



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

BOB MARTINEZ CENTER
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TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

October 9, 2013

Mr. Keith Williams
City of Sanibel
800 Dunlop Road
Sanibel, Florida 33957

RE: Section 319(h) Grant Proposal Status

Dear Mr. Williams:

Thank you for submitting your grant proposal entitled "Sanibel Sewer System Expansion Phase IV" for funding consideration from the FY2014 Section 319(h) grant administered by the Nonpoint Source Management Section. We were pleased to receive 32 proposals addressing watershed restoration. In all, the proposals requested approximately \$16 million in funding.

It is my pleasure to report that, after careful deliberation, we have selected your project to be included in the draft Fiscal Year 2014 319(h) Work Plan with a total grant of \$600,000. The draft work plan was submitted to EPA on September 23, 2013. While we have selected this project for inclusion in the draft work plan, please be aware that funding cannot be guaranteed until EPA approves the draft work plan and the federal funds are received by the state. We would expect to receive EPA's approval and the federal funds by September 2014. Upon receipt of the federal funds, we will contact you to initiate contracting. For planning purposes, if approved by EPA, you should expect contract initiation to occur between September 2014 and January 2015. In the interim (starting October 1, 2013) any non-federal expenditures made for the project can be counted towards the required minimum 40% match.

So that we may better plan our restoration efforts across the state, please respond to this letter by November 5, 2013 and indicate that you accept this grant. You may either email me at Kathryn.Brackett@dep.state.fl.us or mail to the address in this letterhead. If I do not hear from you by that date, I will assume you do not intend to accept the grant and we will reallocate the grant funds as needed.

Mr. Keith Williams
October 9, 2013
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We look forward to working with you on this project and value your commitment to restoring Florida's waters. In addition to the federal section 319(h) grant, you may be interested in our state-sponsored TMDL Water Quality Restoration Grant, which may be used to match your federal section 319(h) grant. More information on that grant may be found at http://www.dep.state.fl.us/water/watersheds/tmdl_grant.htm. If you have any questions, please do not hesitate to contact me at (850) 245-8682 or Kathryn.Brackett@dep.state.fl.us.

Sincerely,

A handwritten signature in black ink, appearing to read 'KB', is written over the typed name.

Kathryn Brackett
Administrator
Nonpoint Source Management Section

KB/hp

FY2014 SECTION 319 GRANT PROPOSAL APPLICATION

PROJECT NAME: Sanibel Sewer System Expansion Phase IV-**Revised**

PROJECT FUNDING REQUEST: \$600,000 **MATCH:** \$725,000

LEAD ORGANIZATION: City of Sanibel

CONTACT PERSON: Keith Williams
800 Dunlop Road
Sanibel, FL 33957
Tel: 239.472.6397
Fax: 239.691-8787
Email: keith.williams@mysanibel.com

FEID NUMBER: **59-1568877**

FISCAL YEAR END: **9/30/2013**

FINANCIAL COOPERATING PARTNERS:

1. SFWMD \$120,000 for design of Phase IV of the Sanibel Sewer System Expansion Program and
2. Benefited property owners will contribute through assessments of approximately \$7000 for the connection of each residence to the system. (40 units x \$7000 = \$280,000)

OTHER COOPERATING PARTNERS: Individual property owners.

PROJECT LOCATION AND WATERSHED CHARACTERISTICS:

Geographic Location: Sanibel, Lee County, Florida
Impacted Watershed Name: Charlotte Harbor
Size of Project Impact: 12 ac.
Size of Area Being Treated: Abandonment of 42 septic tanks at 800 sf average = 33,600 sf
Latitude: 26.440518 (City Hall)
Longitude: -82.073300 (City Hall)
Hydrologic Unit Code: HUC12 -- 31001030202
WBID: 2092F
Impaired waterbody affected: Sanibel River, Tarpon Bay and San Carlos Bay.
Impairment: High nutrient levels and low levels of dissolved oxygen.
TMDL Status: None
BMAP Status: No BMAP. Will be developed in the future.

Land Uses within the area being treated:

Land Use <i>(Do not alter – All must be filled out; Do not add categories; place a 0 for no acres)</i>	Acres	%
Residential Low Density (1100)		
Residential Medium Density (1200)	12	100
Residential High Density (1300)		
Commercial and Services (1400)		
Industrial (1500)		
Extractive (1600)		
Institutional (1700)		
Recreational (1800)		
Open Land (1900)		
Agriculture (2000)		
Upland Non-Forested (3000)		
Upland Forests (4000)		
Water (5000)		
Wetlands (6000)		
Barren Land (7000)		
Transportation, Communication, and Utilities (8000)		
Land Use Totals (Acreage and %)	12	100%

LAND OWNERSHIP STATUS: (check one)

- Land necessary for the construction of treatment infrastructure has been acquired. Title is held by
- Land necessary for the construction of treatment infrastructure is under a legal option to buy (please provide documentation of the option-to-buy and funding to execute the purchase).
- Land necessary for the construction of treatment infrastructure is under an easement which allows for the construction and access.

The City of Sanibel holds title to 75-85% of the easements necessary to complete the work. Four of the six areas are complete, two areas require significant additional easements. The City is budgeting \$105,000 for 2014 to begin acquiring the additional easements in October 2013.

WATERSHED MANAGEMENT PLAN: Lower Charlotte Harbor Surface Water Improvement and Management Plan. See page 77 – “Phase 4, of Sanibel Sanitary Sewer Expansion Program; this will finalize the completion of a \$65,000,000 project that has spanned almost ten years in the City of Sanibel \$1,200,000”

PROJECT OVERVIEW:

Description of Project:

Sanibel's beaches stretch for 11 miles along the Gulf of Mexico and for 3.5 miles on the San Carlos Bay side of the island. Sanibel's beaches are worldwide renowned for their natural state and as a location to enjoy and appreciate rare and endangered wildlife. The citizens of Sanibel have invested significant resources in restoring and enhancing the natural dune system and native vegetation at the beaches.

In 1998, the City adopted the island-wide Wastewater Master Plan. The primary goal of this plan is to further Sanibel's philosophy of environment protection and preservation through the ultimate elimination of on-site systems with the provision of city-wide central sewer service and advanced wastewater treatment and disposal.

This project is to construct the 4th and final phase, of the sanitary sewer system expansion program covering 6 small areas of the island. Two of the areas are located on San Carlos Bay, one on the Gulf of Mexico and three along the Sanibel River corridor. The locations of the areas make them difficult to sewer, but critical to do so since they are located so close to water bodies. The project is not required mitigation for any permit. The citizens of Sanibel have invested over **\$64 million** into improvements to, and expansion of, the City's centralized sanitary sewer system. Phase 4 represents the final piece of the project.

Objective of Project:

Given Sanibel's sandy soils, development density and proximity to open bodies of water, septic systems are an undesired method of treating wastewater. The sewer system provides advanced wastewater treatment and water conserving effluent disposal through irrigation and the island's 3 golf courses and a portion of the Gulf Drive condominiums.

The objective of this project is to enhance the water quality of Sanibel's surrounding waters, including Pine Island Sound, Sanibel's Clam Bayou, San Carlos Bay, and lower Charlotte Harbor, which are located within the Caloosahatchee River watershed. This project will complete Phase 4 of the expansion of the centralized Water and Sewage Treatment System for Sanibel Island. Once the sewer expansion is operational, residents have one year to connect their home to the system and properly close the septic system.

The project will eliminate seepage from septic systems as one source of nutrients and harmful bacteria from within our community. The City's overriding goal is to eliminate all sources of the nutrients and harmful bacteria fouling local waters and feeding the algae from within and beyond our borders.

Design of the Project:

The design of the sanitary sewer collection system utilizes innovative uses of technology and BMPs. This design is for the construction of a low pressure system.

The low pressure system utilizes smaller liftstations (or “pits”) and shorter pipe runs with only limited number of houses per pit (generally 1-3) as opposed to a system with manholes and gravity pipe to a larger neighborhood liftstation. The low pressure system can be utilized where there is limited right-of-way, a few grouped homes, or where traditional manhole runs cannot be utilized.

Where several pits are in a neighborhood, they can be grouped together for electricity and control wiring to a single panel. This would allow 1 generator to be utilized for several pits during an emergency power outage or hurricane.

All of the swales will be regraded and resodded upon completion of the project.

Another technology will be to fabricate the control panel structure so they can be lifted above the flood elevation during the event of an oncoming storm.

