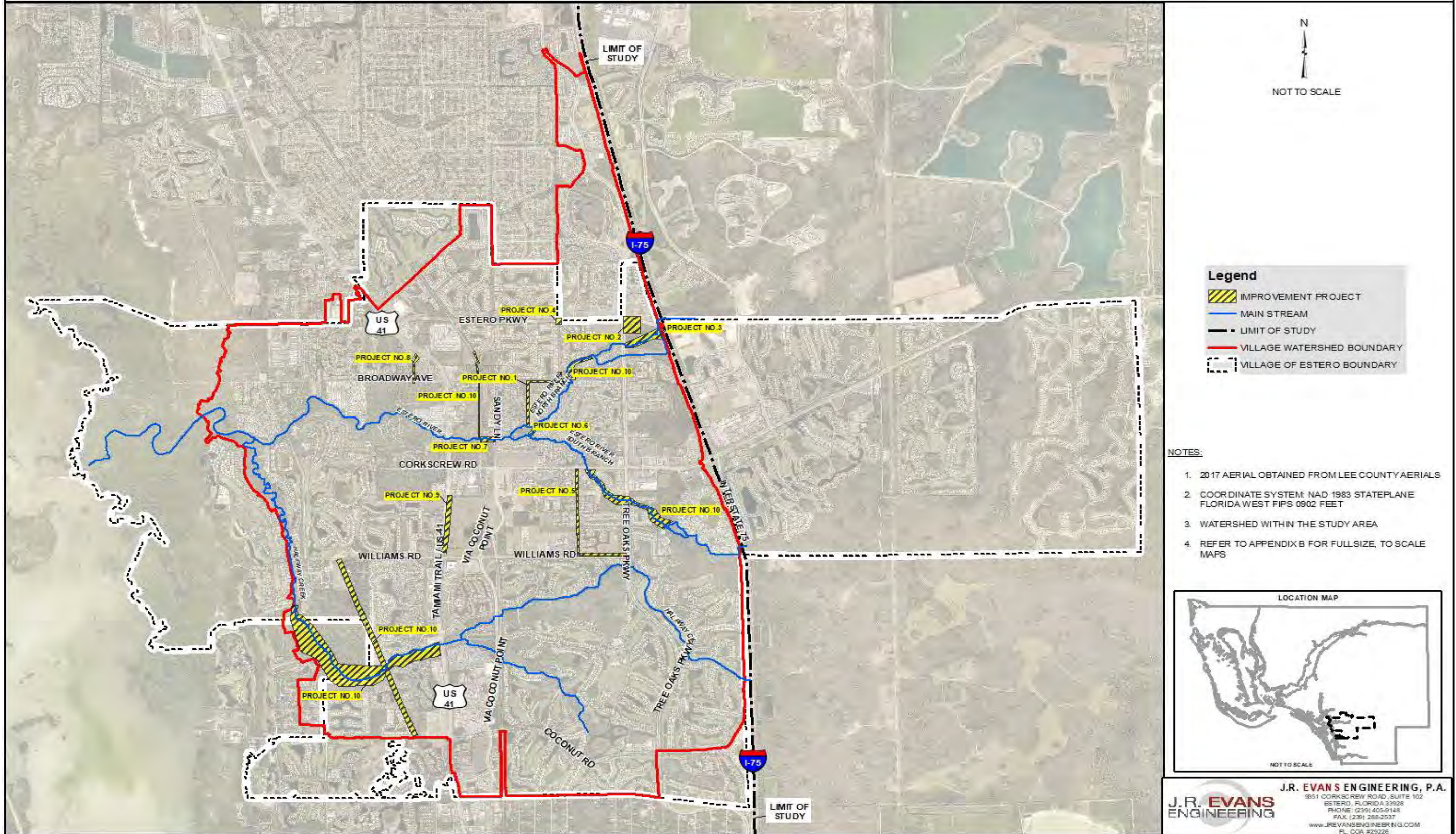
Recommend implementation of modifications to U.S. 41 structures to alleviate excessive flooding within the roadside system- which was permitted with SFWMD and never implemented. The previous design should be evaluated prior to implementation. (No modeling was completed for this project). Reference Figure 4-18.

Project 10 – Maintenance of the Natural Systems:

Removal of downed trees and excess debris, and the regular maintenance of high grass, weeds and other vegetation.

- Estero River North Branch, North of Villages at Country Creek. Figure 4-19.
- Estero River South Branch, South of Corkscrew Road to Sanctuary Road. Figure 4-20.
- Halfway Creek, West of U.S. 41. Figure 4-21.
- FPL Easement Ditches between Williams Road and Coconut Road. Reference Figure 4-22.
- Seminole Gulf Railroad Ditch, North of Estero River Main Branch. Reference Figure 4-23.

Map 4-2: Locations of Improvement Projects



Legend

- IMPROVEMENT PROJECT
- MAIN STREAM
- LIMIT OF STUDY
- VILLAGE WATERSHED BOUNDARY
- VILLAGE OF ESTERO BOUNDARY

- NOTES:**
1. 2017 AERIAL OBTAINED FROM LEE COUNTY AERIALS
 2. COORDINATE SYSTEM: NAD 1983 STATEPLANE FLORIDA WEST FIPS 0902 FEET
 3. WATERSHED WITHIN THE STUDY AREA
 4. REFER TO APPENDIX B FOR FULLSIZE, TO SCALE MAPS



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4.3. Improvement Projects Evaluated with Model Scenarios

The following report sections detail the ICPR4 modeling that was completed for the studied projects.

4.3.1. Project One - Villages of Country Creek Bypass Swale Improvements

The intent for Project One is to re-establish the conveyance ability of the Villages at Country Creek Bypass Swale that runs along the north side of the Villages at Country Creek property, to the west and along the west boundary until it reaches the Estero River Main Branch. Based on the existing conditions hydraulic analysis, this bypass swale provides little relief to the North Branch prior to entering the Villages at Country Creek property. Re-establishing the bypass connection should provide a better distribution of flows within the North Branch as it enters the Villages at Country Creek property.

Project One: Phase One

Improvements considered for The Villages at Country Creek Bypass Swale, includes the addition of two inline structures and channel modifications to increase the flow capacity. The proposed improvements considered during this evaluation are described as follows:

- Improvements to the main channel sections considers modifications to the existing channel cross sections from the most downstream confluence of The Villages at Country Creek Bypass Swale with the Estero River North Branch Diversion 1 (ERNBD1) to the most upstream connection of the Bypass Swale with the Estero River North Branch (ERNB). The proposed trapezoidal cross sections at the Bypass Swale are considered to have side slopes of 3H:1V with variable top and bottom widths. Trapezoidal cross sections channel top width ranges from approximately 45 feet to 50 feet, while the bottom width varies from 4 feet to 20 feet. It should be noted, that bottom widths of 20 feet were used near the existing culvert structures to consider the full width of the culvert openings, since these two (2) structures are considered to stay. It should be noted, that a berm may be required at some locations to optimize the design through the entire Bypass Swale.
- The most downstream invert along the Bypass Swale is considered to be 1.3 feet-NAVD (same found at Estero River North Branch Diversion 1) and the most upstream invert is considered at 8.5 feet-NAVD (near the Bypass Swale connection with the Estero River). An adequate tie-in of all connections to the Bypass Swale should be warranted.
- Installation of an inline structure (weir) at the most upstream swale with an elevation equivalent or similar to the existing swale bottom (ranging from approximately 8.9 feet to 10.5 feet-NAVD).
- Installation of an inline structure (weir) some feet upstream of the confluence of The Villages of Country Creek Bypass and the Estero River North Branch Diversion 1 (Node Name: ERNBD1). Such structure should allow flows associated to less severe rainfall events.
- Proposed improvements consider a routine maintenance that will keep the Bypass Swale free of: obstructions, undesired vegetation, and sedimentation /scour.

Project One: Phase Two

Improvements considered for the Ditch Between Cascades and Rookery Point Alignment Improvement: Diversion to the Villages at Country Creek Bypass System, includes the addition of a supplemental channel to connect with the improved Villages at Country Creek Bypass Swale (as described in Phase 1) and immediately upstream channel cross section modification. Such ditch is named as ERNB4 in the ICPR4 Model. The proposed improvements are intended to divert some of the flows from the Ditch (ERNB4) while keeping the ultimate discharge point (Estero River, North Branch). The proposed improvements considered during this evaluation are described as follows:

- Creation of a diversion channel approximately 500 feet long, generally following a north to south alignment with a geometry similar to the one found at the existing downstream segment. A trapezoidal section with side slopes of 3H:1V, top width of 45 feet and bottom width of 23 feet was considered. The most downstream invert was established considering The Villages at Country Creek Bypass swale proposed sections (invert elevation of 8.25 feet-NAVD), while the upstream invert elevation was set to 11.7 feet -NAVD (consistent with the existing most downstream segment at the ditch).
- Improvements to the ditch cross section at the diversion point include: modifications to the channel section generally conforming the same geometry as the existing cross section, but warranting a well-defined, free of: obstructions, undesired vegetation at the channel, debris and sediment/erosion (as part of a continuous maintenance program). Approximate dimensions considered are: top width of 45 feet, bottom width of 19 feet, approximate side slopes of 3H:1V. It is proposed to keep the same invert as the existing conditions (11.61 feet-NAVD, based on the available LiDAR topographic information).
- Removal of undesired debris and vegetation from the most downstream ditch channel segment (to the confluence with the Estero River North Branch) as part of a continuous maintenance program.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate a significant decrease in peak water surface elevations along the Estero River North Branch channel from the confluence with the Main/South Branches up through the Three Oaks Parkway crossing. The maximum decrease in water surface elevation within the North Branch is 0.57 feet or 6.8 inches. Decreases in peak stages were also shown in the development areas adjacent to the North Branch, such as the Villages of Country Creek. Within the Bypass swale (ERNB6) itself, the decrease in peak water surface stages were also significant, with the maximum difference of 0.89 feet. This is attributed to the additional capacity of the Bypass swale system with the improved cross-section and maintained conditions. The results also indicate a slight increase (maximum of 0.15 feet) in the peak water stages of the North Branch Diversion 1 (ERNBD1) due to the increased flow from the improved Bypass swale. Provided below is a comparison table for the surrounding nodes for the Project One Peak Stage results. Also, reference Figure 4-7 for an exhibit of the project area.

