SOUTH VENICE WATERWAY RESTORATION PROJECT



2/27/2018

FINAL REPORT

This innovative shoreline restoration and enhancement project reduces erosion, enhances wildlife habitat, and improves the quality of water entering Alligator Creek and Lemon Bay in Sarasota County, FL. The project was funded by the County's Neighborhood Initiative Capital Improvements Program for South Venice and a grant from the Southwest Florida Water Management District. The total cost of the project was \$607,805.23 of which \$285,366.61 was provided by the Southwest Florida Water Management District, \$310,322.62 provided by the Sarasota County Neighborhood Initiative CIP, and \$12,116.00 provided by Sarasota County Stormwater Utility funds.





South Venice Waterway Restoration Project

FINAL REPORT

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Cover Photo: Briarwood Waterway

EXECUTIVE SUMMARY

This community-initiated project is a unique example of successful collaboration between the community and government to improve the aesthetic and ecological conditions of man-made stormwater drainage conveyances. Through the dedication and perseverance of the SVCA Water Quality Task Force and volunteers since 2011, their vision for two South Venice waterways has become a reality. In return, the project has provided many benefits that include:

- A successful collaborative relationship between the SVCA and Sarasota County
- Leveraging DISTRICT Grant funding to get \$600,000 benefit for \$300,000
- Increased waterway biodiversity
- Reduced ditch bank maintenance
- Reduced nutrient loading and sedimentation in Alligator Creek, improving Lemon Bay
- Supporting the South Venice citizens' commitment to conservation, restoration, and stewardship efforts

The table below provides a summary of the project funding

South Venice Waterway Restoration Project Fund	ding
SWFWMD GRANT FUNDING	\$285,366.61
COUNTY MATCH FUNDING	\$285,366.62
ADDITIONAL COUNTY FUNDING – BIOLOGICAL ASSESSMENT	\$ 24,956.00
ADDITIONAL COUNTY AND DISTRICT FUNDING – PILOT PROJECTS	\$12,116.00
Total Project Cost	\$607, 805.23

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PROJECT HISTORY

In 2011, South Venice Civic Association (SVCA) leaders determined that the number one concern of the community was the quality of water in their waterways. They approached County staff to initiate a partnership to develop and implement stormwater improvement projects that would improve the biological conditions and water quality in the waterways and, ultimately, Alligator Creek and Lemon Bay. They had a vision that the County shared to turn stormwater drainage ditches into environmental assets to improve the health of their community, increase property values and make it a nicer place to live! The SVCA community area and waterways are shown in Figure 1.

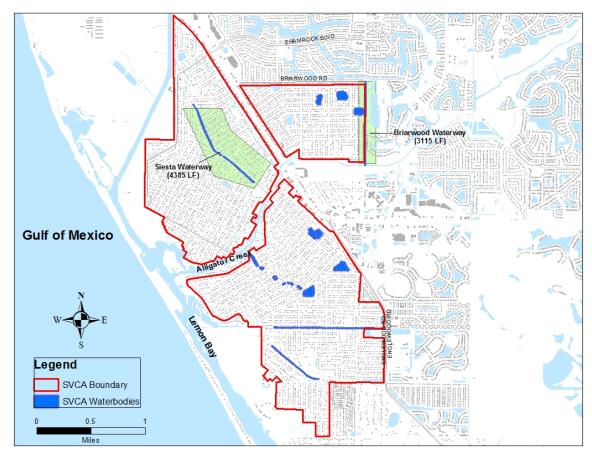


FIGURE 1.

Reducing pollutants in stormwater runoff going into Alligator Creek is vital to protect the quality of the Lemon Bay Aquatic Preserve.

In 2011, the SVCA was awarded a \$2,999 County Neighborhood Grant to improve a portion of the Siesta Waterway (The Grove) near West Seminole Drive. The grant was used for a resourceful project to clean up the waterways, remove nuisance vegetation, and enrich the soil to establish native and Florida-friendly aquatic and upland vegetation. The canal quickly exhibited signs of improvement such as a sandy bottom and clear water,

as well as the return of wildlife such as crabs, fish, birds, insects, and frogs that were not seen previously. Grove photos taken August 15, 2017 are shown below.