This project will help prevent:

A) defoliation of seagrasses. Water pollution is threatening to permanently destroy over 10,000 acres of seagrass beds near the mouth of the Caloosahatchee River including habitat federally designated as critical to the endangered West Indian Manatee and important to threatened sea turtles and numerous fisheries including pink shrimp, seatrout, blue crab and grouper,

B) the killing of oyster beds, commercial clam beds and virtually all other filter feeding organisms ranging from barnacles to sponges and corals,

C) degradation of federal waters and coastal resources including designated wilderness areas of the J. N. Ding Darling National Wildlife Refuge. Currently there is currently a widespread dense bloom of green filamentous algae, a classic indicator of nutrient pollution, throughout the waters of the Refuge where seagrass previously existed. This Refuge is a national treasure that has been severely damaged. The affected waters are all within the federal boundaries of the Charlotte Harbor National Estuary Program, which are supposed to be protected from federally caused damage under the Federal Consistency Program and EPA Clean Water Act regulations,

D) severe impacts to numerous local industries including tourism, marine trades, boating, commercial fishing and others.

Many species of fish and shellfish, including commercially and recreationally valuable species such as grouper, seatrout, snapper, redfish, pink shrimp, blue crab, and stone crab, depend on marine seagrasses for their survival. Scientists were disturbed to see three critical seagrass species in our area drop their blades (seagrass leaves) as a result of discharges. Unless the turtle grass, manatee grass and shoal grass are allowed adequate time to re-grow and recover, more than ten thousand acres of seagrasses in southwest Florida could be permanently lost. This would ultimately lead

to the collapse of the entire Charlotte Harbor estuary. As a result, the environmental and economic impacts would be staggering.

Septic System concerns and issues:

Septic systems have the potential to pollute water resources. Septic systems are not closed systems and can release two types of major contaminants:

1. Disease-causing germs, including bacteria and viruses. The presence of fecal coliform, which has been found on Sanibel's beaches, indicates that there is a problem with the release of human and/or animal waste. The presence of coliform bacteria leads to warnings of contaminated water for recreational swimmers as well as closure of shellfish harvesting beds.
2. Nitrate-nitrogen. This nutrient enriches Sanibel's surrounding waters and contributes to algae blooms and loss of dissolved oxygen. Dissolved oxygen is essential to plants and animals living in estuarine waters.

How a Septic System Works -- A conventional septic system consists of four main parts:

1. The **source** is where the wastewater is generated.
2. The **septic tank** collects and stores the solids that come from the house.
3. The **drainfield** is made from pipe and gravel that are installed as trenches in the soil. The drainfield delivers wastewater to the soil.
4. The **soil beneath the drainfield** purifies the wastewater before it flows to the underlying groundwater.

Wastewater flows from the house into the septic tank. The solids sink to the bottom of the tank, the grease floats to the top, and the liquid portion of the wastewater flows out into the drainfield. The drainfield distributes the wastewater and allows it to slowly move into the soil. As it moves through the soil, the wastewater is purified by organisms that live in the soil.

Soil above the groundwater table is considered to be "aerobic." "Aerobic" means that the soil has some air in it and is not totally saturated (or filled with water). This aerobic soil is where most of the germs from the sewage are removed. The best way to protect drinking water is to maintain as much of these aerobic conditions as possible between the drainfield trenches and the groundwater table. If the soil is too sandy, wastewater can flow through the soil into the groundwater too fast and is not purified. (North Carolina State University Cooperative Extension:
<http://www.soil.ncsu.edu/assist/cas/septic/index.htm>)

The water table and sandy conditions on Sanibel and other barrier islands make it very difficult to maintain the necessary conditions to purify sewage and wastewater completely in a septic system. Therefore, leakage of dangerous bacteria and nutrients is more likely. This project involves the design work necessary for the elimination of septic systems in six areas of Sanibel. The locations of the areas make them difficult to sewer, but critical to do so since they are located so close to water bodies.

The Lower Charlotte Harbor Swim Plan addresses septic systems as follows:

Non-point sources of pollution in the Watershed, which can degrade ground as well as surface water quality, include stormwater runoff or leaching of pollutants into groundwater from agriculture, and urban/suburban land uses, atmospheric deposition, and septic tanks. Septic tanks, or Onsite Sewage Treatment and Disposal Systems (OSTDS) are prevalent in some areas of the Watershed and are considered a potential source of nutrients (nitrogen and phosphorus), pathogens and other pollutants that can pose a threat to public health. Surface waters can be adversely affected directly by system drainfields washed away by floodwaters or via runoff from areas where system failures result in ponding of untreated or inadequately treated wastewater on the ground. Surface waters can be adversely affected indirectly through seepage of groundwaters contaminated by system discharges. From the period 2000-2005 the Florida Department of Health reported 2050 OSTDS repair permits for Charlotte, Glades, Hendry and Lee counties (Table 10) and 20,571 new installation permits (Table 11). (p.38, Lower Charlotte Harbor SWIM Plan February 4, 2008)

Demonstrate anticipated pollutant reduction:

- Completing the construction work necessary to eliminate septic systems will reduce pollutants by eliminating leakage of nutrients and harmful bacteria into Sanibel's groundwater and eventually into surrounding waters. This reduction will:
 - Reduce defoliation of seagrasses. Water pollution is threatening to permanently destroy over 10,000 acres of seagrass beds near the mouth of the Caloosahatchee River including habitat federally designated as critical to the endangered West Indian Manatee and important to threatened sea turtles and numerous fisheries including pink shrimp, seatrout, blue crab and grouper,
 - Reduce harm to oyster beds, commercial clam beds and virtually all other filter feeding organisms ranging from barnacles to sponges and corals,
 - Reduce degradation of federal waters and coastal resources including designated wilderness areas of the J. N. Ding Darling National Wildlife Refuge.
 - Lessen impacts to numerous local industries including tourism, marine trades, boating, commercial fishing and others.

Charlotte Harbor Aquatic Preserve Habitat:

The most common biological communities in the Charlotte Harbor Aquatic Preserve includes:

Mangroves - reds (*Rhizophora mangle*), blacks (*Avicennia germinans*), whites (*Laguncularia racemosa*), and buttonwood (*Conocarpus erectus*)

Seagrasses - turtle (*Thalassia testudinum*), manatee (*Syringodium filiforme*), and Cuban shoal (*Halodule wrightii*)

Salt Marshes - salt marsh grass (*Distichlis spicata*), needlerush (*Juncus roemerianus*), and cordgrass (*Spartina spp.*)

Oyster Communities -

Tidal Flats - estuarine beaches, spoil areas, shoal areas, and mud flats

Ecological Importance - Commercial, Recreational and Ecologically Important Species:

Recreational species include mullet, spotted sea trout, red drum, flounder, blue crab, pink shrimp, stone crab, snook, tarpon, grouper, snapper, sheepshead and several species of shark.

Commercial species are cobia, flounder, mullet, pompano, spotted sea trout, snapper, tripletail, blue crab and pink shrimp.

Eighty six of the state's endangered and threatened species are found within the Charlotte Harbor region (listed by the Florida Game and Fresh Water Fish Commission, U.S. Fish and Wildlife Service, Convention of International Trade in Endangered Species of Wild Fauna and Flora or Florida Committee on Rare and Endangered Plants and Animals). Examples include: smalltooth sawfish, American alligator, Atlantic loggerhead turtle, Atlantic green turtle, leatherback turtle, Atlantic hawksbill turtle, Kemp's ridley, roseate spoonbill, Southeastern snowy plover, piping plover, Marian's marsh wren, little blue heron, reddish egret, snowy egret, tricolored heron, white ibis, peregrine falcon, Southeastern American kestrel, American oystercatcher, wood stork, brown pelican, Everglades kite, least tern, roseate tern, and Florida manatee.

Educational Program:

The City of Sanibel is vigilant in its protection and enhancement of the Island's natural resources through education of its residents and visitors. The City website has a dedicated section entitled "Sanibel H2O Matters" filled with information on estuaries, water quality, resident responsibilities and coastal issues. Information regarding the importance of this project and its long-lasting impact on water quality will be promoted on the website. The City will also post timely information regarding water quality issues on the website.

The City's website must be promoted and marketed in order to increase traffic to the site. The City promotes Sanibel H2O Matters on its website, in its City publications and through its partnerships with other organizations

Education of the impacted residents-Each property owner impacted by this project will receive additional education regarding the need for the project and the importance of water quality. A minimum of two letters will go to each property owner during the project. Additional water quality materials may be added to the letter if needed to educate the property owner.

Educational materials -- The City will purchase or design educational materials for distribution to the residents informing them of the dangers of point and nonpoint source pollutants and the effect of the pollutants upon the surrounding waters. The City will

work with the Island elementary school to introduce an education campaign about the surrounding waters and the dangers of different pollutants that may make their way to the waters.