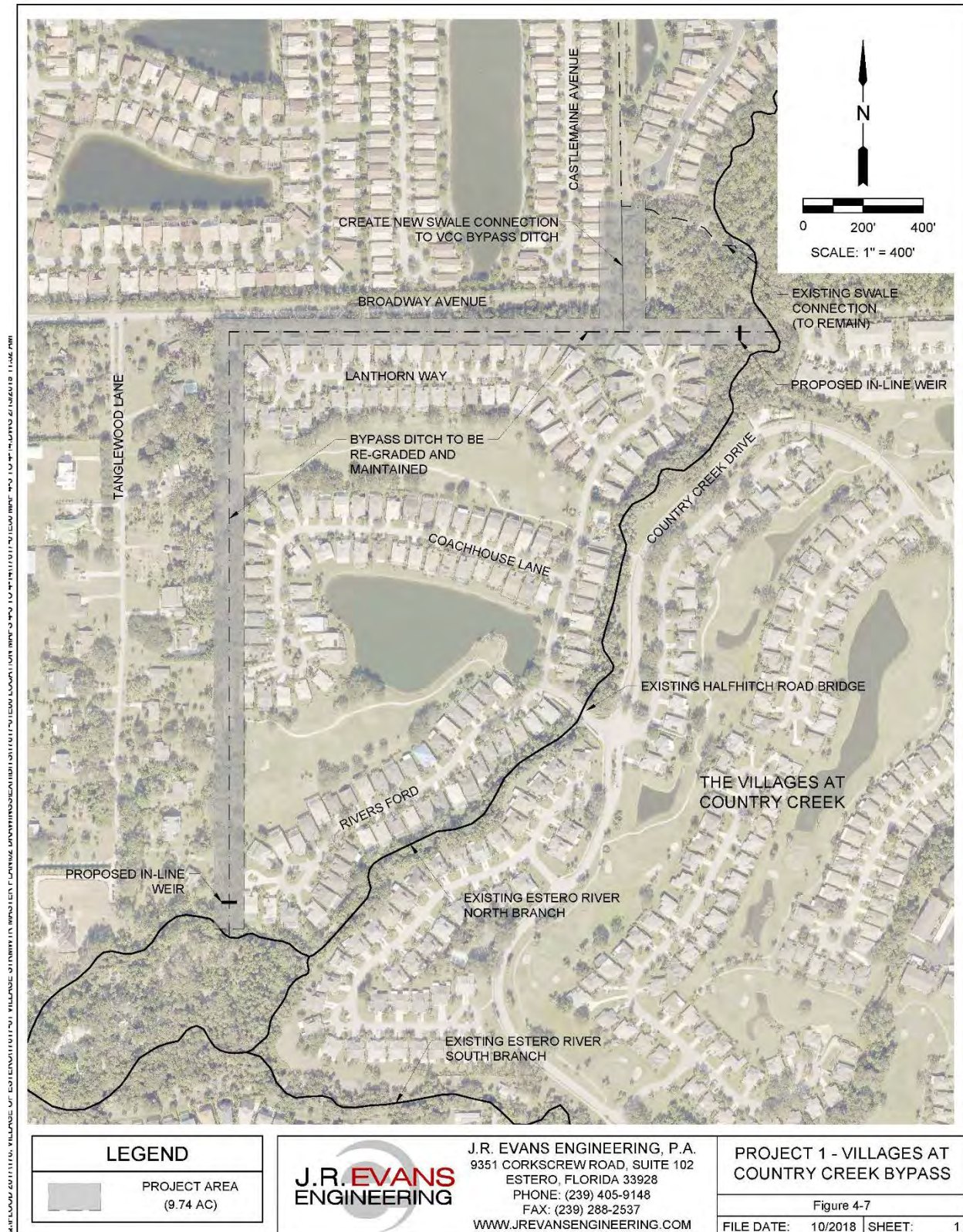


Figure 4-7: Project One - Villages at Country Creek Bypass

4.3.2. Project Two – Three Oaks Parkway Drainage Improvements

Improvements considered for the Estero Parkway at Three Oaks (East Side), includes recommendations of increasing the storage capacity and modifications to the surface and underground storm drainage systems. The intention of the project is to reduce the potential for significant roadway flooding that was observed after the August 2017 storm and Hurricane Irma. The proposed improvements considered during this evaluation are described as follows:

- Increasing the storage capacity of the Three Oaks Parkway Pond warranting no impacts to the Estero Parkway drainage system.
- Removal of debris that is obstructing the Three Oaks Parkway pipe discharging to the Three Oaks Parkway Pond.
- Modification to the connecting pipes inverts to the Three Oaks Parkway.
- Modifications to the channel sections of the swale just west of The Reef development, warranting more capacity and efficient inverts.
- Increasing the storage capacity of the Estero Parkway Ditch.
- Modifications to the current structure just upstream of the Estero Parkway Ditch, to allow discharges at lower elevations.
- Modifications to the control structure just downstream of the Estero Parkway ditch to allow flows at lower elevations (orifice).
- Adding an orifice-like weir at the Estero Parkway Ditch berm to allow some flows to reach the natural area and subsequently the Estero River North Branch Diversion 2 controlled, but at a lower elevation.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate a significant decrease in peak water surface elevations, especially for the storm drainage network along the east side of Three Oaks Parkway (ERN2BE) leading upstream to the system located north of Estero Parkway. The maximum decrease in peak stage for this system was 0.24 feet or 2.88 inches. Additional decreases in peak stages occur within the eastern side of the intersection of Estero Parkway and Three Oaks Parkway, with the maximum decrease of 0.17 feet or 2.04 inches. There is an increase in peak stage shown for the Three Oaks Parkway pond (ERNBD2-NC9) due to the additional storage capacity provided. Therefore, Project Two provides benefit to this portion of the Estero River North Branch system by reducing peak stages near and upstream of the intersection of Three Oaks Parkway and Estero Parkway. Provided below is a comparison table for the surrounding nodes for the Project Two Peak Stage results. Also, reference Figure 4-8 for an exhibit of the project area.

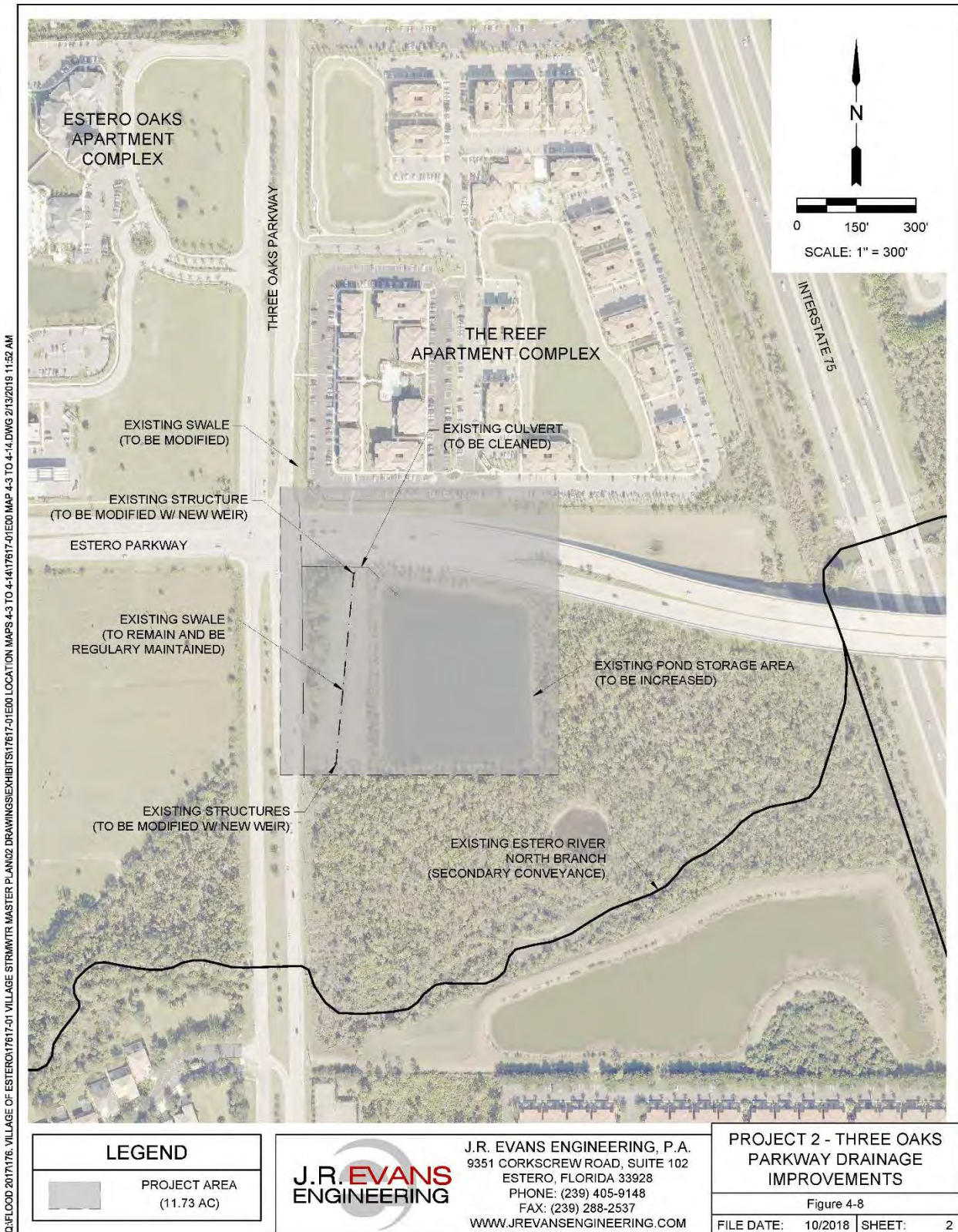


Figure 4-8: Project Two – Three Oaks Pkwy Drainage Improvements

4.3.3. Project Three – Villagio / Estero Parkway Drainage Improvements

Improvements considered for the Estero River North Branch Diversion (North of the Villagio development), includes modifications to the existing flow-way through the natural area. This diversion is named as ERNBD2 in the ICPR4 Model. Analysis of the ICPR4 model results indicates there is a significant increase in stage from the downstream to upstream section of the diversion. The proposed improvements considered during this evaluation are described as follows:

- Removal of debris and vegetation from the channel bottom; from the confluence of the diversion with the Estero River North Branch to the diversion point upstream. Minimal adjustments to the existing cross sections' channel bottom. It should be noted, that improvements should be done with the consideration of any potential environmentally sensitive areas.
- Removal of sediment and debris from the diversion culvert crossing at the Three Oaks Parkway.
- Removal of sediment and debris from the Estero River North Branch culvert crossing at the Three Oaks Parkway (just south of the Estero River North Branch Diversion culvert).
- It should be noted, that the berm that extends from the I-75 Pond to the west until reaches the Three Oaks Parkway (at the Estero River North Branch Diversion 2 left overbank) may be modified to prevent flowing waters to breach the berm and cross the Villagio property.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. In addition to comparing peak stages, the peak flows within the North Branch North Diversion were also compared. Since the intent of the project is to improve the conveyance ability of the North Diversion, the results should show an increase in peak flows through the section. The modeling results indicate minimal decrease in peak water surface elevations, especially for the storm drainage network along the east side of Three Oaks Parkway (ERN2BE) and through the North Branch Diversion itself (ERNBD2). The maximum decrease in peak stage within the Diversion was 0.03 feet. The results do indicate a slight increase (0.05 feet) in the Estero River North Branch downstream of the improvement area, most likely due to increased flow capacity of the Diversion 2 and Three Oaks Parkway crossing. In addition, the modeling results do show a significant improvement in peak flows through the Diversion section, increasing flows by up to 25%. Provided below is a comparison table for the surrounding nodes for the Project Three Peak Stage results. Also provided is a comparison table for the surrounding links for the Project Three Peak Flow results. Reference Figure 4-9 for an exhibit of the project area.

