

FLORIDA TAXWATCH REPORT

SEPTIC-TO-SEWER: PROTECTING FLORIDA'S GROUND AND SURFACE WATER

SEPTEMBER 2023



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DEAR FELLOW TAXPAYER,

From the early days on the edge of the Tigris and Euphrates River to now, water has long been a staple of civilization. As discussed in the Florida TaxWatch report “We Can’t Wait on Water” (January 2020), Florida relies upon high-quality water to maintain the wellbeing of public health, ecosystem services, recreation, property values, and economic activities, such as fishing, boating, sailing, and other water-based tourism. But Florida’s water quality is at risk.

Septic tanks are impairing the state’s water resources. Even when working properly, septic tanks inundate groundwater with heavy nutrients. An excess of certain nutrients, specifically nitrogen, encourages the growth of algal blooms on rivers and lakes and degrades the quality of groundwater to levels unsuitable for drinking, consumption, and direct public use.

Florida communities are already looking to the state for answers. In March 2023, Florida TaxWatch reviewed the funding allocated to water-related grant programs. Since FY 2021, \$941 million has been allocated to the Wastewater Grant Program, which is used to update septic tanks or connect properties to centralized sewers. This is a considerable investment, but is it enough?

The state now welcomes more than 800 (net) new residents daily. To sustain such growth, the state must ensure its water resources have the continued capacity to serve all taxpayers. Resolving the environmental impacts of septic tank use on ground and surface water will become increasingly important.

Florida TaxWatch undertakes this independent analysis to assess the risks of conventional septic tanks and to consider how Florida may improve its wastewater management. Florida TaxWatch is pleased to present this report and its findings and looks forward to engaging policymakers in discussion during the upcoming legislative session and beyond.

Respectfully,

A handwritten signature in blue ink that reads "Dominic M. Calabro".

Dominic M. Calabro
President and Chief Executive Officer

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Key Findings

Water—Florida’s most vital resource—is at risk.

- Maintaining high-quality, accessible water resources is important for sustaining Florida’s growth. Water resources are necessary to promote public health, host and entertain tourists, and ensure the state is resilient to environmental challenges and changes.
- Inferred water shortage calculations from the Office of Economic and Demographic Research of the Florida Legislature suggest Florida regions will start seeing water shortages as early as 2025.

Onsite sewage treatment and disposal systems (OSTDSs), consisting of a septic tank and drain field, exacerbate Florida’s water problem.

- Septic tank failures pollute groundwater, which is used as drinking water and replenishes surface waters.
- A study conducted by the Florida Department of Health in 2008 suggested that more than half of Florida’s active OSTDSs are more than 30 years old and less than one percent of the active systems operate with permits and receive annual inspections and routine maintenance. Fifteen years removed from the study, the remaining OSTDSs are even older and more prone to failure.
- Inadequate drain fields fail to remove heavy nutrients, polluting groundwater as well as the surface waters into which groundwater flows. Shallow drain fields may be present in old OSTDSs and at properties with high water tables.
- Conventional septic tanks can only remove 30 percent of nitrogen present in wastewater, with the rest of the nitrogen flowing into groundwater. Not only can an excess of nitrogen render water undrinkable, but it also promotes the growth of algal blooms in surface waters.

Despite their risks, OSTDSs are prolific across the state.

- About 2.1 to 2.6 million conventional OSTDSs are active in Florida, treating wastewater for about 30 percent of the state’s population of approximately 22 million residents and more than 130 million annual visitors.
- Based upon data from the Florida Water Management Inventory Project—which infers the location of septic tanks—rural counties with low population density often have a large percentage of property parcels using septic tanks and three counties in Florida are estimated to have more than 100,000 septic tanks: Columbia County, Polk County, and Miami-Dade County.
- Florida’s most vulnerable water resources are regulated by a Basin Management Action Plan (BMAP). If OSTDSs contribute more than 20 percent of the pollutant targeted by the BMAP—or reaching the BMAP’s goal is impossible with current OSTDS activity—the relevant BMAP must include a remediation plan for OSTDSs. A memo from the Florida Department of Environmental Protection released in June 2023 announced that 24 of the 33 BMAPs are required to have a remediation plan for OSTDSs.

Onsite sewage treatment and disposal systems remain common across the state in part due to lack of wastewater infrastructure and limited financial capabilities.

- Developing central sewer is a large investment. Areas with low population density have fewer customers to share the cost in comparison to urban areas.
- Local codes with urban service boundaries restrict where central sewers can be constructed.
- If central sewer connections are available, potential customers are required to convert from septic-to-sewer. Low-income residents, for whom septic conversions may not be affordable, can request a variance to avoid connecting to central sewer. The U.S. Environmental Protection Agency estimates that 51.4 percent of all households with an OSTDS in Florida earned less than or equal to the state’s median household income (MHI).

Florida has passed legislation in support of remediating the consequences of OSTDSs.

- In the 1970s and 1980s—as the state focused upon developing responsible growth management policies—OSTDS regulations became more stringent, requiring deeper drain fields and authorizing mandatory sewer connections where sewer is available. The Florida Keys, an area of critical state concern, used this authority to eliminate 23,000 septic tanks.

- The Florida Springs and Aquifer Protection Act (2016) designates 30 Outstanding Florida Springs and requires an OSTDS remediation plan if OSTDSs contribute at least 20 percent of the nonpoint source nitrogen pollution.
- The Florida Clean Waterways Act (2020) established the Wastewater Grant Program and required OSTDS remediation plans for BMAPS if OSTDSs contribute at least 20 percent of nutrient pollution.
- House Bill 1379 (2023), signed by the Governor, prohibits the installation of new OSTDSs within a BMAP, reasonable assurance plan, or pollution reduction plan and requires existing septic tanks in the Indian River Lagoon system to reduce at least 65 percent of nutrients from wastewater.

Septic-to-sewer conversions require a significant financial investment.

- Based upon surveys of Florida’s counties, the Office of Economic and Demographic Research (EDR) created a 20-Year Needs Analysis which includes a projection that 287,000 septic-to-sewer conversions will be scheduled.
- According to the EDR’s 20-Year Needs Analysis, about \$2.3 billion worth of septic-to-sewer conversions have a committed funding source, but the remaining \$6.7 billion does not.
- Florida’s funding for wastewater infrastructure is fragmented, split between agencies, water management districts, grant programs, and member projects.

Recommendations

1. *The Florida Legislature should task the Department of Environmental Protection to create, and comply with, a comprehensive plan to develop water and wastewater infrastructure statewide, including the development of central sewer lines and wastewater treatment facilities and the removal or enhancement of septic tanks. The approval of projects should be based upon established statewide priorities and demonstrated needs, following the model exhibited by the DOT Work Program. As projects are considered, the comprehensive plan should take into account that different areas may be best served by different solutions (i.e., upgrading septic tanks versus connecting to central sewer), and as technology continues to develop, the best solution may change as well.*
2. *The Florida Department of Environmental Protection should work with the Florida Legislature to pass legislation that incorporates the provisions of Executive Order 23-06 into Florida Statutes.*
3. *Where central sewer is not possible, the Florida Legislature should require enhanced, nutrient-reducing technology for septic tanks within a BMAP or in an area with a high-water table, similar to the ordinance enacted in Miami-Dade County.*
4. *The Florida Legislature should authorize the development and implementation of a septic tank inspection and monitoring program, as well as extend an existing financial assistance program—such as PACE—or create a new financial assistance program to help economically challenged property owners remediate septic tank issues. The state should consider imposing a user fee on utilities that can be bonded against to sustain funding for septic conversions.*

These recommendations are part of a larger initiative: Florida TaxWatch is calling upon the Governor and Legislature to develop a five-year funding plan for water-infrastructure projects—including septic to sewer conversion—similar to the five-year Department of Transportation Work Program.