On July 10, 2012, the SVCA proposed to the County Commission to fund to additional waterway restoration projects to enable aquatic life to flourish and transform South Venice waterways into assets to the community. The County Commission unanimously approved \$313,682.62 of capital improvement funding from County's Neighborhood Initiative Capital Improvements Program (CIP) # 83132 for South Venice.

On September 26, 2012, the County Commission approved the submittal of a grant application to the Southwest Florida Water Management District (District) for \$300,000 of FY14 Cooperative Funding using the CIP as the grant match. The grant application included 17,000 linear feet of canal shoreline enhancement along three waterways: Siesta Waterway, Briarwood Waterway and Woodmere Creek.

After determining that the available funding would not accomplish the proposed 17,000 linear feet (10 acres) of canal rehabilitation, the County recommended reducing the restoration area to 7,500 linear feet focused along Siesta Waterway and Briarwood Waterway. Although the cost effectiveness was reduced from \$36/linear foot (LF) to \$80/LF (well below the FY15 Cooperative Funding Initiative threshold of \$269/LF for

shoreline restoration), the project still ranked high due to the SVCA champions and the potential to influence County maintenance practices so the District Governing Board approved the reduced scope.

The grant was approved for a total project cost of \$600,000 with the District to provide fifty percent funding (\$300,000). The grant agreement with the District was approved by the County Commission on August 26, 2014.

PILOT STUDY

The SVCA Water Quality Task Force and County determined that a small-scale pilot project to test potential restoration methods would assist staff in developing criteria for the larger project. A 425 LF section of the Siesta Waterway was chosen for the study (Figure 2: Pilot Project Area). The pilot project was completed and evaluated for approximately one year to determine which restoration methods would likely be more successful. Total cost of the pilot project was \$12,116.00, of which \$4,618.00 was funded by the District.

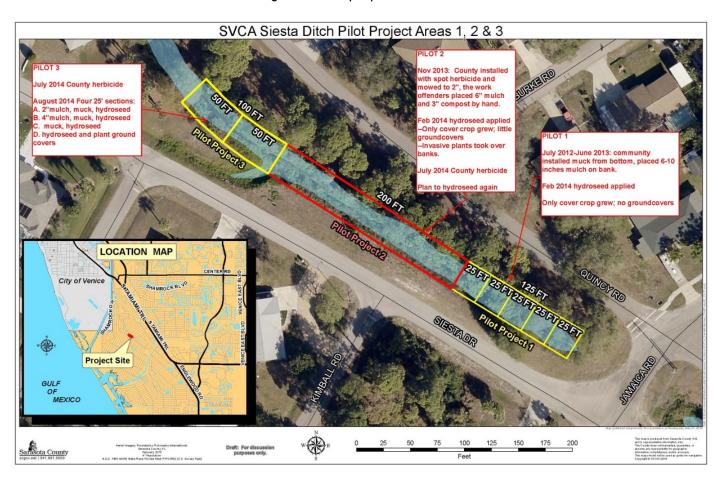


Figure 2. Pilot project areA

PRE-RESTORATION BASELINE CONDITIONS

A pre-restoration baseline biological assessment of the freshwater portions of the waterways was conducted for the County by HSW Engineering, Inc. from November 2013 to February 2014. The study, based on the Florida Department of Environmental Protection Stream Condition Index, characterized existing stream

conditions and gathered baseline data on birds, reptiles, amphibians, mollusks, crustaceans, periphyton, benthic infauna, and fish. The final report was produced in March 2014. Future post-restoration assessments may be conducted, if funding becomes available. The total cost of the study was \$24, 956.00.

Although not required by the District Agreement, Sarasota County began conducting baseline water quality sampling in March 2013. These data may be used to better understand the long-term effects of the project on nutrients, dissolved oxygen and other conditions. Several waterbodies in the Lemon Bay watershed, including Alligator Creek, are impaired for nutrients, dissolved oxygen, and bacteria.

THE PROJECT

The goal of the project is to improve the quality of water entering Alligator Creek and Lemon Bay, a designated Aquatic Preserve, and Charlotte Harbor, a Surface Water Improvement and Management (SWIM) priority waterbody.