Table 4-3: Project Three Node Comparison Results

Project Three Node Comparison Results				
Node	Existing 25-Year Stage	Project_3 25-Year Stage	Run Difference	Notes
ERNB1-N01	16.01	16.01	0	
ERNB1-N010	16.72	16.72	0	
ERNB1-N011	16.73	16.73	0	
ERNB1-N013	16.73	16.73	0	
ERNB1-N014	16.74	16.74	0	
ERNB1-N015	16.81	16.81	0	
ERNB1-N02	16.47	16.47	0	

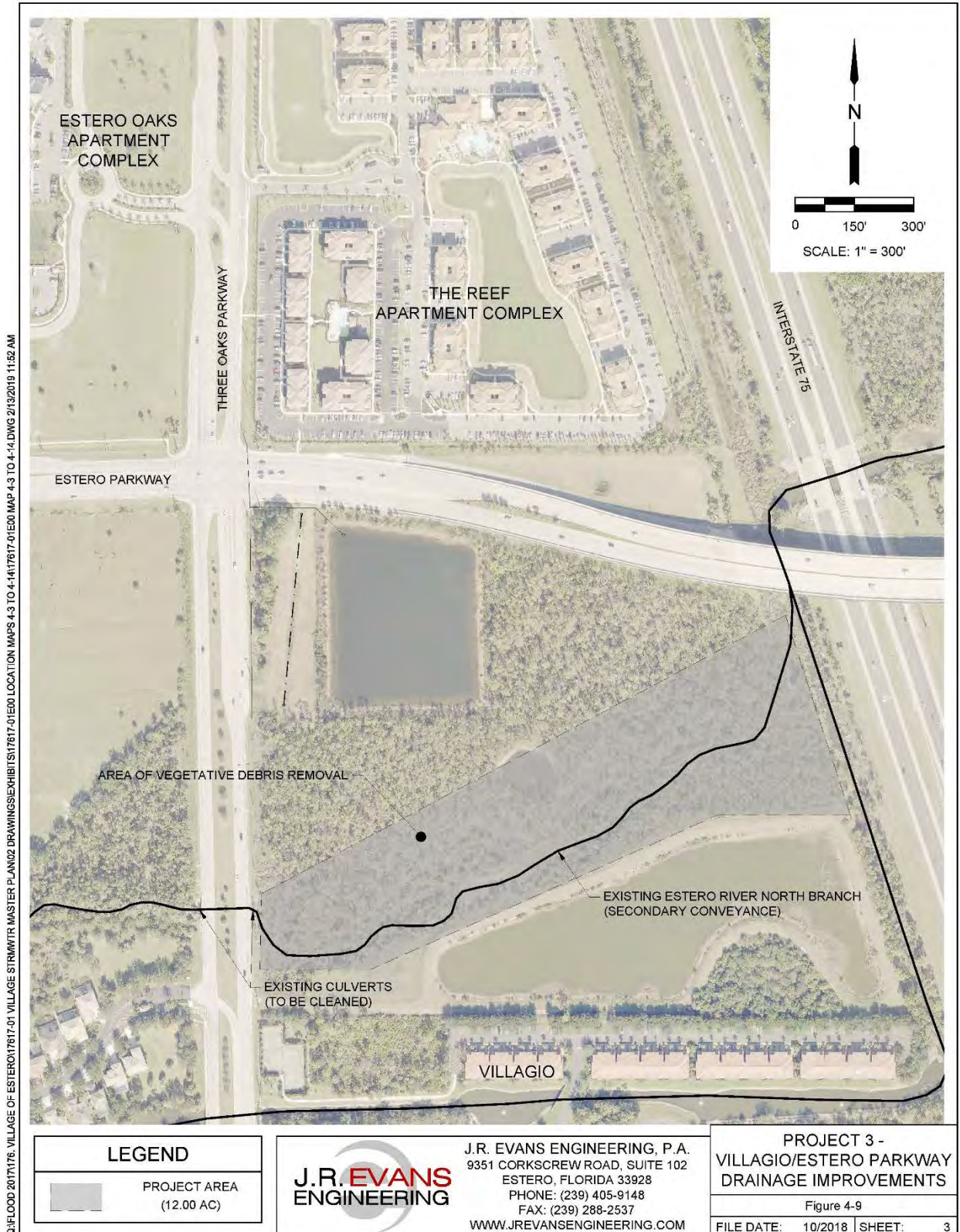


Figure 4-9: Project Three – Villagio / Estero Parkway Drainage Improvements

4.3.4. Project Four - Estero Parkway Culvert

During the evaluation of the design storms simulations, it was noted that the change in hydraulic grade through the cross-culvert at Estero Parkway connecting the north-south ditch between Cascades and Rookery Point was approximately 1.0 feet during the 25-Year, 3-Day simulation. This cross-culvert receives flow from many properties located north of Estero Parkway, including Country Oaks, Pine Glen, and the Our Lady of Light Church. Improvements considered for the Estero Parkway Cross Culvert (North of Rookery Pointe), includes modifications to the culvert and channel cross sections. This culvert is along the ditch named as ERNB4 in the ICPR4 Model. The proposed improvements considered during this evaluation are described as follows:

- Replacement of the one (1) 34" x 53" pipe for two (2) 29" x 45" (reinforced concrete), lengths of the three segments are considered to have the same inverts as the ones shown in the Estero Parkway Plans (approximately 11.45 feet-NAVD upstream and 11.35 feet-NAVD downstream).
- Modifications to the cross sections upstream and downstream of the Estero Parkway Culvert crossing. Trapezoidal cross sections are considered from a point 56 feet downstream of the Estero Parkway culvert to the upstream side (adequate transition upstream of this point is considered as well). The proposed cross sections are considered to have side slopes of 3H:1V with a top width of 40 feet and a bottom width of 19.7 feet. Invert elevations were considered to match the culvert inverts at the respective locations (11.35 feet-NAVD downstream and 11.45 feet-NAVD upstream). Such cross sections were considered to be well maintained, free of debris and undesired vegetation.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The results for Project Four indicate a reduction in head-loss across the culvert of 0.31 feet. Therefore, the peak stage on the upstream side of the crossing was reduced by 0.31 feet or 3.72 inches. There were also decreases in peak stage along the north side of Estero Parkway, west and east of the culvert crossing. Provided below is a comparison table for the surrounding nodes for the Project Four Peak Stage results. Also, reference Figure 4-10 for an exhibit of the project area.

Table 4-5: Project Four Node Comparison Results

Project Four Node Comparison Results				
Node	Existing 25-Year Stage	Project_4 25-Year Stage	Run Difference	Notes
ER-N1	0.48	0.48	0	
ER-N10	1.65	1.65	0	
ER-N11	1.83	1.83	0	
ER-N12	2.28	2.28	0	
ER-N13	2.61	2.61	0	
ER-N14	3.01	3.02	0.01	
ER-N15	3.1	3.11	0.01	
ER-N16	3.34	3.34	0	
ER-N17	3.38	3.39	0.01	
ER-N18	3.42	3.43	0.01	
ER-N19	3.56	3.57	0.01	



Figure 4-10: Project Four - Estero Pkwy Culvert Replacement

4.3.5. Project Five - River Ranch Road Drainage Improvements

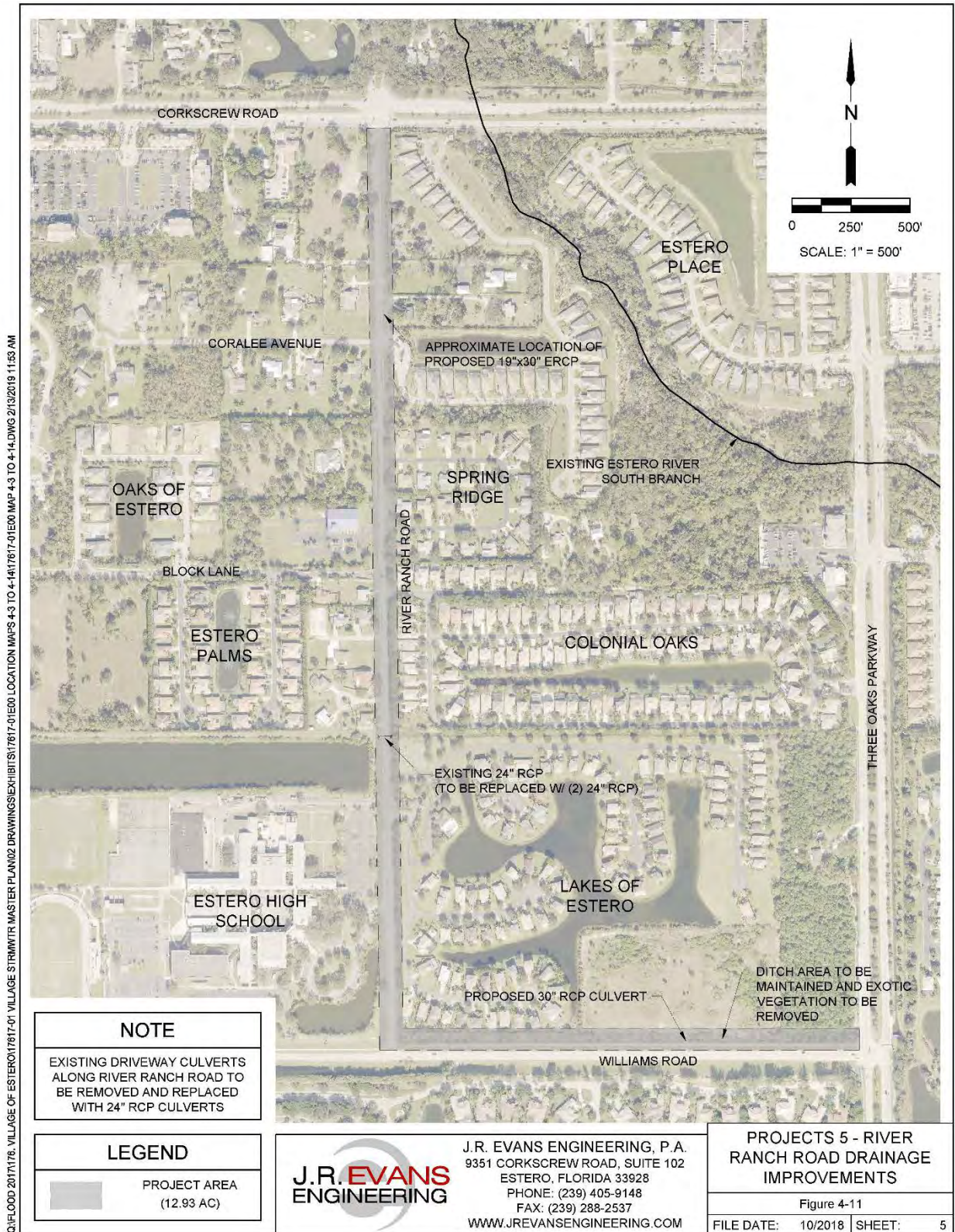
Improvements considered for the River Ranch Road drainage system includes the addition of culverts connecting the east and west roadside swales, additional culverts at several existing culvert crossings and the upsizing of existing driveway culverts. The intention of the proposed improvements is to increase the hydraulic connectivity of the east and west roadside swale systems and to increase the flow capacity to the North Lakes of Estero conveyance swale and to the South Corkscrew Road conveyance system.

Additionally, improvements to the maintenance of the North Williams Road swale, east of the River Ranch Road intersection, and the removal and replacement of the temporary construction access culvert would improve the River Ranch Road drainage system. The River Ranch Road and Williams Road drainage improvements were considered together since the two systems are hydraulically connected during major storm events.

The proposed improvements considered during this evaluation are described as follows:

- Adding a 19"x30" ERCP culvert to connect the east and west roadside swale, approximately 690' south of the Corkscrew Road intersection.
- The removal and replacement of the driveway culverts along the east and west roadside swales to 2' RCP culverts, and the adjustment of the pipe inverts.
- The removal and replacement of the culvert crossing approximately 140' south of Ridge Runner Court, from one (1) 24" RCP culvert to two (2) 24" ERP culverts.
- The removal and replacement of the 12" HDPE culvert at the temporary construction access across the North Williams Road swale with a 30" RCP culvert, approximately 1,200' west of the River Ranch Road intersection.
- The vegetation removal and maintenance of the North Williams Road swale from the River Ranch Road intersection east to the Three Oaks Parkway intersection. Manning's values were adjusted to account for routine maintenance that will keep the channel free of obstructions, undesired vegetation, and sedimentation.
- Increase due to greater flow reaching north lakes of estero swale

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate that the highest roadside swale elevation, which occurred at the northwest corner of the Block Lane intersection, decreased 0.25 feet or 3 inches. Several nodes did show an increase in peak stage, however, the increases occurred at the nodes with the lowest peak stages in the pre-project conditions. Provided below is a comparison table for the surrounding nodes for the Project Five Peak Stage results. Also, reference Figure 4-11 for an exhibit of the project area.



