



City of North Port
DEPARTMENT OF PUBLIC WORKS
Chuck Speake, Director
Office: 941.240.8090
Email: cspeake@cityofnorthport.com



MEMORANDUM

TO: Honorable Mayor & Members of the North Port Commission

THRU: A. Jerome Fletcher II, ICMA-CM, City Manager

THRU: Jason Yarborough, ICMA-CM, Assistant City Manager

THRU: Chuck Speake, Director, Department of Public Works

THRU: Elizabeth Wong P.E., Stormwater Manager, Department of Public Works

FROM: Jeremy Rogus, Environmental Technician, Staff Liaison to the Environmental Advisory Board

SUBJECT: Septic Regulations, Maintenance and Conversion to City Sewer

DATE: May 16, 2022

Honorable Mayor and Members of the North Port Commission,

Code of the City of North Port Chapter 4, Boards and Committees – Article IX, Environmental Advisory Board – Section 4-182, states that “The environmental advisory board shall advise the commission on matters pertaining to preserving and promoting clean air and water quality.”

On May 2, 2022, during their regular meeting, the Environmental Advisory Board (EAB) discussed and made motion to approve the attached advisement (written by the EAB) and reference material which serves to advise the Commission on matters related to septic regulation, maintenance, and conversion to city sewer.

Attachments:

- A. EAB advisement on Septic Regulations, Maintenance and Conversion to City Sewer
- B. Gulf Coast Community Foundation’s Playbook

Attachment A

The members of the Environmental Advisory Board share your dedication to mitigate the effect of the city's many septic tanks on our communities ground waters. We encourage the Commissioners to explore the Gulf Coast Community Foundation's Playbook (Playbook) section on Septic Systems with an eye to applying the outlined goals and objectives in North Port.

Specifically, we hope you will consider the following items:

- Currently, multiple adjacent residential properties are being built in areas of the city without city water/sewage hookups. If you have three adjacent properties each $\frac{1}{4}$ acre in size, you end up with three septic tanks on $\frac{3}{4}$ of an acre. That is a fair amount of septic waste in a small area. Assuming the city will not put a hold on new residential septic systems, we would like to suggest that the city consider building regulations that upgrade the type of septic systems that are installed going forward. The Playbook describes advanced denitrification technologies now available for septic systems.
- Septic Systems within the city are inspected when installed and then no further maintenance or inspection is required unless or until an obvious breakdown of the system occurs. We believe septic system should be pumped and inspected after a set period of use. Failures of the tank and/or field are not always observable above ground.
- A few thoughts on Septic to Sewer Conversion:
 - Clean water is critical to the entire community. It is necessary to survival and affects the health of our population and our environment. If the city moves ahead with a Septic to Sewer Conversion Project, we ask that they consider utilizing bonds for funding the project.
 - We also believe that there is potential to cost share with utility providers. With streets and lawns dug up for placement of water and sewage lines, utility providers could place their lines underground as well. This would enhance the curb appeal of city neighborhoods as well as protecting the utilities from wind and storm damage (potentially saving utility providers future repair costs).

Thank you for your consideration of the above proposals.

Gulf Coast Community
Foundation's Playbook



2. Septic and other Onsite Sewage Treatment & Disposal Systems

Introduction

Onsite sewage treatment and disposal systems (OSTDS) are designed to treat and dispose of effluent on the same property that produces the wastewater. Septic systems are the most common type of OSTDS in Florida and consist of a collection tank connected to a shallow underground drainfield (Figure 2.1). Hereafter, the term septic system will be used to generally refer to OSTDS.