Benefit a water body on DEP’s Impaired Waters list;

This project will benefit several Charlotte Harbor water bodies on DEP’s Impaired Waters list (http://www.dep.state.fl.us/WATER/tmdl/adopted_gp2.htm) including the **Sanibel River**

ESTIMATED POLLUTANT LOAD REDUCTION MODEL USED: (check one)

This proposal is for a structural BMP project. In the below estimated pollutant load reduction, the applicant used the following model: Spreadsheet Tool for Estimating Pollutant Load (STEPL, 2007)

This proposal is for a non-structural BMP project, such as educational outreach, demonstrations, or effectiveness evaluations, and: (check one)

Estimated Pollutant Load Reductions were able to be estimated by using the following methodology: NA

Estimated Pollutant Load Reductions were not able to be estimated. However, the project is expected to reduce loads from nonpoint sources in the following ways: NA

BMPs Installed		TP lbs/yr	TN lbs/yr	Sediment lbs/yr	BOD lbs/yr
Residential Septic Tank Removals and Swale Cleanings					
Pollutant Loads	Pre-Project	362.1	982.9	4527.4	3956.8
	Post-Project	203.0	577.3	3747.6	2267.1
	Load Reduction	159.1	405.6	779.8	1689.8
	% Reduction	43.9%	41.3%	17.2%	42.7%

The City of Sanibel and others have tested area waters. The samples were used as part of research to help pinpoint and address water quality issues facing Southwest Florida. Also, at the request of Sanibel’s City Council, a physicians working group reviewed Lee County data to determine the effects of poor water quality and the presence of algae on the island’s beaches on human health. Data was gathered from Blind Pass, Bowman's Beach, Lighthouse Beach, Sanibel Causeway, South Seas Plantation, and Tarpon Bay

Beach from July 2000 to October 2006. Results, compiled as of February 15, 2007, are summarized below¹:

- **Enterococcus** - The data showed an increasing trend in the number of times Enterococcus bacteria showed up in the poor to moderate range
- **Fecal coliform** - One sampling event fell into the "moderate" category for fecal coliform (Tarpon Bay). Most of the other samples were at or below the minimum detection limit.

To assess the human health risk of red drift algae, specifically the presence of human pathogenic bacteria, algae samples were collected at Blind Pass, Bowman's Beach, Tarpon Bay beach, Lighthouse Beach and Dixie Beach:

- **Staphylococci** - Although Staphylococci coagulase negative bacteria were present, coagulase negative strains are not typically associated with human disease. *Staphylococcus aurea*, the strain most associated with human disease, were not present. Currently, there are no numeric standards available for acceptable levels of Staphylococci in marine systems. However, it is important to note that Staphylococci sp. are abundantly present in Sanibel beach sediments; this is generally not considered a good indicator of beach health.
- **Vibrio** - *Vibrio* species are motile bacteria that are indigenous to the marine environment, found in estuaries, marine coastal waters, sediments, shellfish, and aquaculture sites worldwide. Only three *Vibrio* species are of significant pathogenic concern to humans. These species are capable of causing serious human infections which result from the consumption of raw shellfish or exposure of pre-existing wounds to sea water or seafood products. Pathogenic *Vibrio* species were found at a variety of sites around the island. Somewhat elevated levels of *V. parahaemolyticus* and *V. vulnificus* were found at Lighthouse and Bowman's respectively, but being part of the normal bacterial flora of sea water (and thus algae), there is really nothing that is practical that can be done. These levels, however, were far lower than what is typically found in a single oyster.

EMCS USED IN MODEL:

The mean EMC's are as follows (for urban areas):

Nitrogen: 1.5 mg/l

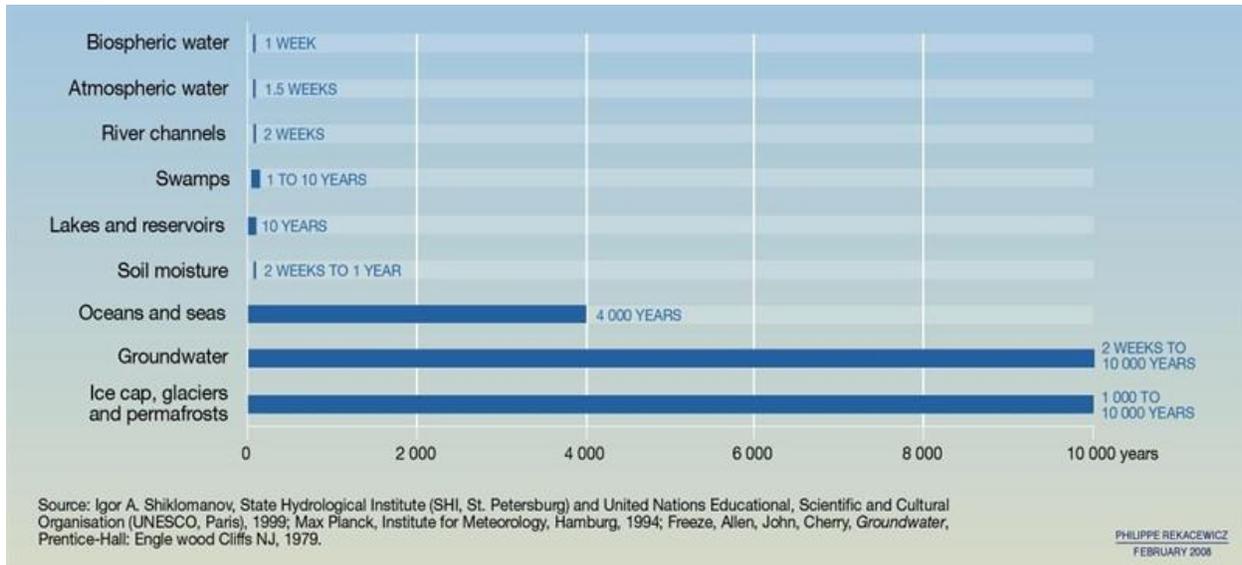
Phosphorus: .063 mg/l

BOD: Not Used

¹ Note the "Water Data Detail" attachment for a more complete discussion of these data. Source: <http://www.sanibelh20matters.com/results.cfm>

ESTIMATED RESIDENCE TIME OF ANY PONDS, SWALES, ETC.:

Based on the table below I would say the residence time for swales would be similar to river channels (2 weeks-1 year) and approx. 10 years for lakes/ponds.



TASKS and DELIVERABLES:

TASK NUMBER: 1

TASK NAME: Execute grant contract.

TASK DESCRIPTION (detailed): Upon receipt of notification of funding, staff will begin work to execute the grant contract.

DELIVERABLE: Executed grant contract

TASK NUMBER: 2

TASK NAME: Preparation of bid documents and advertisement of bid based on completed plans for construction.

TASK DESCRIPTION (detailed): Upon receipt of notification of funding and execution of the grant contract, staff will prepare the public bid documents for construction of the project. The plans are complete for the project and were funded by SFWMD at a cost of \$120,000. Based upon the plans, the bid will be advertised, responses reviewed and a winning firm selected by the City Council.

DELIVERABLE: Notice of selection of winning firm.

TASK NUMBER: 3

TASK NAME: Preparation and submission of permit applications.

TASK DESCRIPTION (detailed): Upon receipt of notification of funding and execution of the

grant contract, staff will prepare the permit applications required for construction of the project. The project will require:

1. Florida Dept. of Environmental Protection for Construction of a domestic wastewater collection/transmission system.
2. Florida Dept. of Environmental Protection for stormwater discharge from large and small construction activities.
3. South Florida Water Management District permit for dewater.

DELIVERABLE: Receipt of permits.

TASK NUMBER: 4

TASK NAME: Acquisition of remaining 15% of easements.

TASK DESCRIPTION (detailed): Immediately upon notification of funding and execution of the grant contract, staff will begin acquiring the remaining easements from affected property owners.

DELIVERABLE: Copies of easements received.

TASK NUMBER: 5

TASK NAME: Website updates, purchase of educational materials and distribution to residents

TASK DESCRIPTION (detailed): The City will update its website page “SanibelH2OMatters” to include information and benefits regarding the sewer system expansion project. The City will purchase educational materials for distribution to the residents informing them of the dangers of point and nonpoint source pollutants and the effect of the pollutants upon the surrounding waters. The City will work with the local elementary school to support water pollution educational programming.

DELIVERABLE: Educational materials and plan for distribution.

TASK NUMBER: 6

TASK NAME: Construction of Area A (West Gulf Drive), Area B (Sanibel Gardens), Area C (Tamarind Road), Area D (Winterbottom), Area E (Woodring Road), Area F (Ferry Road)

TASK DESCRIPTION (detailed): Construction of the project shall proceed once a contractor has been selected. The construction shall be monitored by City staff to ensure compliance with the construction plans with site meetings held with staff and all involved contractors to encourage clear communication. The contractor shall install the required construction Best Management Practices and have a Stormwater Inspector that has received the certification through the FDEP Florida Stormwater, Erosion, and Sedimentation Control Inspector training Program onsite at all times. After the construction has been deemed substantially complete, City staff shall perform a walk through to create a punch list of items for the contractor to address. Once the items have been addressed, and the as-built drawings have been approved the project can move to close out. Installation of sanitary sewer piping and sanitary laterals shall be in accordance with all construction plans and drawings in Areas A-F.