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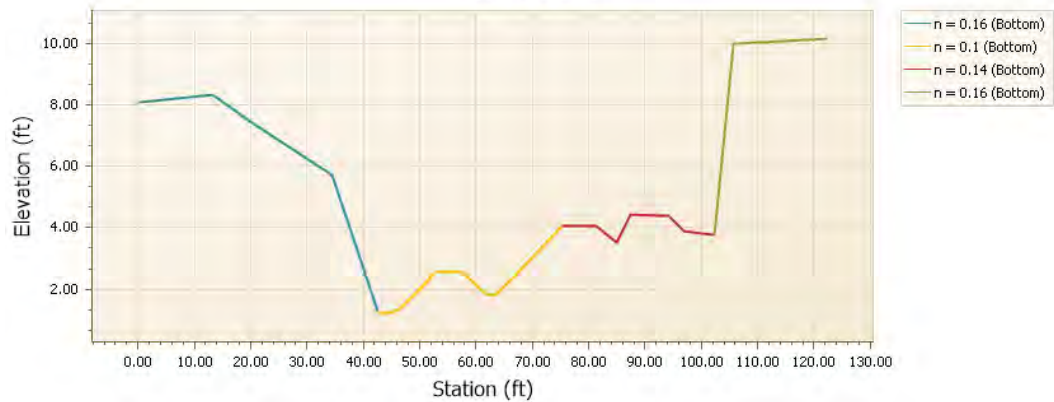
Figure 4-11: Project Five– River Ranch Road Drainage Improvements

4.3.6. Project Six - Dry Creek Bed Sediment Removal

Improvements considered for the Bamboo Island bypass between the North Branch and South Branch of the Estero River include the dredging, reshaping and removal of vegetation within the bypass channel to increase the flow capacity and better distribute the flow between the north diversion and the subject bypass channel. The proposed improvements to the bypass channel are shown in the below cross-sections:

EXISTING CHANNEL CROSS-SECTION ERNB-XS01

ERNB-XS01



PROPOSED CHANNEL CROSS-SECTION ERNB-XS01

ERNB-XS01

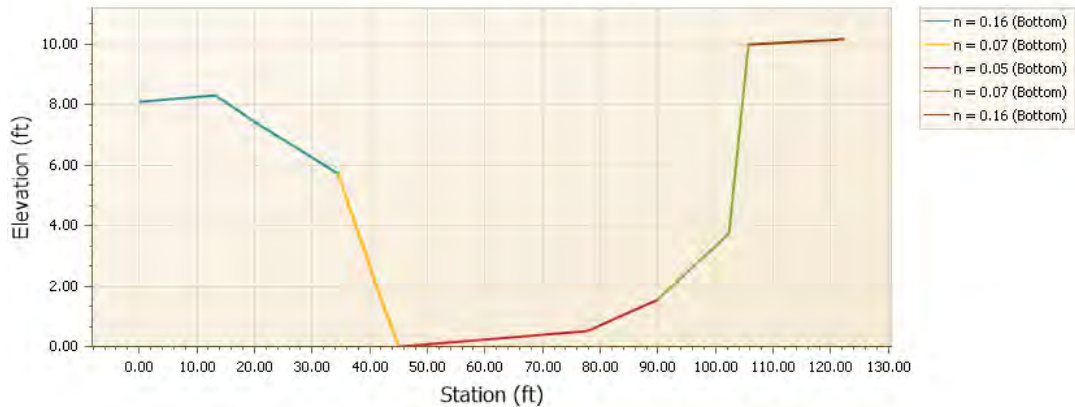
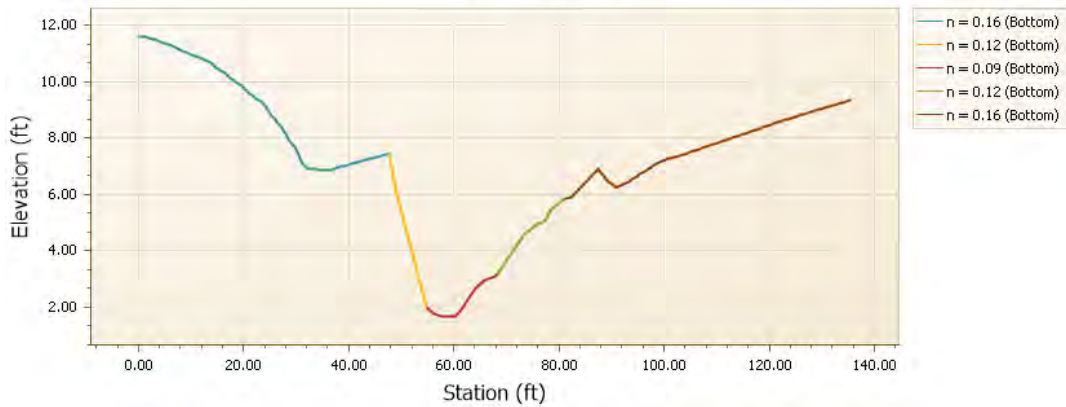


Figure 4-12: Channel Cross-section ERNB-XS01 Comparison

EXISTING CHANNEL CROSS-SECTION ERNB-XS02

ERNB-XS02



PROPOSED CHANNEL CROSS-SECTION ERNB-XS02

ERNB-XS02

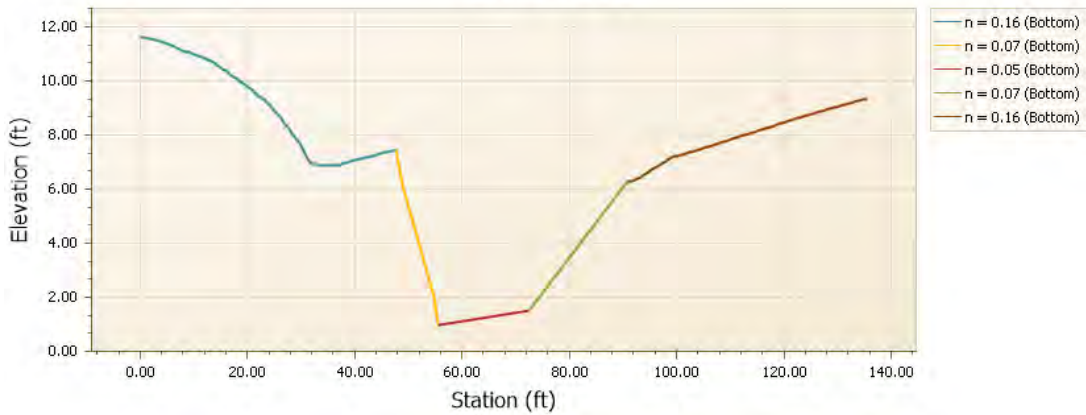
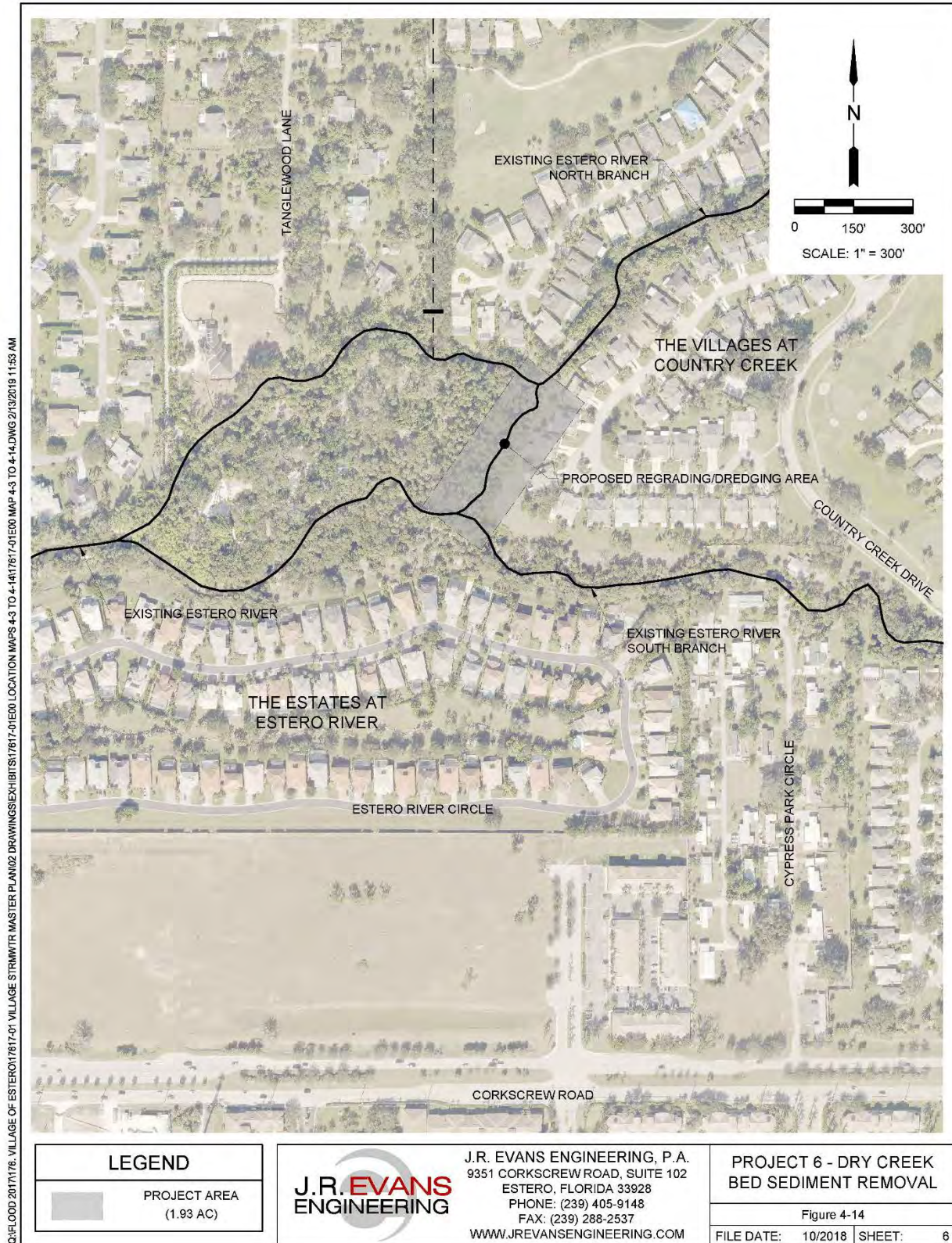


Figure 4-13: Channel Cross-section ERNB-XS02 Comparison

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate that the modification proposed to the bypass channel would decrease peak stages upstream and within several of the Country Creek basins. Provided below is a comparison table for the surrounding nodes for the Project Six Peak Stage results. Also, reference Figure 4-14 for an exhibit of the project area.



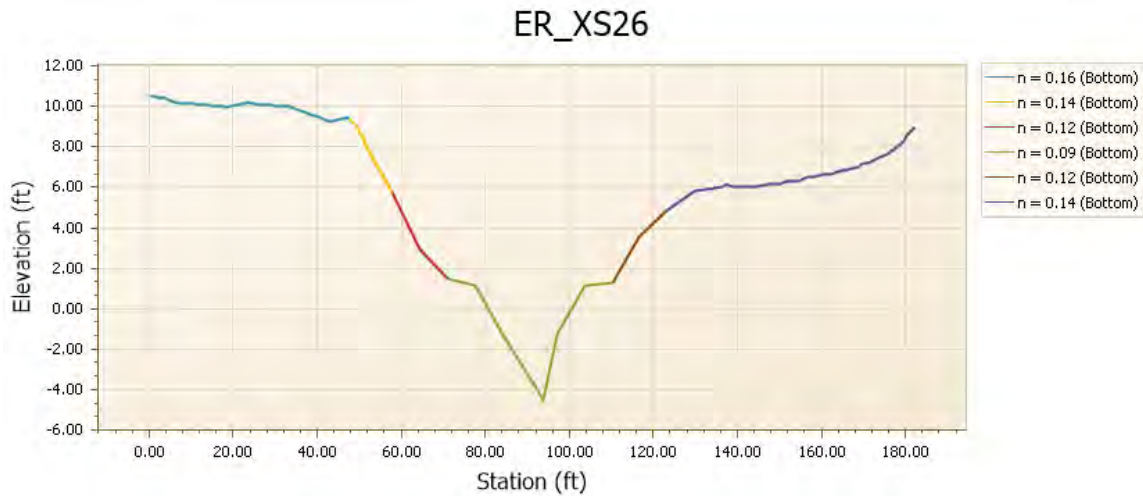
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Figure 4-14: Project Six – Dry Creek Bed Sediment Removal

4.3.7. Project Seven - Estero River Side Banks Sediment Removal

Improvements considered for the Estero River Main Branch between the Seminole Gulf Railroad and the Sandy Lane bridge include the dredging, reshaping and removal of vegetation within the channel to increase the flow capacity. Based on the existing conditions analysis, the model indicates significant increases in water surface elevation through this section of the river. The proposed improvements to the channel are shown in the below cross-sections.