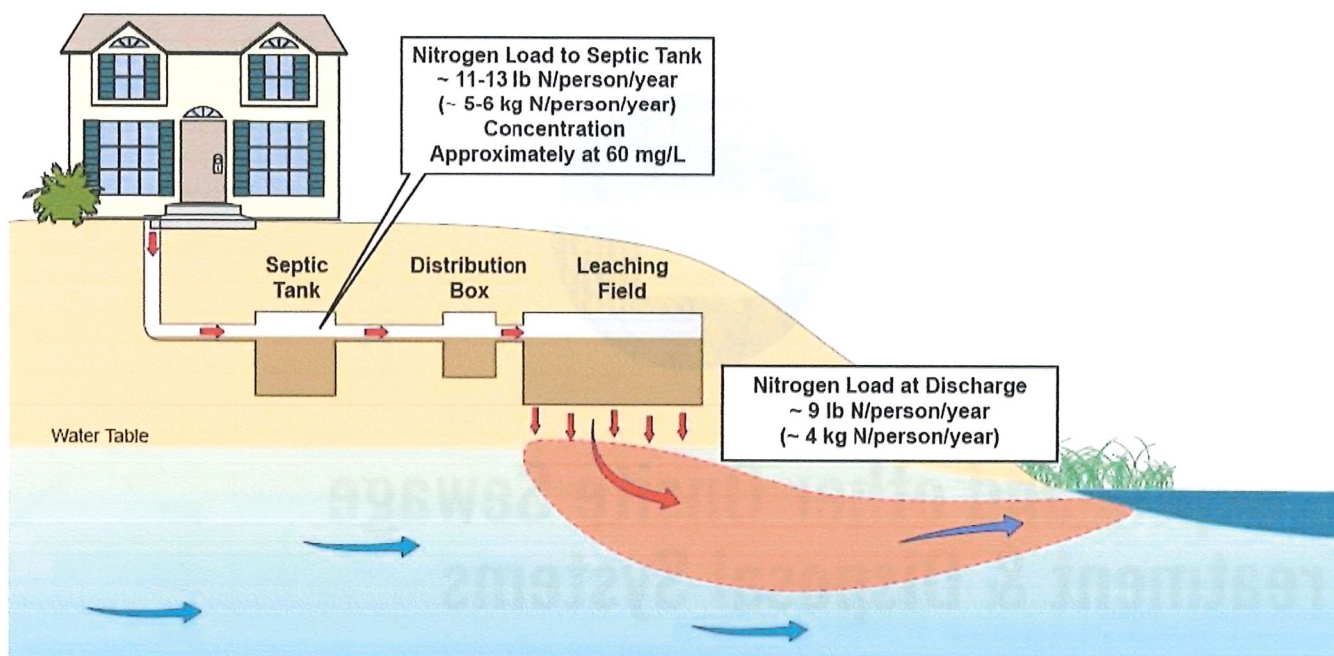


Figure 2.1. Traditional domestic onsite sewage treatment and disposal system, or septic system, showing the flowpath for wastewater from an individual home into a septic tank then into a leaching field and groundwater. Source: EPA

Septic systems can provide effective treatment of pathogens and nutrients if properly designed, sited, installed, operated, and maintained. Appropriate siting to ensure adequate distance from surface waters, adequate depth between drainfields and groundwater, and suitable hydrogeologic conditions for nitrogen removal is critical to preventing nitrate pollution of surface water, groundwater, and springs.

Conventional septic systems typically reduce about 30% to 40% of nitrogen inputs (Toor et al., 2011b) between the tank and drainfield where organic nitrogen is converted to ammonia then nitrate. Additional denitrification may occur naturally if the drainfield leachate flows slowly through anaerobic carbon rich soils that allow natural denitrifying bacteria to convert nitrate to harmless nitrogen gas. Newer septic designs incorporate this denitrifying environment into the septic system using advanced technologies such as in-ground nitrogen-reducing biofilters, nitrogen-reducing aerobic treatment units, or nitrogen-reducing Performance-Based Treatment Systems, thereby reducing 90% or more of nitrogen inputs (FDOH 2019).

The age of the septic system can also influence its effectiveness. Current Florida law requires a protective depth of two feet between the bottom of the drainfield and the seasonal-high water table; Sarasota County Government requires three feet. Prior to 1983, only one foot was required. If groundwater floods the septic drainfield, in addition to pathogens contaminating groundwater the aerobic treatment layer critical for processing ammonia to nitrate can be reduced or eliminated. Therefore, understanding and addressing potential nitrogen impacts

from septic systems installed in coastal and waterfront areas before 1983 may be particularly important.

Requiring advanced systems on new permitted installations and encouraging upgrades of older conventional systems with advanced technologies will help reduce nutrient pollution to nearby waterways.

Activity 1:

Quantify annual nutrient loads from septic systems

Properly sited and maintained conventional septic systems can reduce about 30% to 40% of nitrogen inputs. But all septic systems are not equal in their potential to impair surface water quality. Many factors affect nutrient loading from septic systems, including design, age and size; soil types and distance from drainfields; and how well the system has been maintained. Quantifying localized nutrient loads will help to prioritize areas most in need of upgrades or conversions to central sewer.

[READ MORE](#)

Activity 2:

Quantify cost and effectiveness of nutrient reduction options for septic systems

Understanding and quantifying the life-cycle costs associated with varying nitrate-removal techniques for varying site characteristics will inform local decision-making about existing and future septic system upgrades or conversions.

[READ MORE](#)

Activity 3:

Improve knowledge about the location and status of septic systems and prioritize areas for upgrades or conversions

There are conflicting estimates of the number of septic systems in Sarasota County. Clarifying how many septic systems exist, where they are located, and their functional status is fundamental to managing their potential environmental impacts.

[READ MORE](#)

Activity 4:

Require periodic inspection and maintenance of septic systems and develop incentive programs to facilitate compliance

Once a septic system is approved in Florida, ongoing inspection or maintenance is not required. Because septic systems can deteriorate over time, legislation that requires periodic inspection and maintenance is essential to ensuring they function properly to protect public health and the environment.