Introduction

Florida is a peninsula bounded by the Atlantic Ocean, Biscayne Bay, and Gulf of Mexico; home to hundreds of lakes; and carved with thousands of miles of rivers. Needless to say, Florida culture is downstream of water. Among other benefits, high-quality water resources sustain Florida's continued growth, promote public health, attract millions of tourists each year, and make the state more resilient to environmental changes.¹ As Florida's population continues to grow, so will its reliance upon water.

“Florida’s water resources are what our economy runs on – they are an economic driver, but even apart from that, our environment is integral to what these communities are all about.”

– Governor Ron DeSantis²

The Florida Office of Economic and Demographic Research (EDR) publishes an annual assessment of Florida's water resources to track the state's growing water demand and monitor the capacity of the state's water supply. In the 2023 assessment, EDR projected water use would grow by 14 percent between 2020 and 2040, with the need to provide close to 900 million gallons of water *daily*. **Based upon inferred water shortage calculations, some of Florida's water supply planning regions—the Central Springs and East Coast of the St. Johns River Water Management District, the North Florida Regional Water Supply Partnership, and the Upper East Coast Region of the South Florida Water Management District—may face a water shortage as soon as 2025.**³

Every drop of water counts. Investing in Florida's water supply now can help the state avoid the higher costs associated with water shortages. As the state invests in water conservation and protection, onsite sewage treatment and disposal systems (OSTDSs) require special attention. Onsite sewage treatment and disposal systems use septic tanks and drain fields to treat wastewater as it sinks toward Florida's groundwater. Conventional septic tanks alleviate some contaminants, but they are susceptible to failure if they are not well maintained. Even when they work properly, septic tanks do not effectively remove all nutrients—especially nitrogen—from raw sewage. This contamination impairs groundwater, which supplies 90 percent of the state's drinking water. Groundwater also flows from springs into surface water, where excess nitrogen encourages the growth of algal blooms.

Even though Florida has aimed to curb the influence of conventional septic tanks, much of the state is still reliant upon their use to treat wastewater. According to the Florida Department of Environmental Protection (FDEP), about 2.1 to 2.6 million conventional OSTDSs are active in Florida.⁴ These OSTDSs dispose wastewater for about 30 percent of the state's population, composing 12 percent of septic tank use nationwide.⁵

Florida TaxWatch undertakes this independent research project to discuss the risks of conventional septic tanks, examine the parts of Florida most susceptible to their risks, and review relevant state actions. Florida TaxWatch provides recommendations to encourage further action in support of better wastewater management.

1 Florida TaxWatch, “We Can’t Wait on Water,” January 2020.

2 Office of the Governor, Press Release: Governor Ron DeSantis Announces More Than \$481 Million in Awards to Improve Water Quality Across the State, November 2021.

3 Office of Economic and Demographic Research (EDR), Annual Assessment of Florida's Water Resources and Conservation Lands, 2023. As stated in the report, an “inferred water supply shortage” is the “projected water demand's exceedance over the existing inferred supply” and “should not be considered an actual water shortage emergency as defined in the Florida Administrative Code.” In 2025, three of 14 regions have an inferred water shortage. The number of inferred water shortages is not guaranteed. Circumstances like droughts can place extra pressure upon water supplies, while actions such as increased conservation efforts can decrease pressure.

4 Florida Department of Environmental Protection, Report to the Florida Legislature: Basin Management Action Plan Monitoring, June 2021.

5 Florida Department of Environmental Protection, “Onsite Sewage Program,” retrieved from <https://floridadep.gov/Water/Onsite-Sewage>, accessed on June 14, 2023.

The Risks of Conventional Septic Tanks

Within an OSTDS, wastewater flows through a pipe into a septic tank. Anaerobic bacteria break the waste down into a liquid. The liquid wastewater flows from the septic tank into a drain field—typically composed of stone, gravel, or Styrofoam—which provides a secondary treatment. As the wastewater sinks into the soil, anaerobic bacteria continue breaking down the waste until it eventually percolates into groundwater. If the OSTDSs do not effectively treat wastewater, groundwater becomes contaminated with heavy nutrients, bacteria, and viruses.⁶

Septic Tank Failures

Septic tank failure is when a break renders the OSTDS unable to treat wastewater properly. Septic tank failure not only causes the leaching of contaminants into groundwater but can also create hazardous septage pools. Septic tank failures occur due to aging, hydraulic overloads, faulty designs or installation, or a lack of maintenance.⁷ To avoid septic tank failure, septic tanks should typically be:

- Inspected every one to three years;⁸
- Pumped every three to five years;⁹ and
- Replaced within 20 to 30 years.¹⁰

In 2008, the Florida Department of Health (FDOH) completed a study to review the conditions of Florida’s septic tanks.¹¹ The study suggested that more than half of Florida’s active OSTDSs are more than 30 years old and less than one percent of the estimated active systems operates with permits and receive annual inspections and routine maintenance.¹² Lack of inspections and maintenance increases the chances that septic tank failures are unnoticed and unresolved throughout the state. If all septic tanks were inspected, an estimated 9.5 percent of septic tanks would need immediate repairs.¹³ Fifteen years after the study, septic tanks left untouched are now even older and more prone to failures.

Florida has long considered developing a statewide septic system inspection and monitoring program to resolve unknown septic tank failures. In 2010, the Florida Legislature passed a statute that required mandatory OSTDS inspections every five years. In 2012—only two years later—the statute was repealed. The repeal of the statute was largely driven by concerns that low-income residents would struggle to pay for the associated costs of inspections.¹⁴ The program would require residents using septic tanks to pay a mandatory inspection fee, ranging from \$83.93 to \$215.00, and for repairs if any faults were found in their OSTDS. In total, mandatory inspections were estimated to cost the private sector about \$164 million per year.¹⁵

In 2013, Florida passed a statute requiring that counties with first magnitude springs develop an OSTDS evaluation and assessment program. This statute is less encompassing than its predecessor. Counties can choose to make programs countywide or limited to a smaller geographic area. With a 60 percent vote, the voting members of the local governing board can choose not to adopt an OSTDS evaluation and assessment program at all. If a county does want an OSTDS evaluation and assessment program, however, it must be developed in accordance with the requirements listed in the statute.¹⁶

6 U.S. Environmental Protection Agency, Office of Water, Office of Research and Development, “Onsite Wastewater Treatment Systems Manual,” February 2002.

7 *Ibid.*

8 U.S. Environmental Protection Agency, “Frequent Questions on Septic Systems,” retrieved from <https://www.epa.gov/septic/frequent-questions-septic-systems>, accessed on June 15, 2023.

9 *Supra*, see footnote 6.

10 *Ibid.*

11 Florida Department of Health, Report on Range of Costs to Implement a Mandatory Statewide 5-Year Septic Tank Inspection Program, October 2008.

12 *Ibid.*

13 *Ibid.*

14 PolitiFact, “Citing cost, some people want to flush a septic tank inspection requirement,” retrieved from <https://www.politifact.com/factchecks/2011/jan/27/dennis-jones/florida-septic-tank-inspections/>, accessed on June 12, 2023.

15 *Supra*, see footnote 11.

16 §381.00651, Fla. Stat. (2023).