To accomplish the goal, the project was designed to achieve the following objectives:

- Develop standardized, cost-effective, and replicable restoration methods for waterway management to increase and sustain the presence of aquatic and semi-aquatic plants and animals.
- Minimize the need for intense and expensive maintenance procedures by establishing attractive, low-profile, low-maintenance, non-woody plants that would not impede drainage.
- Develop a cost-effective method to improve aquatic life by removing existing muck build-up and reducing the accumulation of muck in the future.
- Create waterways with stable banks.

These objectives were met through a specialized restoration approach consisting of the following activities:

- Clearing and removal of non-native and invasive/nuisance vegetation, including trees, shrubs, and groundcover, from both banks;
- Removing mucky sediment from the bottom of the waterways and placing it on the banks to enrich the soil.
- Installation of 100% Coconut Biodegradable Fiber Mat on both banks from the top of bank to the toe of slope;
- Installation of filter fabric underlayment and rip/rap at the mitered ends of twenty-five cross street stormwater pipes that intersect and discharge into the waterways.
- Installation of about 50,000 native and Florida Friendly grasses and groundcovers on both banks for stabilization and to increase wildlife habitat;
- Watering and vegetation establishment; and
- One-year post construction maintenance.

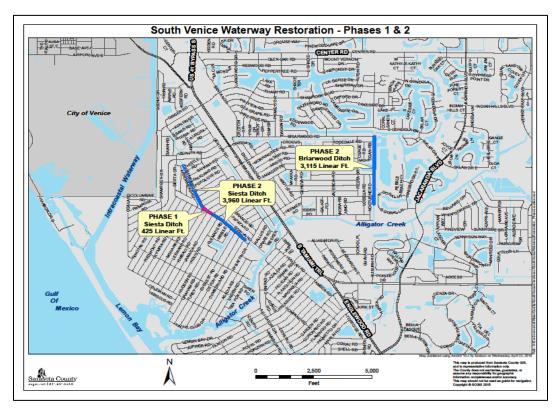


FIGURE 3. RESTORATION PHASES

PHASES

The project restored approximately 7500 LF of the Siesta and Briarwood waterways and included two phases (Figure 3): Phase I Siesta (425 LF); Phase II Siesta (3960 LF); and Phase II Briarwood (3115 LF).

- Phase I Siesta waterway includes restoration of both banks in a 425 LF section of the Siesta Waterway which encompasses 0.23 acres. It is located at the intersection of Quincy Road and West Seminole Drive and includes the "Grove."
- Phase II Siesta includes restoration of both banks in a 3960 LF section of the Siesta Waterway
 which encompasses 2.18 acres. It includes an upper section of the Siesta Waterway above Phase I
 to North Quincy Road and a lower section between West Seminole Drive and West Baffin Road.
- Phase II Briarwood includes restoration of both banks in a 3115 LF section of the waterway which
 encompasses 1.72 acres. It is located adjacent to the Briarwood Stormwater Treatment Facility,
 700 Briarwood Road.

CONSTRUCTION

On February 9, 2016, the County Commission approved the construction contract with Rick Richards, Inc. in the amount of \$530,611.73. Construction began February 25, 2016 and was accepted as complete on February 2, 2017. The one-year post construction maintenance period began on February 3, 2017 and ended February 2, 2018. The County retained the services of Stantec Consulting Services, Inc. for construction phase services on the project in the amount of \$40,121.50.

CONSTRUCTION SIGNS

To inform and engage the community, construction signs were erected on both waterways in locations highly visible to the public at the beginning of the project.



