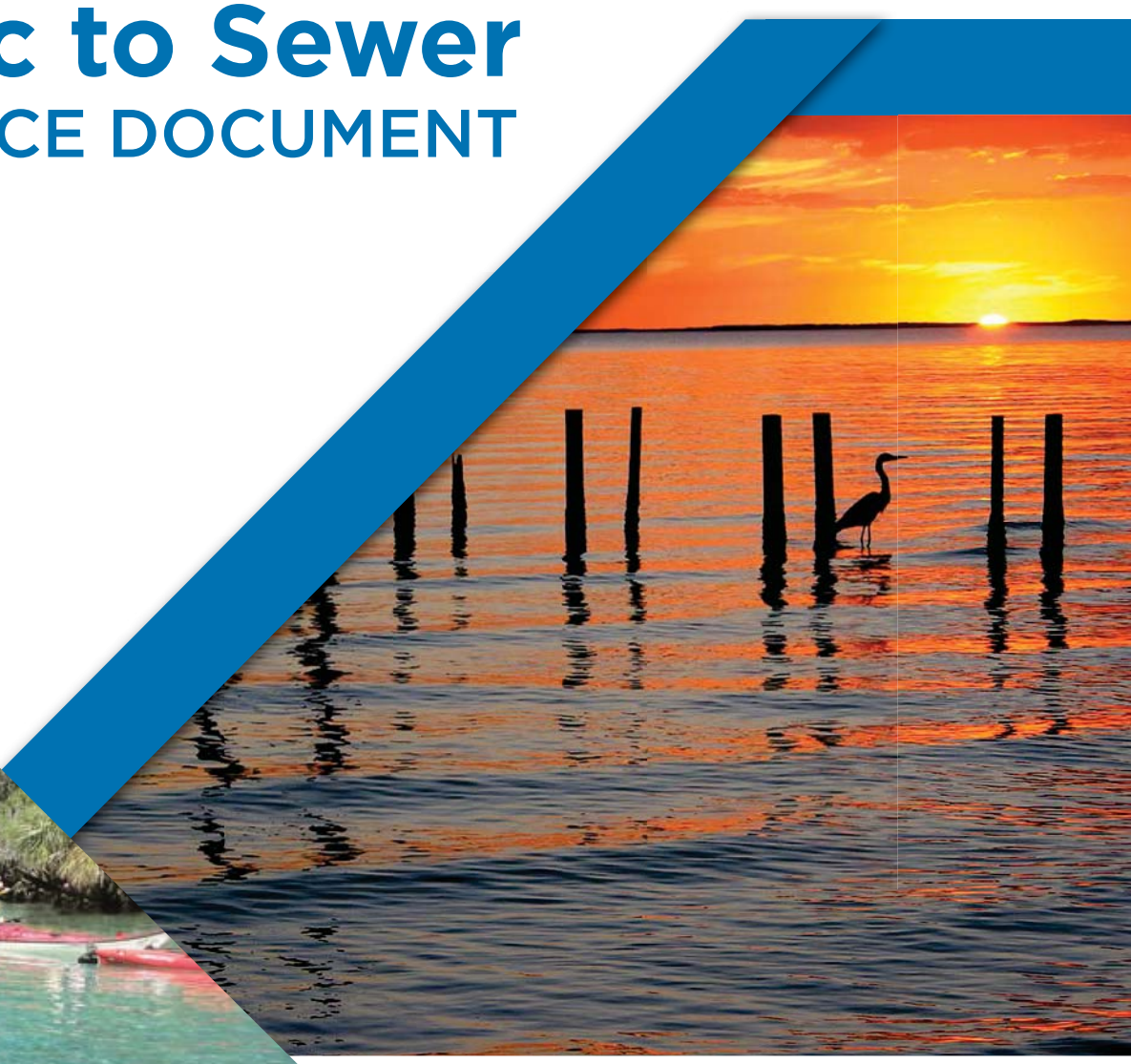
Septic to Sewer
GUIDANCE DOCUMENT



APRIL 2018

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UTILITY COUNCIL

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SEPTIC TO SEWER:
An Overview

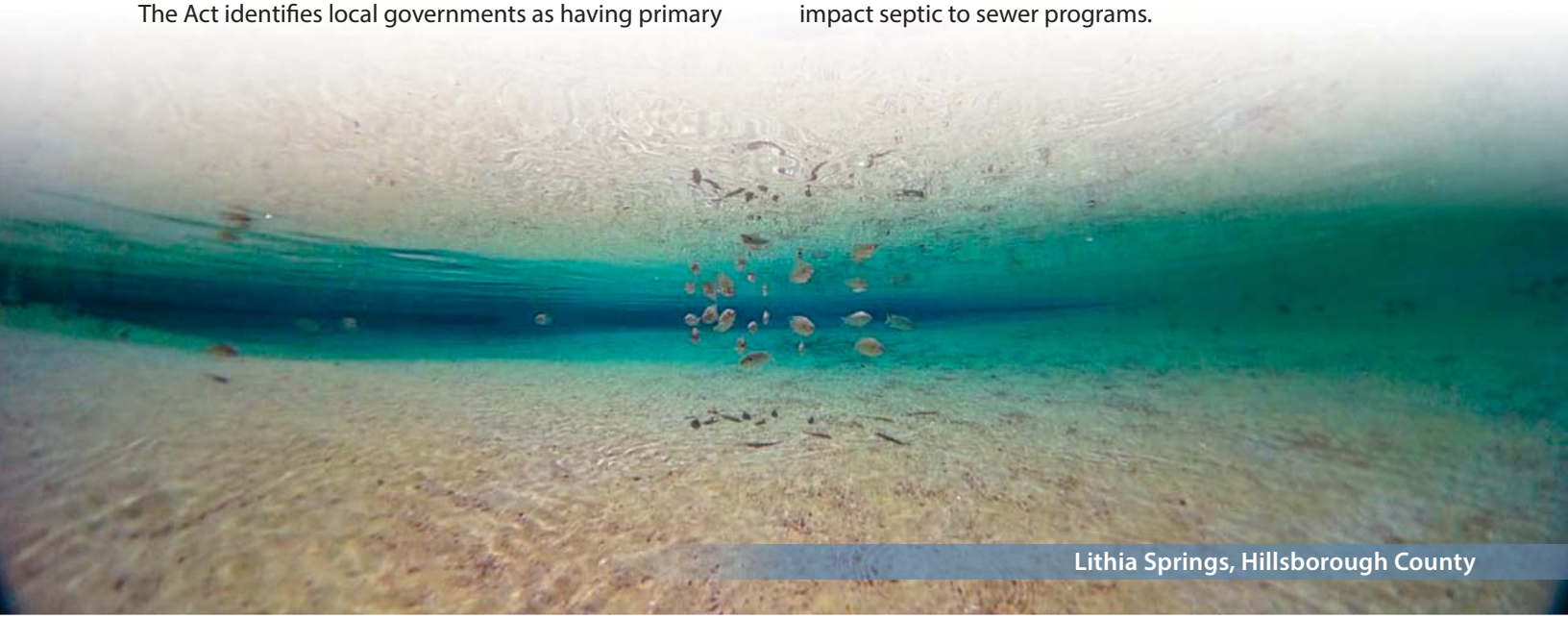
According to the Florida Department of Health (FDOH), in 2007 approximately 2.6 million Onsite Treatment and Disposal Systems (OSTDSs) serve the wastewater disposal needs of about 30 percent of Florida's citizens. Due to factors including but not limited to the state's hydrogeology, population density, and proximity of the population to bodies of water, septic systems have been deemed a detriment to the health of many water bodies around the state. The Florida Department of Environmental Protection (FDEP) is working with stakeholders around the state to improve impaired bodies of water identified through the Total Maximum Daily Load (TMDL) process (http://www.dep.state.fl.us/water/tmdl.background.htm). As part of this process, scientific investigations are conducted to determine the causes of the impairments, and septic systems have been identified as a source of nutrient loading that must be addressed. When an Outstanding Florida Spring is found to be impaired, a Basin Management Action Plan (BMAP) is prepared to identify projects that will include the improving water quality.

The Florida Legislature has implemented mandates for certain areas of the state to address the impact of septic systems. For example, during the 2016 legislative session the Legislature passed Senate Bill 552 (aka the Water Bill), which created Part VIII of Chapter 373, Florida Statutes, consisting of Sections 373.801-373.813, and created the "Florida Springs and Aquifer Protection Act." The Act identifies local governments as having primary responsibility for providing domestic wastewater collection and treatment services and stormwater management and required the "foregoing responsible entities" to coordinate to restore and maintain the water and water quality of the Outstanding Florida Springs.

This document offers broad ideas, insights, and information on how to address concerns regarding the environmental impacts of OSTDSs in your community. Although this document is not intended to cover every option available to address OSTDSs, it does offer some alternatives and lessons learned from communities around the state who have been involved in septic to sewer projects.

The document also takes a brief look at OSTDSs and offer information regarding the operational realities of septic systems. It provides an overview of the various technologies available to transition from traditional septic systems to more environmentally-friendly wastewater disposal alternatives.

As part of a septic to sewer transition, a variety of non-technical issues must be addressed. This Guidance Document looks at some of these topics including public education and awareness, the financial realities of such a transition (including some of the potential funding sources for a program), and some legal and regulatory issues that impact septic to sewer programs.



Lithia Springs, Hillsborough County

SECTION 1:
Fact and Fiction Regarding OSTDSs

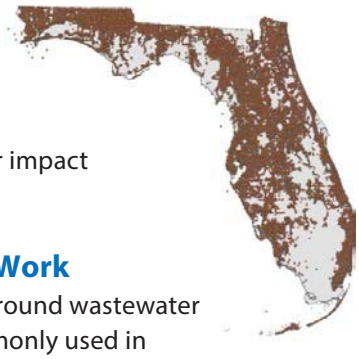
Septic Truck

We often take for granted the infrastructure and facilities that technology provides — including OSTDSs (onsite sewage treatment disposal systems, or septic tanks). OSTDSs have been used in the United States for wastewater disposal since the late 19th Century when John Mouras designed the first septic tank and built a prototype using concrete. He used clay pipes to funnel wastewater from his home into the tank. From then, septic systems became a common wastewater disposal method:

- 1881 – Mouras is granted a patent for his septic tank design.
- 1883 – Septic systems start appearing throughout the US.
- 1940s – Septic systems become cheaper and more popular during the post-WWII economic boom.
- 1960s – Old septic systems begin failing. Construction of wastewater treatment plants cannot keep up with growth of cities and towns.
- 1970s – Many local governments begin regulating septic system sizing and design, along with permitting new system installation to ensure they are designed and installed properly.

However, we really don't think about how a septic system works. In Florida, the Florida Department of Health (FDOH) permits the installation of septic systems. FDOH works to prevent disease of environmental origin, but they are not charged with environmental protection. As such, FDOH and the Florida Department of Environmental Protection (FDEP) work closely together to meet regulatory requirements that promote public safety and reduce pollution to impaired water bodies.

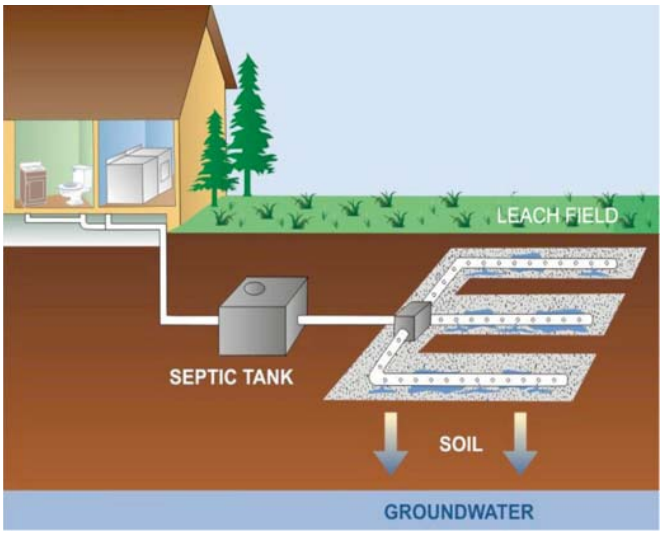
There are approximately 2.6 million septic tanks in Florida, with approximately 30 percent of the state relying on septic tanks for wastewater disposal. Therefore, the public must understand how septic tanks work and their impact on the environment.



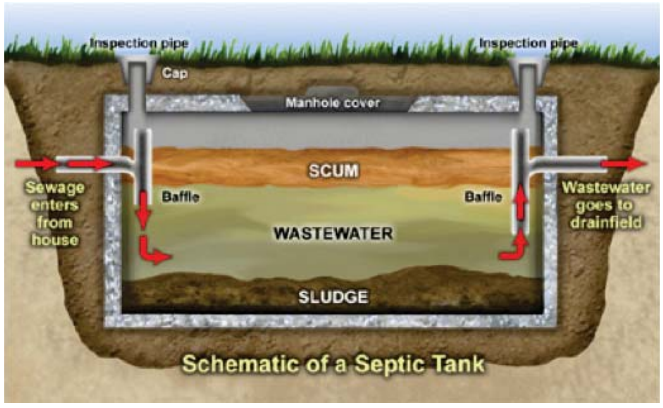
How Septic Systems Work

Septic systems are underground wastewater treatment structures commonly used in areas without centralized sewer systems. They use the combination of nature and proven technology to treat wastewater from household plumbing produced by bathrooms, kitchen drains, and laundry. A typical septic system consists of a septic tank and a drainfield, or soil absorption field.

The septic tank digests organic matter and separates floatable matter (e.g., oils and grease) and solids from the wastewater. Soil-based systems discharge the liquid (known as effluent) from the septic tank into a series of perforated pipes buried in a drainfield, drainage chambers, or other special units designed to slowly release the effluent into the soil or surface water.



Alternative systems use pumps or gravity to help septic tank effluent trickle through sand, organic matter (e.g., peat and sawdust), constructed wetlands, or other media to remove or neutralize pollutants such as disease-causing pathogens, nitrogen, phosphorus, and other contaminants. Some alternative systems are designed to evaporate wastewater or disinfect it before it is discharged to the soil or surface waters.