DELIVERABLE: A construction contract with a Notice to Proceed given to the responsible low bidder.

TASK NUMBER: 7

TASK NAME: Project Administration

TASK DESCRIPTION (detailed): This task shall involve the City staff inspecting the project on a weekly basis while construction activity is active. Staff shall be responsible for overseeing all contractors, consultants,, surveyors, as well as contract administration and reporting project status back to FDEP. After the grant has been awarded, the City shall provide ongoing monitoring of project schedules to assure compliance with the timelines outlined in the grant contract. Required grant quarterly reports, construction contract coordination with DEP and preliminary and final project reports will be written by the City.

DELIVERABLE: Quarterly reports to DEP.

TASK NUMBER: 8

TASK NAME: Construction Closeout

TASK DESCRIPTION (detailed): All required documentation shall be received from the contractor and all pay applications shall be approved for payment. Project shall be certified to the permitting agencies as being complete and in compliance with permit requirements.

DELIVERABLE: The acceptance of the facilities as completed facilities according to design.

TASK NUMBER: 9

TASK NAME: Monitoring

TASK DESCRIPTION (detailed): The monitoring of the project that is detailed in this application shall be implemented to determine the EMCs coming to the system and leaving. Removal efficiencies shall be verified and reported back to DEP. The monitoring plan fully describes the proposed pre and post construction monitoring. It also describes how the monitoring will supplement the current monitoring already performed by the City. The results of all monitoring will be used for analysis of the improved water conditions. See detailed monitoring plan attached as Attachment A.

DELIVERABLE: Draft QAPP; Approved QAPP; Monitoring results

TASK NUMBER: 10

TASK NAME: Residential connections

TASK DESCRIPTION (detailed): All residents are required to connect to the completed sewer expansion project within one year of completion. Benefited property owners will contribute through an assessment of approximately \$7000 for the connection of each residence to the system. (40 units x \$7000 = \$280,000). Residents are also responsible for properly closing the existing septic system.

DELIVERABLE: Proof of residential connections.

TASK NUMBER: 11**TASK NAME:** Final Report

TASK DESCRIPTION (detailed): The City will complete and submit a final report to the Department. The Final Report will capture the outcome and results of the project, including all tasks included in this project. This shall include, where applicable, why a BMP did not obtain *or* exceeded the expected removal efficiency; any problems encountered and how those problems were overcome; an explanation of any project delays; a brief summary of any additional phases yet to be completed; and more. The Final Report will follow the Department template as much as possible.

DELIVERABLE: Draft final report; approved final report**TIMELINE:**

Task No.	Task Title <i>(should match identically above)</i>	Start	Complete
1	Execute Grant Contract	Month <u>1</u>	Month <u>2</u>
2	Prepare Bid Documents	Month <u>1</u>	Month <u>3</u>
3	Apply for permits	Month 1	Month 3
4	Acquire Easements	Month <u>1</u>	Month <u>4</u>
5	Education Program	Month <u>1</u>	Month <u>12</u>
6	Construction	Month <u>3</u>	Month <u>12</u>
7	Project Administration	Month <u>3</u>	Month <u>12</u>
8	Construction Closeout	Month 12	Month <u>12</u>
9	Monitoring	Month 12	Month <u>24</u>
10	Residential connection	Month 12	Month 24
11	Final Report	Month <u>12</u>	Month <u>12</u>

PROJECT BUDGET BY CATEGORY and TASK:

Task No.	Category	Grant Funding	Match Funding	Match Source
#1 Execute Grant Contract	Salaries	\$ <u>0</u>	\$ <u>0</u>	
	Fringe Benefits	\$ <u>0</u>	\$ <u>0</u>	
	Travel	\$ <u>0</u>	\$ <u>0</u>	
	Contractual	\$ <u>0</u>	\$ <u>0</u>	
	Equipment Purchases	\$ <u>0</u>	\$ <u>0</u>	
	Supplies/Other Expenses	\$ <u>0</u>	\$ <u>0</u>	
	Land	\$ <u>0</u>	\$ <u>0</u>	
	Indirect	\$ <u>0</u>	\$ <u>0</u>	
	TOTAL FOR TASK	\$ <u>0</u>	\$ <u>0</u>	0

Task No.	Category	Grant Funding	Match Funding	Match Source
#2 Prepare Bid Documents	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$120,000	SFWMD (completed)
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$120,000	0

Task No.	Category	Grant Funding	Match Funding	Match Source
#3 Apply for permits	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	0

Task No.	Category	Grant Funding	Match Funding	Match Source
#4 Acquire Easements	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$105,000	City Cash
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$105,000	105,000

Task No.	Category	Grant Funding	Match Funding	Match Source
#5 Education	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	

Program	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	0

Task No.	Category	Grant Funding	Match Funding	Match Source
#6 Constr uction	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$600,000	\$120,000	City Cash
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
TOTAL FOR TASK	\$600,000	\$120,000		

Task No.	Category	Grant Funding	Match Funding	Match Source
7 # Project Admin istratio n	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$100,000	City Cash
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
TOTAL FOR TASK	\$0	\$100,000		

Task No.	Category	Grant Funding	Match Funding	Match Source
#8 Constr uction Close- out	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	

	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	

Task No.	Category	Grant Funding	Match Funding	Match Source
#9 Monitoring	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	

Task No.	Category	Grant Funding	Match Funding	Match Source
#10 Residential connection	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$280,000	City Residents
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	

Task No.	Category	Grant Funding	Match Funding	Match Source
#10 Final Report	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	

Total:	\$600,000	\$725,000	
Total Project Cost:	\$1,325,000		
Percentage Match:	45%	55%	

PROJECT BUDGET BY CATEGORY TOTALS: *Please total all of the categories in each task above and provide that total in the table below.*

Category Totals	319 Funding	Match Funding	Match Source
Salaries Total	\$0	\$0	Match Source
Fringe Benefits Total	\$0	\$0	Match Source
Travel Total	\$0	\$0	Match Source
Contractual Total	\$600,000	725,000	City Cash, SRWMD, residential connections
Equipment Purchases Total	\$0	\$0	Match Source
Supplies/Other Expenses Total	\$0	\$0	Match Source
Land Total	\$0	\$0	Match Source
Indirect Total	\$0	\$0	Match Source
Total:	\$600,000	725,000	
Total Project Cost:	\$1,325,000		
Percentage Match:	45%	55%	

ADDITIONAL REQUIRED INFORMATION:

- ◆ If this is a multi-year project, have you requested sufficient funds to complete the project (assuming funds requested herein are provided)?
Yes: No: If no, explain: [Provide explanation if no.](#)
- ◆ Does the project utilize innovative uses of technologies/BMPS? For example, stormwater projects that include an extensive treatment train such as retention ponds,

exfiltration trenches, nutrient separating baffle boxes, swales, etc., will be considered more innovative than projects that install a single BMP.

Yes: No: If yes, explain:

The design of the sanitary sewer collection system utilizes innovative uses of technology and BMPs. This design is for the construction of low pressure system. As opposed to manholes and gravity pipe to a larger neighborhood liftstation, this system utilizes smaller liftstations or pits and shorter pipe runs with only limited number of houses per pit (generally 1-3). This system can be utilized where there is limited right-of-way, a few grouped homes, or where traditional manhole runs cannot be utilized.

Where several pits are in a neighborhood, they can be grouped together for electricity and control wiring to a single panel. This would allow 1 generator to be utilized for several pits during an emergency power outage or hurricane.

All of the swales will be regraded and resodded upon completion of the project.

Another technology will be to fabricate the control panel structure so they can be lifted above the flood elevation during the event of an oncoming storm.

- ◆ Does the applicant or partner providing at least 10% match have a dedicated stormwater utility fee or other recurring dedicated fee?
Yes: No: If yes, state the monthly fee: **The Water Management District has several dedicated fees that are charged to users.**

- ◆ Is the project located in or does it benefit any of the following areas:
 - At least 51% of the project's benefit is received by a special designation area including Empowerment Zone, Enterprise Community, Champion Community, Area of Critical State Concern, HUD-designated Renewal Community Rural Area of Critical Economic Concern, Rural Economic Development Initiative (REDI) community, Florida Enterprise Zone, or Front Porch Community. If yes, which one? [State special designation](#)
 - At least 51% of the project's benefit is received by an area with median income at 50% or less of the area's median income.
 - At least 51% of the project's benefit is received by an area with median income between 80% and 50.1% of the area's median income.
 - At least 51% of the project's benefit is received by an area with median income at or above 80.1% the area's median income.

- ◆ The applicant agrees to comply with all state and federal requirements specified in the guidance package and in the federal grant regulations. Checking "no" or "yes, except"

may disqualify a project or cause the project to have a lower ranking than similar projects by lead organizations that agree to the requirements.