[READ MORE](#)

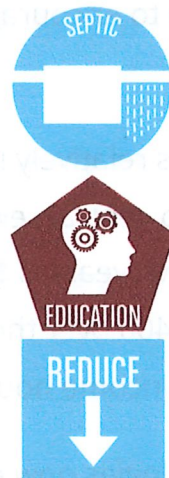
Activity 5:

Deliver Targeted Education and Incentives to Improve Operation and Maintenance of Septic Systems and Encourage Upgrades for Enhanced Nutrient Treatment

Regular septic system maintenance is economical compared to other costs of home maintenance and to central sewer fees. Education is needed to encourage proper maintenance of systems, along with incentives to upgrade to newer technologies with improved nutrient reduction.

[READ MORE](#)

2.5 Deliver targeted education and incentives to improve operation and maintenance of septic systems and encourage upgrades for enhanced nutrient treatment



Key Message: Regular septic system maintenance is economical compared to other costs of home maintenance and to central sewer fees. Education is needed to encourage proper maintenance of systems, along with incentives to upgrade to newer technologies with improved nutrient reduction.

Importance

Improper disposal of items and chemicals down toilets and drains, compaction of soils over drainfields, disruption from roots of shrubs or trees, aging components, inundation with rainwater from gutters, rising sea level and/or water table, or lack of regular maintenance can all reduce performance or lead to failure of septic systems. Proper operation and maintenance of septic systems can reduce their impacts on water quality and public health. It can also reduce costs of ownership and extend the life span of

systems. When septic systems require major maintenance or when homes are remodeled, enhanced nutrient treatment technologies can be installed to retrofit or replace older conventional systems.

Overview

While Sarasota County Code (Sec. 54-221-223) provides design, permitting, and installation criteria, there are no operation and maintenance requirements for septic system owners to ensure their systems continue to function safely. Sarasota County's Water Pollution Control Code (Sec. 54-181-193) provides for enforcement of leaking septic tanks on private property. In practice, enforcement only occurs when citizens report suspicious conditions that can be investigated by County enforcement agents. Unless the state or county mandates inspection and maintenance (*see Chapter 2.4*), the primary management tools available to encourage proper operation and management are outreach and education.

Regular septic system maintenance is relatively inexpensive compared to other costs of home maintenance and compared to central sewer fees. The homeowner's cost of pumping out a septic system every five years is \$250-\$400. In contrast, central sewer service costs homeowners about \$5,400 over the same time period. Nevertheless, incentives may be necessary for low-income households.

Enhanced nutrient treatment technologies now exist as new systems or retrofits for older conventional systems (Figure 2.2.1). Technologies include in-ground nitrogen-reducing biofilters, nitrogen-reducing aerobic treatment units, or nitrogen-reducing Performance-Based Treatment Systems (FDOH 2019). Advanced nutrient-treatment upgrades to conventional septic systems in Sarasota County remain voluntary. Education and outreach about these technologies, together with targeted incentives for their installation, can be important tools for reducing nutrient pollution in priority water bodies. The Clean Waterways Act (2020) requires FDEP to fast-track permitting for advanced septic systems in basins with impaired water bodies. This measure also creates a wastewater grants program that provides a 50% match to local funds for upgrading septic systems with advanced nutrient removal technologies.