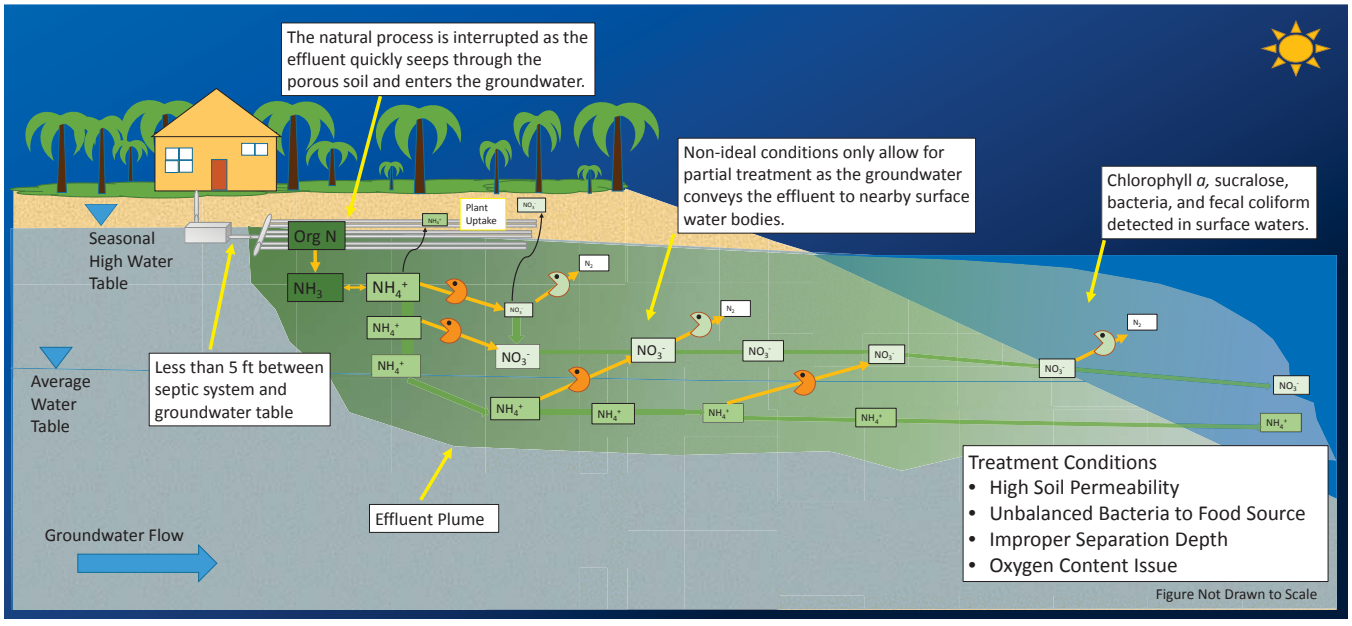
Specifically, this is how a typical septic system works:

1. All water runs out of your house from one main drainage pipe into a septic tank.
2. The septic tank is a buried, water-tight container usually made of concrete, fiberglass, or polyethylene. Its job is to hold the wastewater long enough to allow solids to settle down to the bottom – forming sludge – while the oil and grease floats to the top as scum. Compartments and a T-shaped outlet prevent the sludge and scum from leaving the tank and traveling into the drainfield area.
3. The effluent then exits the tank into the drainfield.
4. The drainfield is a shallow, covered excavation made in unsaturated soil. Pretreated wastewater is discharged through piping onto porous surfaces that allow wastewater to filter though the soil. The soil accepts, treats, and disperses wastewater as it percolates through the soil, ultimately discharging to groundwater. If the drainfield is overloaded with too much liquid, it will flood, causing wastewater to flow to the ground surface or create backups in toilets and sinks.
5. Finally, the wastewater percolates into the soil, which serves as a filter for harmful coliform bacteria, viruses, and nutrients. Coliform bacteria are a group of bacteria predominantly inhabiting the intestines of humans or other warm-blooded animals and are an indicator of human fecal contamination.

Septic Systems and Their Impact on the Environment

All septic systems release nitrogen and phosphorus to the subterrain from their drainfield. Septic system age can have a significant impact on the system's functionality and effectiveness. Although newer septic systems can be more effective at treatment in the right conditions, all septic systems discharge nutrients to drainfields.

The location of the project area relative to surface water is relevant because the drainfield effluent eventually enters the groundwater, which flows through the soil and into the surface water. Porous soil and a high groundwater table do not provide the correct conditions for the natural decomposition of the sewage. The porous Floridian soils and high groundwater table inhibit the treatment process and allow partially treated sewage to enter the surface water (see figure below). As a result, the denitrification process is not able to complete its course. Sewage is only partially treated, and nitrogen levels increase in the soil, further deteriorating water quality.



Lastly, the population density and septic system use within an area also have a significant impact on the amount of nitrogen that enters the environment. Too much nitrogen promotes excessive algae growth within the waterways – contributing to and sustaining the formation of harmful algae blooms. Harmful algae blooms can lead to aquatic hypoxia, causing red tide events and significant ecological destruction.

Recent studies conducted by the Harbor Branch Oceanographic Institute at the Florida Atlantic University Marine Ecosystem Health Program have shown that the increased presence of fecal coliform and increased concentrations of chlorophyll-a are strongly correlated to the increase in population and septic system installations, revealing that the level of treatment provided by septic systems is not sufficient to protect the water quality of receiving water bodies.

When levels of nitrogen, fecal coliform, and chlorophyll-a in waterways exceed the limits of surface water quality criteria established by FDEP in the Florida Statutes, water quality standards that protect the health of swimmers and other recreational uses are not met, putting public safety at risk.

Although septic tanks are an effective wastewater disposal alternative in some areas, hydrogeological conditions, population density, and proximity to environmentally sensitive areas are all considerations in the decision-making to determine the most appropriate wastewater disposal alternative.

Madison Blue Spring State Park

SECTION 2: Technical Alternatives Overview

When evaluating a transition from septic systems to another method of wastewater disposal, several alternatives must be considered. Each alternative has different relative strengths and challenges. It is important to evaluate the alternatives in light of the unique characteristics of your community from a demographic, environmental, and infrastructure perspective. A combination of alternatives may make sense for certain situations.

Outlined below are several technical alternatives for transitioning from a traditional OSTDS to a more environmentally protective option with some cursory information on each alternative. This is not a comprehensive review of the presented alternatives. It is recommended that you contact your engineering professionals to gain a more comprehensive evaluation of the alternatives as they apply to your unique situation.

Gravity Sewer

Gravity collection systems are common throughout Florida and are a traditional method to collect domestic wastewater for public utilities. The system involves gravity service laterals from each customer that connect to gravity sewer mains connected by manholes approximately every few hundred feet or at each bend. The gravity system then flows to localized lift stations in the area. This system of lift stations pump into force mains used to transport the collected wastewater to a wastewater treatment facility for

Although construction of a gravity system typically results in a greater disturbance to the developed land (e.g., roadway, sidewalks, other utilities), gravity systems are overall more reliable and less maintenance-intensive than other types of systems since the mechanical and electrical components are only at the lift stations. The service laterals are generally the customers' responsibility to maintain on their property up to the right-of-way, which over time can reduce the maintenance costs.

Low-Pressure Systems

Low-pressure systems use a new simplex or duplex grinder pump station for each customer and are installed in an easement on each customer's property. The individual systems include automatic pumps and control devices to convey the liquid from the customer's pump station into a low-pressure collection system. Each grinder pump station is connected to the collection system by a small-diameter pressurized pipe. The use of a smaller pipe is beneficial since it is less costly and causes less disturbance on developed lands during installation than traditional gravity systems. The low-pressure system then conveys the liquid to a traditional pump station where it is transported to a wastewater treatment facility through transmission force mains. Usually customers are required to maintain the septic effluent pump, provide an easement dedicated to the local government/utility to allow access onto the property to maintain the system, and use their own power. Although low-pressure systems capital costs are generally lower than gravity or vacuum systems, operation and maintenance (O&M) costs are generally higher.

Vacuum Sewer

The vacuum sewer system alternative includes a valve pit serving two or three customers, a vacuum collection system, and a vacuum collection station with vacuum pumps. In a vacuum system, sewage flows by gravity from the homes/structures into a valve pit. Small-diameter gravity piping (minimum of 4inch diameter) would be installed at relatively

shallow depths of 4 to 6 feet at a specified slope. The valve pits have a pneumatic valve that operate by pressure (no electrical power is required). The valve pit pneumatic valve opens automatically when a given quantity of sewage accumulates in the valve pit.

The vacuum collection system operates under a constant negative pressure or vacuum. The sewage is transported by vacuum until it ultimately discharges into a vacuum collection station. The vacuum collection station takes the place of a conventional lift station by collecting, storing, and pumping the sewage via pressure through a force main to a wastewater treatment facility. Disturbance to developed land resulting from construction is typically less than the disturbance from constructing a gravity collection system. Because the lines are under negative pressure, if a vacuum line breaks, minimal outfall of wastewater occurs. Also, very little inflow and infiltration (I&I) occurs compared to gravity collection systems. The vacuum system requires more O&M than a gravity collection system since the pneumatic valve pits need to be inspected and maintained.

Septic Tank Effluent Pump (STEP) Systems

Septic Tank Effluent Pump (STEP) systems consist of a conventional septic tank system that captures the solids, but the liquid effluent flows to a holding tank that contains a pump and control devices to pump to shallowly buried small-diameter pipe that collects effluent for transmission via force main to treatment facilities.

Retrofitting existing septic systems in areas served by septic systems/drainfield systems may present an opportunity for cost savings, but often a large number must be replaced or expanded over the life of the system because of insufficient capacity, deterioration of concrete tanks, or leaks.

STEP systems may lower on-lot costs because they allow some gravity service connections due to the continued use of a septic tank. STEP systems tolerate low-flow conditions that occur in areas with highly fluctuating seasonal occupancy and those with slow build-out from a small initial population to the ultimate design population.

High-Performance OSTDS

In some settings, an OSTDS is the most reasonable alternative for wastewater disposal. However, in environmentally sensitive areas the impact of nutrient loading is still a major environmental concern. With performance-based OSTDSs, additional treatment allows the effluent to meet specific performance-based standards. System designs differ, but all are engineered so the wastewater is exposed sequentially to aerobic and anaerobic conditions to allow for nitrification and de-nitrification.

Further de-nitrification can be achieved by having a portion of the pumped effluent directed back to the pre-treatment chamber. Some system types include the following, some of which are more well-established than others. All require more maintenance than conventional systems to be effective in nutrient removal.

- *Fixed-film systems* – On a medium of sand, gravel, or other substrate, bacterial biofilms de-nitrify some of the nitrate.
- *Suspended growth-activated sludge systems* – Use similar bacteria as fixed-film systems, but the bacteria and solids remain in suspension within an aeration tank.
- Integrated fixed-film and suspended growth systems (IFAS).
- *Passive carbon feed with pre-treatment systems* – Additional carbon is supplied to enhance de-nitrification.
- *Groundwater treatment/permeable reactive barrier (PRB)* – De-nitrifying media are installed in groundwater to intercept and remove nitrates – a useful technology, for instance, near point sources such as sprayfields.
- *Sulfur de-nitrification systems* – Sulfur is converted to soluble sulfate to allow conversion of nitrate to nitrogen gas.

Distributed Sewer Network

Since technology continues to develop, options for alternative treatments will continue to develop. A "distributed sewer network" is a new development that places the treatment closer to the source using Individual Distributed Wastewater Treatment Systems (IDWTS). IDWTS are decentralized wastewater treatment systems that remove nitrogen and phosphorus from domestic wastewater. One interesting innovation with these systems is their use of a "Micro-SCADA" Platform (MSP) that allows an unlimited number of individual systems to be continuously monitored and remotely controlled by a single licensed wastewater technician over a wireless data connection. As a result, these systems can be permitted as "Domestic Wastewater Facilities" through FDEP. SJRWMD has recently completed a pilot project to evaluate the performance and feasibility of IDWTS. While successful, a utility-scale development still needs to be evaluated.

Additionally, FDOH has prepared the *Florida Onsite Sewage Nitrogen Reduction Strategies Study* that offers alternatives for addressing nitrogen reduction on site using various media in the drainfields that can be found **HERE (Attachment 1, Page 45)**.

FDEP, FDOH, local governments, and utilities will continue to evaluate options to reduce costs associated with nitrogen treatment while protecting the environment.

SECTION 3:
Feasibility and Cost Considerations

As local governments evaluate the development of a septic to sewer project or program, cost to the customers is one of the major issues that determine the feasibility of moving a project forward.

There is no one-size-fits-all solution when converting from septic to sewer. However, some key factors must be considered when developing a septic to sewer program for a community, and cost will always be a primary consideration. For citizens, this includes initial installation cost and the ongoing monthly bills paid by the home and business owners. Because most programs are implemented in phases, we must consider the overall program – not just an individual project – when determining cost feasibility. Finally, fairness to all citizens must be considered when implementing a program.

What is financially feasible will vary from location to location depending on the demographics, political priorities, environmental interests, regulatory mandates, etc. experienced by a given community. The US Environmental Protection Agency (EPA) has financial feasibility guidelines for water and wastewater services can be used as a guideline to evaluate a local government's rate structure. This **LINK (Attachment 2, Page 289)** provides detailed information on the EPA guidelines, but in general 4.5 percent of median household income (MHI) is considered a maximum for monthly water and wastewater charges.

There are some concerns regarding use of the EPA guidelines as an affordability index for setting customer rates in that it may place an undue burden on the lower-income population depending on the income disparity within the community. Other methodologies look more closely at a lower-quartile income bracket to set base rates. Challenges can arise in maintaining the revenue needed to effectively operate the utility system. More information is outlined in the AWWA/WEF Affordability Assessment Tool found **HERE (Attachment 3, Page 328)**.

When planning a septic to sewer project or program, a variety of considerations may be evaluated to determine the financial feasibility of a project or program. The order in which projects are pursued can make or break the entire program. Understanding how a target area "feels" about the project and clearly communicating the advantages of the project phasing approach can generate positive momentum. Many other factors have a more quantitative impact on cost:

- Availability of existing water facilities
- Proximity to existing wastewater service
- Population density of the selected project area
- Easement and right-of-way availability
- Site conditions
- Pumping requirements
- Availability of wastewater treatment capacity
- Sewer technology selections

In evaluating sewer system technologies, look not only at the capital costs of a selected technology – but also the O&M costs and how a selected technology will integrate into an existing system. What is required by the homeowner is also a key factor to consider. Whether conventional gravity, low-pressure, vacuum, or STEP, each system will have advantages and disadvantages that a community must consider to determine what is feasible for their situation.

The table below presents a 2017 comparison of cost for gravity, vacuum, and low-pressure that was prepared for Charlotte County. This comparison considered the specific conditions of that area of the state and looked at both capital investment and long-term O&M costs. Costs will vary depending on the specific conditions of the project area.