Even though Florida’s first attempt to develop a statewide septic system inspection program failed, the conversation has not ended. In 2019, the Blue-Green Algae Task Force recommended the following:

“The task force recommends the development and implementation of a septic system inspection and monitoring program with the goal of identifying improperly functioning and/or failing systems so that corrective action can be taken to reduce nutrient pollution, negative environmental impacts and preserve human health.”¹⁷

Inadequate Drain Fields

Florida requires an OSTDS’s drain field to be at least 24 inches deep during seasons where the water table reaches its highest level.¹⁸ Deep drain fields are important for the filtration of bacteria, viruses, and nutrients (especially nitrogen). When a drain field is at least 24 inches deep, a conventional OSTDS should be able to reduce about 30 percent of nitrogen from the wastewater¹⁹ and remove harmful bacteria.²⁰ Not all drain fields, however, meet the requirement. About 1.3 million OSTDS sites were built before the state adopted the 24 inches minimum standard. Some of Florida’s oldest OSTDSs are expected to have drain fields as small as six inches.²¹

As water table levels rise, shallow drain fields are at greater risk of being compromised by flooding. In November 2018, Miami-Dade County—an area prone to sunny day floods—estimated 58,000 residential parcels with septic tanks are shallow enough to be compromised during floodings.²² By 2040, the county anticipates the number will increase to more than 67,000 parcels.²³ Miami-Dade County is only one example of an area facing trouble; statewide, an estimated 40 percent of septic systems are located along coastal areas with high water tables.²⁴

Even when a drain field is at least 24 inches deep, it does not guarantee an OSTDS will treat wastewater effectively. The mechanisms of an OSTDS are influenced by local conditions, especially “soil type, soil layering, underlying geology, topography, and rainfall.”²⁵ Only about one-third of land across the United States has soils suitable for conventional drain fields.²⁶

“Florida has a particularly high percentage of soils unsuited to conventional [OSTDSs] due to conditions of periodically high water tables, low relief, and/or shallow depth to bedrock.”

—Institute of Food and Agricultural Sciences, University of Florida²⁷

Ineffective Reduction of Nitrogen

Conventional septic tanks reduce less than 30 percent of nitrogen levels from raw sewage, even when they comply with Florida’s requirement to be installed 24 inches above groundwater.²⁸ An average of 60.4 milligrams of nitrogen per liter leaves OSTDSs,²⁹ which is not only significantly higher than the regulated allowance for domestic wastewater facilities (3mg/L)³⁰ but also the standard for drinking water (10 mg/L).³¹

17 Blue-Green Algae Task Force, Consensus Document #1, October 2019.

18 Florida Department of State, Standards for Onsite Sewage Treatment and Disposal Systems (62-6).

19 Florida Department of Health, Florida Onsite Sewage Nitrogen Reduction Strategies Study Final Report, December 2015.

20 *Supra*, see footnote 6.

21 *Supra*, see footnote 11.

22 Miami-Dade County Department of Regulatory and Economic Resources, Miami-Dade County Water and Sewer Department, and Florida Department of Health in Miami-Dade County, “Septic Systems Vulnerable to Sea Level Rise,” November 2018.

23 *Ibid.*

24 Kevin N. Tyre, Rachel A. Brewton, Lisa B. Kreiger, et al., “Widespread human waste pollution in surface waters observed throughout the urbanized, coastal communities of Lee County, Florida, USA,” *Science of Total Environment*, 2023.

25 *Supra*, see footnote 6.

26 *Ibid.*

27 Institute of Food and Agricultural Sciences, University of Florida, “Report to Florida Department of Health and Rehabilitative Services under contract number LC170,” November 1984.

28 *Supra*, see footnote 19.

29 *Ibid.*

30 §403.086, Fla. Stat. (2022).

31 *Supra*, see footnote 6.

“The [nitrogen] problem is significant where conventional OSTDS are densely clustered on smaller lots in vulnerable areas with porous geology and soils, high water table, and close to surface water, as is common throughout Florida.”

—Florida Department of Environmental Protection³²

Onsite treatment and disposal systems can be updated to better remove nitrogen. Advanced septic tanks are able to reduce 40 percent to 70 percent of the nitrogen found in wastewater.³³ A study from 2013 estimated 12,000 of Florida’s OSTDSs have advanced septic tanks.³⁴

Passive nitrogen systems are even more effective at reducing total nitrogen. Several designs reduce 90 to 95 percent of received nitrogen and release a concentration of less than 5 milligrams of nitrogen per liter.³⁵ These passive nitrogen systems, however, are expensive. A 2015 study estimated that a conventional septic tank with the capacity to remove 25 to 35 percent of total nitrogen has a total lifecycle cost of about \$5,500.³⁶ A conventional system updated with one of the more advanced passive nitrogen reduction systems—with the capacity to remove 85 to 95 percent of total nitrogen—has a lifecycle cost of about \$34,000.³⁷

Why the Use of Septic Tanks Remains Common

Florida prioritizes centralized sewer systems. Florida law requires that OSTDSs convert to sewer if a private or publicly owned central sewer system is available, unless the cost would financially burden the property owner.³⁸ Areas with a large number of septic tanks either lack the wastewater infrastructure or the financial capacity to connect to central sewer systems.

Lack of Wastewater Infrastructure

Infrastructure gaps are considerable in some counties. Reviewing Miami-Dade County as an example, the county has an estimated 120,000 properties served by septic tanks. Of these properties, 12,000 parcels are within the proximity of central sewer and can be connected if conversions are funded. To convert the remaining 108,000 systems, the county would need to extend existing sewer infrastructure.³⁹

Infrastructure gaps can occur for a number of reasons. Sometimes, areas with septic tanks are on the outskirts of urban service boundaries. Urban service boundaries limit the development of public infrastructure—including central sewer systems—to specific areas. Although intended to limit sprawl and maximize public investments, urban service boundaries do not truly limit development, leaving some properties without access to central sewer lines.

In some areas, the development of central sewer is not the best option. When properly maintained septic tanks are widely spaced, as is seen in some rural areas, the overall affect to Florida’s water supply is minimal. Furthermore, building a centralized sewer system is a large investment and would not be financially feasible in areas without high population density. As new technology continues to be developed, the best wastewater management practices for these areas may change overtime.

Limited Financial Capacity

Low-income property owners can request a variance from the FDEP to avoid the cost of connecting to available central sewer systems, as long as the area is not protected by Florida statute.⁴⁰ The U.S. Environmental Protection Agency estimates that 51.4 percent of all households with an OSTDS in Florida earned less than or equal to the state’s median

³² Florida Department of Environmental Protection, Report to the Florida Legislature: Basin Management Action Plan Monitoring, June 2021.

³³ *Supra*, see footnote 19.

³⁴ Elke L. Ursin and Eberhard Roeder, Assessment of the Performance and Management of Advanced Onsite Systems in Florida, 2013.

³⁵ *Supra*, see footnote 19.

³⁶ *Ibid.* Lifecycle costs consider the present worth value of costs related to construction, engineering, design, permitting, compliance, and operation and maintenance.

³⁷ *Ibid.*

³⁸ § 381.00655(1)(a), Fla. Stat. (2022).

³⁹ Miami-Dade County, Connect 2 Protect, retrieved from <https://www.miamidade.gov/global/water/connect-to-protect-septic-to-sewer.page>, accessed on June 9, 2023. Note, the estimated number of parcels using septic (120,000) is higher than the estimate used by the Florida Water Management Inventory Project (107,000).

⁴⁰ § 381.0655(2)(c), Fla. Stat. (2022).