EXISTING CHANNEL CROSS-SECTION ER-XS26



PROPOSED CHANNEL CROSS-SECTION ER-XS26

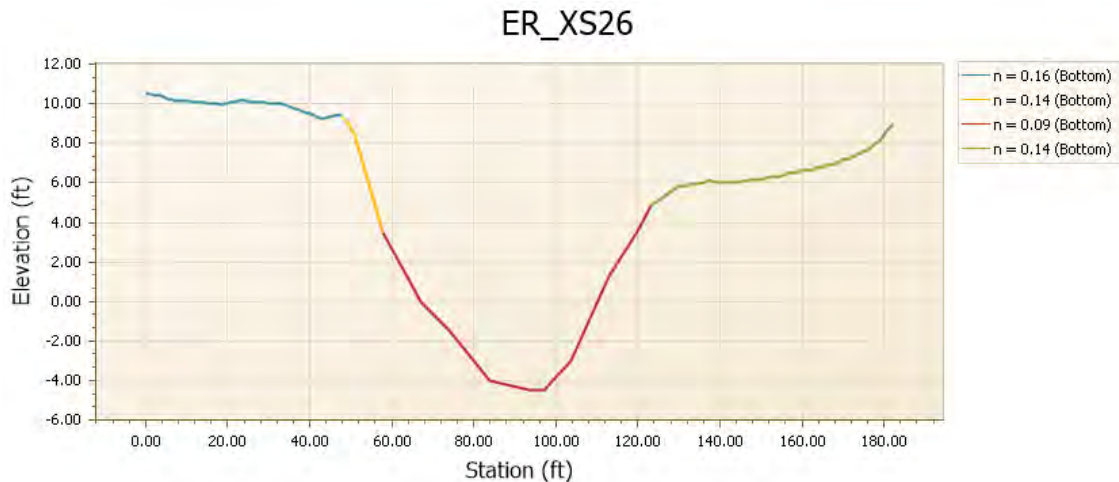


Figure 4-15: Channel Cross-section ER-XS26 Comparison

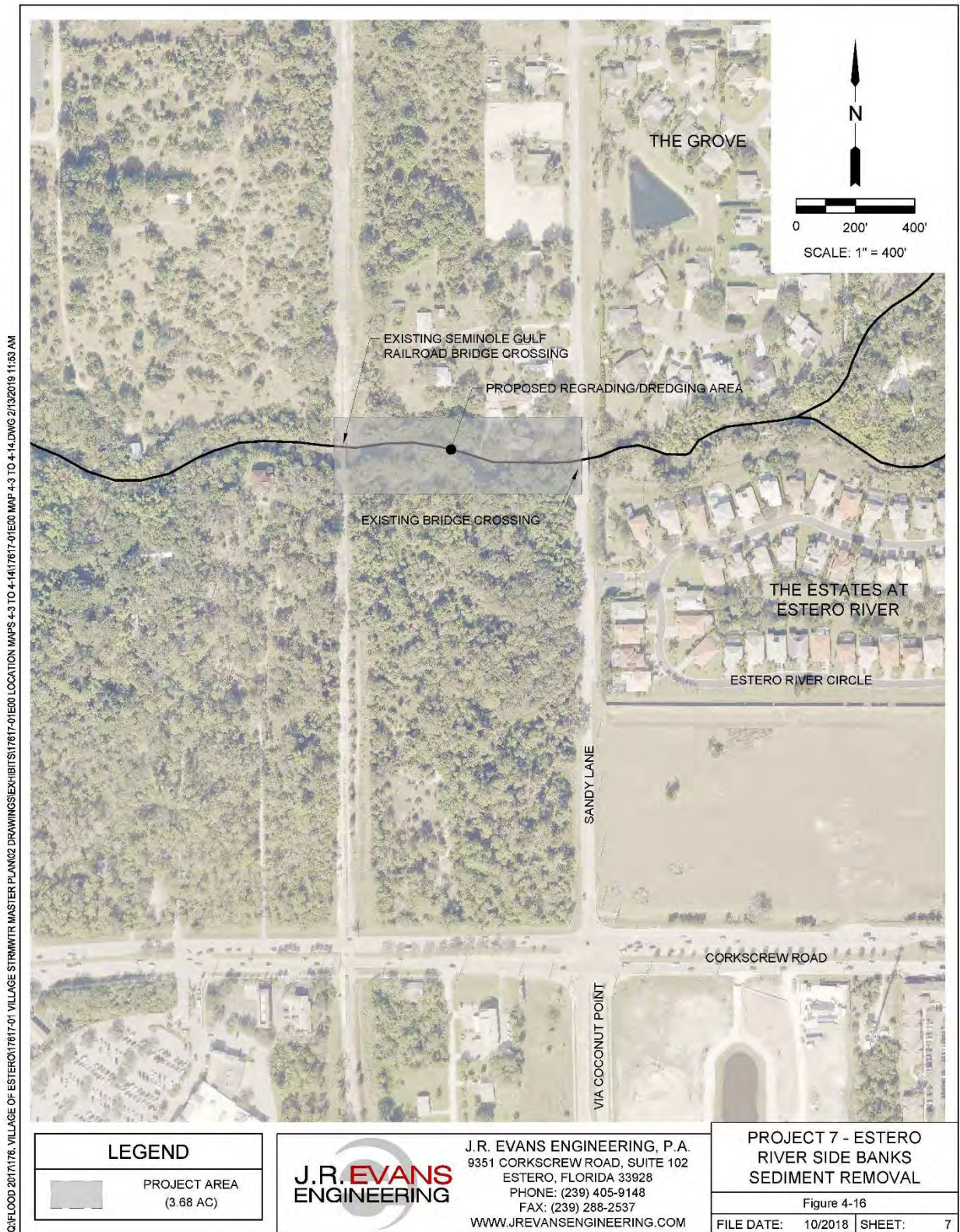


Figure 4-16: Project Seven – Sediment Removal along Side Banks

4.3.8. Project Eight – Broadway Ave. Main Tributary: Engineered Design for Tributary Cross-Sections.

Improvements considered for the Tributary of the Estero River (where Broadway Ave. West/U.S. 41 discharge) include replacement of some culverts and channel modifications to increase the flow capacity. A summary of the proposed improvements is included below. For more details related to these improvements, please refer to the Broadway Ave./U.S. 41 Drainage Improvement Plan (September 2017).

- Broadway Ave. pipe's replacement considers changing the 29"x45" CMP's for 42" RCP's. Adjustments to the proposed pipe inverts were also considered to account for constructability. Note: This portion of the project is under construction as of July 2018.
- Broadway Ave. east receiving swale connection and weir changes considers the installation of 15 feet of a 24" RCP with a mitered entrance, and the removal of the existing east weir (notch). Note: This portion of the project is under construction as of July 2018.
- The replacement of the pipe parallel to the Trailside Drive considers changing the 30" CMP for a 30" RCP with mitered end sections. Adjustment to the pipe inverts are also proposed.
- The Greenway Landscape pipe replacement considers changing the 24" CMP for a 24" RCP with mitered end sections. Adjustment to the pipe inverts are also proposed.
- Improvements to the main channel sections considers an overall increase on the Tributary of Estero River channel width from a point approximately 30 feet downstream of the Broadway Ave. proposed culvert exit to the northeastern Greenway Landscape Property Boundary. Proposed trapezoidal cross sections at the Tributary starts from approximately 30 feet downstream of the Broadway Ave. proposed culvert exit to the southwestern Greenway Landscape Property Boundary. The trapezoidal cross sections are considered to have side slopes of 3H:1V, a channel bottom width of 3.5 feet and a channel top width ranging from approximately 23 feet to 35 feet. The most downstream invert is considered to be 7.5 feet-NAVD (matching with the proposed pipe invert) and the most upstream invert is considered to be 10 feet-NAVD (upstream of the Trailside Drive culvert). Within the Greenway Landscape property, V-Shape cross section were considered with side slope of 3H:1V and general invert elevation of 10 feet (NAVD). An adequate tie-in with the area near the Greenway Landscape property boundary and the exit of the US-41 culverts is proposed.
- Manning's "N" values were adjusted to account for a routine maintenance that will keep the channel free of: obstructions, undesired vegetation, and sedimentation/scour. The Tributary channel is considered to be covered with short grass, and to contain no rifts or deep pools.
- Confluences of secondary swales with the Tributary of Estero River are considered to be modified to warrant adequate tie-in with the proposed Tributary invert elevations. Approximately 30 feet of the swales directly connected to the Tributary of Estero River should be modified.
- Based on the previous ICPR4 modeling completed for this project, results obtained show that the proposed improvements decreased the water surface elevations up to 0.8 feet, 9.6 inches, along the Tributary of Estero River (net change varies for each rainfall event). It should be noted that positive impacts to the water surface elevations were also obtained at the contributing swales and other areas within the area of interest. Also, reference Figure 4-17 for an exhibit of the project area.
- Improvements to the Tributary of Estero River are required to resolve some of the deficiencies the drainage system currently has, and which are affecting the existing residential and commercial developments. The implementation of the proposed improvements will result in benefits to the existing developments.