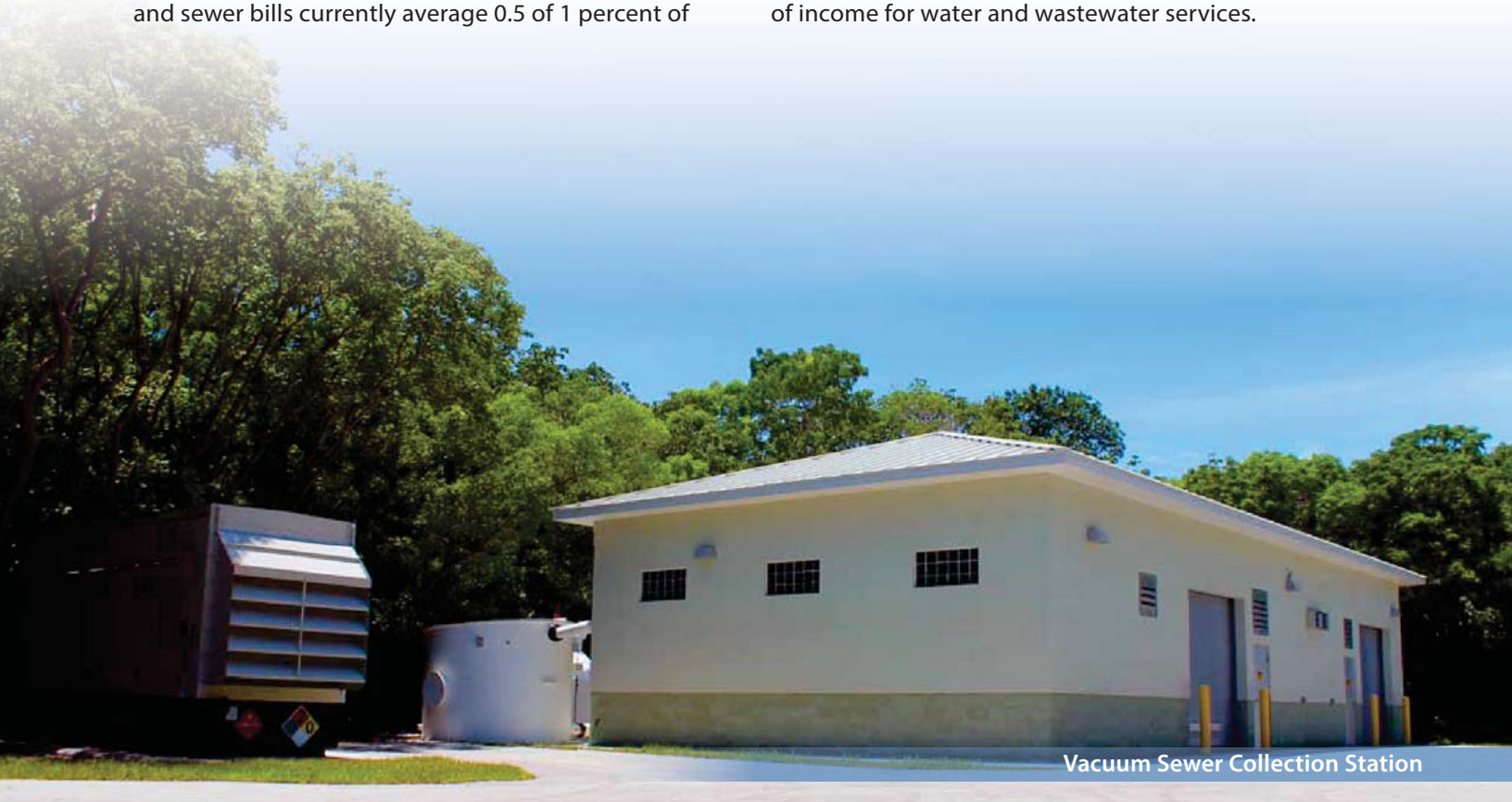
Sewer Technologies – Cost Comparisons

Sewer System Technology	On-lot/ERC*	Project Cost/ERC	Annual O&M Cost/ERC	40-Yr Present Worth/ERC
Low Pressure (STEP)	$7,675	$13,200 - $14,250	$870 - $980	$30,740 - $32,700
Gravity	$2,258	$20,000 - $23,300	$270 - $380	$27,600 - $30,900
Vacuum	$2,258	$13,200 - $15,000	$420 - $540	$21,100 - $25,500

Assumptions:

1. * - On-lot costs shown without construction contingency.
2. Average lot frontage is 80 feet
3. At least 350 lots
4. All lots developed
5. Interest: 4%

According to EPA's Informational Overview on Water and Wastewater Pricing (Office of Wastewater Management EPA 832-F-03-027) found **HERE (Attachment 4, Page 361)**, the Congressional Budget Office (CBO) estimates that combined water and sewer bills currently average 0.5 of 1 percent of household income in this country (Congressional Budget Office, Future Investment in Drinking Water and Wastewater Infrastructure, 2002). When compared to other developed countries, consumers in the United States are paying the lowest percentage of income for water and wastewater services.



Vacuum Sewer Collection Station

SECTION 4:
Customer Incentives and Requirements

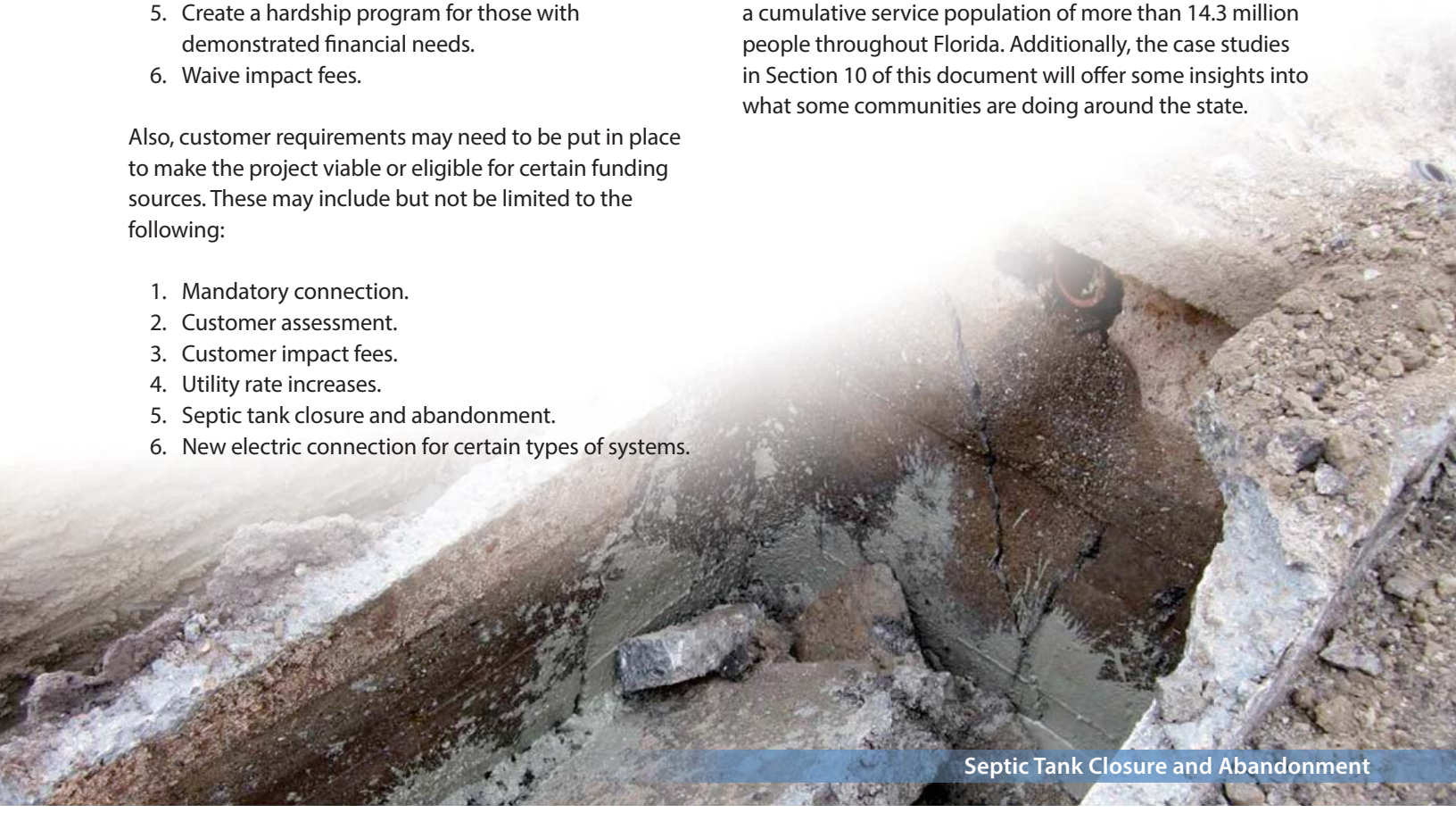
Customer acceptance is a key element for a successful septic to sewer project or program. What a community responds to will vary depending on the makeup and experience of its citizens. A variety of incentives can be established to promote customer acceptance including:

1. Reduce or eliminate assessments when signing on at the beginning of a project.
2. Include septic tank closure and abandonment as part of what the local government or utility will pay for.
3. Amortize any assessment over multiple years.
4. Add or upgrade other infrastructure (e.g., water, roads, sidewalks, landscaping) during the septic to sewer project.
5. Create a hardship program for those with demonstrated financial needs.
6. Waive impact fees.

Also, customer requirements may need to be put in place to make the project viable or eligible for certain funding sources. These may include but not be limited to the following:

1. Mandatory connection.
2. Customer assessment.
3. Customer impact fees.
4. Utility rate increases.
5. Septic tank closure and abandonment.
6. New electric connection for certain types of systems.

Having information on what other communities of similar size and demographic make-up are doing with their utilities can be helpful in understanding what is considered usual and customary for a given area or community size. The *2016 Florida Water and Wastewater Rate Survey* (Raftelis Financial Consultants) found **HERE (Attachment 5, Page 373)** was developed to provide insight into water and wastewater pricing practices used by publicly owned utilities in Florida. The goal of the survey is to provide information on the typical residential potable water/wastewater bills and rate structures for over 180 Florida public utilities, ranging in size from utilities serving a population less than 10,000 to the largest utilities in Florida with service populations of more than 1 million. The 2016 survey includes utilities with a cumulative service population of more than 14.3 million people throughout Florida. Additionally, the case studies in Section 10 of this document will offer some insights into what some communities are doing around the state.



Septic Tank Closure and Abandonment

SECTION 5:
Public Education and Awareness

Septic systems have been an accepted form of wastewater disposal for more than a century and still serve well under certain conditions. However, as more has been learned about the impact of nutrients on our water bodies and how the nutrient discharges from OSTDSs behave in more sensitive environments, we recognize the importance of transitioning from septic systems to centralized sewer in certain areas. Although many in the scientific, academic, environmental, and regulatory communities have developed and reviewed the science and understand the impacts, the average citizen has not been presented with the science and is being asked to understand and accept the science and make a significant financial investment to transition from septic systems to centralized sewer. This often requires not only a monthly charge, but a significant assessment.

A well-planned and executed education and outreach program is integral to the success of a septic to sewer project or program. Outlined below are some elements of an education and awareness program. Every program should be tailored to address the specific concerns and issues of your community or project area.

The Public Meeting Kit

When implementing a septic to sewer program, holding a public meeting is often an integral part of providing information to the public at large, but more specifically the citizens impacted by a specific project. Additionally, several funding agencies require a public meeting to be held as part of their application process.

The goals of the public meeting are to provide information to the citizens about the projects and to gain feedback from impacted citizens regarding questions, concerns, and input they have about the project/program.

To create an environment that facilitates a positive exchange of information including ideas and concerns and create a positive atmosphere for discussion, consider some of the following ideas:

- Meeting Location: Hold the meeting in a neutral location that is easily accessible to the impacted citizens.
- Meeting Format: Use an open house format with information stations. This allows for a more in-depth discussion with individual citizens. It minimizes the chances that one individual can dominate the meeting and maximizes the opportunity to discuss individual questions or concerns.
- Sign-In Sheet: Have a sign-in sheet will allow the local government/utility to collect the names and contact information for citizens interested in a project to maintain an ongoing information exchange.
- Name Tags: A septic to sewer program is often a highly charged topic with citizens having significant concerns. It is important to have a meeting that remains civil to ensure a good exchange of information. Name tags help local staff know who the interested citizens are, and being identified encourages more civil discourse and behavior.
- Room Set-up: Have a facility large enough to set up multiple stations is important.

Some potential stations for consideration include the following:

- Project Overview (rolling PowerPoint presentation with an overview of the project)
- Project Area Map
- Financial Considerations

- Environmental Considerations
- Project Schedule
- Frequently Asked Questions
- Points of Contact for Citizens

It is important to have enough staff at the meeting to address small groups and individuals as well as to serve as a greeter. Large boards and corresponding handouts with this type of information are useful tools to assist the personnel staffing each station with the communication process. Additionally, it can be helpful to have a person identified as a "floater" to assist with individual citizens who would like to engage in a detailed discussion or who become highly emotional or hostile during the open house. Examples of some of these tools are found **HERE (Attachment 6, Page 401)**.

Speakers Bureau

How information on septic to sewer conversion programs and projects is presented and disseminated can make or break a project. Having the right mix of experts speak at the right time and venue can pave the way for acceptance by elected officials and the general public.

Although you may have local resources in the form of local government technical staff, elected officials, environmentalists, or technical consultants, you may also explore augmenting local resources with recognized experts from regulatory agencies or academic institutions. These individuals may be perceived by the public as having less bias relative to a local project or program. A series of seminars, such as this **WATER QUALITY SEMINAR SERIES (Attachment 7, Page 427)** held in Charlotte County, can be beneficial.

The résumés and contact information for the following individuals are included for your consideration. Some individuals from the regulatory community may be available at no cost your community. Academic and other experts are available as an unbiased resource in assisting a community in evaluating their unique situations.

Regulatory Experts

- Thomas Frick, Florida Department of Environmental Protection - **Résumé (Attachment 8, Page 428)**
- Mark A. Hammond, PE, Former Director, SWFWMD Resource Management Division - **Résumé (Attachment 9, Page 431)**

Academic and Expert Resources

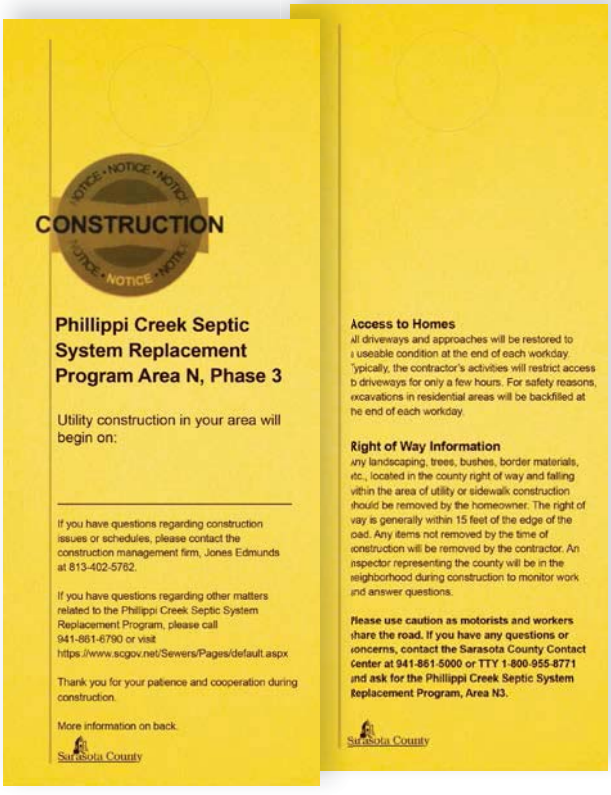
- Dr. Brian LaPointe, Florida Atlantic University, Harbor Branch Oceanographic Institute - **Résumé (Attachment 10, Page 433)**
- Dr. Mary Lusk, University of Florida/IFAS - **Résumé (Attachment 11, Page 444)**

Holding a meeting with the expert before their presentation to offer details and insights relative to the project under consideration, political landscape, and concerns of the public can be helpful to these experts to provide the most appropriate information for a specific situation.