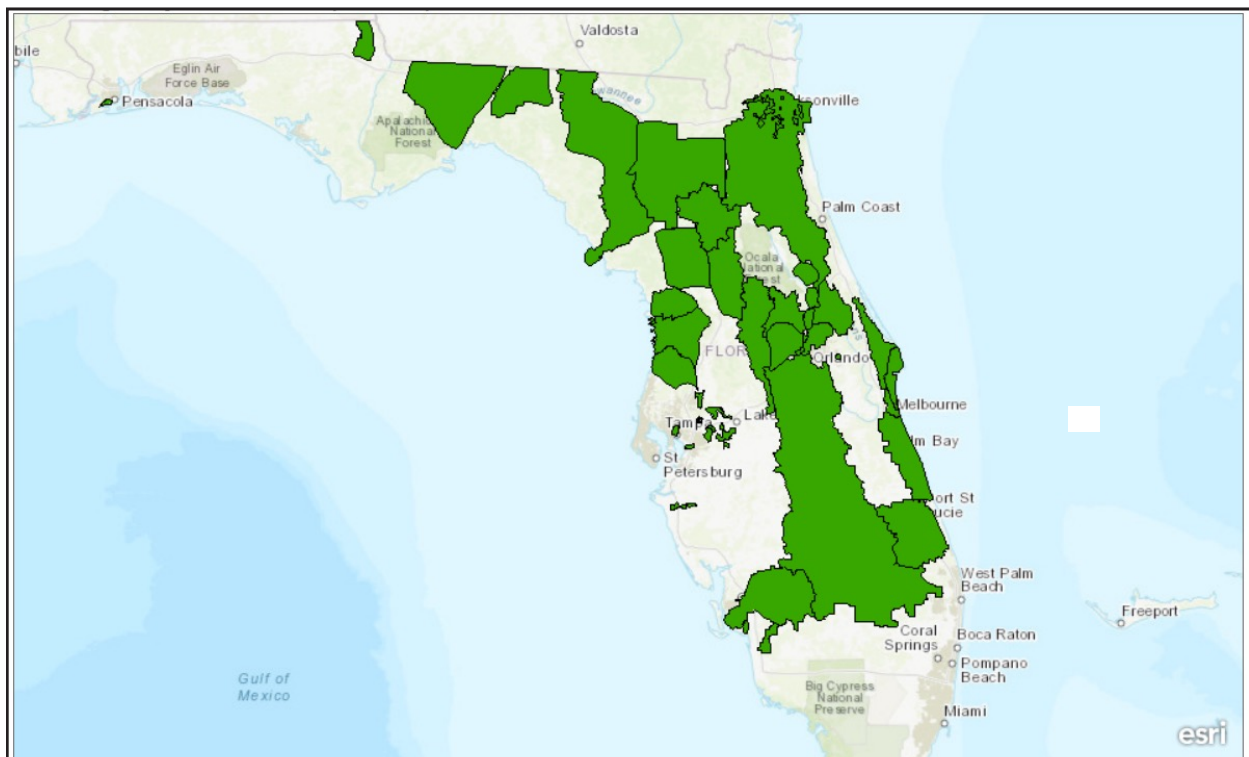
household income (MHI).⁴¹ Without local or state government assistance, it is unlikely these properties could afford to connect to central sewer systems. The prevalence of such households increases as counties' MHI decreases,⁴² suggesting there are concentrations of low-income property owners relying upon septic tanks in areas where the local governments are least equipped to provide financial assistance.

Areas at Risk

Water Resources Significantly Impaired by Septic Tank Use

The FDEP monitors the wellbeing of the state's water resources. If a river, lake, estuary, or spring does not meet water quality standards, the FDEP creates a Total Maximum Daily Load (TMDL) goal for each pollutant significantly impairing the water. As of December 2021, Florida has adopted 453 TMDLs that are dispersed throughout the state. Thirty-three water resources have a basin management action plan (BMAP) to help achieve the TMDL (Figure 1).⁴³

Figure 1. A Majority of Florida is Assigned a BMAP to Remediate Impaired Water Resources



This map displays the WBIDs that have been listed as Waters Not Attaining Standards, the TMDLs developed and the areas of the state that are currently involved in a BMAP. Data Layers available at <https://geodata.dep.state.fl.us/>

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Florida Department of Environmental Protection (DEP), Division of Environmental Assessment and Restoration (DEAR) | EPA, FDEP-DEAR | Florida DEP Watershed Assessment Section | Florida Department of Environmental Protection (FDEP), DEAR | environment, TMDL Total Maximum Daily Load Impairment, Environmental Monitoring and Modeling | FDEP

Florida Department of Environmental Protection, "Impaired Waters, TMDLs, and Basin Management Action Plans Interactive Map," retrieved from <https://floridadep.gov/dear/water-quality-restoration/content/impaired-waters-tmdls-and-basin-management-action-plans>, accessed on July 25, 2023.

41 United States Environmental Protection Agency, Office of Water, "Report to Congress on The Prevalence Throughout the U.S. of Low- and Moderate-Income Households Without Access to a Treatment Works and The Use by States of Assistance under Section 603(c)(12) of the Federal Water Pollution Control Act," July 2021.

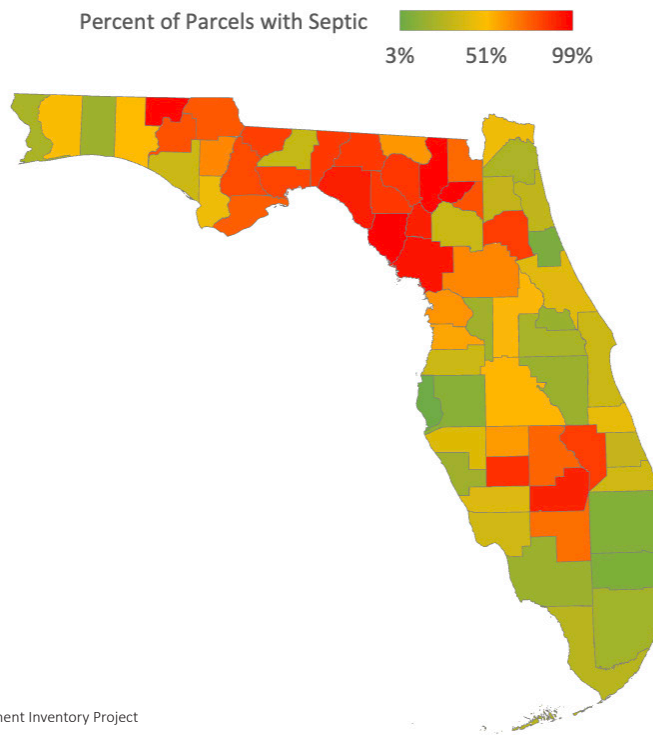
42 *Ibid.*

43 Florida Department of Environmental Protection, Florida Statewide Annual Report 2021, June 2022.

When a water resource is managed with a BMAP, the share of pollutants contributed by OSTDSs is heavily monitored. If OSTDSs contribute more than 20 percent of the pollutant targeted by the TMDL—or reaching the TMDL is impossible with current OSTDS activity—the relevant BMAP must include a remediation plan for OSTDSs.⁴⁴ As of June 2023, 24 of the 33 BMAPs are required to have a remediation plan for OSTDSs:

- Alafia River Basin
- Banana River
- Caloosahatchee River and Estuary Basin
- Central Indian River Lagoon
- Everglades West Coast Basin
- Lake Harney, Lake Monroe, Middle St. Johns, and Smith Canal
- Lake Jesup
- Lake Okeechobee
- Lower St. Johns Main Stem
- Manatee River Basin
- North Indian River Lagoon
- Orange Creek
- St. Lucie River and Estuary
- Upper Ocklawaha River Basin
- Wekiva River, Rock Springs Run, and Little Wekiva Canal
- Crystal River/Kings Bay
- DeLeon Spring
- Gemini Springs
- Homosassa and Chassahowitzka Springs Groups
- Silver Springs and River and Rainbow Spring Group and River
- Upper Wakulla River and Wakulla Spring
- Volusia Blue Spring
- Weeki Wachee
- Wekiwa and Rock Springs⁴⁵