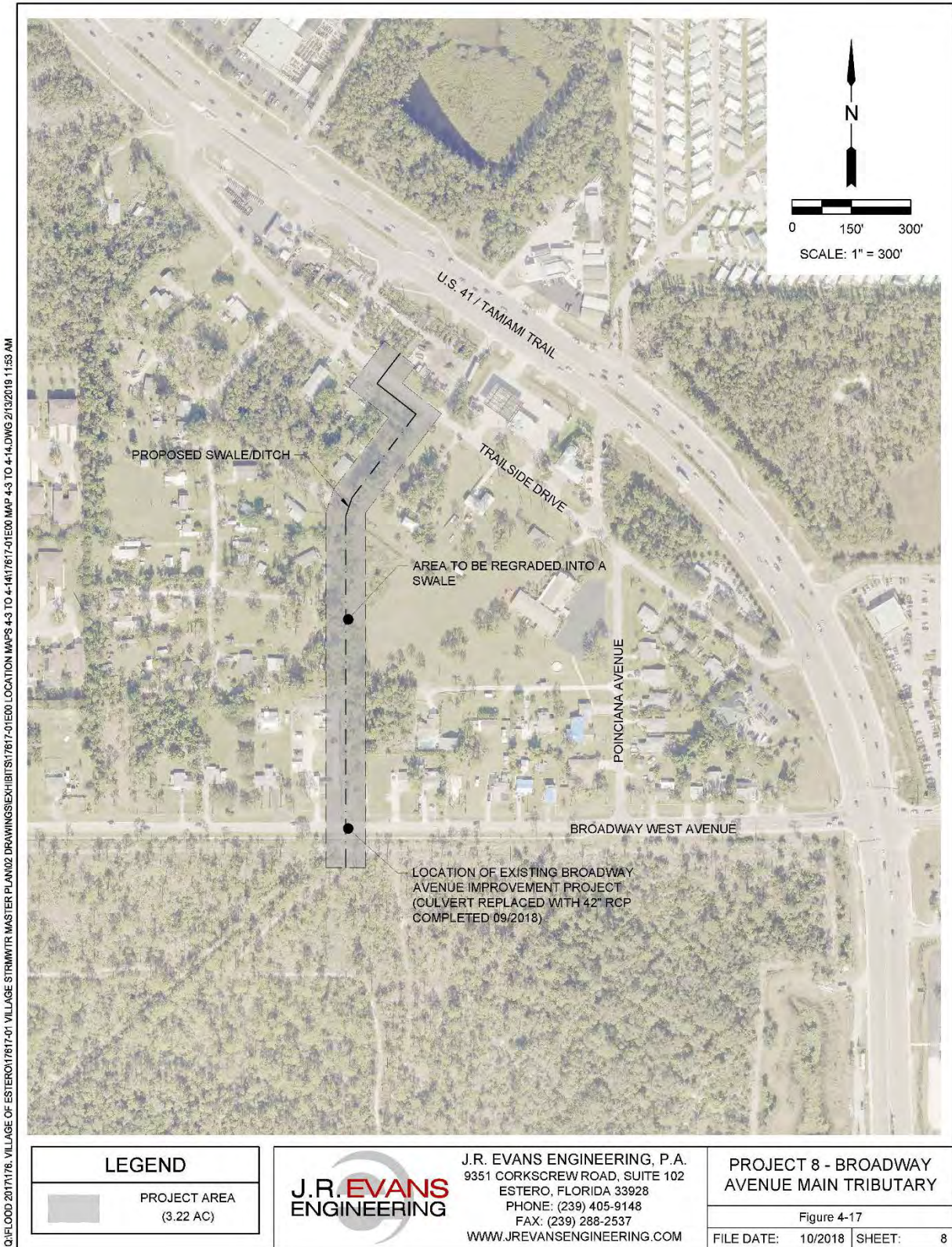
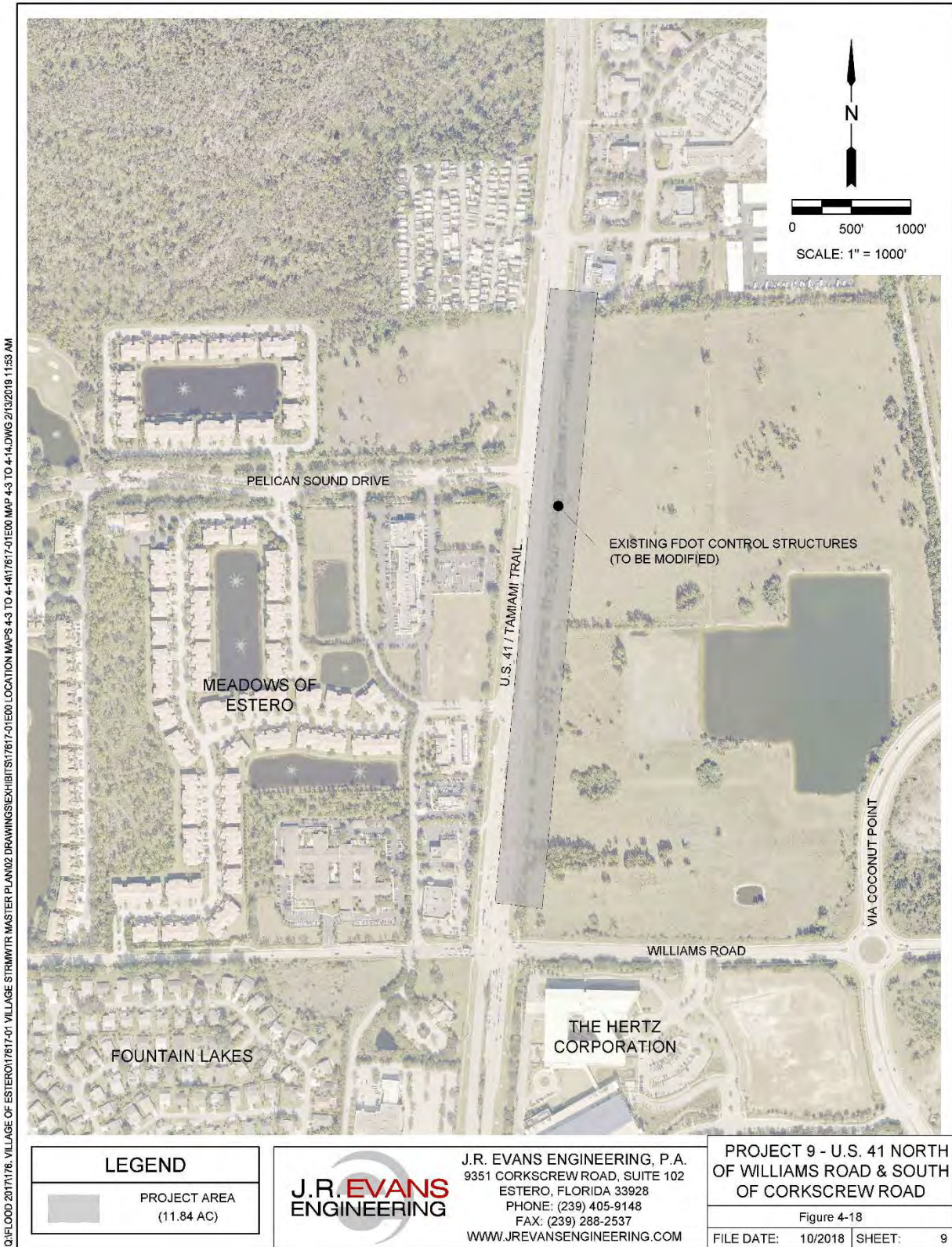


Figure 4-17: Project Eight– Broadway Avenue Tributary Improvement

4.3.9. Project Nine – U.S. 41, North of Williams Rd. and South of Corkscrew Rd.

This is a recommended project to relieve the flooding issues experienced along the east side of U.S. 41, north of Williams Road and south of Corkscrew Road. At this time the U.S. 41 storm drainage system within this area does not have a positive outfall to the west and therefore water fills the roadside detention ponds and remains there for prolonged periods after rain events. The sidewalk along this stretch of U.S. 41 is consistently flooded during the wet season. In 2006, FDOT obtained a permit from SFWMD (App. 060613-6) to modify some of the FDOT control structures along the east side of U.S. 41 and re-direct the stormwater flow. However, based upon the permit records and site observations, the improvements were never conducted. It is recommended that these improvements be implemented to relieve the flooding conditions in this vicinity. This could also have an impact on the adjacent lands to the east of U.S. 41 being able to achieve a positive outfall. Reference Figure 4-18 for an exhibit of the project area.



**Figure 4-18: Project Nine– U.S. 41, N. Williams Rd. & S. Corkscrew Rd.
Drainage Modification**

4.3.10. Project Ten -Maintenance of the Natural System

The maintenance of the main channels is pertinent for the functionality of the Village's natural drainage conveyance systems. Debris, vegetative and nonorganic, collects within the natural conveyances overtime. The collection of debris is often intensified and accelerated by storm events. Debris collected within the waterways can cause blockages in structures, such as culverts and bridges, which results in increase stages upstream. Excess debris, even when it does not cause blockages, can have negative affects by slowing down the flow, which can also lead to higher stages. The same is true for unmaintained vegetation within the channel and the channel banks. Tall grasses, shrubs, an overgrowth of weeds and downed trees can have a large impact on the flood stage due to the increased roughness of the flow path.

Areas recommended to be regularly evaluated and maintained are as follows:

- Estero River South Branch, South of Corkscrew Road to Sanctuary Road
- Estero River North Branch, North of Villages at Country Creek
- Halfway Creek, West of U.S. 41
- FPL Easement Ditches between Williams Road and Coconut Road
- Seminole Gulf Railroad Ditch, North of Estero River Main Branch

Estero River North Branch, North of Villages at Country Creek - Figure 4-19:

The intent of the maintenance in this area is to improve the conveyance ability for the portion of the North Branch located between the north property boundary of Villages at Country Creek and Rookery Drive within the Rookery Pointe community. Based on the existing conditions analysis, the model indicates significant increases in water surface elevation through this section of the North Branch, which is attributed to the channel cross-section and heavily vegetative conditions.

Improvements considered for the Estero River North Branch between the north property line of Country Creek upstream to the Rookery Drive bridge includes the reshaping and removal of vegetation within the channel to increase the flow capacity. Analysis of the various storm events shows a significant increase in the hydraulic grade line through this section of the North Branch.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate that the modification proposed to the channel would substantially decrease peak stages upstream of the project area; however, downstream increases in peak stages did result from the changes. Reference Figure 4-19 for an exhibit of the project area.

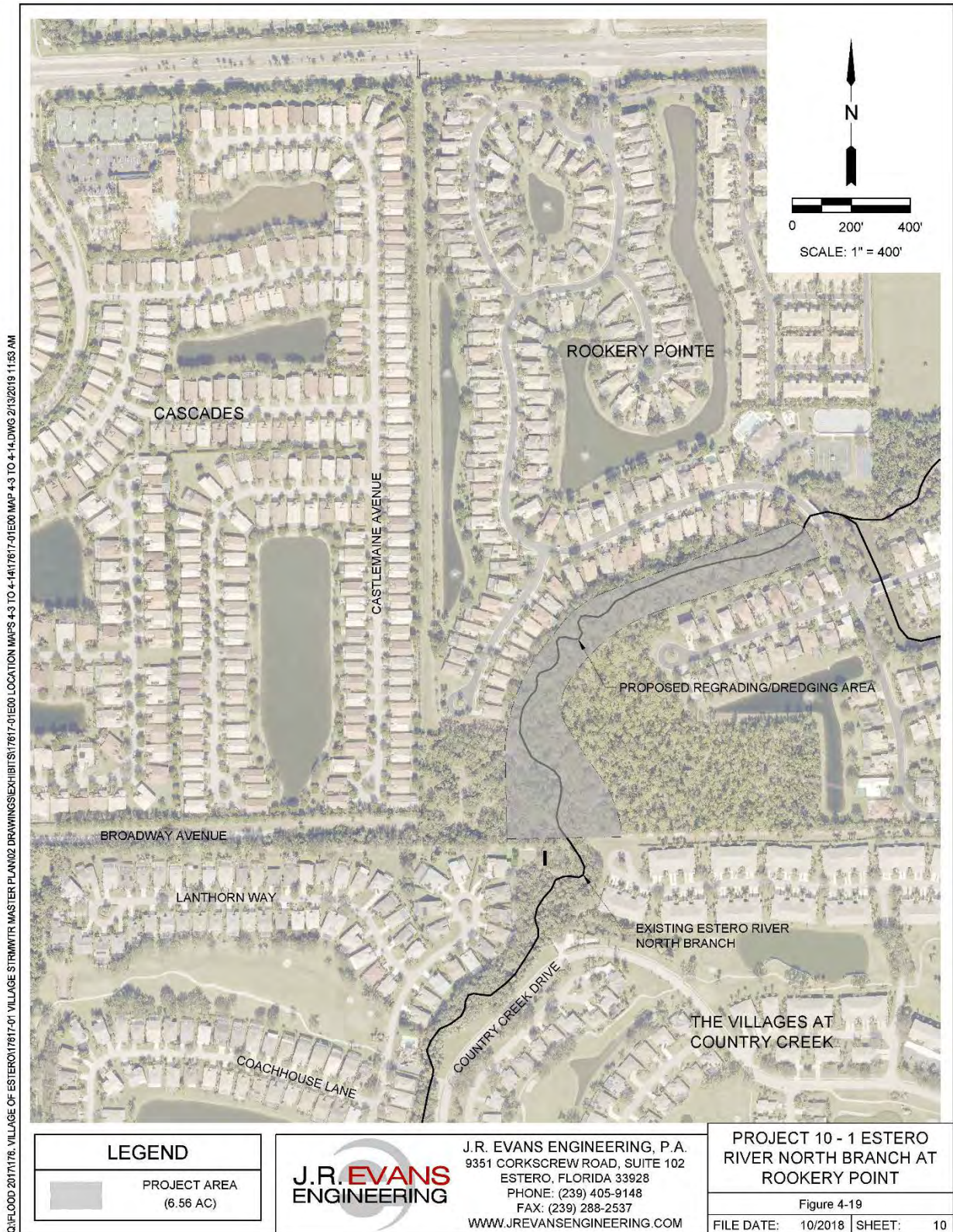


Figure 4-19: Project 10-1 – Estero River North Branch at Rookery Point

Estero River South Branch - Figure 4-20:

Improvements considered for the Estero River South Branch from Sanctuary Road to Corkscrew Road includes maintenance and vegetation removal from the channel. Based on the existing conditions analysis, the model indicates that flow through this section of the South Branch decreases from upstream to downstream, indicating poor conveyance. The proposed improvements considered during this evaluation are described as follows:

Removal of debris and vegetation from the channel bottom; from the downstream side of the Sanctuary Road crossing to the upstream side of Corkscrew Road. It should be noted, that improvements should be done considering any potential environmentally sensitive areas.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate that the modifications proposed will decrease peak stages upstream of the proposed modifications by up to 0.39' or 4.7". The improvements may also increase the peak stages downstream due to the greater flow capacity of the improved channel segment. Reference Figure 4-20 for an exhibit of the project area.