Construction Communication Kit

During construction many frustrations can arise, even with citizens who were in favor of transitioning from septic to sewer. Having a proactive communication plan during construction will keep the impacted residents and businesses informed of the activities and impacts associated with the project. This is important because you want these citizens to be your strongest advocates after the construction of the project. This **KIT (Attachment 12, Page 448)** can include the following:

- Resident/business Information Letters
- Residential door hangers
- Project schedule update template
- Media guidelines for staff during construction
- Online updates on the local governments website or social media feed(s) to keep the public informed of schedule updates and anticipated impacts



Sign-up Kit
As a local government or utility implements a septic to sewer program, residents and businesses need to do certain items to facilitate a smooth transition to the program.

To minimize the confusion and assist the citizens in understanding what they need to do and when, consider a customer sign-up kit. The contents of the kit will vary depending on the project and the unique conditions for each project.

- Project overview and schedule
- Access easement with instructions
- Contact information for questions and monitoring
- Outline the customer requirements
- Septic tank abandonment instructions/FDOH rule
- List of "approved" or potential plumbers (if applicable)
- Permit requirements
- Map of customer property to identify connection point or grinder pump location
- Details on customer costs and associated payment options
- Local government or utility connection requirements
- Customer project commitment form
- TMDL/BMAP information

Some examples of how some communities are handling customer sign-up can be found **HERE (Attachment 13, Page 451)**.

Media Kit
Due to the often controversial nature of septic to sewer programs, the media is often engaged in monitoring the process. It is important to establish relationships of trust with local media outlets before any public announcement of the project. Developing a media kit with detailed and accurate information ahead of announcing the septic to sewer project can be critical to gaining fair and balanced coverage of the project. The media **KIT (Attachment 14, Page 461)** may include but not be limited to the following:

- Fact sheet brochure:
  - Provides overview information.
  - Details mission/vision for program.
  - Provides environmental impacts to the community.
  - Lists economic impacts to the community.
  - Lists resources and references.
  - Lists program partners.
- Media advisories and press releases:
  - Provides public contact for any questions regarding the program.
  - Provides schedule and updates regarding public workshops.
  - Announces start and completion of various program phases.
- Online tools including but not limited to the following:
  - A dedicated webpage that serves as a centralized hub for past, current, and upcoming information regarding the program including:
- Mission/vision for the program.
- Resources (with links to media coverage, environmental research, utilities plans, and presentations).
- Frequently asked questions (e.g., addressing any public concerns regarding utilities fees/funding, connection schedule, impacts to business accessibility).
- List of program partners (with links to their websites).
- Outreach information (contact information as well as links to past and upcoming public workshops).
- Timeline (providing details regarding schedule for program-related improvement projects).
- Short educational video clip(s) detailing the purpose of the program and its benefits.

Maintaining an active relationship with the media from project concept through completion can be essential to public acceptance of a septic to sewer project.

SECTION 6:
Elected Official Involvement


Old and New Capitol Buildings, Tallahassee

Strong leadership by locally elected officials is essential for a successful septic to sewer transition project or program. Elected officials must have a thorough understanding of the environmental impacts of septic systems on local water bodies as well as pending or actual regulatory mandates associated with the water bodies and how the septic to sewer project will support addressing those requirements. This can be accomplished through a variety of resources includes data collected by FDEP, FDOH, water management districts, academic institutions, private consultants, or some combination of these resources.

Elected officials are encouraged to engage in the opportunities to educate themselves on how septic systems operate, the impact of septic systems, and what citizens must do to minimize the impact of septic systems on the local environment. This information will give them the information to be able to better set policy for their community and serve as a resource for public education and awareness. Both the Florida League of Cities and the Florida Association of Counties have legislative staff who can also provide information on current legislative requirements and anticipated legislation that may impact local governments and how they address septic to sewer.

As a project or program is developed in a community, difficult decisions must be made by the elected officials to move a project or program forward in a manner that is fair to all citizen of the jurisdiction while protecting the natural resources of the community. Septic to sewer programs are a long-term investment and require a consistent policy commitment at the local level. The following videos provide some educational information presented at commission/council meetings that may be useful to your community.

Click to view Dr. LaPointe speaking at the Charlotte Community Meeting in March 2016 about septic tanks.

Click to view Dr. Gao speaking at the Marion County Board of Commissioners Meeting on February 13, 2017.
His presentation starts at 2:01:26 and ends around 2:31:15.

SECTION 7: External Funding Alternatives


Rainbow Springs

As Section 3 discusses, the cost of a septic to sewer conversion is substantial and more than most communities can support without funding from external sources. Funding for septic to sewer projects includes two distinct elements:

- Funding the infrastructure improvements construction and associated planning and design
- Methods by which any borrowed funds for such infrastructure are repaid by property owners, end users, and/or other future revenue streams

External funding sources that are available to a local government or utility vary depending on the size and demographics of the community and may be grant or loan funding. Although repayment is not required with grant programs, there may be a certain level of administrative costs and/or construction requirements (such as Davis Bacon Wage requirements or American Iron and Steel requirements) associated with various loan and grant programs. Outlined below are select funding sources that may be an option to assist you with your septic to sewer projects.

Springs Funding

Source Description: The Florida Springs and Aquifer Protection Act was passed in the 2016 legislative session and is aimed at protecting Florida springs fed by the Floridan Aquifer. Under the Act, a Basin Management Action Plan (BMAP) must be established when an Outstanding Florida Spring is found to be impaired by a given pollutant. The BMAP must outline priorities for identifying sources of the pollutant and taking corrective action. Specifically, this law requires any municipality within a Florida Outstanding Springs BMAP to begin a program of septic system remediation, a nod to the fact that improperly sited or poorly maintained septic systems are a leading contributor to water pollution. Further, no new septic systems will be allowed on lots smaller than 1 acre. Projects identified as protecting the water quality and quantity of Outstanding Florida Springs (and the six additional springs specifically identified in the Act) are eligible for funding. Dollars were allocated through the Legacy Florida Bill, which set aside up to $50 million for Florida springs protection projects. Funds may be used for land acquisition to protect springs and for capital projects that protect the quality and quantity of water that flows from springs. Each water management district with springs within its boundaries has established a process for submitting projects for consideration for project funding. Projects must be approved by the water management district governing board. Project agreements are administered by a water management district or FDEP depending on the nature of the project. A FDEP guidance document dated October 17, 2017 can be found **HERE (Attachment 15, Page 469)**.

- **Source Agency(ies):** FDEP and the water management districts.
- **Source Type:** Grant with match.
- **$ Amounts:** $50 million annually for 20 years beginning in 2016.
- **Eligibility:** Local governments, utilities, agricultural entities within the springsheds of the identified springs.
- **Cycle:** Annual as identified through individual water management districts.
- **Contacts:**
  - **FDEP:** Trina Vielhauer, 850.245.2998, Trina.Vielhauer@dep.state.fl.us
  - **SWFWMD:** Jennette Seachrist, 813.985.7481 x-2210, Jennette.Seachrist@WaterMatters.org

- **SJRWMD:** Dale Jenkins, 386.312.2304, drjenkins@sjrwmd.com or Mark Brandenburg, 407.659.4806, mbrandenburg@sjrwmd.com
- **SRWMD:** Projects Team, 386.362.1001, projects@srwmd.org
- **NWFWMD:** Christina Coger, 850.539.5999, Christina.Coger@nwfwater.com

Websites:

- **SWFWMD:** http://www.watermatters.org
- **SJRWMD:** https://www.sjrwmd.com
- **SRWMD:** http://www.srwmd.state.fl.us
- **NWFWMD:** http://www.nwfwater.com

US Department of Agriculture (USDA) Rural Development Water & Waste Disposal Loan & Grant Program

Source Description: This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas. This program assists qualified applicants who are not otherwise able to obtain commercial credit on reasonable terms.

- **Source Agency:** USDA.
- **Source Type:** Grant/loan.
- **$ Amounts:** Determined annually through Congressional appropriation.
- **Eligibility:** State and local governments, private nonprofits, and federally recognized tribes.
- **Cycle:** Applications are accepted year round, awards based on funding availability.
- **Contact:** Michael A. Langston, Director, Community Programs, 352.338.3440, michael.langston@fl.usda.gov
- **Website:** https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program

Community Development Block Grant (CDBG) Program (Neighborhood Revitalization, Commercial Revitalization, Economic Development and Housing)

Source Description: The CDBG program is a federal program that provides funding for housing and community development activities. CDBG projects must meet one of three national objectives:

1. Benefit low- and moderate-income persons.
2. Eliminate slum or blight.
3. Address an urgent need that poses a serious threat to people living in that area.

Sewer hookups can be paid for through the Neighborhood Revitalization and Housing Programs.

- **Source Agency:** Department of Economic Opportunity.
- **Source Type:** Grant.
- **$ Amounts:** Annual state allocation with project allocations up to $750,000.
- **Eligibility:** Counties with a population of less than 200,000 and cities less than 50,000 not participating in an entitlement program.
- **Cycle:** Annual as identified through individual water management districts.
- **Contact:** Roger J. Doherty, Planning Manager, 850.717.8417, roger.doherty@deo.myflorida.com
- **Website:** http://www.floridajobs.org/community-planning-and-development/assistance-for-governments-and-organizations/florida-small-cities-community-development-block-grant-program

State Revolving Fund (SRF) Clean Water Fund/Small Community Wastewater Grant

Source Description: FDEP administers the Clean Water SRF loan program for financing public sewer utility infrastructure projects. Funds are available for Planning Loans, Design Loans, Inflow/Infiltration Loans, and Construction Loans. Financing rates vary based on the median household income, poverty index, and unemployment index, but average less than 50 percent of the market rate. The SRF loan repayment terms are typically limited to 20 years. Federal law requires FDEP to include Davis-Bacon wage rates and American Iron and Steel provision in all loan agreements. To offset the additional costs that result from these new requirements, the base financing rate will be reduced by 1 percent in all construction agreements. Additionally, these amendments will require the development and implementation of a fiscal sustainability plan for all construction loans.

- **Source Agency:** FDEP.
- **Source Type:** Loan/grant.
- **$ Amounts:** Approximately $250 million annually for all SRF programs, annual segment caps apply.
- **Eligibility:**
  - **CWSRF:** Local governments, authorities, special districts, and agencies thereof.
  - **Small Community WW Grant:** Local governments with less than 10,000 residents and per capita income less than the state average.
- **Cycle:** Annual appropriation through the Clean Water Act, can submit a request to be included in the process at any time, multiple hearings held annually provide opportunities to be added to the list of eligible projects.
- **Contact:** Tim Banks, PE, Program Director, CWSRF, 850.245.2969, timothy.banks@dep.state.fl.us
- **Website:** https://floridadep.gov/wra/srf

Water Infrastructure Finance and Innovation Act (WIFIA)

Source Description: EPA has recently developed the WIFIA program to provide a subsidized loan program for water- and sewer-related infrastructure projects. WIFIA works separately from, but in coordination with, the SRF programs to provide subsidized financing for large dollar-value projects. WIFIA can only fund a maximum of 49 percent of eligible project costs; total federal assistance may not exceed 80 percent of a project's eligible costs, 35 years is the maximum final maturity date from Substantial Completion, repayment may be deferred no more than 5 years after Substantial Completion of the project, interest rate will be equal to or greater than the U.S. Treasury rate of a similar maturity at the date of closing, and projects must be creditworthy and have a dedicated source of revenue and all other federal cross-cutter provisions (i.e., NEPA, Davis-Bacon, American Iron and Steel) apply.

- **Source Agency:** US Environmental Protection Agency.
- **Source Type:** Loan.
- **$ Amounts:** Projects have minimum size requirements ($20 million for large communities and $5 million for communities of 25,000 or less).
- **Eligibility:** Federal, state, local, and tribal governments, partnerships and joint ventures, corporations, trusts.
- **Cycle:** EPA announces WIFIA funding availability and application process details in the Federal Register and on its website.
- **Contact:** Jorianne Jernberg, 202.566.1831, jernberg.jorianne.email@epa.gov
- **Website:** www.epa.gov/wifia

TMDL Water Quality Restoration Grants

Source Description: TMDL grants provide funding for the implementation of best management practices, such as regional stormwater treatment facilities, designed to reduce pollutant loads to impaired waters from urban stormwater discharges. This funding can be used for septic to sewer projects as well. The construction must be completed within 3 years of appropriation of the funds by the Legislature to ensure funds remain available. The applicant must provide a minimum of 50 percent of the total project cost in matching funds, of which at least 25 percent is provided by the local government. The grant funds are used for construction of best management practices, monitoring to determine pollutant load reductions, or public education activities specifically associated with the project and may only occur after the date of contract. Funds spent in advance of contract may be used for match, such as design, land acquisition, and other costs incurred by the applicant.

- **Source Agency:** FDEP.
- **Source Type:** Grant with match.
- **$ Amounts:** Approximately $5 million annually.
- **Eligibility:** Local governments and state water management districts.
- **Cycle:** Projects are evaluated three times per year (March, July, and November).
- **Contact:** Emily Forinash, 850.245.2938, Emily.Forinash@dep.state.fl.us
- **Website:** https://floridadep.gov/wra/319-tmdl-fund

St. Johns River Water Management District (SJRWMD) Cooperative Funding

Source Description: SJRWMD's cost-share funding is for projects that benefit the District's core missions, one of which is water quality-nutrient-loading reduction. Projects are eligible for a maximum of 10 percent of the total available funds or a maximum of $2.5 million per project and per applicant (based on $25 million in funding). Funding is limited exclusively to construction-related costs. Projects may span a maximum of 2 years but must start by the end of the state's fiscal year (June 30). Projects that are permitted and ready to begin construction will receive a higher score during the review process. The District will fund up to 33 percent of the construction costs for selected alternative water supply, water quality, flood protection, and natural systems projects and up to 50 percent for water conservation projects. Rural Economic Development Initiative (REDI) communities can submit a waiver of matching funds letter.

- **Source Agency:** SJRWMD.
- **Source Type:** Grant with match.
- **$ Amounts:** Approximately $25 million for FY 2017–2018.
- **Eligibility:** Public, private, and non-profit entities.
- **Cycle:** Annual as identified through individual water management districts.
- **Contact:**
  - Dale Jenkins, 386.312.2304, drjenkins@sjrwmd.com.
  - Mark Brandenburg, 407.659.4806, mbrandenburg@sjrwmd.com
- **Website:** https://www.sjrwmd.com/localgovernments/funding/#FY2017-2018

Suwannee River Water Management District (SRWMD) RIVER Governmental Cost Share Program

Source Description: SRWMD has developed a cost-share program to assist county governments, municipalities, water supply authorities, and other interested units of local government with a cost-share program for projects that enhance or address the District's core mission of managing water supply, water quality, flood protection, and natural systems. The Regional Initiative Valuing Environmental Resources (RIVER) local government cooperative funding program provides an opportunity for local government to obtain cost-share funding for projects that foster the District's core mission. Projects must conserve our water supply, protect springs, develop alternative water supplies, advance aquifer recharge, improve water quality, enhance or restore natural systems, and provide improved flood protection.