Yes: No: Yes, with exceptions: [Provide details of exceptions.](#)

REFERENCES CITED:

[List any references cited.](#)

The following are included as attachments to this application:

- Monitoring Plan: **Attachment A (with its own attachments)**
- Site Maps (in graphic file format (i.e. - .doc, .jpg, .tiff)). Each map should have a legend, scale, and north arrow. When pasting maps, use a new page for each of the requested figures.
 - Regional site locator map showing the project site relative to the surrounding area: **Attachment B**
 - Treatment area, including the following elements if possible: watersheds, drainage basins, or catchments, relative water features (i.e. – waterbodies and water courses), site boundaries, and aerial imagery if available: **Attachment C**
 - A detailed site map showing the conceptual elements of your proposed project: **Attachment D**
- Other Relevant Information, including pre-construction photographs, BMP documentation, and letters of commitment from land owners or match contributors, etc.: Attachment **#E**

Figure 3.5 Composite Map of the Pine Island Planning Unit.

Figure 4.1 Waters surrounding Sanibel on the Verified List

Google Earth Photos of Woodring Road and Sanibel Island

FY2014 SECTION 319 GRANT PROPOSAL APPLICATION

PROJECT NAME: Sanibel Sewer System Expansion Phase IV-**Revised**

PROJECT FUNDING REQUEST: \$600,000 **MATCH:** \$725,000

LEAD ORGANIZATION: City of Sanibel

CONTACT PERSON: Keith Williams
800 Dunlop Road
Sanibel, FL 33957
Tel: 239.472.6397
Fax: 239.691-8787
Email: keith.williams@mysanibel.com

FEID NUMBER: **59-1568877**

FISCAL YEAR END: **9/30/2013**

FINANCIAL COOPERATING PARTNERS:

1. SFWMD \$120,000 for design of Phase IV of the Sanibel Sewer System Expansion Program and
2. Benefited property owners will contribute through assessments of approximately \$7000 for the connection of each residence to the system. (40 units x \$7000 = \$280,000)

OTHER COOPERATING PARTNERS: Individual property owners.

PROJECT LOCATION AND WATERSHED CHARACTERISTICS:

Geographic Location: Sanibel, Lee County, Florida
Impacted Watershed Name: Charlotte Harbor
Size of Project Impact: 12 ac.
Size of Area Being Treated: Abandonment of 42 septic tanks at 800 sf average = 33,600 sf
Latitude: 26.440518 (City Hall)
Longitude: -82.073300 (City Hall)
Hydrologic Unit Code: HUC12 -- 31001030202
WBID: 2092F
Impaired waterbody affected: Sanibel River, Tarpon Bay and San Carlos Bay.
Impairment: High nutrient levels and low levels of dissolved oxygen.
TMDL Status: None
BMAP Status: No BMAP. Will be developed in the future.

Land Uses within the area being treated:

Land Use <i>(Do not alter – All must be filled out; Do not add categories; place a 0 for no acres)</i>	Acres	%
Residential Low Density (1100)		
Residential Medium Density (1200)	12	100
Residential High Density (1300)		
Commercial and Services (1400)		
Industrial (1500)		
Extractive (1600)		
Institutional (1700)		
Recreational (1800)		
Open Land (1900)		
Agriculture (2000)		
Upland Non-Forested (3000)		
Upland Forests (4000)		
Water (5000)		
Wetlands (6000)		
Barren Land (7000)		
Transportation, Communication, and Utilities (8000)		
Land Use Totals (Acreage and %)	12	100%

LAND OWNERSHIP STATUS: (check one)

- Land necessary for the construction of treatment infrastructure has been acquired. Title is held by
- Land necessary for the construction of treatment infrastructure is under a legal option to buy (please provide documentation of the option-to-buy and funding to execute the purchase).
- Land necessary for the construction of treatment infrastructure is under an easement which allows for the construction and access.

The City of Sanibel holds title to 75-85% of the easements necessary to complete the work. Four of the six areas are complete, two areas require significant additional easements. The City is budgeting \$105,000 for 2014 to begin acquiring the additional easements in October 2013.

WATERSHED MANAGEMENT PLAN: Lower Charlotte Harbor Surface Water Improvement and Management Plan. See page 77 – “Phase 4, of Sanibel Sanitary Sewer Expansion Program; this will finalize the completion of a \$65,000,000 project that has spanned almost ten years in the City of Sanibel \$1,200,000”

PROJECT OVERVIEW:

Description of Project:

Sanibel's beaches stretch for 11 miles along the Gulf of Mexico and for 3.5 miles on the San Carlos Bay side of the island. Sanibel's beaches are worldwide renowned for their natural state and as a location to enjoy and appreciate rare and endangered wildlife. The citizens of Sanibel have invested significant resources in restoring and enhancing the natural dune system and native vegetation at the beaches.

In 1998, the City adopted the island-wide Wastewater Master Plan. The primary goal of this plan is to further Sanibel's philosophy of environment protection and preservation through the ultimate elimination of on-site systems with the provision of city-wide central sewer service and advanced wastewater treatment and disposal.

This project is to construct the 4th and final phase, of the sanitary sewer system expansion program covering 6 small areas of the island. Two of the areas are located on San Carlos Bay, one on the Gulf of Mexico and three along the Sanibel River corridor. The locations of the areas make them difficult to sewer, but critical to do so since they are located so close to water bodies. The project is not required mitigation for any permit. The citizens of Sanibel have invested over **\$64 million** into improvements to, and expansion of, the City's centralized sanitary sewer system. Phase 4 represents the final piece of the project.

Objective of Project:

Given Sanibel's sandy soils, development density and proximity to open bodies of water, septic systems are an undesired method of treating wastewater. The sewer system provides advanced wastewater treatment and water conserving effluent disposal through irrigation and the island's 3 golf courses and a portion of the Gulf Drive condominiums.

The objective of this project is to enhance the water quality of Sanibel's surrounding waters, including Pine Island Sound, Sanibel's Clam Bayou, San Carlos Bay, and lower Charlotte Harbor, which are located within the Caloosahatchee River watershed. This project will complete Phase 4 of the expansion of the centralized Water and Sewage Treatment System for Sanibel Island. Once the sewer expansion is operational, residents have one year to connect their home to the system and properly close the septic system.

The project will eliminate seepage from septic systems as one source of nutrients and harmful bacteria from within our community. The City's overriding goal is to eliminate all sources of the nutrients and harmful bacteria fouling local waters and feeding the algae from within and beyond our borders.

Design of the Project:

The design of the sanitary sewer collection system utilizes innovative uses of technology and BMPs. This design is for the construction of a low pressure system.

The low pressure system utilizes smaller liftstations (or “pits”) and shorter pipe runs with only limited number of houses per pit (generally 1-3) as opposed to a system with manholes and gravity pipe to a larger neighborhood liftstation. The low pressure system can be utilized where there is limited right-of-way, a few grouped homes, or where traditional manhole runs cannot be utilized.

Where several pits are in a neighborhood, they can be grouped together for electricity and control wiring to a single panel. This would allow 1 generator to be utilized for several pits during an emergency power outage or hurricane.

All of the swales will be regraded and resodded upon completion of the project.

Another technology will be to fabricate the control panel structure so they can be lifted above the flood elevation during the event of an oncoming storm.

This project will help prevent:

A) defoliation of seagrasses. Water pollution is threatening to permanently destroy over 10,000 acres of seagrass beds near the mouth of the Caloosahatchee River including habitat federally designated as critical to the endangered West Indian Manatee and important to threatened sea turtles and numerous fisheries including pink shrimp, seatrout, blue crab and grouper,

B) the killing of oyster beds, commercial clam beds and virtually all other filter feeding organisms ranging from barnacles to sponges and corals,

C) degradation of federal waters and coastal resources including designated wilderness areas of the J. N. Ding Darling National Wildlife Refuge. Currently there is currently a widespread dense bloom of green filamentous algae, a classic indicator of nutrient pollution, throughout the waters of the Refuge where seagrass previously existed. This Refuge is a national treasure that has been severely damaged. The affected waters are all within the federal boundaries of the Charlotte Harbor National Estuary Program, which are supposed to be protected from federally caused damage under the Federal Consistency Program and EPA Clean Water Act regulations,

D) severe impacts to numerous local industries including tourism, marine trades, boating, commercial fishing and others.

Many species of fish and shellfish, including commercially and recreationally valuable species such as grouper, seatrout, snapper, redfish, pink shrimp, blue crab, and stone crab, depend on marine seagrasses for their survival. Scientists were disturbed to see three critical seagrass species in our area drop their blades (seagrass leaves) as a result of discharges. Unless the turtle grass, manatee grass and shoal grass are allowed adequate time to re-grow and recover, more than ten thousand acres of seagrasses in southwest Florida could be permanently lost. This would ultimately lead

to the collapse of the entire Charlotte Harbor estuary. As a result, the environmental and economic impacts would be staggering.