Briarwood Sign



Siesta Sign

PHOTOGRAPHS

PRE-RESTORATION PHOTOGRAPHS

PHASE I - SIESTA





PHASE II SIESTA - UPPER





PHASE II SIESTA - LOWER





PHASE II BRIARWOOD





CONSTRUCTION PHOTOGRAPHS

HEAVY INVASIVE/EXOTIC REMOVAL





MUCK REMOVAL AND APPLICATION TO BANKS





COCONUT FIBER MAT INSTALLATION





PLANTING





MITERED END TREATMENT INSTALLATION





POST-CONSTRUCTION PHOTOGRAPHS

PHASE I - SIESTA





PHASE II SIESTA_UPPER





PHASE II SIESTA – LOWER





PHASE II BRIARWOOD





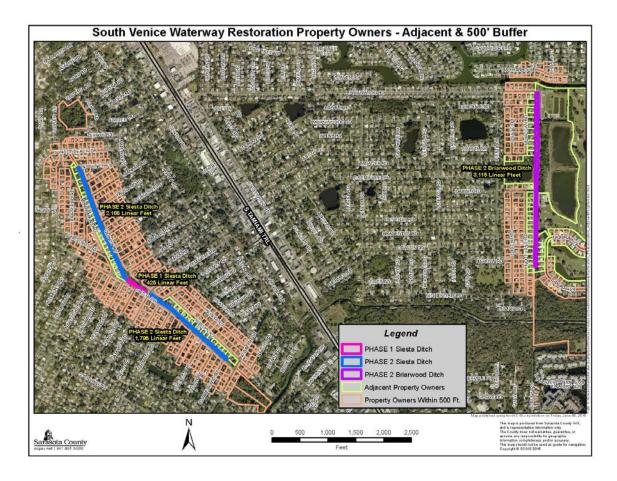
MAINTENANCE

The construction contract included a one-year maintenance period that began at the end of construction, February 2, 2017, and ran through February 3, 2018. At the end of the contracted maintenance period, maintenance of the project was transferred to Sarasota County Operations and Maintenance. An Operations and Maintenance Plan was approved by the District and is included in Appendix A of this report. There is a requirement in the District Agreement to submit a Bi-annual Report on the effort to maintain and operate the constructed improvements. The first report will be generated in February 2020.

PUBLIC ENGAGEMENT

OUTREACH METHODS

The project team consisting of the SVCA Water Quality Task Force, County and DISTRICT staff engaged the public throughout the project beginning with public workshops held in March and October 2013. Project updates were provided to the community during a public meeting on July 7, 2015 (Figure 5) and during SVCA meetings on March 21 (Figure 6) and September 19, 2016. Postcards (Figure 7) to notify 600 addresses within a 500-foot boundary (Figure 4) around each project area about the construction were sent out in February 2016.



FIGUE 4. PUBLIC INVITATION AREA

FIGURE 5. LETTER INVITATION TO July 7, 2015 SVCA GENERAL MEETING



June 18, 2015

Dear Homeowner,

For the past 4 years the South Venice Civic Association Water Quality Task Force has been working tirelessly with Sarasota County to clean up South Venice waterways and make them more habitable for fish and wildlife once again.

The Siesta Waterway, located between Siesta Drive and Quincy Road at Jamaica Road, is a 525' pilot program. If you visit the site, you'll see what was once slime and muck filled ditch, is now a clear fish-filled stream with flowers and Florida-friendly plants on its banks. It's still a work in progress, but the clean up has been so successful it is ready to roll out to the bigger project.

The Goal is to make the Siesta and Briarwood Waterways pristine and clean and reduce pollution entering Alligator Creek and Lemon Bay.

Your house is adjacent to either Siesta or Briarwood waterways. We anticipate beginning work on these projects in September 2015 (see included map). The first steps will be to remove the invasive plants that line the banks and dig out the muck and debris in the water.

The second step is to plant the banks with Florida friendly greenery. The plants create habitat and assure that the water stays clear and clean. You will certainly see fish and may eventually see otters swimming in your backyard stream.

You are invited to attend a series of meetings where the Water Quality Task Force and Sarasota County professionals will explain the project and answer all your questions. The first meeting is on:

Date - Tuesday, July 7, 2015
Time - 7:00 - 8:00 pm
Location - South Venice Community Center, 720 Alligator Drive, South Venice (Refreshments will be served)

For information on the meeting location please call the South Venice Civic Association office at 941-493-0006. For questions on the waterway project, contact the Sarasota County Call Center at 941-861-5000.

I look forward to seeing you there.

Cordially,

Elaine E. Jaffe President, SVCA

Elaine E. Jaffe

FIGURE 6. INVITATION FOR MARCH 31, 2017 SVCA GENERAL MEETING



MARCH 2016



News from and about your neighborhood on the Gulf

On February 9, 2016, The County Commissioners approved the South Venice Waterway Restoration Project. The work will begin in March and should be completed by June when the rainy season begins. On the Siesta and the Briarwood waterways, the contractor will remove invasive foliage, use coconut matting to stabilize the banks into which will be planted Florida native foliage. The contractor is responsible to water as needed to establish and sustain the plants for one year and then the county will maintain.