- **Source Agency:** SRWMD.
- **Source Type:** Grant with match.
- **$ Amounts:** Funding allocated annually by the District Governing Board.
- **Eligibility:** County governments, municipalities, water supply authorities, and other interested units of local government.
- **Cycle:** The District is transitioning the RIVER Governmental Cost Share Program to multiple grant cycles per year.
- **Contact:** Projects Team, 386.362.1001, Projects@srwmd.org
- **Website:** http://www.srwmd.state.fl.us/index.aspx?NID=374

Northwest Florida Water Management District (NWFWMD) Cooperative Funding

Source Description: NWFWMD maintains a Water Project Priorities Database. The goal is to have a comprehensive list of water projects in anticipation of potential future funding opportunities. Objectives are to assist in a coordinated and cooperative effort among funding entities interested to support water projects in northwest Florida communities and to consider local needs and priorities in water resource policy and planning. Projects could be conceptual plans or "shovel ready." Types of water projects include water supply development for traditional and alternative water supply development, water conservation that results in quantifiable efficiencies and water savings, springs or watershed restoration protecting water quality and/or flows or levels, stormwater retrofits or upgrades improving water quality and/or flood protection, and wastewater retrofits or upgrades to protect natural systems (e.g., watersheds and receiving waters).

- **Source Agency:** NWFWMD.
- **Source Type:** Grant with match.

- **$ Amounts:** Variable.
- **Eligibility:** Public, private, and non-profit entities.
- **Cycle:** Projects may be submitted to the District at any time.
- **Contact:** Christina Coger, 850.539.5999, Christina.Coger@nwfwater.com
- **Website:** http://www.nwfwater.com/Water-Resources/Funding-Programs/Water-Projects-Database

Southwest Florida Water Management District (SWFWMD) Cooperative Funding

The SWFWMD Cooperative Funding Initiative (CFI) will potentially fund septic to sewer projects in the Springs areas addressed in the Florida Springs and Aquifer Protection Act.

- **Contact:** Mary Kassabaum, 352.796.7211, x-4759, Mary.Kassabaum@WaterMatters.org

Economic Development Administration (EDA)

Source Description: EDA's Public Works program helps distressed communities revitalize, expand, and upgrade their physical infrastructure. This program enables communities to attract new industry; encourage business expansion; diversify local economies; and generate or retain long-term, private-sector jobs and investment through the acquisition or development of land and infrastructure improvements needed for the successful establishment or expansion of industrial or commercial enterprises. EDA invests in traditional public works projects, including water and sewer systems improvements that are tied to economic development opportunities. The project must demonstrate alignment with at least one of EDA's current investment priorities and is evaluated on its potential to increase the capacity of the community or region to promote job creation and private investment in the regional economy, the likelihood that the project will achieve its projected outcomes, the ability of the applicant to successfully implement the proposed project including the applicant's financial, and management capacity and the applicant's capacity to secure the support of key public and private sector stakeholders.

- **Source Agency:** Department of Commerce EDA.
- **Source Type:** Grant with match.
- **$ Amounts:** Award ceiling of $3,000,000 per project.
- **Eligibility:** Economic development district/organizations; Indian tribe; state, city, or other political subdivision of a state, including a special purpose unit of a state or local government engaged in economic or infrastructure development activities; institution of higher education; public or private non-profit organization with local government support.
- **Cycle:** There are no submission deadlines under this opportunity. Proposals and applications will be accepted on an ongoing basis until the publication of a new EDA Federal Funding Opportunity (FFO).
- **Contact:** Greg Vaday, AICP, 404.730.3009, E-Mail: gvaday@eda.gov
- **Website:** www.eda.gov/programs/eda-programs

Deepwater Horizon Funding

Source Description: FDEP continues to accept project proposals funded by the proceeds from the Deepwater Horizon Oil Spill settlements. Projects submitted can be considered for funding under RESTORE Act, Natural Resource Damage Assessment (NRDA) Restoration and the National Fish and Wildlife Foundation (NFWF). Project submittals will be evaluated by FDEP and the Florida Fish and Wildlife Conservation Commission. Projects will ultimately be submitted to the Gulf Coast Ecosystem Restoration Council by the Governor for consideration for inclusion in the Funded Priorities List for RESTORE funding, the Florida Trustee Implementation Group for consideration of NRDA funding, or the National Fish and Wildlife Foundation for consideration of Gulf Environmental Benefit funding.

- **Source Agency:** Florida Department of Environmental Protection and the Florida Fish and Wildlife Conservation Commission
- **Source Type:** Grant, Matching funds are not required
- **$ Amounts:** Variable, but over the next 15 years over $1 billion is expected to be made available for projects in Florida.
- **Eligibility:** Each of the funding streams have their own project eligibility criteria, objectives, goals, and priorities, but in general all involve restoration or improvement to the natural resources and

water quality of Florida's gulf coast. Please review information on the website for more information on each of the funding streams.

- **Cycle:** varies by funding stream. NFWF typically on an annual funding cycle, NRDA typically on a 2 to 3 year funding cycle, and RESTORE Funded Priorities list is on a 3 to 5 year funding cycle. However, projects ideas may be submitted at any time for funding consideration for any of the funding streams.
- **Contacts:**
  - Phil Coram, FDEP Program Administrator, 850.245.2167, phil.coram@dep.state.fl.us.
  - Gareth Leonard, FWC Gulf Restoration Coordinator, 850.617.9452, Gareth.Leonard@MyFWC.com
- **Website:** https://floridadep.gov/wra/deepwater-horizon

FDEP 319 Grant

Source Description: The Section 319(h) Nonpoint Source Grant funds can be used to implement projects or programs that will help to reduce nonpoint sources of pollution. Projects or programs must be conducted within the state's non-point source (NPS) priority watersheds, which are the state's SWIM watersheds and National Estuary Program waters. Nonpoint sources include stormwater runoff from urban surface areas and agricultural operations, failing septic tanks, and erosion. Grant funds become available approximately 18 months after the application deadline and projects are expected to be complete approximately 3 years after funds become available.

- **Source Agency:** FDEP.
- **Source Type:** Grant with at least a 40-percent nonfederal match.
- **$ Amounts:** Funded annually through the Federal Clean Water Act, Florida receives approximately $5 to $6 million.
- **Eligibility:** State agencies, local government, state universities and colleges, water management districts.
- **Cycle:** Annual as identified through FDEP.
- **Contact:** Kate Merchant, 850.245.2952, Kathryn.Merchant@dep.state.fl.us
- **Website:** https://floridadep.gov/wra/319-tmdl-fund

State Appropriations

State appropriations are also opportunities for funding septic to sewer projects. In Florida, in accordance with Section 216.052, Florida Statutes, a local, county or regional government entity, private organization, or nonprofit organization may submit a funding request for a state appropriation to members of the Legislature for and initiative that is local or regional in scope, is intended to meet a documented need, addresses and statewide interest, is intended to produce measurable results, and has tangible community results. You are encouraged to contact your state representative or senator for more information.

SECTION 8: Internal Funding Alternatives

The cost of septic to sewer projects often requires input of additional local financial resources for the local government or utility to leverage external sources or address the projects in total. The types of financial resources available to the local government or utility vary depending on the structure of the entity.
The internal financial alternative selected by the local government or utility to support a project or program may depend in part on the resources of its citizens and what level of financial investment the customers are willing or able to make. Additionally, policy decisions regarding community-wide responsibility versus individual home/business owner responsibility can impact decisions regarding internal funding strategies. Some possible internal funding sources include the following.

System Rate Structure

A rate/fee structure is simply an allocation of the costs of operating and maintaining the utility to the customers. Two questions naturally arise when thinking about such a structure:

- What are those costs?
- How should they be allocated?

To set an effective rate/fee structure, a utility should adopt a full-cost pricing strategy. Full-cost pricing seeks to cover all current and future costs that are not covered by external sources of revenue (e.g., grants, loans, bonds). A rate/fee structure based on full-cost pricing needs to provide adequate revenue for four major areas:

- O&M Costs
- Routine Repairs and Replacements
- Debt Service
- Capital Improvements

A Capital Improvement Plan generally includes a plan for obtaining funding for capital projects, which can include septic to sewer projects. Additionally, many grants or grant/loan combinations require a portion of the funding to be provided by the utility. A capital improvement reserve fund is intended to provide those funds. Identifying septic to sewer areas for expansion of a utility system would be an appropriate use of capital funds.

Local Option Sales Tax

Pursuant to **Section 212.055, FS (Attachment 16, Page 499),** the governing authority in each Florida county may levy a discretionary sales surtax of 0.5 or 1 percent to fund infrastructure projects, contingent on a successful referendum. Proceeds from the discretionary sales tax may be used toward capital outlays associated with construction, reconstruction, or improvement of public facilities that have a life expectancy of 5 years or more; any related land acquisition, land improvement, and design and engineering costs; and all other professional and related costs required to bring the public facilities into service. The duration of a local option sales tax (LOST) is variable, however, since a voter referendum is required for approval.

If the LOST was levied pursuant to a referendum held before July 1, 1993, the surtax may not be levied beyond the time established in the ordinance. If the ordinance did not limit the period of the levy, the surtax may not be levied for more than 15 years. The levy of such surtax may be extended only by approval of a majority of the electors of the county voting in a referendum on the surtax.

Connection Fees/Impact Fees

Utility Connection Fees are *fees* on development used to pay for its proportionate share of the capital *costs* and installation of a local government's *utility* infrastructure. *Utility Connection Fees* are charged for new construction and/or when upgrading an existing service. Impact fees

are a one-time tax imposed on all new residential and commercial construction by local governments to defray the cost of growth's "impact" on vital services such as schools, water, wastewater, roads, and other infrastructure needs. As outlined in Chapter 163.31801 F.S., impact fees are an important source of revenue for a local government to use in funding the infrastructure necessitated by new growth. As new areas are developed, impact fees could be used to establish service to a new area. Connection fees and impact fees function similarly with existing facilities versus new growth being the major differentiator.

Ad Valorem

If you own real estate in Florida, you will pay ad valorem or "property" tax based on the taxable value of the property. Ad valorem taxes are assessed by each county's property appraiser and collected annually by the county's tax collector's office. The property tax is not based on purchase price.

A homestead exemption on assessed value is available to homeowners who meet certain requirements. On average, a homestead exemption reduces the property taxes by $600 to $700 per year. Having a homestead also "freezes" the taxes on a property for as long as the homeowner maintains the exemption (which renews automatically each year). State law prohibits property assessments from increasing more than 3 percent per year for properties protected by a homestead. Properties not homesteaded are capped at 10 percent per year. Ad valorem taxes are one of the major financial resources used by county government, and there is significant flexibility in how these funds can be used. Although this is not a traditional source of utilities infrastructure funding, it is an option.

Community Redevelopment Area (CRA) Funding

Under Florida law (Chapter 163, Part III), local governments can designate areas as CRAs when certain conditions exist. Since all monies used in financing CRA activities are locally generated, CRAs are not overseen by the state, but redevelopment plans must be consistent with local government comprehensive plans. Examples of conditions that can support the creation of a CRA include but are not limited to the presence of substandard or inadequate structures, a shortage of affordable housing, inadequate infrastructure, insufficient roadways, and inadequate parking.

Tax increment financing is a unique tool available to cities and counties for redevelopment activities. It is used to leverage public funds to promote private sector activity in the targeted area. The dollar value of all real property in the CRA is determined as of a fixed date, also known as the "frozen value." Taxing authorities, which contribute to the tax increment, continue to receive property tax revenues based on the frozen value. These frozen value revenues are available for general government purposes. However, any tax revenues from increases in real property value, referred to as "increment," are deposited into the Community Redevelopment Agency Trust Fund and dedicated to the redevelopment area. This source would be viable for a project within the CRA.

Environmental Assessment

Revenue from an environmental assessment to nonsewered properties could be used for central sewer implementation. There are some concerns with this approach including the legality and enforcement of such a fee or assessment and the practical amount of revenue such a program would generate for the central sewer program. The most similar type of fee to the one described here is a stormwater fee or assessment. A stormwater fee or assessment is similar in that it benefits properties in ways that are not directly measured compared to a service such as metered water service. Stormwater funding has an explicit state statutory authorization pursuant to Section 403.0893, FS, but no such provision is provided for an environmental assessment or fee.

Although some overlap of water quality improvements initiated from a central sewer program and stormwater program can be debated, there is no known literature of a fee system that combines both. If a community-wide stormwater program is pursued, perhaps opportunities may arise to link septic tank management and central sewer planning with the stormwater program. This alternative, as with all of your funding options, should be discussed with your legal counsel and financial advisors.

Municipal Service Taxing Unit/Benefit Unit (MSTU/BU)

Florida Statutes Chapter 125.01(1)(a) authorizes a Board of County Commissioners to create Municipal Service Benefit Units to provide specific municipal services to any specified portion or all of the unincorporated area of the county. Florida Statutes Chapter 197.3632 authorizes such MSBU non-ad valorem assessments to be billed and collected in a uniform manner with ad valorem taxes. Services are paid for by non-ad valorem assessments levied against property within benefited areas.

Because of the localized nature of the costs and benefits of central sewer installation, local governing bodies often impose special assessments on the property and typically collect such assessments through the annual tax

bill administered through the tax collector's office. The procedure for imposing special assessments in Florida is set forth in Chapter 197, FS. In addition to public hearing, notification, and other procedural matters, special assessments imposed on a property must meet a two-pronged test:

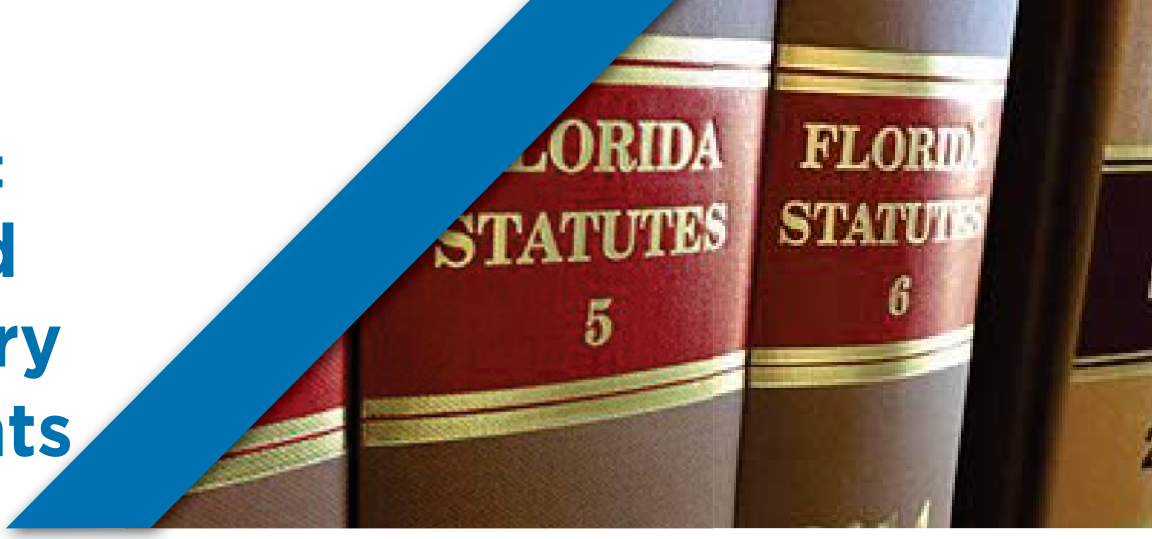
- The property must receive a special benefit from the improvement
- The costs of such improvements must be fairly and reasonably apportioned among benefitting properties

Counties can establish MSBUs if special assessments apply to only portions of the county area.