Septic System concerns and issues:

Septic systems have the potential to pollute water resources. Septic systems are not closed systems and can release two types of major contaminants:

1. Disease-causing germs, including bacteria and viruses. The presence of fecal coliform, which has been found on Sanibel's beaches, indicates that there is a problem with the release of human and/or animal waste. The presence of coliform bacteria leads to warnings of contaminated water for recreational swimmers as well as closure of shellfish harvesting beds.
2. Nitrate-nitrogen. This nutrient enriches Sanibel's surrounding waters and contributes to algae blooms and loss of dissolved oxygen. Dissolved oxygen is essential to plants and animals living in estuarine waters.

How a Septic System Works -- A conventional septic system consists of four main parts:

1. The **source** is where the wastewater is generated.
2. The **septic tank** collects and stores the solids that come from the house.
3. The **drainfield** is made from pipe and gravel that are installed as trenches in the soil. The drainfield delivers wastewater to the soil.
4. The **soil beneath the drainfield** purifies the wastewater before it flows to the underlying groundwater.

Wastewater flows from the house into the septic tank. The solids sink to the bottom of the tank, the grease floats to the top, and the liquid portion of the wastewater flows out into the drainfield. The drainfield distributes the wastewater and allows it to slowly move into the soil. As it moves through the soil, the wastewater is purified by organisms that live in the soil.

Soil above the groundwater table is considered to be "aerobic." "Aerobic" means that the soil has some air in it and is not totally saturated (or filled with water). This aerobic soil is where most of the germs from the sewage are removed. The best way to protect drinking water is to maintain as much of these aerobic conditions as possible between the drainfield trenches and the groundwater table. If the soil is too sandy, wastewater can flow through the soil into the groundwater too fast and is not purified. (North Carolina State University Cooperative Extension:
<http://www.soil.ncsu.edu/assist/cas/septic/index.htm>)

The water table and sandy conditions on Sanibel and other barrier islands make it very difficult to maintain the necessary conditions to purify sewage and wastewater completely in a septic system. Therefore, leakage of dangerous bacteria and nutrients is more likely. This project involves the design work necessary for the elimination of septic systems in six areas of Sanibel. The locations of the areas make them difficult to sewer, but critical to do so since they are located so close to water bodies.

The Lower Charlotte Harbor Swim Plan addresses septic systems as follows:

Non-point sources of pollution in the Watershed, which can degrade ground as well as surface water quality, include stormwater runoff or leaching of pollutants into groundwater from agriculture, and urban/suburban land uses, atmospheric deposition, and septic tanks. Septic tanks, or Onsite Sewage Treatment and Disposal Systems (OSTDS) are prevalent in some areas of the Watershed and are considered a potential source of nutrients (nitrogen and phosphorus), pathogens and other pollutants that can pose a threat to public health. Surface waters can be adversely affected directly by system drainfields washed away by floodwaters or via runoff from areas where system failures result in ponding of untreated or inadequately treated wastewater on the ground. Surface waters can be adversely affected indirectly through seepage of groundwaters contaminated by system discharges. From the period 2000-2005 the Florida Department of Health reported 2050 OSTDS repair permits for Charlotte, Glades, Hendry and Lee counties (Table 10) and 20,571 new installation permits (Table 11). (p.38, Lower Charlotte Harbor SWIM Plan February 4, 2008)

Demonstrate anticipated pollutant reduction:

- Completing the construction work necessary to eliminate septic systems will reduce pollutants by eliminating leakage of nutrients and harmful bacteria into Sanibel's groundwater and eventually into surrounding waters. This reduction will:
 - Reduce defoliation of seagrasses. Water pollution is threatening to permanently destroy over 10,000 acres of seagrass beds near the mouth of the Caloosahatchee River including habitat federally designated as critical to the endangered West Indian Manatee and important to threatened sea turtles and numerous fisheries including pink shrimp, seatrout, blue crab and grouper,
 - Reduce harm to oyster beds, commercial clam beds and virtually all other filter feeding organisms ranging from barnacles to sponges and corals,
 - Reduce degradation of federal waters and coastal resources including designated wilderness areas of the J. N. Ding Darling National Wildlife Refuge.
 - Lessen impacts to numerous local industries including tourism, marine trades, boating, commercial fishing and others.

Charlotte Harbor Aquatic Preserve Habitat:

The most common biological communities in the Charlotte Harbor Aquatic Preserve includes:

Mangroves - reds (*Rhizophora mangle*), blacks (*Avicennia germinans*), whites (*Laguncularia racemosa*), and buttonwood (*Conocarpus erectus*)

Seagrasses - turtle (*Thalassia testudinum*), manatee (*Syringodium filiforme*), and Cuban shoal (*Halodule wrightii*)

Salt Marshes - salt marsh grass (*Distichlis spicata*), needlerush (*Juncus roemerianus*), and cordgrass (*Spartina spp.*)

Oyster Communities -

Tidal Flats - estuarine beaches, spoil areas, shoal areas, and mud flats

Ecological Importance - Commercial, Recreational and Ecologically Important Species:

Recreational species include mullet, spotted sea trout, red drum, flounder, blue crab, pink shrimp, stone crab, snook, tarpon, grouper, snapper, sheepshead and several species of shark.

Commercial species are cobia, flounder, mullet, pompano, spotted sea trout, snapper, tripletail, blue crab and pink shrimp.

Eighty six of the state's endangered and threatened species are found within the Charlotte Harbor region (listed by the Florida Game and Fresh Water Fish Commission, U.S. Fish and Wildlife Service, Convention of International Trade in Endangered Species of Wild Fauna and Flora or Florida Committee on Rare and Endangered Plants and Animals). Examples include: smalltooth sawfish, American alligator, Atlantic loggerhead turtle, Atlantic green turtle, leatherback turtle, Atlantic hawksbill turtle, Kemp's ridley, roseate spoonbill, Southeastern snowy plover, piping plover, Marian's marsh wren, little blue heron, reddish egret, snowy egret, tricolored heron, white ibis, peregrine falcon, Southeastern American kestrel, American oystercatcher, wood stork, brown pelican, Everglades kite, least tern, roseate tern, and Florida manatee.

Educational Program:

The City of Sanibel is vigilant in its protection and enhancement of the Island's natural resources through education of its residents and visitors. The City website has a dedicated section entitled "Sanibel H2O Matters" filled with information on estuaries, water quality, resident responsibilities and coastal issues. Information regarding the importance of this project and its long-lasting impact on water quality will be promoted on the website. The City will also post timely information regarding water quality issues on the website.

The City's website must be promoted and marketed in order to increase traffic to the site. The City promotes Sanibel H2O Matters on its website, in its City publications and through its partnerships with other organizations

Education of the impacted residents-Each property owner impacted by this project will receive additional education regarding the need for the project and the importance of water quality. A minimum of two letters will go to each property owner during the project. Additional water quality materials may be added to the letter if needed to educate the property owner.

Educational materials -- The City will purchase or design educational materials for distribution to the residents informing them of the dangers of point and nonpoint source pollutants and the effect of the pollutants upon the surrounding waters. The City will

work with the Island elementary school to introduce an education campaign about the surrounding waters and the dangers of different pollutants that may make their way to the waters.

Benefit a water body on DEP’s Impaired Waters list;

This project will benefit several Charlotte Harbor water bodies on DEP’s Impaired Waters list (http://www.dep.state.fl.us/WATER/tmdl/adopted_gp2.htm) including the **Sanibel River**

ESTIMATED POLLUTANT LOAD REDUCTION MODEL USED: (check one)

This proposal is for a structural BMP project. In the below estimated pollutant load reduction, the applicant used the following model: Spreadsheet Tool for Estimating Pollutant Load (STEPL, 2007)

This proposal is for a non-structural BMP project, such as educational outreach, demonstrations, or effectiveness evaluations, and: (check one)

Estimated Pollutant Load Reductions were able to be estimated by using the following methodology: NA

Estimated Pollutant Load Reductions were not able to be estimated. However, the project is expected to reduce loads from nonpoint sources in the following ways: NA

BMPs Installed		TP lbs/yr	TN lbs/yr	Sediment lbs/yr	BOD lbs/yr
Residential Septic Tank Removals and Swale Cleanings					
Pollutant Loads	Pre-Project	362.1	982.9	4527.4	3956.8
	Post-Project	203.0	577.3	3747.6	2267.1
	Load Reduction	159.1	405.6	779.8	1689.8
	% Reduction	43.9%	41.3%	17.2%	42.7%

The City of Sanibel and others have tested area waters. The samples were used as part of research to help pinpoint and address water quality issues facing Southwest Florida. Also, at the request of Sanibel’s City Council, a physicians working group reviewed Lee County data to determine the effects of poor water quality and the presence of algae on the island’s beaches on human health. Data was gathered from Blind Pass, Bowman's Beach, Lighthouse Beach, Sanibel Causeway, South Seas Plantation, and Tarpon Bay

Beach from July 2000 to October 2006. Results, compiled as of February 15, 2007, are summarized below¹:

- **Enterococcus** - The data showed an increasing trend in the number of times Enterococcus bacteria showed up in the poor to moderate range
- **Fecal coliform** - One sampling event fell into the "moderate" category for fecal coliform (Tarpon Bay). Most of the other samples were at or below the minimum detection limit.