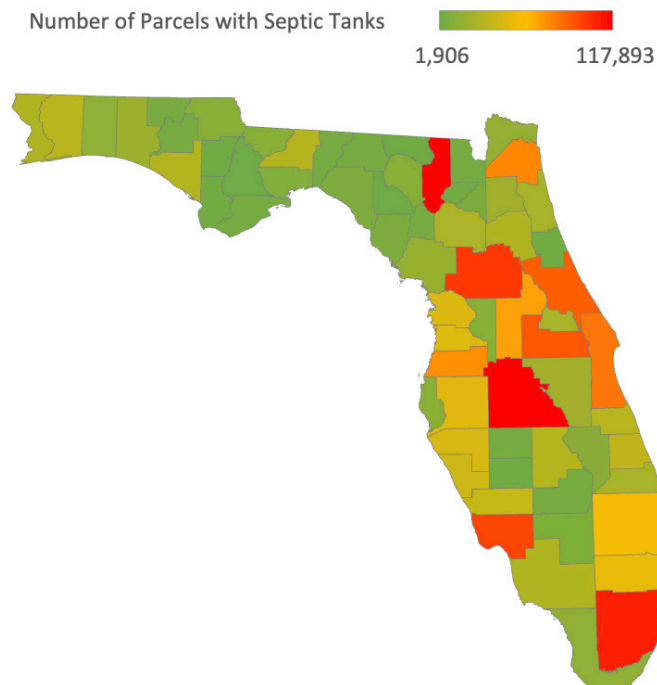
Figure 2. Counties in Florida’s Big Bend and parts of South Florida are Reliant Upon Septic



⁴⁴ Florida Department of Environmental Protection; “Final Order Memo Re: Determination Regarding Necessity of Wastewater Treatment Plans and Onsite Sewage Treatment and Disposal System Remediation Plans for Certain Nutrient Basin Management Action Plans, Pursuant to Subparagraph 403.067(7)(a)9, F.S.,” June 2023.

⁴⁵ §403.067, Fla. Stat. (2023).

Figure 3. The Largest Number of Septic Tanks are Found in Columbia, Polk, and Miami-Dade



Counties with Septic Tanks

In 2008, the Florida Legislature tasked the Florida Department of Health with creating a statewide inventory of OSTDSs. This inventory, known as the Florida Water Management Inventory Project, is based upon self-reporting surveys conducted by each county. In the absence of OSTDS registrations, the counties cannot report with certainty the number of septic tanks presence. Rather, they create estimates based on where development lacks proximity to central sewer lines. Every few years, the counties update their estimates. The oldest estimates date to 2017 and the newest estimates are as recent as 2023 (Appendix I).⁴⁶

Reviewing the latest data from the Florida Water Management Inventory Project, rural counties with low population density often have a large percentage of property parcels using septic tanks. The counties with the highest percentage of parcels using septic tanks are found in Florida's Big Bend and southern parts of the state (Figure 2).⁴⁷ Notably, some of these counties are within BMAPs that require a septic tank remediation plan, including the upper Wakulla River and Wakulla Springs, Everglades West Coast Basin, and Lake Okeechobee, among others.

The five counties with the greatest number of septic tanks are: Polk County (118,000), Columbia County (117,000), Miami-Dade County (107,000), Marion County (100,000), and Lee County (97,000) (Figure 3).⁴⁸ Pockets of the Suwannee River BMAP and Santa Fe River BMAP are within Columbia County. Polk County is within two BMAPs, Lake Okeechobee Basin and the Upper Ocklawaha River Basin. Although Miami-Dade County is not within a BMAP, the wellbeing of the county is vulnerable to septic tanks due to quickly rising water tables and proximity to the coast.

⁴⁶ Florida Department of Health, Florida Water Management Inventory, retrieved from <https://ww10.doh.state.fl.us/pub/bos/Inventory/FloridaWaterManagementInventory/>, accessed June 2023. See Appendix I to view the estimates for each county and the year the data was collected.

⁴⁷ The map was created based upon data from the Florida Water Management Inventory Project. These percentages are based on parcels known to have septic and likely to have septic; it is an estimate and not an exact count.

⁴⁸ See supra note 15.

Florida Legislative Actions

Florida has long been aware of its need to protect water resources from contaminated wastewater. As early as 1921, the state had construction and use standards for OSTDSs.⁴⁹ In the 1970s and 1980s, OSTDS regulations became more stringent. New legislation required drain fields to be at least 24 inches above seasonally high groundwater tables and authorized mandatory septic-to-sewer conversions where central sewer connections are available.⁵⁰ At the same time, the state began developing responsible growth management policies, providing the state an avenue with which to apply and enforce its new OSTDS regulations.

In 1972, the Environmental Land and Water Management Act created the Areas of Critical State Concern Program (ACSC). The ACSC program allows the state to designate areas with resources of “major statewide significance” for protection from uncontrolled development.⁵¹ Following the designation, areas utilize the expertise of the state planning agency to create comprehensive plans to protect and enhance the quality of vital resources. As part of this program, areas of critical state concern may require OSTDS remediation.

For example, as an area of critical state concern, the Florida Keys developed a Work Program to address the area’s declining water quality, among other environmental concerns. Before the start of the program, most of the Florida Keys’ wastewater was managed through septic tanks, injection wells, and cesspits. As of November 2020, the program has successfully removed 23,000 septic tanks and 2,800 cesspits, as well as created 60,000 sewer connections for equivalent dwelling units.⁵²

The authority to mandate septic-to-sewer conversions contributed to the success of the Florida Keys. When residents refused sewer connections where sewer connections are available, active code compliance cases were filed to enforce the requirement. Most of the area’s wastewater treatment facilities have more than 90 percent of available customers connected to central sewer.⁵³

In recent years, Florida has placed an even heavier emphasis upon restoring water resources contaminated by OSTDSs (Table 1). Since 2016, a series of legislation increased the oversight of OSTDSs located near key water resources. Onsite sewage treatment and disposal systems beyond protected areas, however, are not addressed.

Table 1. Recent Legislation Aimed to Remediate the Effect of OSTDSs Upon Important Water Resources

Legislation	Effects to OSTDSs
Florida Springs and Aquifer Protection Act (2016)	<ul style="list-style-type: none"> Designates 30 springs as “Outstanding Florida Springs” and requires they are monitored for a TMDL. The Outstanding Florida Springs require a basin management action plan, which must include a remediation plan for OSTDSs if they contribute at least 20 percent of the nonpoint source nitrogen pollution or if a change in OSTDS activity is necessary to achieve the TMDL. Prohibits new OSTDSs within a priority focus area for an Outstanding Florida Spring if the lot upon which the OSTDS is to be installed is less than one acre and if the addition of an OSTDS conflicts with the area’s OSTDS remediation plan.
Florida Clean Waterways Act (2020)	<ul style="list-style-type: none"> Establishes the Wastewater Grant Program within the FDEP. Creates an OSTDS technical advisory committee, bearing the responsibility to provide recommendations for (1) increasing the accessibility of advance nutrient-removing OSTDSs within the marketplace; (2) outlining regulatory options that can help the introduction and use of nutrient-removing OSTDSs; and (3) determining appropriate setback distances from surface water, groundwater, and wells. Requires a remediation plan for OSTDSs within the BMAP if OSTDSs contribute at least 20 percent of point source or nonpoint source nutrient pollution or current OSTDS activity would inhibit the ability to achieve the TMDL. The remediation plan must be adopted no later than July 1, 2025.
CS/HB 1379 Environmental Protection (2023)	<ul style="list-style-type: none"> Prohibits the installation of new OSTDSs within a BMAP area, a reasonable assurance plan (RAP), or a pollution reduction plan where connection to a publicly owned or investor-owned sewerage system is available.” If centralized sewers are not available, new installations must be equipped to reduce at least 65 percent of the nutrients within wastewater. Requires existing septic tanks reducing less than 65 percent of nutrients located within the Indian River Lagoon system or Mosquito Lagoon Reasonable Assurance Plan to be updated by 2030.