Please consult legal counsel and financial advisors to discuss which alternatives may be appropriate for your community.

Three Sisters Springs, Crystal River

SECTION 9:
Legal and Regulatory Documents



Many legal or regulatory documents are available to support and/or help direct your septic to sewer project/program. This section provides a consolidated location for the resource documents, many of which are discussed in other sections of this Guidance Document. Some documents are examples from other communities, and some are Florida Statutes that are current as of the date of publication. This section is intended to be a resource only. Please have your legal representation review any document you use.

- **Mandatory Connection Ordinances (Attachment 17, Page 518)**
- **Easements (Attachment 18, Page 523)**
- **Florida Statutes**
  - **Septic Tank Abandonment (Attachment 19, Page 529)**
  - **Centralized Sewer Connection Requirement (Attachment 20, Page 531)**
- **Senate Bill 552/Florida Springs and Aquifer Protection Act (Attachment 21, Page 533)**
- **Developer Agreements (Attachment 22, Page 667)**

Devils Eye Spring

SECTION 10:
Case Studies

Sewer Installation in the City of Cape Coral

Every community facing septic to sewer transition addresses it in a manner that is best suited to their individual community needs. The following case studies present an overview of what some communities around the state are doing with their programs or projects.

CASE STUDIES
City of Boca Raton

November 2017


Boca Raton

The City of Boca Raton initiated its Septic-to-Sewer program in 2000 beginning with an inventory of the unsewered properties with the City. The inventory identified 750 residential properties and 50 acres of commercial property. The City broke the unsewered areas into geographic areas and the areas were evaluated and prioritized.

In 2004, the City initiated the first project under the Septic-to-Sewer program beginning with the commercial properties. Under a "full cost recovery" method, 30 of the 50 acres of unsewered property was sewered. A commercial assessment of $50,000 was levied as part of the commercial program.

Based on the demographics of the residential areas identified, the City recognized that a $20,000 assessment was not financially feasible for many of the residents in these geographically identified areas. The City made a determination (based on Chapter 178) not to pursue full cost recovery but to apply the City's standard impact fees of $4,168 and an assessment of $2,500. Because these septic systems were located near water-production-well fields and water bodies, the City took the position that there was beneficial use in the City funding a portion of the assessment. As part of making this affordable to the residents, the City financed the $6,668 over 15 years with 0-percent interest. The City bills this with a separate bill on the anniversary of the final assessment.

As of this Case Study, the City has nearly completed its Septic to Sewer conversion with a few challenging geographic areas remaining. These areas include an area with private roads, which requires all residents to agree to the Septic to Sewer program conversion.

Septic-to-Sewer Program Highlights

A unique feature of the City's assessment process is that they put an immediate lien on the properties covered under the area-specific assessment resolution with the City named as the first lien holder. If the property is transferred, the lien must first be satisfied as part of the sale or refinancing.

In areas where property owners qualified for a Community Development Block Grant (CDBG) Housing Grant, the City used the grant to satisfy the assessment fee, impact fee, and the cost of abandoning the septic tank – with a total cost of less than $9,000.

The City has combined other infrastructure improvements with septic-to-sewer conversions by combining Utility and other City Department projects. This strategy has resulted in completing neighborhood improvements such as water line replacements, paving and grading upgrades, and stormwater improvements at a cost savings over individual project implementation.

From a Public Relations perspective, the City intentionally kept their septic-to-sewer projects smaller in size to maintain a more personal connection with the residents in the project area. During the special assessment process and throughout the construction process, the City maintained an online information portal. The City's Utility Department supports the public relations functions directly and has been particularly intentional regarding meeting resident needs such as medical appointments, locating connections to the sewer system, providing ideas for saving money for septic tank removal, etc.

Another element of the public communication process involved the City engaging residents in support of the septic-to-sewer projects as local champions to assist in communicating with neighbors with respect to the benefits of the program such as creating more flexibility for home renovation/expansions (i.e., additional bathrooms, etc.). Neighbor-to-neighbor communication has been very effective.

The remaining septic tanks in the City are in an area with private roads, which creates a challenge for sewering the houses on these private roads. These areas have stimulated staff to develop creative approaches and remain agile to move toward completion.

Attachments/Resources

- **Rate Structure (Attachment 23, Page 697)**
- **Resolution 1 (Attachment 24, Page 706)**
- **Resolution 2 (Attachment 25, Page 712)**
- **Resolution 3 (Attachment 26, Page 716)**

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Boca Raton

CASE STUDIES

Broward County

October 2017


Broward County

Broward County began evaluating their drainage and other infrastructure in 1995. The County decided to undertake a Neighborhood Program that would address multiple needs in various neighborhoods including paving, drainage, sidewalks, water, and wastewater to name a few.
Since 2001, Broward County has eliminated over 15,920 septic tanks from the County service area as part of a $700-million program. The County has approximately 2,780 more septic tank (5 percent of customers) slated for removal as part of their ongoing program – most by 2022. Broward anticipates having all septic tanks eliminated by 2024.

Septic-to-Sewer Program Highlights
Some examples of Broward County's program successes:

- BOCC Commitment: The elected officials in Broward County made a policy decision to eliminate septic tanks in the County and have remained committed to the program long term.
- Schedule Rate Increases: The County has implemented scheduled utility increases that provide a consistent funding source to support the plan. However, the County's rates have remained well within industry standards.
- Public Communication: The County established a Project Community Coordination Division with specific responsibility for working with the individual neighborhoods. They designated a person so citizens had a point of contact.
- Prequalified Contractor Program: The County pre-qualified multiple contractors for this program and they bid on individual projects. This allows the contractors to become very efficient with the septic to sewer program.

The County funded the program with a predominantly "pay as you go" approach although some bond proceeds have been applied to the program. Customer requirements included abandonment of their septic tank and paying the County's standard connection fee.

The County has mandatory connection that by ordinance gives the customer 180 days to connect to the County's system. The County begins billing for sewer service for those that do not connect after 365 days.

Broward County is home to 30 municipalities. Some of the septic-to-sewer projects completed by Broward County have been annexed into a municipality. The County has annexation agreements that have allowed a municipality to annex the area, however the County maintains ownership of the infrastructure and the continued right to serve the customer. One of the biggest challenges of the County's program occurs when the County is providing wastewater service to a customer whose water service is provided by a municipality.

Attachments/Resources

- **Septic Tank Elimination Maps for Districts 1, 2, 3A, and 3BC (Attachment 27, Page 725)**
- **Agreement between Broward County and the City of Ft. Lauderdale related to Annexation of the Riverland Area (Attachment 28, Page 730)**
- **FY 2018 Water and Wastewater Rates, Fees, and Charges; effective October 1, 2017: (http://www.broward.org/WaterServices/RatesAndFees/Pages/Default.aspx) (Attachment 29, Page 749)**

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CASE STUDIES

City of Cape Coral

September 2017


Cape Coral

The City of Cape Coral is located in Lee County on Florida's Southwest coast. Originally a low-density, rural community with septic tanks and shallow groundwater wells, today the City has a population of approximately 180,000. These shallow wells are depleting the upper groundwater aquifer and failed septic tank effluent can flow into groundwater and canals, which have been identified to cause potential environmental problems. At present, there are approximately 58,000 unsewered properties in the City.

To address these issues, the City restarted the Utilities Extension Project (UEP) in February 2012 to provide City water, sewer, and irrigation services. In addition, the roads and stormwater systems are being rebuilt as part of a sewer project along with stormwater improvements. As of publication of this document, the City has extended utilities to nearly all of Cape Coral south of Pine Island Road with the $103 Million Southwest 6 and 7 UEP. The City has identified and prioritized areas to address septic to sewer transition including the North 2 and North 1 UEP areas. A map of the UEP area is attached.

The sanitary sewer lines transport wastewater from a homeowner's property to the gravity sewer system, which consists of sewer lines that collect and convey the wastewater flow to local lift stations. These lift stations then pump the wastewater under pressure via force mains to the wastewater reclamation facilities for treatment. The treated wastewater effluent is then pumped back to customers, through a separate irrigation water distribution system, for outdoor irrigation. Canal water is supplemented by reclaimed water to meet daily irrigation system demands. Water reuse is an important conservation tool for the City as it reduces the City's brackish water withdrawals from the Lower Hawthorne Aquifer used for potable water.

Some of the benefits of incorporating water, wastewater, and reclaimed water into the UEP include the following:

Quality Drinking Water – Customers receive a dependable supply of high-quality, good-tasting drinking water at a reasonable cost.

Public Safety – Installing potable water supplied fire hydrants in the previously unserved areas will provide a fire-flow system with a reliable water supply and pressure. This may lower homeowner insurance premiums by improving the City's overall ISO rating. Please check with your insurance carrier.

Water Conservation for Irrigation – The City operates an irrigation water system that provides a separate source of treated, reclaimed water for irrigation. It also provides a beneficial use for treated wastewater versus discharging it, which conserves drinking water.

Enhanced Property Values – Properties connected to a centralized water and sewer system may experience increased property values over those similarly situated properties served with wells and septic systems.

Economic Growth – This will improve the quality of life for all Cape Coral citizens.

The City's UEP has a dedicated Division of personnel presently made up of seven full-time staff – the Utilities Extension Manager, Principal Engineer, Senior Engineer, Utilities Business Analyst, and three Inspectors. The City has contracted with an outside consultant for construction, engineering, and inspection services for select areas and has a construction liaison and the Citizens Action Center available to assist citizens with questions or concerns about the program.

To fund the program, a one-time assessment is charged to all parcels (including vacant parcels) within the assessment area. These fees become due after the assessment project is approved by council and the construction project begins.

The amount of the assessment is calculated to reimburse the costs of the assessment project, including finance/bonding fees, by charging a fee per equivalent lot (5,000 square feet) or per parcel (10,000 square feet) on each parcel within the assessment project area.

Additionally, a Contribution In Aid of Construction (CIAC) fee is also charged. This is a one-time fee charged to properties that are not located in an assessment project area but have City services for water, sewer, and/or irrigation available. The amount of the CIAC fee is based upon the number of meters and meter sizes. The fees are due at the time of development. The assessment and CIAC fees may be paid in installments, billed annually with interest at the prime rate, plus 2%, existing at the end of the month preceding the date the capital expansion fee(s) loan is initiated. The City has used the low interest State Revolving Loan Fund (SRF) as the primary funding resource for this program.

The City requires mandatory connection, with vacant parcels paying the assessment and impact fees ($6,750/Equivalent Residential Connection (ERC) – Sewer/Water/Irrigation) when the lateral is installed on the lot, which offers an increase in the property's value. It is the property owner's responsibility to have the connection(s) completed. The City has not increased the combined impact fees in 10 years. Although the amounts for each utility bucket have changed, the combined fee for all three utility services has stayed the same. The City provides a 20 percent prepayment discount on impact fees if the property owner pays within the first year of the Assessment. The Assessment can be financed through the City over a period of 20 years and the Impact Fees are assessed over a period of 6 years. The Assessment and Impact Fees are repaid via the annual property tax bill.

Attachments

- **Water, Irrigation, and Wastewater Rate Schedules (Attachment 30, Page 760)**
- **Summary of Contribution In Aid of Construction (CIAC) (Attachment 31, Page 763)**
- **SW 6 and 7 Area Assessment Costs (Attachment 32, Page 765)**
- **North 2 Area Assessment Costs and Map (Attachment 33, Page 767)**
- **Map of the Future Service Area for UEP (Attachment 34, Page 770)**

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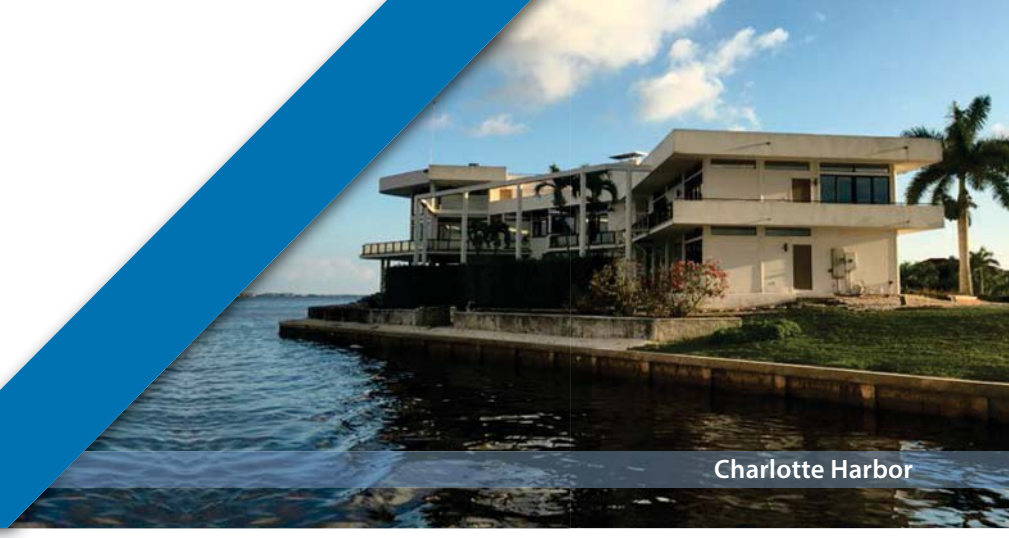
Cape Coral

CASE STUDIES

Charlotte County

September 2017



Charlotte Harbor

Located on Florida's Southwest coast, Charlotte County has a population of just over 178,000 with approximately 90,000 of those residents over the age of 55, many of whom are on a fixed income. The median household income (MHI) in the County is $44,244 (2015), which is about 90 percent of Florida's MHI. The County currently estimates (2017) approximately 27,000 septic tanks are being used in Charlotte County for wastewater disposal, with many more platted lots geared for septic systems for wastewater.

Charlotte Harbor is considered impaired by the Florida Department of Protection (FDEP). Sampling and research by FDEP and Dr. Brian LaPointe from Florida Atlantic University have documented constituents indicating impact from the septic systems. Due to the water quality impairment in Charlotte Harbor, the County and Department of Health coordinated on a Managed Septic Tank Program in 2013 that required that on-site systems within the drainage area of the Manchester Waterway be pumped and maintained in a functional condition. The County also has a mandatory connection that by ordinance gives the customer 180 days to connect to the County's system when it becomes available.

Charlotte County is in the process of establishing a septic-to-sewer program that started with an individual project in East/West Spring Lake. This septic tank conversion project replaced 10,500 septic systems with centralized sewer and was funded through the establishment of a municipal service benefit unit (MSBU) specifically to address this project. MSBU funding has pros and cons, and the County Commission decided to take a more planned and methodical approach to the septic tank elimination program.