To assess the human health risk of red drift algae, specifically the presence of human pathogenic bacteria, algae samples were collected at Blind Pass, Bowman's Beach, Tarpon Bay beach, Lighthouse Beach and Dixie Beach:

- **Staphylococci** - Although Staphylococci coagulase negative bacteria were present, coagulase negative strains are not typically associated with human disease. *Staphylococcus aurea*, the strain most associated with human disease, were not present. Currently, there are no numeric standards available for acceptable levels of Staphylococci in marine systems. However, it is important to note that Staphylococci sp. are abundantly present in Sanibel beach sediments; this is generally not considered a good indicator of beach health.
- **Vibrio** - *Vibrio* species are motile bacteria that are indigenous to the marine environment, found in estuaries, marine coastal waters, sediments, shellfish, and aquaculture sites worldwide. Only three *Vibrio* species are of significant pathogenic concern to humans. These species are capable of causing serious human infections which result from the consumption of raw shellfish or exposure of pre-existing wounds to sea water or seafood products. Pathogenic *Vibrio* species were found at a variety of sites around the island. Somewhat elevated levels of *V. parahaemolyticus* and *V. vulnificus* were found at Lighthouse and Bowman's respectively, but being part of the normal bacterial flora of sea water (and thus algae), there is really nothing that is practical that can be done. These levels, however, were far lower than what is typically found in a single oyster.

EMCS USED IN MODEL:

The mean EMC's are as follows (for urban areas):

Nitrogen: 1.5 mg/l

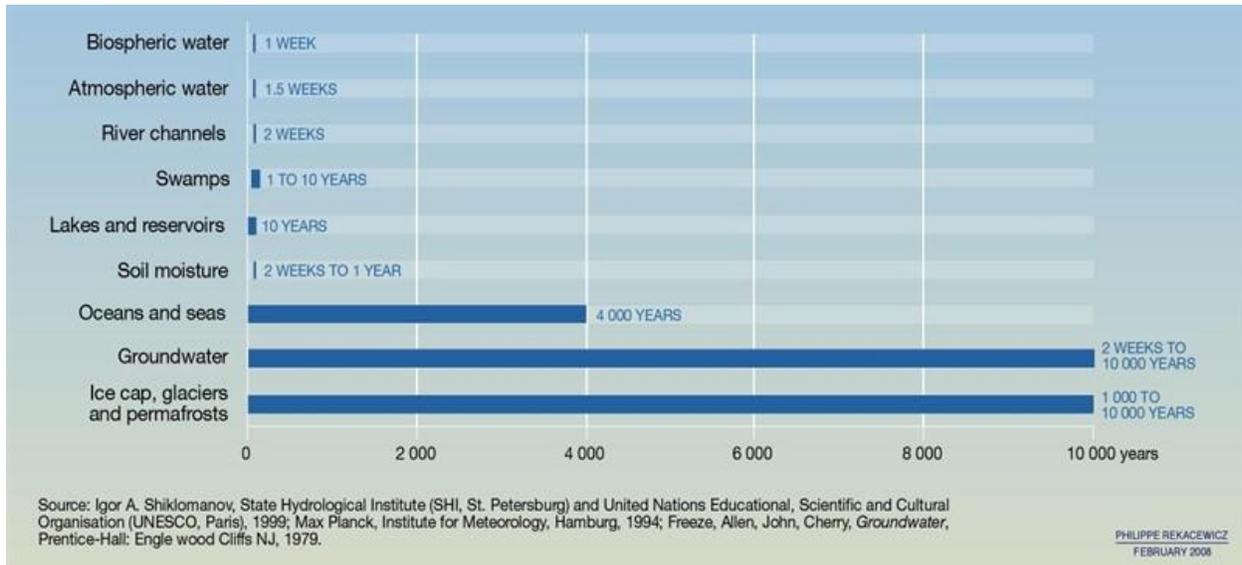
Phosphorus: .063 mg/l

BOD: Not Used

¹ Note the "Water Data Detail" attachment for a more complete discussion of these data. Source: <http://www.sanibelh20matters.com/results.cfm>

ESTIMATED RESIDENCE TIME OF ANY PONDS, SWALES, ETC.:

Based on the table below I would say the residence time for swales would be similar to river channels (2 weeks-1 year) and approx. 10 years for lakes/ponds.



TASKS and DELIVERABLES:

TASK NUMBER: 1

TASK NAME: Execute grant contract.

TASK DESCRIPTION (detailed): Upon receipt of notification of funding, staff will begin work to execute the grant contract.

DELIVERABLE: Executed grant contract

TASK NUMBER: 2

TASK NAME: Preparation of bid documents and advertisement of bid based on completed plans for construction.

TASK DESCRIPTION (detailed): Upon receipt of notification of funding and execution of the grant contract, staff will prepare the public bid documents for construction of the project. The plans are complete for the project and were funded by SFWMD at a cost of \$120,000. Based upon the plans, the bid will be advertised, responses reviewed and a winning firm selected by the City Council.

DELIVERABLE: Notice of selection of winning firm.

TASK NUMBER: 3

TASK NAME: Preparation and submission of permit applications.

TASK DESCRIPTION (detailed): Upon receipt of notification of funding and execution of the

grant contract, staff will prepare the permit applications required for construction of the project. The project will require:

1. Florida Dept. of Environmental Protection for Construction of a domestic wastewater collection/transmission system.
2. Florida Dept. of Environmental Protection for stormwater discharge from large and small construction activities.
3. South Florida Water Management District permit for dewater.

DELIVERABLE: Receipt of permits.

TASK NUMBER: 4

TASK NAME: Acquisition of remaining 15% of easements.

TASK DESCRIPTION (detailed): Immediately upon notification of funding and execution of the grant contract, staff will begin acquiring the remaining easements from affected property owners.

DELIVERABLE: Copies of easements received.

TASK NUMBER: 5

TASK NAME: Website updates, purchase of educational materials and distribution to residents

TASK DESCRIPTION (detailed): The City will update its website page “SanibelH2OMatters” to include information and benefits regarding the sewer system expansion project. The City will purchase educational materials for distribution to the residents informing them of the dangers of point and nonpoint source pollutants and the effect of the pollutants upon the surrounding waters. The City will work with the local elementary school to support water pollution educational programming.

DELIVERABLE: Educational materials and plan for distribution.

TASK NUMBER: 6

TASK NAME: Construction of Area A (West Gulf Drive), Area B (Sanibel Gardens), Area C (Tamarind Road), Area D (Winterbottom), Area E (Woodring Road), Area F (Ferry Road)

TASK DESCRIPTION (detailed): Construction of the project shall proceed once a contractor has been selected. The construction shall be monitored by City staff to ensure compliance with the construction plans with site meetings held with staff and all involved contractors to encourage clear communication. The contractor shall install the required construction Best Management Practices and have a Stormwater Inspector that has received the certification through the FDEP Florida Stormwater, Erosion, and Sedimentation Control Inspector training Program onsite at all times. After the construction has been deemed substantially complete, City staff shall perform a walk through to create a punch list of items for the contractor to address. Once the items have been addressed, and the as-built drawings have been approved the project can move to close out. Installation of sanitary sewer piping and sanitary laterals shall be in accordance with all construction plans and drawings in Areas A-F.

DELIVERABLE: A construction contract with a Notice to Proceed given to the responsible low bidder.

TASK NUMBER: 7

TASK NAME: Project Administration

TASK DESCRIPTION (detailed): This task shall involve the City staff inspecting the project on a weekly basis while construction activity is active. Staff shall be responsible for overseeing all contractors, consultants,, surveyors, as well as contract administration and reporting project status back to FDEP. After the grant has been awarded, the City shall provide ongoing monitoring of project schedules to assure compliance with the timelines outlined in the grant contract. Required grant quarterly reports, construction contract coordination with DEP and preliminary and final project reports will be written by the City.

DELIVERABLE: Quarterly reports to DEP.

TASK NUMBER: 8

TASK NAME: Construction Closeout

TASK DESCRIPTION (detailed): All required documentation shall be received from the contractor and all pay applications shall be approved for payment. Project shall be certified to the permitting agencies as being complete and in compliance with permit requirements.

DELIVERABLE: The acceptance of the facilities as completed facilities according to design.

TASK NUMBER: 9

TASK NAME: Monitoring

TASK DESCRIPTION (detailed): The monitoring of the project that is detailed in this application shall be implemented to determine the EMCs coming to the system and leaving. Removal efficiencies shall be verified and reported back to DEP. The monitoring plan fully describes the proposed pre and post construction monitoring. It also describes how the monitoring will supplement the current monitoring already performed by the City. The results of all monitoring will be used for analysis of the improved water conditions. See detailed monitoring plan attached as Attachment A.