Sources: Fla. Chap. 2016-1, Fla. Chap. 2020-150, and Fla. Chap. 2023-169.

49 Florida Department of Health, Report on Range of Costs to Implement a Mandatory Statewide 5-Year Septic Tank Inspection Program, October 2008.

50 State of Florida Department of Health and Rehabilitative Services, “Onsite Sewage Disposal System Research in Florida: An Evaluation of Current OSDS Practices in Florida,” March 1993. The discussed legislation includes the Florida Environmental Land and Waste Management Act of 1973, the Water Quality Assurance Act of 1983, and a statute regarding mandatory sewer connections that passed in 1975.

51 §380.012, Fla. Stat. (2022).

52 The Florida Department of Economic Opportunity, “Florida Keys Area of Critical State Concern Annual Report,” November 2020.

53 Ibid. Note, the only wastewater facility with less than 90 percent of equivalent dwelling units connected to central sewer is Cudjoe Regional. Cudjoe Regional was the last of the wastewater facilities to be completed, and those who did not connect were still receiving notifications at the time of the report’s publication.

The state of Florida sets the minimum requirements for monitoring septic tank use, but cities and counties can make more stringent legislation. For example, Miami-Dade County enacted an ordinance that requires properties with greater proximity to water to obtain higher treatment outcomes of wastewater. Additionally, to help the county track its risks, the ordinance requires OSTDSs installed after January 1, 2023, to be registered and for all OSTDSs installed prior to that date to be registered by January 1, 2024.⁵⁴

Florida’s Fiscal Investments

To limit the consequences of OSTDSs on Florida’s water quality, communities across the state are seeking funding for septic-to-sewer connections. The Office of Economic and Demographic Research surveys Florida counties to compile a 20-Year Needs Analysis of anticipated wastewater service projects (Table 2).⁵⁵ Based upon EDR’s analysis of survey answers, counties across the state are scheduled to conduct a total of 287,000 septic-to-sewer connections throughout the next 20 years (2022 – 2042).⁵⁶

Table 2. Florida Anticipates 287,000 Septic-to-Sewer Connections Within the Next 20 Years

Funding Source	Connection Count	20-Year Total Cost (\$ millions)
Committed	119,923	\$2,295
Not Identified	155,602	\$6,705
Customers	11,049	\$827
Total	286,574	\$9,827

Source: Office of Economic and Demographic Research (EDR), Annual Assessment of Florida’s Water Resources: Infrastructure Investments for Stormwater and Wastewater, 2023. These are conservative estimates. An additional 11,553 connection projects are planned but lack projected expenditures.

In total, the projects will cost \$9.8 billion, with 28 percent of the expenditures use to remove septic tanks within BMAPs. About \$2.3 billion worth of projects has a committed funding source, but a remaining \$6.7 billion worth of projects still needs a committed funding source.⁵⁷ Additionally, a portion of the septic-to-sewer connections will be at the expense of customers, who are expected to collectively pay \$827 million.⁵⁸ Most of the projects with unidentified funding sources are for coastal counties. Coastal counties will need about 227,000 projects, and 135,000 of the projects do not have identified funding sources.⁵⁹

The state’s Blue-Green Algae task force noted that a “renewed investment in a statewide comprehensive water quality monitoring strategy will be a key part of [the state’s] water quality protections efforts moving forward.”⁶⁰ Although the state has demonstrated a commitment to funding water quality needs,⁶¹ investments do not represent “a statewide comprehensive water quality monitoring strategy,” as called for by the BlueGreen Algae task force. Rather, funding for wastewater and water infrastructure is fragmented, scattered throughout the budget.

Septic-to-sewer connections and septic upgrades are often funded by loan programs, grant programs, or local member projects. As previously discussed, septic-to-sewer connections may also occur as part of larger projects meant to address the needs of Areas of Critical State Concern or BMAPs.

54 §24-42.7, Miami-Dade County Code of Ordinances (2023).

55 Office of Economic and Demographic Research (EDR), Annual Assessment of Florida’s Water Resources: Infrastructure Investments for Stormwater and Wastewater, 2023.

56 Septic-to-sewer conversions represent only a portion of the state’s wastewater infrastructure needs. The state’s needs include—but are not limited to—wastewater studies, sewer extensions, sewer line updates and rehabilitations, and the construction, expansion, and upgrade of wastewater facilities.

57 The EDR defined “committed funding sources” to include “the capacity to absorb the project’s capital cost with current budget levels or forecasted revenue growth; financing that is underway or anticipated (bond or loan); known state or federal funding (appropriation or grant); special assessment; or dedicated cash reserves for future expenditure.”

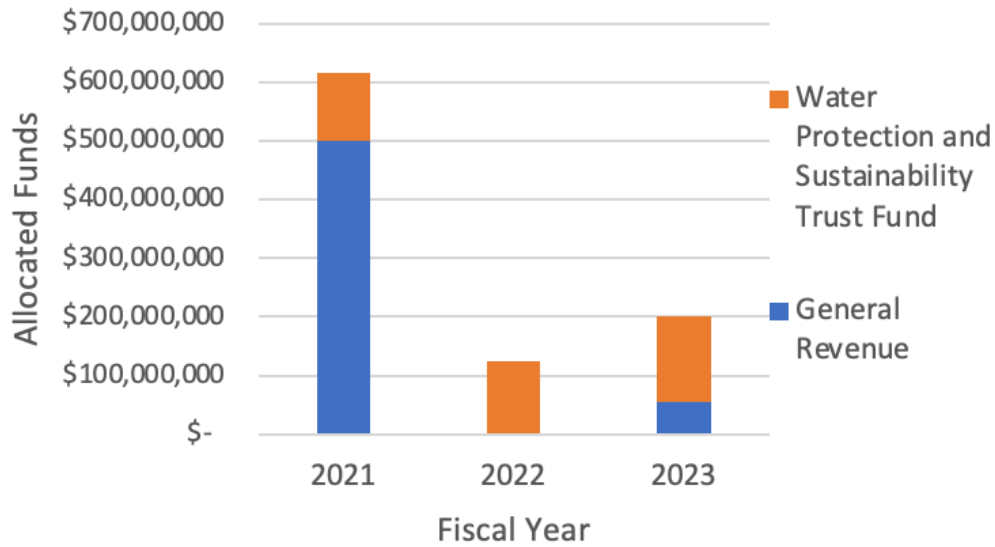
58 *Supra*, see footnote 55.

59 *Ibid.*

60 Blue-Green Algae Task Force, Consensus Document #1, October 2019.

61 Office of the Governor, Press Release: Governor Ron DeSantis Signs Historic Executive Order Continuing Commitment to Stewardship of Florida’s Natural Resources, January 2023.

Figure 4. Since FY2021, \$941 Million Has Been Invested in the Wastewater Grant Program



Florida General Appropriations Act (FY2020, FY2021, FY2022, and FY2023). Graphic created by Florida TaxWatch.