The Charlotte County Utilities Department (Utilities) was directed to prepare a Sewer Master Plan focused on creating a roadmap for reducing pollution by converting septic systems to sewer for the Utilities' service areas. The primary goal of the Sewer Master Plan was to collaboratively develop an initial 15-year plan to implement an affordable, sustainable, reliable and efficient wastewater collection and treatment system for a sustainable environment. The Master Plan's objectives included:

- Summarizing the need to reduce nutrient and bacteria discharges.
- Reviewing and compiling historical data on the sewer system, water reclamation facilities, and water quality and flows.
- Summarizing the private sewer utilities and providing recommendations for regional connections.
- Modeling and predicting system growth.
- Developing detailed consumer and wastewater flow estimates through buildout.
- Reviewing the Utilities' existing wastewater collection and transmission systems.
- Reviewing existing wastewater reclamation facilities and preparing an infrastructure assessment.
- Developing capital improvement plan recommendations based on existing infrastructure needs and guiding principles.
- Performing financial analysis and developing funding programs and options for the County to implement the recommended capital improvement plans.

Environmental scoring criteria were developed to prioritize the importance of converting septic systems to sewer for each project area identified in the Sewer Master Plan. The environmental scoring criteria included the age of septic systems within the project area, the project area's proximity to surface waters, and the nitrogen loading from septic systems within the project area. Several factors were considered in prioritizing projects to identify and

develop consecutive 5-year, 10- year, 15-year, and buildout improvement plans.

The Sewer Master Plan outlines the yearly capital improvement projects required for the specified period, including collection system, transmission system, utility connections, and wastewater reclamation facility improvements for each of these plans. The financial strategy for the Sewer Master Plan is to assign just, equitable, and affordable costs to property owners and to find an achievable level of outside funding while having no adverse effect on existing Utilities ratepayers. The plan includes funding options for the 5-year collection system, and the funding plan for the transmission systems, utility connections, and WRF improvements are accounted for in a separate fund.

As part of the planning process, the County involved the public with proactive stakeholder engagement. Some examples of public engagement include holding Public and Board of County Commissioners (BOCC) Workshops, forming a Stakeholder Committee to support public education and outreach, developing and maintaining a website devoted to the master plan containing the numerous documents related to its development, and news media interviews to provide clear communication and transparency throughout the plan development.

The County has evaluated a variety of funding sources with the intent of creating a recurring funding source to address the septic-to-sewer conversion while maintaining a reasonable cost for its citizens.

Attachments

- **Utility Rate Structure (Attachment 35, Page 771)**
- **ERP Permit with Phased Sewer Expansion Requirements (Attachment 36, Page 774)**
- **OSTDS Ordinances (Attachment 37, Page 804)**
- **Mandatory Connection Requirements (Attachment 38, Page 833)**
- **Sewer Master Plan Summary Presentation (Attachment 39, Page 836)**

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Port Charlotte

CASE STUDIES

Citrus County

October 2017

Citrus County

Citrus County is located on Florida's west coast in the area known as the Nature Coast. The County has a population of 141,058 (2015), the median household income is $38,312 (2015), and the median age is 53. Citrus County is home to three first-magnitude springs (Crystal River/ Kings Bay, Chassahowitzka, and Homosassa). With these springs in the County, the Florida Springs and Aquifer Protection Act will have a significant impact on what is required of the County relative to improving the water quality in the springs. The County is currently (10/1/17) home to more than 40,000 Onsite Septic Treatment and Disposal Systems (OSTDS). The Florida Department of Environmental Protection (FDEP) is evaluating nutrient loading to the first-magnitude springs through the Total Maximum Daily Load (TMDL)/Basin Management Action Plan (BMAP) process and has identified OSTDSs as a major source of nutrients impacting the springs. Based on this evaluation, an OSTDS Remediation Plan will be required in all springsheds in the County.

The County does not have an official Septic to Sewer Program but has an initiative focused on septic tank elimination. The County has begun to address the septic tanks on a project by project basis and evaluating the need for a septic to sewer master plan. The County has prioritized projects that have been able to garner grant dollars that minimize the financial impact to the County's residents.

Projects the County has completed to date include the Halls River Road and Fort Island Trail Phase 1 septic-to-sewer projects. These projects were well received by the residents in these areas since they had experienced difficulties with performance of their septic systems including the inability to use everyday items such as the washing machine, toilets, and showers without backups into homes and puddles in yards. The County also pursued a project at the headwaters of the Homosassa River. This project was identified for septic conversion because of the nutrients from the septic systems having a negative impact on the Spring. However, the cost of this project to the owners was significant and the project did not move forward. Funds for the project were redirected to another area along the Homosassa designated for septic-to-sewer conversion.

Some of the examples of success and lessons learned by Citrus County as they have pursued septic-to-sewer projects include the following.

Successes

- Grant Funding: Citrus County has been successful in procuring grant dollars from a variety of different sources including Springs dollars, Legislative appropriation, and the TMDL program.
- Schedule Rate Increases: The County has implemented scheduled utility rate increases that provide a consistent funding source to support the plan. However, the County's rates have remained well within (and even below) industry standards.

Challenges

- Public Communication: The high percentage of retirement-age citizens translates into a very engaged citizen community. Many of these residents are on a fixed income and express major concerns about cost increases of any kind. Many of these people do not see centralized sewer as an investment in their property nor do they value any potential increase in their property value. Additionally, education regarding the impact of septic systems on the health of the springs has been a significant challenge with the public and has contributed to some political uncertainty.
- Construction Conditions: The County has encountered some challenging construction conditions with the depth to groundwater and underground rock. These

conditions increase the cost of projects and have caused the County to have to evaluate different collection systems to maintain construction costs within a range acceptable to the citizens and elected officials.

Section 42-161 of the Citrus County Code of Ordinances, requires all owners of an "on-site sewage treatment and disposal system" (i.e., septic system) to connect the system or the building's plumbing to an available publicly owned or investor-owned sewage system within 365 days after written notification that the publicly owned or investor-owned sewage system is available for connection. Connection fees may be structured through an agreement with the County to help defray the cost over 10 years. Some homeowners may also be eligible for financial assistance through the Citrus County Housing Services Division.

Attachments

- **Rate Structure (Attachment 40, Page 850)**
- **Mandatory Connection Ordinance (Attachment 41, Page 852)**
- **Crystal River/Kings Bay BMAP Maps (Attachment 42, Page 858)**

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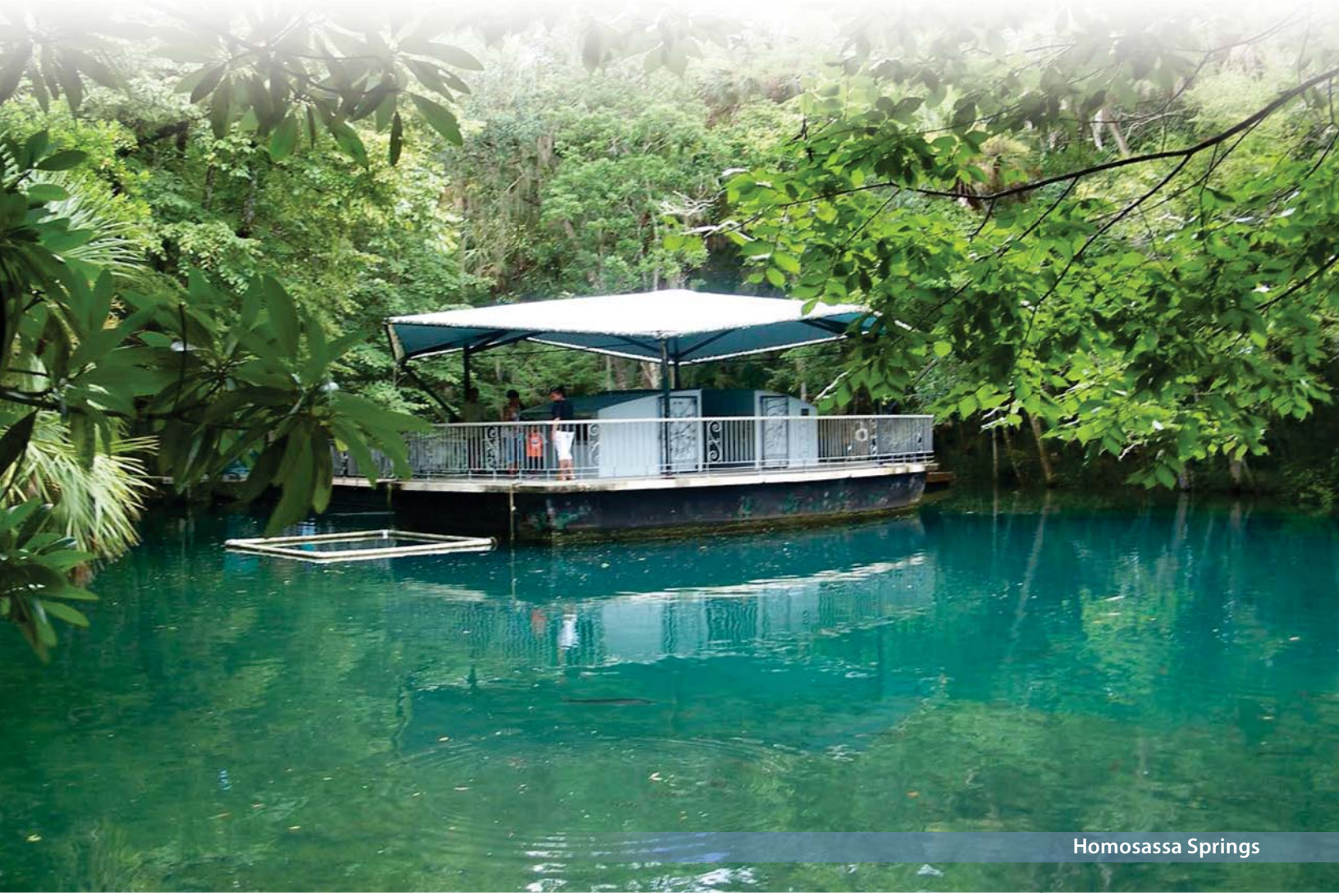

Homosassa Springs

CASE STUDIES

Indian River County

October 2017

West Regional Wastewater Treatment Facility Wetlands, Vero Beach

Indian River County is located on the Treasure Coast between St. Lucie and Brevard Counties with the Indian River Lagoon running present from its north to south County lines. The County has a population of approximately 150,000 and five incorporated cities. The County has approximately 30,000 septic systems in 325 subdivisions/communities with about 37 percent of them in the incorporated areas. The County's Utilities Department provides sewage collection for over 28,950 accounts, along with commercial and industrial customers – a major portion of the population. The County has recently initiated a Septic-to-Sewer Program in the County and completed a Septic-to-Sewer Conversion Evaluation (June 2017). The program is in its early stages and details for program implementation are evolving with some that have yet to be defined.

Septic to Sewer Highlights

- An assessment of the septic systems was conducted for the communities across the County. The 2017 report entitled "Septic to Sewer Conversion Evaluation" prepared by Schulke, Bittle & Stoddard, LLC provided Capital Improvement Program prioritization recommendations. A copy of the report is available on the County's website and available as an attachment.
- As part of the initial ranking, the County used the following factors to evaluate the various areas of the County for septic-to-sewer conversation:
  - Population Density
  - Proximity to Surface Waters
  - FEMA Flood Plain
  - Depth to Ground Water Table
  - Soil Condition
  - Age Surface Water Management System
  - Age of Existing OSTDS
- The County has begun implementing priorities starting with the North Sebastian area Phase I Septic-to-Sewer (S2S) Conversion Project. Phase I Construction has been bid and the funding allocated. The notice to proceed was issued in August 2017 with a 1-year construction period. The first phase of the North Sebastian S2S project focuses on the commercial area of Sebastian with the expectation that it will help the Sebastian US Highway 1 commercial corridor.
- Funds for this initial project are coming from several sources and are allocated as follows:
  - Utility reserve funds – 20 percent.
  - Sales Tax – 20 percent.
  - Cost-share Grant – 21.80 percent.
  - Owner portion – 38.20 percent
- North Sebastian S2S Phase II Design is 90-percent complete.

Other Information of Interest

- The County Goals include:
  - Protecting the Indian River Lagoon by working with the regulatory agencies, residents, and other stakeholders to develop and implement the County-wide S2S plan.
  - Provide safe, reliable water and wastewater service.
  - Pursue grant dollars to minimize the overall impact to rate payers and be fair to all County citizens.
- The County's program is evolving. The County will be addressing such issues as:
  - Changes to the County comprehensive plan.
  - Financing options:

- A sign-up incentive program that rewards early converters will help jump-start the S2S residential program in priority areas.
    - Public outreach:
- Effective communications is essential. The Utilities Department has an informative website (weblink below) and is developing an outreach strategy to effectively inform residents.
    - Policies for work to be completed on Owners' properties.
    - How best to serve areas in the County to be developed in the future.
- Foresight and leadership by the Board of County Commissioners was essential to effectively initiate the S2S Conversion Program.

Attachments/Resources

- **Executive Summary from "Septic to Sewer Conversion Evaluation" report including an Aerial Map (Attachment 43, Page 862).**
- **Indian River County's Septic-to-Sewer Program: www.ircutilities.com/S2S which includes documents, maps, and FAQs.**
- **Rate Structure (Attachment 44, Page 920).**

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Indian River Lagoon

CASE STUDIES

City of Jacksonville and JEA

October 2017

Pumpkin Hill Creek, Jacksonville

JEA is located in Jacksonville, Florida, where they serve an estimated 455,000 electric, 337,000 water and 261,000 sewer customers. JEA is the largest community-owned utility in Florida and the eighth largest in the United States. JEA has engaged with multiple Septic to Sewer programs over the past 20 years. During the Better Jacksonville Program, the City of Jacksonville (COJ) and JEA worked together to remove more than 6,000 septic tanks. The current Septic to Sewer program began in the Spring 2016 and has been adjusted to maximize the cost benefit of the financial investment by the City and the Utility.

Program Overview

Under the current program, COJ and JEA are jointly investing $30 million dollars for the Septic to Sewer program. An additional $5 million investment will come from JEA in the form of funding for engineering design and project management and another $600,000 in the form of treatment capacity for removal of septic tanks that are eligible for total maximum daily load (TMDL) credit. The funds for the program will carryover from budget year to budget year and not lapse. Additionally, central water will also be included in the areas where it is currently unavailable. A key feature of the program is that it funds connection costs for water and wastewater connections for projects that achieve required participation levels. This is a huge selling point in moving the program forward.

Some of the elements of JEA's current program include the following:

- A list of 35 neighborhoods monitored by the Duval County Health Department was evaluated and ranked using several additional scoring criteria that includes environmental, health and welfare considerations, and community considerations. The list will be reviewed and updated annually.
- The total wastewater collection system estimate for the 35 neighborhoods (estimated in 2016 dollars) is $708 million.
- Additional provision for the 14 neighborhoods where central water is not fully available and could be added totals $25 million (estimated in 2016 dollars).
- Available joint COJ/JEA funding has been committed to the highest scored priority areas that achieve required participation levels.
- Projects will require 70 percent of the property owners in the priority area to agree to connect and sign an access agreement before project design consultant selection commences (applies to properties improved with houses or businesses).
- The Program provides for a 5-year waiting period for neighborhood project reconsideration if 70 percent is not achieved within the 6-month outreach period.
- The City has eliminated an option to defer connections and requires mandatory connections, absent a valid previously approved deferral.
- The Program will pay for all connection costs for projects funded as priority areas that achieve participation levels as funding allows.
- Connection to existing wastewater lines will be required where available.
- Uses Florida Department of Health Statute guidelines for mandating connections (criteria include property types and distances from existing infrastructure).
- Established a monthly "Readiness to Serve" charge for properties that do not connect within 1 year of availability and proper notice. Applicable to neighborhoods receiving new infrastructure and existing neighborhoods with existing infrastructure.
- The "Readiness to Serve" charge will be collected through a separate billing process where the money will flow to COJ for funding future priority-area projects. This fee is equal to the base sewer bill.