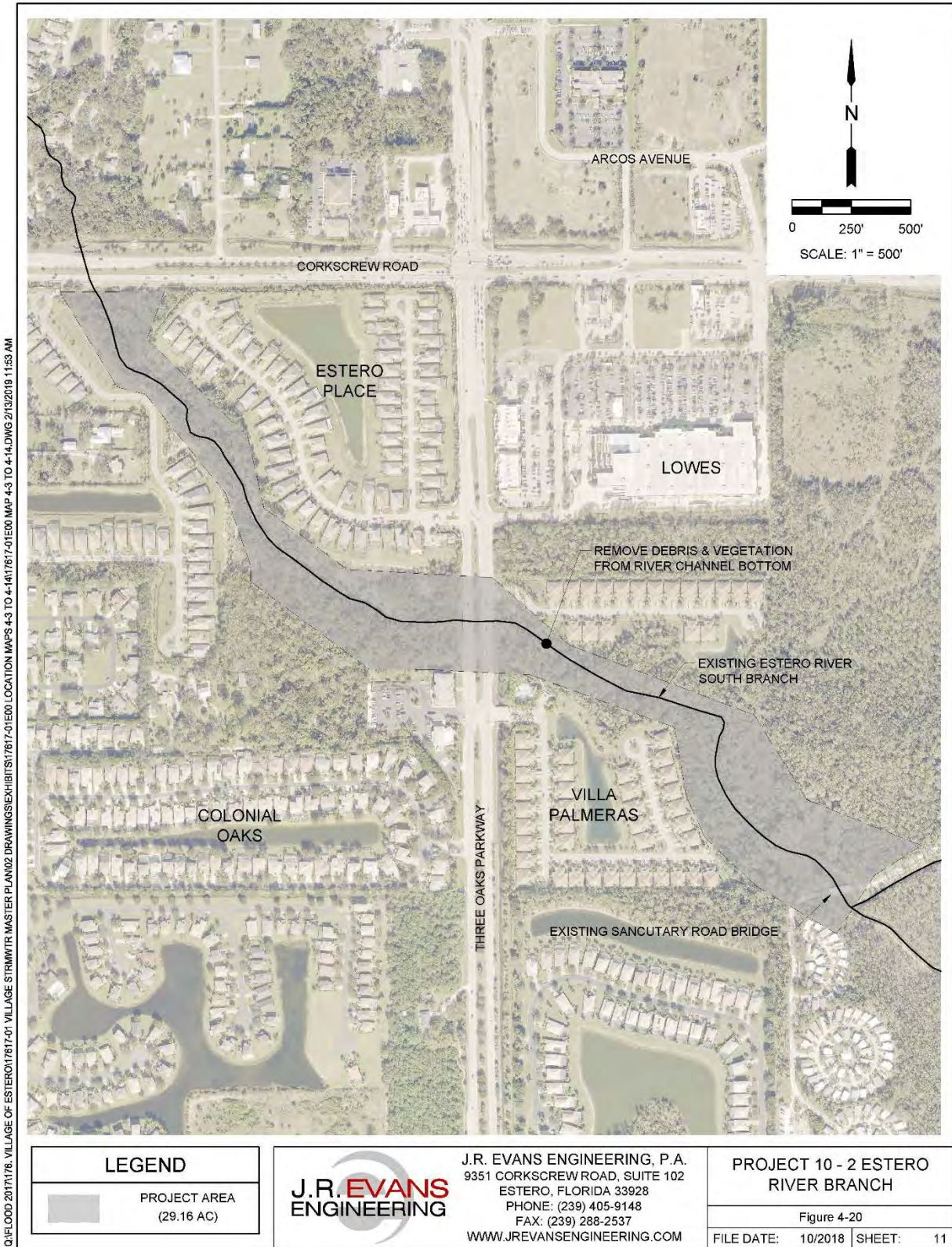


Figure 4-20: Project 10-2 – Estero River South Branch Maintenance

Halfway Creek, West of U.S. 41 - Figure 4-21:

Improvements considered for Halfway Creek, West of the FPL easement up to the West Bay Club, includes the maintenance and removal of brush and trees from the channel portion of the creek. Based on the existing conditions analysis, the model indicates significant increases in water surface elevation through this section of Halfway Creek. The typical proposed improvements to the subject portion of Halfway Creek is shown in the below cross-sections.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate that the modifications proposed will decrease peak stages upstream and downstream of the proposed modifications. Reference Figure 4-21 for an exhibit of the project area.

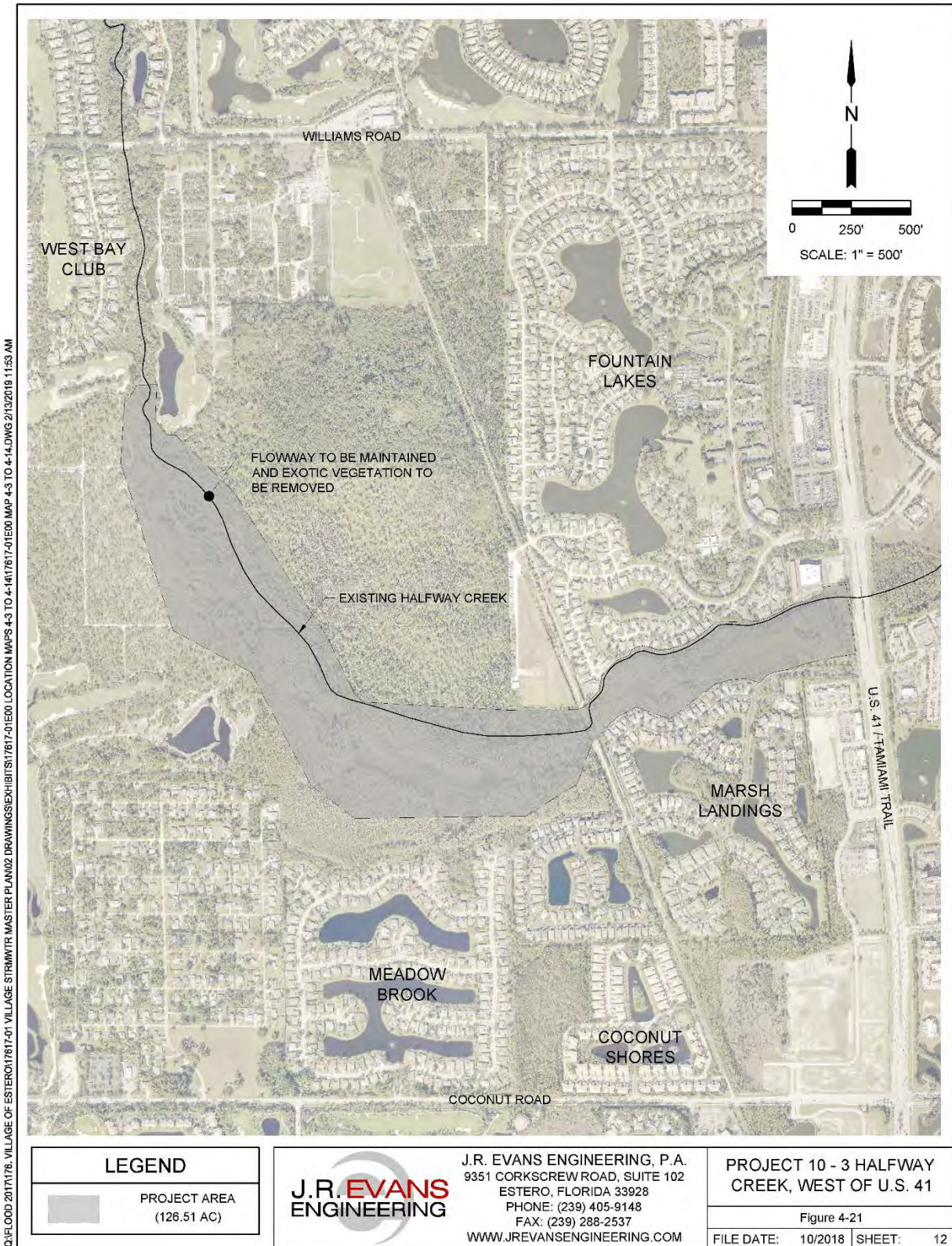


Figure 4-21: Project 10-3 – Halfway Creek Maintenance

FPL Easement Ditches between Williams Road and Coconut Road - Figure 4-22:

Improvements considered for the FPL easement ditches, between Williams Road and Coconut Road, includes the maintenance and removal of brush and trees from the east and west ditches along the easement, to decrease the hydraulic difference between the upstream and downstream stages. The typical proposed improvements to the FPL easement ditches are shown in the below cross-sections.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate that the modifications proposed will decrease peak stages upstream and downstream of the proposed modifications. Reference Figure 4-22 for an exhibit of the project area.

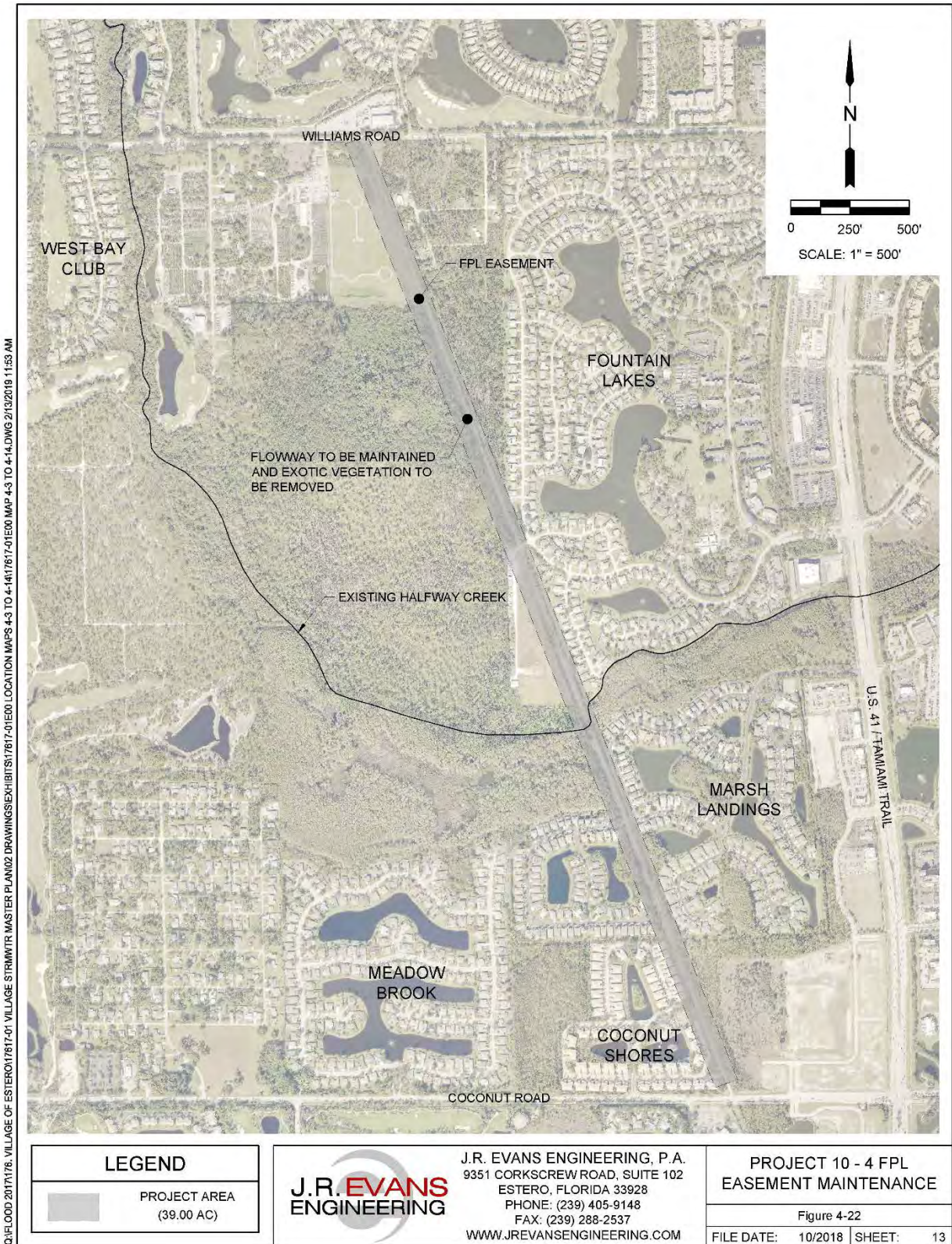


Figure 4-22: Project 10-4 – FPL Easement Maintenance

Seminole Gulf Railroad Ditch, North of Estero River Main Branch - Figure 4-23:

Improvements considered for the Seminole Gulf Railroad ditch include the removal of trees, obstructions and weeds to increase the flow capacity of the ditch. Reshaping of the ditch is not proposed. Currently, the ditch conveys stormwater from Estero Parkway and three residential communities, The Reserve, Belle Lago and Cascades. After the August 2017 storm and again after Hurricane Irma, the areas that drain to the conveyance swale experienced roadway flooding lasting upwards of five days. Improving the conveyance ditch will provide the communities and roadways a greater chance of adequately handling a large storm event.