It is hoped that this method of bank restoration will change the way the all ditches in the county are maintained.

At the March 21 SVCA general membership meeting, County Commissioner Charles Hines along with county staff will speak about the project and answer your questions. Residents who live along the two waterways will receive information about the restoration since it will be practically in their back yards. Volunteers continue to beautify the Grove with planting, weeding, and picking up trash on a regular basis.

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FIGURE 7. FEBRUARY 2016 CONSTRUCTION POSTCARD



February 2016

Sarasota County Public Utilities • 1001 Sarasota Center Blvd., Sarasota 34240

Construction Notice

South Venice Waterway Restoration construction to begin

Beginning in early February 2016, you may see work occurring in your neighborhood for the restoration of the Siesta and Briarwood waterways. Sarasota County has contracted with Rick Richards, Inc., a Myakka City based firm for restoration of the waterways.

South Venice Waterway Restoration Construction

Over the past 4 years, South Venice Civic Association Water Quality Task Force volunteers collaborated with Sarasota County to clean up South Venice waterways and make them more habitable for fish and wildlife. A pilot project conducted on the Siesta Waterway, between Siesta Drive and Quincy Road at Jamaica Road, provided the foundation for the construction project.

The restoration project, in partnership with the Southwest Florida Water Management District, is designed to rehabilitate approximately 7,500 linear feet of the waterways to enhance and create additional habitat and improve overall water quality entering Alligator Creek and Lemon Bay. You will see the contractor removing nuisance vegetation, removing bottom muck, stabilizing the banks, and planting more than 50,000 native plants.

The contractor is anticipated to work in the area from early February through November 2016. Normal work hours will be Monday through Friday, 8 a.m. to 5 p.m. Some weekend work is also anticipated.





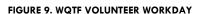
For more information, contact the Sarasota County Contact Center at 941-861-5000 or TTY 1-800-955-8771 and ask about the South Venice Waterway Restoration Project.

Sarasota County Public Utilities 1001 Sarasota Center Blvd., Sarasota 34240 The SVCA Water Quality Task Force (WQTF) volunteers conducted monthly neighborhood workdays throughout the project. They have contributed over 1,300 volunteer hours cleaning up the Siesta waterway and planting native and Florida Friendly plants in The Grove. In addition, contributions came from the Sheriff's Work Offenders Program, Sierra Club, Charlotte Harbor National Estuary Program, Sarasota County Solid Waste, Keep Sarasota County Beautiful, and Stormwater Operations and Maintenance.

Very positive articles about the project and the work done by the South Venice WQTF Volunteers have been published in the Venice Gondolier throughout the project. Lara Jansen, South Venice WQTF, kept the association members up to date with many articles in the South Venice Beach Wave, the South Venice Civic Association newsletter. The Paradise Living Spring Home & Garden section of the Venice Gondolier published an article about the project by Harrison Fox, WQTF Team leader.



FIGURE 8. WQTF VOLUNTEERS WITH COUNTY AND SWFWMD STAFF





The South Venice WQTF volunteers (Figure 9) remove a lot of litter and debris from the Siesta Waterway during their monthly workdays. Not only is debris being thrown from vehicles, but it is also being dumped over fences onto the banks and into the waterway. In addition, the WQTF observed that many people walking their dogs were not picking up the pet waste. As a result, the WQTF realized the need to convey to the community the importance of taking care of the restored waterway. A door hanger (Figure 10) was designed to encourage the community to pick up pet waste and refrain from dumping debris along the banks and into the waterways. It also provides information about County Ordinances that prohibit those activities. To promote ownership of the waterways, the door hanger invites residents to volunteer for the monthly clean-ups.

Other outreach materials that were created to inform and educate the public are:

- 1) A project sheet (Figure 11) informing and educating the public about the restoration project. The colorful hand-out provides background information, photos, and a map of the project area.
- 2) Informational signs posted along the waterways (Figures 12 14).
- 3) Promotional pet waste sign attached to the sign posts below the informational signs.