Loan and Grant Programs

State Grant Programs: The current administration has developed grant programs to assist the development of wastewater infrastructure. In 2018, the state established the Septic Upgrades Incentive Program, incentivizing homeowners in Priority Focus Areas to upgrade OSTDs with septic tanks that better reduce nitrogen from wastewater. During its two years active, the program was appropriated \$20 million.⁶² The statewide Septic Upgrades Incentive Program was funded for only two years, but the same types of projects are eligible within the larger Wastewater Grant Program. Established in 2020, the Wastewater Grant Program provided grants that can be used to upgrade OSTDSs; construct, upgrade, or expand facilities to provide advanced waste treatment; or connect OSTDSs to central sewer facilities. Recipients of the grant are required to match 50 percent of the distributed funds, but the requirement could be waived by the FDEP and was not applied to areas designated as a rural area of opportunity.⁶³

Since FY 2021, the Wastewater Grant Program has been allocated a total of \$941 million (Figure 4).⁶⁴ Much of the funding stemmed from the federal Coronavirus State Fiscal Recovery Fund. In FY 2021, the Wastewater Grant Program received \$500 million from the federal Coronavirus State Fiscal Recovery Fund.

Additionally, the federal Coronavirus State Fiscal Recovery Fund was used to fund the Small Community Wastewater Grant Program, a supplement to the Wastewater Grant Program. The supplemental program received a \$25 million appropriation. The program focused on assisting septic-to-sewer conversions and upgrade wastewater systems in Rural Areas of Opportunity and Fiscally Constrained Counties⁶⁵. During the FY2022-23 grant cycle, the Wastewater Grant Program was used for 36 projects throughout the state.⁶⁶ In a press release, the Office of the Governor estimated that the awarded projects would eliminate nearly 20,000 septic tanks.⁶⁷ The cost for each project ranged from \$150,000

62 Florida TaxWatch, "Water Turkeys: Despite Increased Funding for Florida's Water Resources and the Creation of New Competitive Grants Processes, Local Member Earmarks are Proliferating," March 2023.

63 Florida Department of Environmental Protection, "Water Quality Improvement Grant Program," retrieved from <https://floridadep.gov/wra/wra/content/water-quality-improvement-grant-program>, accessed on June 20, 2023.

64 FY2021 General Appropriations Act, FY2022 General Appropriations Act, and FY2023 General Appropriations Act. Federal funding not included.

65 Florida TaxWatch, "Water Turkeys: Despite Increased Funding for Florida's Water Resources and the Creation of New Competitive Grants Processes, Local Member Earmarks are Proliferating," March 2023.

66 Protecting Together, "Wastewater Grant Program Fiscal Year 2022-23."

67 Office of Governor Ron DeSantis, Press Release: Governor Ron DeSantis Awards Nearly \$240 Million to Improve Water Quality Across the State, February 10, 2023.

to \$23,000,000.⁶⁸

In January 2023, the Governor issued Executive Order 23-06 to expand the eligibility criteria of the Wastewater Grant Program to include projects that remediate nonpoint sources of pollution. The executive order tasked the FDEP to work with the Legislature to codify an expansion of the Wastewater Grant Program, but the Legislature failed to pass bills to support this change. Despite the lack of legislation, the name of the Wastewater Grant Program changed to the Water Quality Improvement Grant and its criteria was expanded in accordance with Executive Order 23-06.⁶⁹

Federal Loan and Grant Programs: The federal government funds several loan and grant programs to aid the development of wastewater infrastructure. For some of the programs, the state government provides supplemental funds or matching funds, contributing to the overall funding.

The largest federal program that contributes to the development of wastewater infrastructure is the Clean Water State Revolving Fund (CWSRF) Program. The federally funded program provides low-interest loans to help communities plan, build, and design water infrastructure, including the repair or replacement of OSTDSs. The state controls funds from the CWSRF within the Wastewater Treatment and Stormwater Management Revolving Loan Trust Fund.⁷⁰ In FY2023-24, the CWSRF Program was allocated \$14.1 million from the General Revenue Fund and \$290.6 million from the Wastewater Treatment and Stormwater Management Revolving Loan Trust Fund for the construction of wastewater treatment facility construction, and \$7.2 million from the Wastewater Treatment and Stormwater Management Revolving Loan Trust Fund to address emerging contaminants.⁷¹

The Small Community Wastewater Construction Grants Program is operated within the CWSRF. The program offers grants to small communities with a per capita income less than the state's average. Priority is given to small communities within a Basin Management Action Plan. Small and Disadvantaged Communities Water Infrastructure Improvement Grants are administered within the Small Community Wastewater Construction Grants Program. In FY2023-24, the program received \$34.7 million from the Federal Grants Trust Fund.⁷²

The Nonpoint Source Management Grant Program is a state and federal grant program that funds initiatives to reduce pollution from nonpoint sources, especially in areas that need to meet TMDLs. Connecting property owners with an OSTDS to central sewer is one of several ways this grant can be used. In FY2023-24, \$5 million was allocated from the Land Acquisition Trust Fund.⁷³

Member Projects

In March 2023, Florida TaxWatch released a Water Turkey report, which observes an increase of member-requested local water projects in the state's budget.⁷⁴ These water projects, referred to as "Water Turkeys" by Florida TaxWatch, circumvent the competitive processes established by grant programs, stripping the state of the opportunity to properly vet water projects and to ensure funds are being spent where they are most needed. In FY2023-24, twenty-one of the local water projects, costing \$37.8 million, were septic-to-sewer conversions.⁷⁵ The cost of these projects is considerable; if the funding was added to the Wastewater Grant Program instead, it would increase the total funding of the program by about 19 percent.⁷⁶

68 Protecting Together, "Wastewater Grant Program Fiscal Year 2022-23." To determine average cost of per project, total anticipated grant funds (\$239,236,804) was divided by the total number of projects funded (36).

69 Florida Department of Environmental Protection, "Water Quality Improvement Grant Program," retrieved from <https://floridadep.gov/wra/wra/content/water-quality-improvement-grant-program>, accessed on June 20, 2023.

70 § 403.1835, Fla. Stat. (2022).

71 FY2023 General Appropriations Act.

72 *Ibid.*

73 *Ibid.*

74 Florida TaxWatch, "Water Turkeys: Despite Increased Funding for Florida's Water Resources and the Creation of New Competitive Grants Processes, Local Member Earmarks are Proliferating," March 2023.

75 Florida TaxWatch, FY2023-24 Budget Guide, July 2023.

76 Allocations for septic-to-sewer local member projects were added to the allocation for the Wastewater Grant Program and divided by the allocation for the Wastewater Grant Program to calculate the percent change. $(\$200 \text{ million} + \$37.8 \text{ million}) / \$200 \text{ million} = 1.189$. The local member projects allocations would increase funding of the Wastewater Grant Program by about 19 percent.

Conclusions and Recommendations

Florida has reached a critical point in its relationship with water. It is the responsibility of the state to ensure Florida taxpayers continue to have access to the high-quality water upon which they rely for health, enjoyment, and economic activities. Significant investments are needed to convert or enhance septic systems, as well as to maintain Florida's water infrastructure.

The current, fragmented approach of funding water projects is contrary to the Governor's priority and the Blue-Green Algae Task Force's recommendation⁷⁷ that project selection be more strategic and comprehensive and determined by the best scientific data. As the state continues to commit resources to the enhancement of water quality, it should consider a FDEP work program, similar to the one conducted by the Department of Transportation,⁷⁸ to ensure limited available funds receive a maximum return on investment.

Updating the state's wastewater infrastructure is not without inconveniences to property owners. When central sewer lines are available, homeowners are required to connect, even if their septic tank is perfectly functional.⁷⁹ The process of connecting central sewer can disrupt landscaping, especially if the OSTDS was located behind the housing structure. The connection to the sewer, along with septic tank abandonment and lateral fees, can cost thousands of dollars that the homeowner did not expect to spend. Although septic conversions can benefit the community at large, the burden on homeowners cannot be ignored.