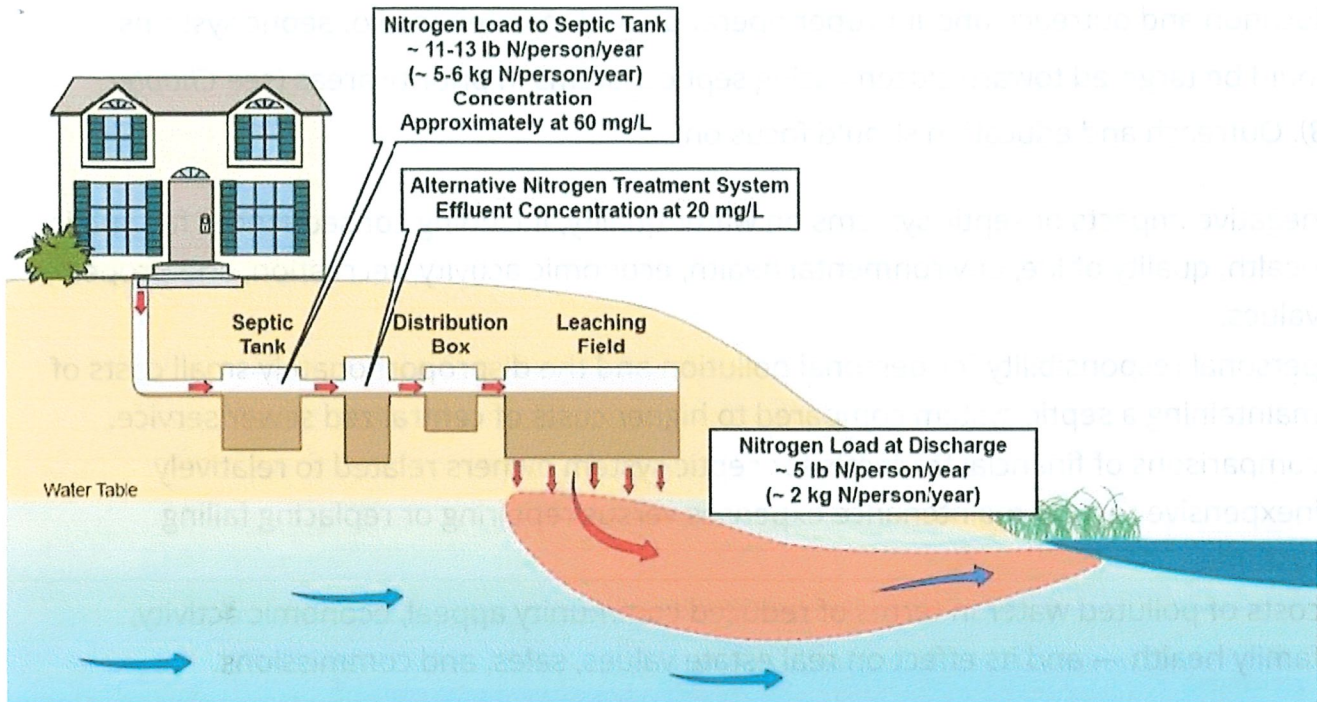


Figure 2.2.1 Septic system with additional nitrogen treatment in the flow pathway from tank to leaching field. Source: EPA

Sarasota County Stormwater Environmental Utility, in collaboration with the Science and Environment Council, developed an informational rack card to promote responsible septic system operation and maintenance. University of Florida Institute of Food and Agricultural Science (UF/IFAS) Extension posts educational materials on their website about proper septic system practices. The U.S. Environmental Protection Agency (EPA) developed an online SepticSmart Homeowners education program that provides information about proper care of septic systems and other technical information.



Approach

Education and outreach about proper operation and maintenance of septic systems should be targeted toward citizens using septic systems in priority areas (see [Chapter 2.3](#)). Outreach and education should focus on:

- negative impacts of septic systems on water quality, including consequences for public health, quality of life, environmental health, economic activity, recreation, and property values.
- personal responsibility for personal pollution and the disproportionately small costs of maintaining a septic system compared to higher costs of centralized sewer service.
- comparisons of financial tradeoffs for septic system owners related to relatively inexpensive regular maintenance expenses versus repairing or replacing failing systems.
- costs of polluted water in terms of reduced community appeal, economic activity, family health — and its effect on real estate values, sales, and commissions.

Postcards could be designed using information from Sarasota County's septic system rack card plus more community-specific messages relevant to the target audience. For example, highlighting landmarks in a community such as the nearest beach park could be effective. Postcards could be mailed to each household in the priority area; alternatively, informational door hangers could be distributed. Outreach experts could attend local community events to provide information and answer questions. Social media messages, including Facebook and Next Door, could also target priority communities. Repetition across multiple delivery methods is an effective tool to encourage behavior change. Incentive programs could be developed to encourage septic system maintenance by low-income households in high-priority areas. Information about enhanced nutrient treatment technologies for septic systems could be included on a rack card and given to property owners seeking to redevelop properties in priority areas when they apply for permits.

Resources

- FDEP Septic Upgrade Incentive Program for the springs area: <https://floridadep.gov/springs/restoration-funding/content/septic-upgrade-incentive-program>
- US EPA SepticSmart Homeowner Program: <https://www.epa.gov/septic>
- UF/IFAS Septic system publications: https://edis.ifas.ufl.edu/topic_septic_systems

Status

Education – Planning; Incentives – No Activity

Performance Measure

One message delivered to each septic system owner in Sarasota County per year.

Experts or Leads

Education – Sarasota County Government, Science and Environment Council, UF/IFAS;
Model Incentive Program – FDEP

Cost Estimate

\$50,000-\$100,000 Education and Outreach

\$1,000,000+ Maintenance Incentive Program

Related Activities

Chapter 2.1, Chapter 2.4

Other Septic System Activities

2.1 Quantify annual nutrient loads from septic systems

2.2 Quantify cost and effectiveness of nutrient reduction options for septic systems

2.3 Improve knowledge about the location and status of septic systems and prioritize areas for upgrades or conversions

2.4 Require periodic inspection and maintenance of septic systems and develop incentive programs to facilitate compliance