FIGURE 10. DOOR HANGER



FIGURE 11. PROJECT STORY SHEET (PAGE 1)



SOUTH VENICE BEACH WATERWAY RESTORATION PROJECT

For the past five years, the South Venice Civic Association Water Quality Task Force has collaborated with Sarasota County to clean up South Venice Beach waterways to make them more habitable for fish, birds and other wildlife. A pilot community project on a Siesta waterway, between Siesta Drive and Quincy Road at Jamaica Road, provided the foundation for the \$600,000 South Venice Beach Waterway Restoration Project.

The project, in partnership with the Southwest Florida Water Management District (SWFWMD), is designed to rehabilitate about 7,500 linear feet of the Siesta and Briarwood waterways to enhance and create additional habitat and improve the overall water quality entering both Alligator Creek and Lemon Bay.

The total project cost of approximately \$600,000, is funded by a grant from SWFWMD and matched by funds from the county's Neighborhood Capital Improvements Program.

Restoring natural habitat and water quality in our urban waterways.







PROJECT STORY SHEET (PAGE 2)



Siesta Waterway

Briarwood Waterway

The South Venice Beach Waterway Restoration Project rehabilitated approximately 7,500 linear feet of the Siesta and Briarwood waterway shorelines. From March 2016 to January 2017, the contractor removed nuisance vegetation and bottom muck from the waterways, stabilized the banks with erosion-control matting and planted more than 50,000 Florida native plants shown below. The new vegetation on the shoreline will provide valuable habitat, improve water quality, and help prevent erosion along Alligator Creek and Lemon Bay.



Sunshine Mimosa



Leather Fern



Duck Potato



Yellow Canna



Sand Cordgrass



Blue Flag Iris

For more information, contact the Sarasota County Contact Center at 941-861-5000 or TTY-1-800-955-8771 and ask about the South Venice Waterway Restoration Project.

FIGURE 12. THE GROVE EDUCATIONAL SIGN



FIGURE 13. PROJECT INFORMATION SIGN



FIGURE 14. PROJECT AND POOP FAIRY SIGNS



COMMUNITY RECOGNITION EVENT

On October 14, 2017, County and DISTRICT staff and the WQTF Volunteers hosted a grand opening ceremony in The Grove to celebrate the completion of the project. Postcard invitations (Figure 15)) were sent to 600 addresses within a 500-foot boundary around each project area; the SVCA sent out Evites (Figure 16) to their members, project stakeholders, and other interested parties; the event was posted on the Sarasota County Website Calendar of Events, twitter and facebook pages; and a Media Release (Figure 17) was sent out on October 2, 2017 by Sarasota County Media Relations. An event program (Figure 18) with the agenda was handed out at the event.

FIGURE 15. POSTCARD INVITATION



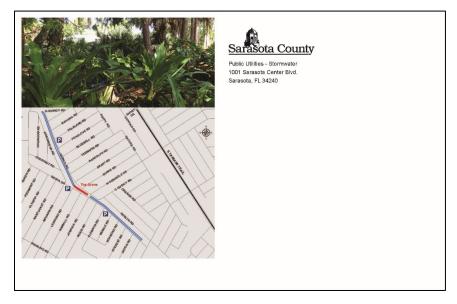
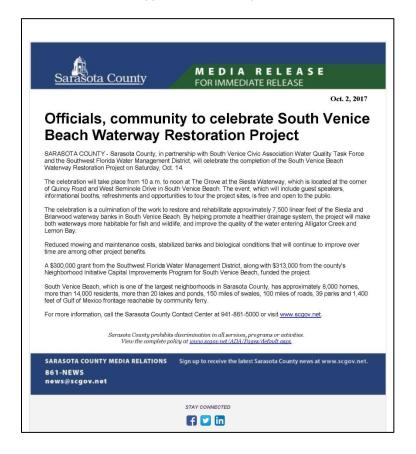