More than half of all households with an OSTDS in Florida earned less than or equal to the state's median household income (MHI). These households are especially unlikely to afford septic tank upgrades or conversions without financial assistance. The state already operates the Property Assessed Clean Energy (PACE) program as a financial assistance program to help homeowners improve energy efficiency, water conservation, renewable energy generation, and resiliency upgrades. With high concentrations of septic tanks posing a threat to water conservation, the state should consider extending the PACE program, or creating a low-interest loan program, to help homeowners afford the costs related to septic tank updates and conversions, as well as additional costs associated with decommissioning a septic tank.⁸⁰

Recommendations

- 1. The Florida Legislature should task the Department of Environmental Protection to create, and comply with, a comprehensive plan to develop water and wastewater infrastructure statewide, including the development of central sewer lines and wastewater treatment facilities and the removal or enhancement of septic tanks. The approval of projects should be based upon established statewide priorities and demonstrated needs, following the model exhibited by the DOT Work Program. As projects are considered, the comprehensive plan should take into account that different areas may be best served by different solutions (i.e., upgrading septic tanks versus connecting to central sewer), and as technology continues to develop, the best solution may change as well.*
- 2. The Florida Department of Environmental Protection should work with the Florida Legislature to pass legislation that incorporates the provisions of Executive Order 23-06 into Florida Statutes.*
- 3. Where central sewer is not possible, the Florida Legislature should require enhanced, nutrient-reducing technology for septic tanks within a BMAP or in an area with a high-water table, similar to the ordinance enacted in Miami-Dade County.*
- 4. The Florida Legislature should authorize the development and implementation of a septic tank inspection and monitoring program, as well as extend an existing financial assistance program—such as PACE—or create a new financial assistance program to help economically challenged property owners remediate septic tank issues. The state should consider imposing a user fee on utilities that can be bonded against to sustain funding for septic conversions.*

These recommendations are part of a larger initiative: Florida TaxWatch is calling upon the Governor and Legislature to develop a five-year funding plan for water-infrastructure projects—including septic to sewer conversion—similar to the five-year Department of Transportation Work Program.

⁷⁷ Blue-Green Algae Task Force, Consensus Document #1, October 2019.

⁷⁸ Florida Department of Transportation, Program and Resource Plan Fiscal Years 2022/23 through 2023/27, March 2022.

⁷⁹ §381.00655, Fla. Stat. (2023).

⁸⁰ Learn more about the PACE program at floridapace.gov.

Appendix I. Wastewater Management by County

Table A. Wastewater Management Surveys by County

County	Sewer Parcels		Septic Parcels		Unknown Parcels		Most Recent Survey
	Known	Likely	Known	Likely	Conflicting Data	No Data	
Alachua	53,145	103	10,365	16,711	325	5,049	2022
Baker	2,178	50	1,275	4,639	-	898	2022
Bay	34,567	22,000	8,311	21,974	31	7,708	2021
Bradford	1,315	777	2,564	4,977	1	428	2022
Brevard	105,377	48,830	43,452	37,916	17	29,663	2022
Broward	446,331	71,042	9,665	41,794	503	153,383	2018
Calhoun	936	749	1,136	1,968	1	484	2021
Charlotte	51,057	4,933	12,266	25,644	204	6,455	2017
Citrus	21,948	6,782	27,756	18,990	752	2,091	2023
Clay	46,153	258	8,604	12,662	6	9,714	2022
Collier	122,447	8,478	10,545	18,989	14	62,616	2018
Columbia	4,711	379	7,337	110,080	2	1,495	2022
DeSoto	462	33	1,716	1,609	-	7,150	2018
Dixie	38	14	1,298	6,008	1	975	2022
Duval	212,156	27,585	14,356	61,945	272	18,769	2022
Escambia	69,544	24,417	16,229	12,219	4	6,572	2021
Flagler	48,552	25	2,054	1,959	1	1,717	2022
Franklin	783	854	1,678	3,288	1	2,192	2021
Gadsden	2,071	329	3,482	8,125	2	3,480	2021
Gilchrist	634	8	2,316	3,680	1	672	2022
Glades	324	177	485	4,064	-	209	2018
Gulf	4,426	150	1,560	2,363	-	805	2021
Hamilton	554	1,152	550	2,122	-	455	2022
Hardee	3,279	25	1,176	3,904	-	243	2018
Hendry	3,575	70	2,043	7,080	8	1,022	2018
Hernando	33,921	823	37,503	9,793	45	2,291	2023
Highlands	10,727	435	7,525	23,293	5	4,437	2018
Hillsborough	302,020	34,741	15,677	32,722	96	52,789	2018
Holmes	70	169	1,582	4,635	1	1,029	2021
Indian River	38,216	2,250	31,245	300	8	5,404	2023
Jackson	3,105	541	3,258	8,729	2	2,134	2021
Jefferson	976	12	947	4,266	-	1,020	2021
Lafayette	390	8	410	1,727	1	381	2022
Lake	37,276	23,787	29,549	39,456	166	16,347	2022
Lee	161,980	8,334	39,768	57,054	579	92,737	2017
Leon	58,401	4,247	22,954	7,695	30	3,743	2021
Levy	190	1,087	5,016	12,807	4	1,505	2022

Liberty	442	21	315	1,591	-	420	2021
Madison	1,029	16	1,235	4,346	-	590	2022
Manatee	65,711	1,546	3,695	41,632	22	7,941	2018
Marion	51,908	1,505	92,704	7,197	6	7,904	2022
Martin	35,716	11,771	18,459	7,995	208	4,454	2017
Miami-Dade	296,853	96,419	15,997	91,347	21	14,969	2018
Monroe	36,340	1,195	50	14,478	22	675	2018
Nassau	18,975	17	16,037	410	-	4,901	2022
Okaloosa	36,603	25,039	7,163	7,172	14	17,050	2021
Okeechobee	1,861	628	2,495	10,055	1	747	2018
Orange	285,987	9,231	36,312	54,696	121	35,627	2022
Osceola	95,850	6,451	8,924	13,308	10	12,155	2022
Palm Beach	336,296	126,464	21,525	35,003	989	87,848	2017
Pasco	123,286	15,860	19,847	54,275	37	13,253	2023
Pinellas	346,093	47,024	2,598	10,451	20	12,179	2018
Polk	93,320	8,741	31,210	86,683	65	14,373	2018
Putnam	4,883	791	8,250	20,460	7	1,224	2022
Saint Johns	55,276	601	10,660	14,279	3	19,979	2022
Saint Lucie	70,097	6,271	28,459	7,141	616	11,415	2017
Santa Rosa	29,714	3,435	14,370	18,771	14	9,215	2021
Sarasota	142,240	29,104	6,077	34,615	961	10,482	2018
Seminole	107,645	17,081	14,531	11,844	330	7,439	2022
Sumter	51,130	684	5,302	7,396	2	7,472	2023
Suwannee		1,912	4,060	7,606	14	2,607	2022
Taylor	818	43	1,004	7,598	4	680	2022
Union	1	28	1,340	2,144	-	383	2022
Volusia	99,073	25,028	40,023	48,538	75	22,400	2022
Wakulla	2,219	114	4,346	5,935	56	1,110	2021
Walton	18,332	432	3,336	17,153	9	14,715	2021
Washington	1,456	15	277	5,122	1	771	2021
Total	4,293,091	733,121	808,254	1,286,428	6,711	853,040	-
Percents of Total	54%	9%	10%	16%	0%	11%	-

Florida Department of Health, Florida Water Management Inventory,
retrieved from <https://ww10.doh.state.fl.us/pub/bos/Inventory/FloridaWaterManagementInventory/>, accessed June 2023.
The data table was constructed by Florida TaxWatch using the profiles of each county.

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