DELIVERABLE: Draft QAPP; Approved QAPP; Monitoring results

TASK NUMBER: 10

TASK NAME: Residential connections

TASK DESCRIPTION (detailed): All residents are required to connect to the completed sewer expansion project within one year of completion. Benefited property owners will contribute through an assessment of approximately \$7000 for the connection of each residence to the system. (40 units x \$7000 = \$280,000). Residents are also responsible for properly closing the existing septic system.

DELIVERABLE: Proof of residential connections.

TASK NUMBER: 11**TASK NAME:** Final Report

TASK DESCRIPTION (detailed): The City will complete and submit a final report to the Department. The Final Report will capture the outcome and results of the project, including all tasks included in this project. This shall include, where applicable, why a BMP did not obtain *or* exceeded the expected removal efficiency; any problems encountered and how those problems were overcome; an explanation of any project delays; a brief summary of any additional phases yet to be completed; and more. The Final Report will follow the Department template as much as possible.

DELIVERABLE: Draft final report; approved final report**TIMELINE:**

Task No.	Task Title <i>(should match identically above)</i>	Start	Complete
1	Execute Grant Contract	Month <u>1</u>	Month <u>2</u>
2	Prepare Bid Documents	Month <u>1</u>	Month <u>3</u>
3	Apply for permits	Month 1	Month 3
4	Acquire Easements	Month <u>1</u>	Month <u>4</u>
5	Education Program	Month <u>1</u>	Month <u>12</u>
6	Construction	Month <u>3</u>	Month <u>12</u>
7	Project Administration	Month <u>3</u>	Month <u>12</u>
8	Construction Closeout	Month 12	Month <u>12</u>
9	Monitoring	Month 12	Month <u>24</u>
10	Residential connection	Month 12	Month 24
11	Final Report	Month <u>12</u>	Month <u>12</u>

PROJECT BUDGET BY CATEGORY and TASK:

Task No.	Category	Grant Funding	Match Funding	Match Source
#1 Execute Grant Contract	Salaries	\$ <u>0</u>	\$ <u>0</u>	
	Fringe Benefits	\$ <u>0</u>	\$ <u>0</u>	
	Travel	\$ <u>0</u>	\$ <u>0</u>	
	Contractual	\$ <u>0</u>	\$ <u>0</u>	
	Equipment Purchases	\$ <u>0</u>	\$ <u>0</u>	
	Supplies/Other Expenses	\$ <u>0</u>	\$ <u>0</u>	
	Land	\$ <u>0</u>	\$ <u>0</u>	
	Indirect	\$ <u>0</u>	\$ <u>0</u>	
	TOTAL FOR TASK	\$ <u>0</u>	\$ <u>0</u>	0

Task No.	Category	Grant Funding	Match Funding	Match Source
#2 Prepare Bid Documents	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$120,000	SFWMD (completed)
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$120,000	0

Task No.	Category	Grant Funding	Match Funding	Match Source
#3 Apply for permits	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	0

Task No.	Category	Grant Funding	Match Funding	Match Source
#4 Acquire Easements	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$105,000	City Cash
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$105,000	105,000

Task No.	Category	Grant Funding	Match Funding	Match Source
#5 Education	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	

Program	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	0

Task No.	Category	Grant Funding	Match Funding	Match Source
#6 Constr uction	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$600,000	\$120,000	City Cash
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
TOTAL FOR TASK	\$600,000	\$120,000		

Task No.	Category	Grant Funding	Match Funding	Match Source
7 # Project Admin istratio n	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$100,000	City Cash
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
TOTAL FOR TASK	\$0	\$100,000		

Task No.	Category	Grant Funding	Match Funding	Match Source
#8 Constr uction Close- out	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	

	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	

Task No.	Category	Grant Funding	Match Funding	Match Source
#9 Monitoring	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	

Task No.	Category	Grant Funding	Match Funding	Match Source
#10 Residential connection	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$280,000	City Residents
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	

Task No.	Category	Grant Funding	Match Funding	Match Source
#10 Final Report	Salaries	\$0	\$0	
	Fringe Benefits	\$0	\$0	
	Travel	\$0	\$0	
	Contractual	\$0	\$0	
	Equipment Purchases	\$0	\$0	
	Supplies/Other Expenses	\$0	\$0	
	Land	\$0	\$0	
	Indirect	\$0	\$0	
	TOTAL FOR TASK	\$0	\$0	

Total:	\$600,000	\$725,000	
Total Project Cost:	\$1,325,000		
Percentage Match:	45%	55%	

PROJECT BUDGET BY CATEGORY TOTALS: *Please total all of the categories in each task above and provide that total in the table below.*

Category Totals	319 Funding	Match Funding	Match Source
Salaries Total	\$0	\$0	Match Source
Fringe Benefits Total	\$0	\$0	Match Source
Travel Total	\$0	\$0	Match Source
Contractual Total	\$600,000	725,000	City Cash, SRWMD, residential connections
Equipment Purchases Total	\$0	\$0	Match Source
Supplies/Other Expenses Total	\$0	\$0	Match Source
Land Total	\$0	\$0	Match Source
Indirect Total	\$0	\$0	Match Source
Total:	\$600,000	725,000	
Total Project Cost:	\$1,325,000		
Percentage Match:	45%	55%	

ADDITIONAL REQUIRED INFORMATION:

- ◆ If this is a multi-year project, have you requested sufficient funds to complete the project (assuming funds requested herein are provided)?
Yes: No: If no, explain: [Provide explanation if no.](#)
- ◆ Does the project utilize innovative uses of technologies/BMPS? For example, stormwater projects that include an extensive treatment train such as retention ponds,

exfiltration trenches, nutrient separating baffle boxes, swales, etc., will be considered more innovative than projects that install a single BMP.

Yes: No: If yes, explain:

The design of the sanitary sewer collection system utilizes innovative uses of technology and BMPs. This design is for the construction of low pressure system. As opposed to manholes and gravity pipe to a larger neighborhood liftstation, this system utilizes smaller liftstations or pits and shorter pipe runs with only limited number of houses per pit (generally 1-3). This system can be utilized where there is limited right-of-way, a few grouped homes, or where traditional manhole runs cannot be utilized.

Where several pits are in a neighborhood, they can be grouped together for electricity and control wiring to a single panel. This would allow 1 generator to be utilized for several pits during an emergency power outage or hurricane.

All of the swales will be regraded and resodded upon completion of the project.

Another technology will be to fabricate the control panel structure so they can be lifted above the flood elevation during the event of an oncoming storm.

- ◆ Does the applicant or partner providing at least 10% match have a dedicated stormwater utility fee or other recurring dedicated fee?
Yes: No: If yes, state the monthly fee: **The Water Management District has several dedicated fees that are charged to users.**
- ◆ Is the project located in or does it benefit any of the following areas:
 - At least 51% of the project's benefit is received by a special designation area including Empowerment Zone, Enterprise Community, Champion Community, Area of Critical State Concern, HUD-designated Renewal Community Rural Area of Critical Economic Concern, Rural Economic Development Initiative (REDI) community, Florida Enterprise Zone, or Front Porch Community. If yes, which one? [State special designation](#)
 - At least 51% of the project's benefit is received by an area with median income at 50% or less of the area's median income.
 - At least 51% of the project's benefit is received by an area with median income between 80% and 50.1% of the area's median income.
 - At least 51% of the project's benefit is received by an area with median income at or above 80.1% the area's median income.
- ◆ The applicant agrees to comply with all state and federal requirements specified in the guidance package and in the federal grant regulations. Checking "no" or "yes, except"

may disqualify a project or cause the project to have a lower ranking than similar projects by lead organizations that agree to the requirements.

Yes: No: Yes, with exceptions: [Provide details of exceptions.](#)

REFERENCES CITED:

[List any references cited.](#)

The following are included as attachments to this application:

- Monitoring Plan: **Attachment A (with its own attachments)**
- Site Maps (in graphic file format (i.e. - .doc, .jpg, .tiff)). Each map should have a legend, scale, and north arrow. When pasting maps, use a new page for each of the requested figures.
 - Regional site locator map showing the project site relative to the surrounding area: **Attachment B**
 - Treatment area, including the following elements if possible: watersheds, drainage basins, or catchments, relative water features (i.e. – waterbodies and water courses), site boundaries, and aerial imagery if available: **Attachment C**
 - A detailed site map showing the conceptual elements of your proposed project: **Attachment D**
- Other Relevant Information, including pre-construction photographs, BMP documentation, and letters of commitment from land owners or match contributors, etc.: Attachment **#E**

Figure 3.5 Composite Map of the Pine Island Planning Unit.

Figure 4.1 Waters surrounding Sanibel on the Verified List

Google Earth Photos of Woodring Road and Sanibel Island