COJ and JEA used a strong outreach program in the initially identified neighborhood that included two "town hall"-style meetings and door-to-door outreach to gain the required percentage of commitment from the property owners within the neighborhoods. The 6-month participation period commences with the second town hall meeting. The required participation was reached in the first neighborhood, and the project is moving to the design phase. Outreach has started on the second priority neighborhood.

Challenges

One of the challenges faced in moving the program forward included connecting with absentee owners in a community that has 51-percent absentee owners.

Attachments

- **Water and Wastewater Infrastructure Review 2016 (Attachment 45, Page 927)**
- **Water Wastewater Review Committee Report and Recommendations (Attachment 46, Page 949)**
- **Water/Wastewater Appropriation Ordinance (Attachment 47, Page 958)**
- **Septic Tank Phaseout Program Information Sheet (Attachment 48, Page 979)**
- **Septic Tank Phaseout Prioritization Spreadsheet (Attachment 49, Page 980)**
- **Biltmore Septic to Sewer Presentation (Attachment 50, Page 983)**
- **Rate Structure (Attachment 51, Page 999)**

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Main Street Bridge, Jacksonville

CASE STUDIES

Marion County

September 2017


Silver Springs

Marion County is located in North Central Florida and is well known for its natural beauty and its two first-magnitude springs – Silver Springs and Rainbow Springs. These springs as well as Lake Weir have established Total Maximum Daily Loads (TMDLs) established for nutrient loading to the water body. Although Marion County does not have an official septic-to-sewer program, the County was an early adopter in springs protection, implementing a Springs Protection Program. This program includes Springs Protection Zones (SPZs), restrictions, setbacks and special use standards for critical land uses, policies and standards for new development (including open space, landscaping, irrigation, stormwater treatment, and domestic waste treatment and disposal, central wastewater treatment facilities [WWTFs], and onsite sewage treatment and disposal systems [OSTDS]) and remediation and research projects. The County adopted a Springs Protection Ordinance, the requirements of which have been deployed throughout the County's Land Development Codes (LDCs). One of the LDCs requires connection to the wastewater system if the property is within 400 feet of a service line. For development where connection to a regional, sub-regional, or alternative sewer system is not required, then an OSTDS will be required. The County developed and adopted OSTDS performance standards aimed at achieving a 70-percent or greater nitrogen removal efficiency for new and replacement systems in the Primary SPZ beginning October 1, 2007, and in the Secondary SPZ by October 1, 2008. The LDCs shall also address conditions by which exemptions may be granted by the County Commission. The LDCs also contain a springs protection overlay.

The Marion County Department of Health (DOH) estimates that approximately 75,000 to 90,000 septic tanks exist in Marion County with approximately 8,300 in the Rainbow Springs springshed and approximately 48,600 located in the Silver Springs modeled 100-year capture zone. This is significant in that the septic systems account for more than 20 percent of the nutrient loading to the springs and will necessitate an OSTDS Remediation Plan as required by the 2016 Florida Springs and Aquifer Protection Act.

Marion County's utility system currently serves approximately 20,000 connections in different areas of the County. As the County begins to evaluate a septic-to-sewer program, funding is the biggest challenge to face. The County is undertaking a planning process to identify key areas for future septic-to-sewer projects with consideration of proximity to connections, capacity of infrastructure, and population density.

From an education perspective, the County invited Dr. Yueging Gao, PHD, from the Florida Department of Health (FDOH) to speak at the Marion County Board of County Commissioners (BOCC) meeting to provide the commissioners and public with a solid technical understanding of the impact of OSTDSs on the springs.

Elected officials are under significant pressure from the local development community to provide education on septic-to-sewer impacts. The County is considering development of a Septic-to-Sewer Master Plan.

Attachments

- **Utility Rate Structure (Attachment 52, Page 1005)**
- **Land Development Code Division 4 Springs Protection Overlay Zone (SPOZ) (Attachment 53, Page 1010)**
- **Springs Protection Overlay Zone Map (Attachment 54, Page 1020)**
- **Comprehensive Plan - Sanitizing Sewer Element (Attachment 55, Page 1021)**
- **FDOH BOCC Presentation**

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CASE STUDIES

City of Rockledge

September 2017

Indian River Lagoon

The City of Rockledge is located in Brevard County on Florida's east coast on the Indian River Lagoon with a population of just over 27,000 (2016). The name Rockledge comes from the many ledges of coquina rock that line the Indian River Lagoon. The City of Rockledge is a stakeholder for the Implementation of Total Maximum Daily Load (TMDL) for Nutrients adopted by the Florida Department of Environmental Protection (FDEP) in the Indian River Lagoon Central Basin.

The City provides wastewater and reclaimed water services to its residents (see service area map attached). Water service is provided by the City of Cocoa through an interlocal agreement (attached). The City's wastewater treatment plant is a 4.5-million-gallon-per-day (MGD) plant with available capacity based on 2.81 MGD average annual daily flow.

Approximately 35 percent of the City's residents address their wastewater needs through the use of septic systems. This translates to approximately 3,775 septic tanks in the City.

The City does not currently have an official septic-to-sewer program, but it is beginning to address the impact of the septic systems in their community on a project-by-project basis. This effort was initiated with a project along the Indian River Lagoon in the Breezeswept subdivision. This project provides sewer service to 141 homes, most of which were built in the 1960s. The City experienced both successes and challenges during this project.

Successes

- Funding Procurement – The City procured grant dollars from the St. Johns River Water Management District and FDEP and a $1.2-million legislative appropriation.
- Public Acceptance – Due to the funding made available for this project, the residents of the neighborhood were not charged an assessment for the transition from septic to sewer. This was a major factor in the overwhelming acceptance with 139 out of 141 homeowners participating.
- Local Sparkplug – The City has a staff member who was specifically assigned to work with the funding agencies and the community to keep the project on track from the financial and public relations perspectives.
- Coordinated Work with the Contractor – The City coordinated roadway upgrades in the neighborhood as an additional upgrade as part of the septic–to-sewer project.

Challenges

- Subsurface Conditions – The City was built on ledges of coquina rock, which makes excavation for the pipe installation difficult.
- Funding – Additional funding was needed during the middle of construction.
- Public Communication – Discharge of dewatering water was a visual problem. Residents saw a milky-colored water going into the Indian River Lagoon and, while there was no negative impact to the Lagoon, the residents though that there was a problem leading to a significant number of calls of concern. A more proactive public notification program could have alleviated the concerns of the residents and minimized the number of calls made to the City.

The City recognizes that additional projects need to be identified, and as of the date of publication of this document are evaluating and prioritizing different areas of the City

Attachments

- **Interlocal Agreement Ordinances (Attachment 56, Page 1027)**
- **Interlocal Agreement with the City of Cocoa (Attachment 57, Page 1036)**
- **Rockledge Code of City Ordinances Chapter 17 (includes Rate Structure) (Attachment 58, Page 1061)**

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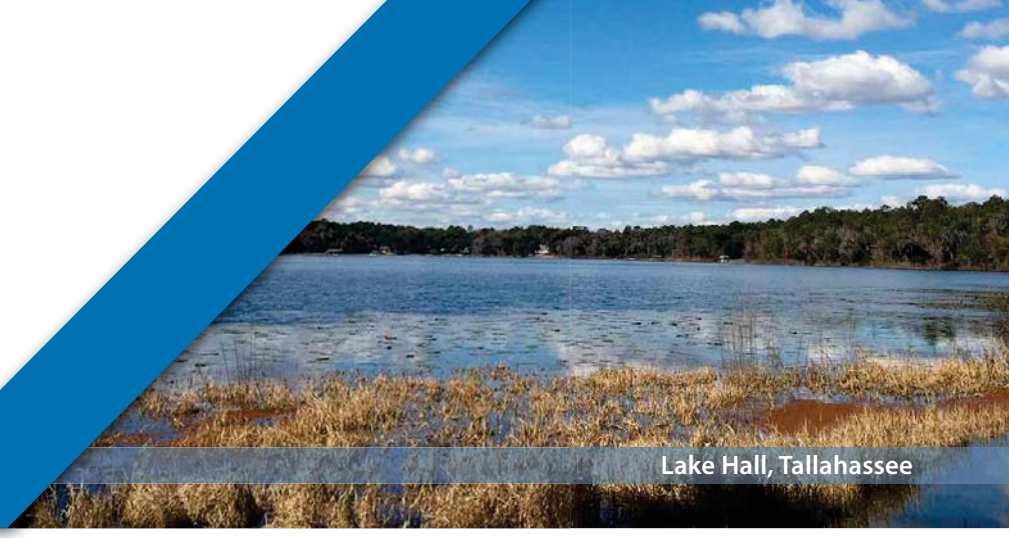
CASE STUDIES

City of Tallahassee

November 2017



Lake Hall, Tallahassee

The City of Tallahassee is the county seat of Leon County and our State's capitol. With a population of approximately 191,000, the city has a median household income (MHI) of approximately 83% of the State of Florida's MHI and a median age of 26.2 years, which is significantly lower than the state's median age of 41.8. In June 2017, the City of Tallahassee initiated its septic-to-sewer program in response to the Basin Management Action Plan (BMAP) for Wakulla Springs. The City's program, called Septic Over Sewer (SOS), is a program targeted at 130 septic tanks within the City Limits and in the Wakulla Springs Priority Focus Area (PFA) as outlined in the Florida Springs and Aquifer Protection Act and identified in the BMAP. The City has long required residents with failing septic tanks to connect to the City's sewer system, if available, at the customer's cost. This will continue to be a mechanism for eliminating existing septic systems in sewered areas. The SOS program is a voluntary program and is being funded through two state grants.

Public Outreach Program

The City is putting in place (expected to be finalized in Fall 2017) a very intentional public outreach program directed at the homeowners in the SOS target area. The City received a 319(h) Education Grant for the program's education and outreach efforts. The outreach program includes the following elements.

- Eligibility Request Letter with a postage-paid return mailer.
- Flyers for community events.
- Door hanger.
- Yard signage.
- Two minute video.
- Variable message boards.
- Website and social media protocols.

The outreach is directed at the eligible homeowners and the City has begun promoting the program at various venues.

SOS Program Elements

To be eligible for the SOS program, a homeowner must be in the Wakulla Springs PFA as defined by the Wakulla Springs BMAP, an existing wastewater collection line must be available for connection, and the homeowner must be within the City limits.

The City has established an application and approval process for admitting homeowners to the program. The steps are as follows:

1. Homeowner submits an eligibility determination request.
2. City reviews the request and makes an eligibility determination.
3. City sends homeowner an eligibility determination and, if eligible, an application package.
4. Customer prepares the application package, which must include quotes from three plumbers who can connect the home to the wastewater system and properly abandon the septic tanks. Quotes must include all required permits from the Florida Department of Health (FDOH) and the City Building Department.
5. Customer sends the application package to the City for review, which includes technical and administrative reviews.
6. Upon approval of the application, the City sends the homeowner approval for the customer to contract with the low-bid plumber.
7. The selected plumber obtains the permits, completes the work, and requests an inspection by the City and FDOH.
8. Upon approval of the work by the City and FDOH, the City reimburses the plumber for the contracted costs.

A flow chart of the process is attached. The connections are made at no cost to the customer/homeowner and are being paid for through a Springs grant. This grant requires a match, which was fulfilled by the 319(h) Education Grant and the wastewater lines in the target area previously installed by the City. As of November 2017, the City has completed four conversions under the program since its inception.

Attachments

- **Map of Service Area for SOS Program (Attachment 59, Page 1067)**
- **SOS Connection Process (Attachment 60, Page 1068)**
- **Homeowner SOS Process Diagram (Attachment 61, Page 1070)**
- **Citizen Outreach Package (Attachment 62, Page 1071)**

Contact Information

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Wakulla Springs

CASE STUDIES

City of Vero Beach

December 2017

Vero Beach Boardwalk

The City of Vero Beach is the County seat of Indian River County. With a population of 16,750, the City has a median household income (MHI) of 85 percent of Florida's MHI and a median age of nearly 55 years (which is significantly higher than the state's median age of 41.8). The City of Vero Beach initiated its septic-to-sewer program in 2015, installing its first line in March of 2015 and adding its first connection in April of the same year.

The City recognized the cost of installing a traditional gravity system for their septic-to-sewer program would be significant and not something that the City could afford or residents would accept. With this in mind, the City elected to use a Septic Tank Effluent Pump or STEP system. The STEP system consists of a conventional septic tank system that captures the solids but the liquid effluent flows to a holding tank that contains a pump and control devices to pump to shallowly buried small-diameter pipe that collects effluent for transmission via force main to treatment facilities.

Some key elements of the City of Vero Beach's septic-to-sewer program are outlined below:

- The City Council made a commitment to the septic-to-sewer program. Although there is no mandatory connection requirement, there are no new permits issued in Vero Beach for septic systems.
- The customers are by ordinance required to pump out their septic tanks and have them inspected regularly. If septic tanks fail, residents are required to connect to the City's system. As of November 2017, approximately 125 customers have connected based on failing septic tanks.
- At the outset of the program, the City made an initial presentation to the City Council and then took the presentation out to the community including builders, realtors, and various homeowners associations. The program has been well received.
- The St. Johns River Water Management District provided a $292,050 grant for mainlines and a $247,500 grant for service laterals to match the City's investment
- Customer incentives were developed to encourage connection to the system included the following.
    - The first incentive is the "STEP Up and Save Credit" of $2,290, which offsets the wastewater impact fee that is normally charged to new sewer customers.
    - The second incentive is a $1,100 "Wastewater Utility Extension Credit," available to homeowners who pay in full for their STEP package at the time of application.
    - The application of these two incentives creates a situation where there is no cost to the homeowner for off-site improvements. The homeowner only pays for the installation and furnishing of the STEP System equipment.

Since 2015, the City has installed the infrastructure to eliminate approximately 1,500 septic tanks from the City service area with an initial investment of $1 million plus the SJRWMD grant money.

Attachments

- **A Homeowner's Guide to STEP Systems (Attachment 63, Page 1079)**
- **A STEP System Installation - Photographic Presentation (Attachment 64, Page 1081)**
- **Charges, Fees and Credits (Attachment 65, Page 1096)**
- **Code - Division 1, Article III. – SANITARY SEWER SYSTEM (Attachment 66, Page 1097)**
- **"Talking Points" of a Hybrid Septic Tank Effluent Pump (STEP) System (Attachment 67, Page 1113)**
- **STEP System - Different Types (Attachment 68, Page 1114)**
- **Resolution 2014-37 SUSC STEP Rate Structure (Attachment 69, Page 1120)**
- **Ordinance 2017-08 LDC Amendment Allowing STEP System Installation (Attachment 70, Page 1127)**
- **Service Area Map (Attachment 71, Page 1131)**

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