FIGURE 16. EVITE INVITATION



FIGURE 17. MEDIA RELEASE



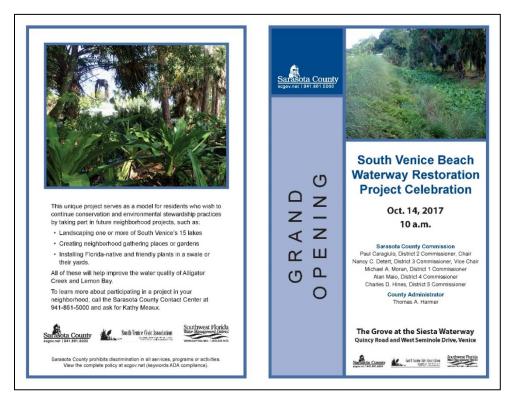
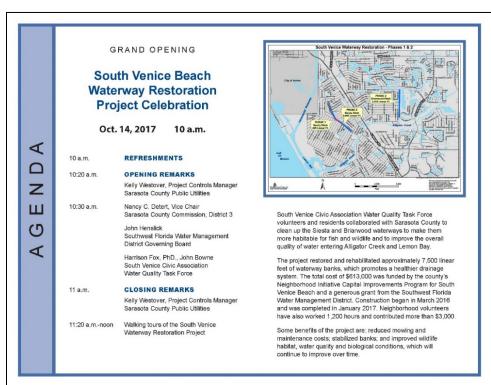


FIGURE 18. EVENT PROGRAM



The event was a great success with a good community turnout. Kelly Westover served as the Mistress of Ceremonies; guest speakers included County Commissioner Nancy Detert, DISTRICT Governing Board Member John Henslick, South Venice Water Quality Task Force Chair Harrison Fox, and SVCA former President John Bowne. Local organizations that participated with informational booths were: The South Venice Water Quality Task Force, the local Sierra Club, Venice Gardens/South Venice Community Response Teams (CERT), the South Venice Civic Association, and the University of South Florida/Institute of Food and Agricultural Sciences (UF/IFAS) Sarasota County Extension.



MC - Kelly Westover

FIGURE 19. EVENT PHOTOGRAPHS



Guest Speakers (left to right): Commissioner Nancy Detert, Harrison Fox, and John Bowne.



Commissioner Detert presenting the South Venice Water Quality Task Force Award



Local Organizations

This was a highly successful collaboration among the Southwest Florida Water Management District, Sarasota County, and the South Venice Civic Association to protect and improve the quality of water entering Alligator Creek and Lemon Bay. It will remove pollutants, and serves as a model of how community and government can work together to protect valuable natural resources and improve the way county waterways are maintained.

APPENDIX A

Operations and Maintenance Plan

South V	/enice	Waterway	Restoration	Proiect
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OPERATION AND MAINTENANCE PLAN SOUTH VENICE WATERWAY RESTORATION PROJECT (District N565, Agreement No. 14C0000037)

1 Project Description

The project consists of restoration of 7,500 linear feet in Siesta and Briarwood Waterways in South Venice per the location graphic in Attachment A. Both sides of the waterway banks, from the toe of slope to top of banks, had invasive vegetation removed, erosion control matting installed, and variations of plants suitable for the site conditions installed.

2 Inspection and Maintenance Requirements

On a quarterly basis, the project will be inspected for the following components. If there is maintenance required, it will be scheduled within two weeks.

- 2.1 <u>Vegetation Removal:</u> Non-native and invasive vegetation shall be hand removed. Limited spot herbicide treatment shall be allowed in accordance with the Sarasota County's Integrated Pest Management Procedural Guidelines and with prior written approval from the Stormwater Operations Manager. All vegetation shall be removed, quantified in pounds, and disposed of properly.
- 2.2 <u>Vegetation Replacement:</u> The project area will have quadrats evaluated every 500 feet on both sides of the bank to determine if the required 75% coverage of native or other groundcovers suitable for the site conditions are present. If there is a deficiency, dead or severely damaged plants will be replaced with plants that are healthy, free of disease or insect damage, and have adequate root systems in accordance with the site conditions.
- 2.3 <u>Erosion Inspection:</u> The waterways shall be inspected for erosion on top of banks, bank slopes and around all stormwater structures. All erosion will be reported to Stormwater Operations Manager to schedule repairs.
- 2.4 <u>Litter Removal:</u> Litter shall be cleared by removing all paper, trash, foreign material, and other undesirable material and debris during each event. Litter is to be removed, quantified in pounds, and disposed of properly.

3 Maintenance Tracking

Work Orders will be generated through the County's Maintenance Tracking System (MAXIMO) with inspections and maintenance events logged.

4 Reporting

The County shall provide the DISTRICT, upon request, a bi-annual Operation and Maintenance Report.

ATTACHMENT A - PROJECT LOCATION