The proposed improvements to the conveyance ditch are shown in Cross-Section ER4N-XS2; similar improvements are proposed to cross-sections ER4N-XS1, ER4N-XS3, ER4N-XS4, ER4N-XS5, ER4N-XS6, and ER4N-XS7. Reference Figure 4-23 for an exhibit of the project area.

Once the modifications were conducted in the ICPR4 model, the 25-Year, 3-Day design storm simulation was executed, and peak stage results were compared with the pre-project stages. The modeling results indicate that the proposed modifications to the channel would decrease peak stages.

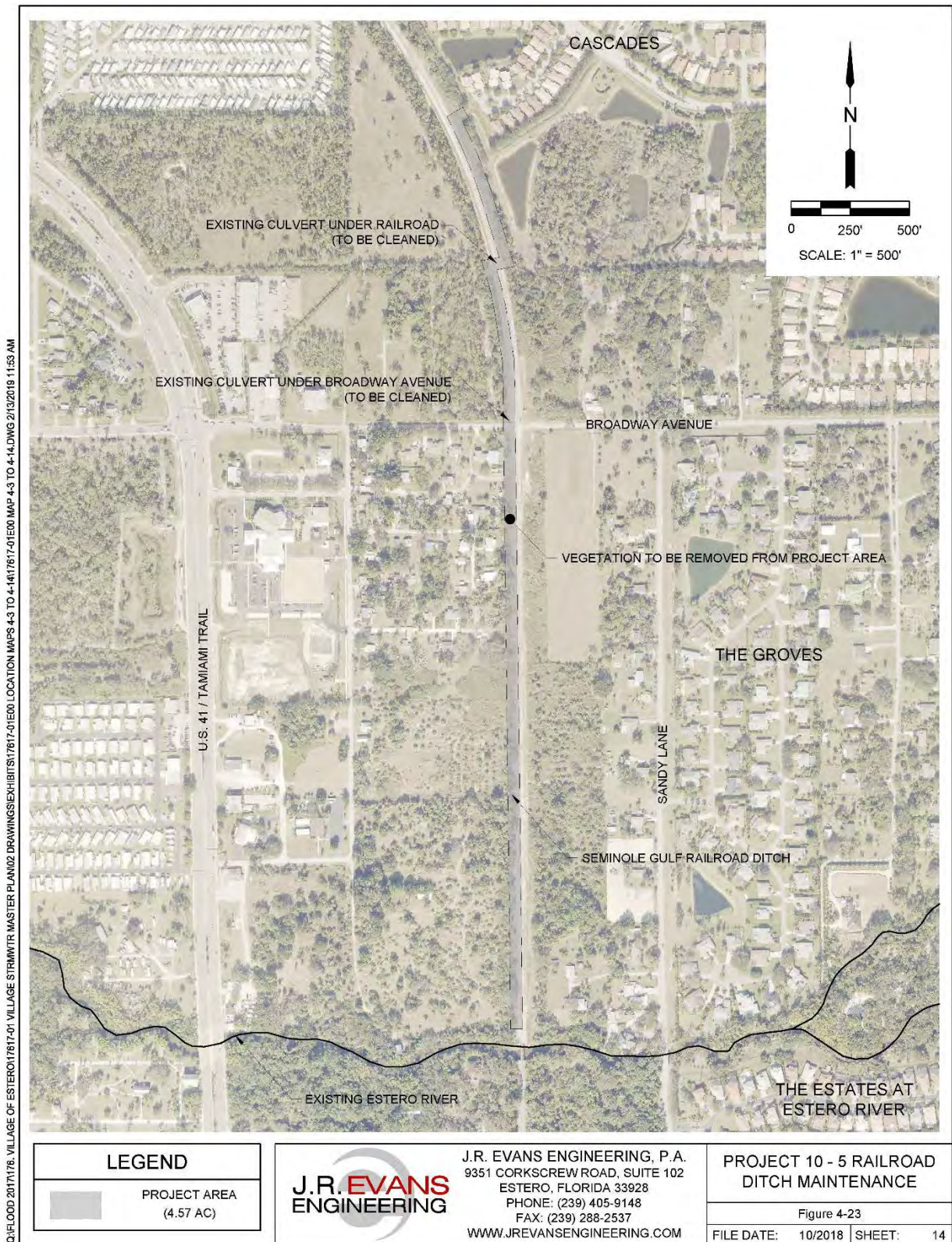


Figure 4-23: Project 10-5 – Seminole Railroad Ditch Maintenance

4.4.2. Prioritizing of Recommended Projects

Of the ten potential improvement projects, four of the projects are considered high priority, three are considered medium priority and two are considered low priority. Priority was assigned to the projects based on the positive benefit they are expected to provide, the expected cost to implement the improvement and the feasibility of permitting and implementation of the project.

High priority projects recommended to be implemented within 1-5 years are as follows:

- Project One: Villages at Country Creek Bypass Swale
- Project Four: Estero Parkway Culvert
- Project Five: River Ranch Road Drainage Improvement
- Project Eight: Broadway Ave. Main Tributary

Medium priority projects recommended to be implemented within 5-10 years are as follows:

- Project Three: Villaggio / Estero Parkway Drainage Improvements
- Project Six: Dry Creek Bed Sediment Removal
- Project Seven: Estero River Side Banks Sediment Removal

Low priority projects recommended to be implemented at a time greater than 10 years present time are as follows:

- Project Two: Three Oaks Parkway Drainage Improvements
- Project Nine: U.S. 41, North of Williams Rd. and South of Corkscrew Rd

Of the ten potential improvement projects, one project, Project Ten, is categorized as maintenance and is recommended to be reviewed on an annual basis.

The maintenance project involves the main conveyances and should be routinely evaluated to determine the flow areas that need to be maintained with debris removal and exotic vegetation removal. A routine review of these areas will reduce potential issues of flow obstructions for future significant rainfall events.

4.4.3. Recommended Rule Changes

In addition to the identified potential improvement projects, there are other activities The Village can implement to mitigate issues with negative impacts on the stormwater management system and damages related to flooding. These activities include placing language within the Land Development Code and Comprehensive Plan documents to establish policies and guidelines with respect to stormwater management. Outlined below are the recommended policies for the stormwater management criteria of such documents:

Minimum Finished Floor Elevation Criteria

Issue to be Addressed: Protection of new residential and commercial structures from potential structural flooding by requiring the finished floors to be located higher than the anticipated base flood elevation (BFE) for the location.

Recommended Rule:

New residential and commercial structures shall be designed so that the elevation of the first floor (habitable for residential structures) is at the applicable Base Flood Elevation (BFE), as defined on the effective FEMA Flood Insurance Rate Map, plus 1 foot OR the 100-year, 3-day design stage elevation, whichever is greater.

Potential Issues Created by Rule:

There could be greater construction costs associated with having to construct the structure at a higher elevation than the base flood elevation.

Allowable Discharge Analysis

Issue to be Addressed: Assurance that new development projects do not discharge more surface water into the existing Village stormwater infrastructure than allowed during the pre-development conditions or per the regionally-accepted value, whichever is less. This recommended rule will limit future development discharge rates and reduce the potential for adverse impacts on the Villages' stormwater system.

Recommended Rule:

For new private and public developments within The Village, the allowable discharge shall be based upon the comparison of a pre-development hydrology calculations and the previously regionally accepted value of 0.06 or 0.09 cfs/acre, depending on the watershed. At time of development order submittal, new development projects must provide pre- and post- development hydrology calculations and the post-development discharge must be limited to the pre-development levels or the 0.6 cfs/ac, whichever is less.

Potential Issues Created by Rule:

Due to the limit on the discharge rate, the developer may need to provide more surface water storage than originally anticipated. This could affect the overall usable development footprint.

Minimum Roadway Elevations

Issue to be Addressed: Protection of internal roadways for new private and public developments to reduce the potential for flooding within the roadway section. In prior years, many of the internal roadways within residential communities were designed to the 10-year, 1-day design water surface elevation, which can contribute to the storage of stormwater water during the larger storm events, such as a 25-year or 100-year event. The negative of this design aspect is an increase in long-term roadway flooding during the more intense or longer-duration storms, leading to health and safety issues for the residences of those communities.

Recommended Rule:

New private and public developments must design the internal roadways with a minimum centerline of pavement elevation equal to or above the determined water surface design stage during a 25-year, 3-day storm event.

Potential Issues Created by Rule:

Due to the higher roadway elevations, the developer may need to provide more surface water storage than originally anticipated because the roadways will not be considered as part of the site storage until higher stages are reached. There will also be additional construction costs with additional fill for the higher roadway elevations.

Confirmation of Positive Outfall for Surface Water Management System

Issue to be Addressed: There are some developments within the Village that discharge to secondary conveyances, which lead to an ultimate main waterway such as the Estero River or Halfway Creek. However, the secondary conveyance receiving the discharge is typically not under the public ownership and the maintenance conditions are unknown. This recommended rule will require an in-depth review of the discharge route for the project's surface water discharge to identify and address potential issues in the beginning, which will aid in avoiding further problems after construction.

Recommended Rule:

At time of development order submittal, new private and public development projects must demonstrate and provide sufficient information on the proposed route of the projects' surface water discharge to the ultimate receiving water body, i.e. Estero River. This will ensure that there is a clear understanding of the outfall route and potential impedance issues that can be addressed with Village staff during the development order review process.

Potential Issues Created by Rule:

This rule may require maintenance agreements and responsibilities to be established either with the developer, secondary conveyance land owner or both.

Additional Recommended Activities

Another activity that the Village can pursue to address flood mitigation is install additional water data (stage and flow) loggers within the main waterways. The additional water data loggers can be set-up to record continuous data which can be downloaded and evaluated. There are also loggers with telemetry which provide real-time data, which is beneficial during the wet season where the potential for large rainfall events is greater. The recommended locations for the water data loggers are as follows:

- Estero River/North Branch : U.S. 41 Bridge, Rookery Circle Crossing, Three Oaks Parkway Culverts, and the I-75 Bridge
- Estero River South Branch: I-75 Bridge
- Halfway Creek: FPL Easement Crossing, U.S. 41 Crossing, and I-75 Culverts

Having more stations will do the following:

- Provide real-time data during major storm events which can be used by the Village to effectively monitor potential flooding issues and act efficiently; and
- Provide more data which can be used to continuously calibrate the Local-Scale ICPR model.