Final

Wekiwa Spring and Rock Springs Basin Management Action Plan

Division of Environmental Assessment and Restoration Water Quality Restoration Program
Florida Department of Environmental Protection

with participation from the
Wekiwa Spring and Rock Springs Stakeholders

June 2025

2600 Blair Stone Rd.
Tallahassee, FL 32399
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Exhibit 1

Acknowledgments

The Florida Department of Environmental Protection (DEP) adopted the *Wekiwa Spring and Rock Springs Basin Management Action Plan* by Secretarial Order as part of its statewide watershed management approach to restore and protect Florida's water quality. The plan was developed in coordination with stakeholders identified below, including participation from affected local, regional and state governmental entities, non-governmental organizations and entities, and residents.

Florida Department of Environmental Protection
Alexis A. Lambert, Secretary

Table ES-1. Wekiwa Spring and Rock Springs stakeholders

Type of Entity	Name
Responsible Entities	Agriculture City of Altamonte Springs City of Apopka City of Eustis City of Maitland City of Mount Dora City of Ocoee City of Orlando City of Winter Garden Lake County Orange County Orange County Utilities Seminole County Town of Eatonville Town of Montverde Town of Oakland Town of Windermere Private Wastewater Treatment Facilities Private Golf Courses
Responsible Agencies	Florida Department of Agriculture and Consumer Services Florida (FDACS) DEP County Health Departments Florida Department of Transportation (FDOT) St. Johns River Water Management District (SJRWMD) Turnpike Enterprises Wekiwa Springs State Park
Other Interested Stakeholders	Environmental Interests Florida Farm Bureau Florida Fish and Wildlife Conservation Commission Florida Native Plant Society Florida Onsite Wastewater Association Friends of Wekiva River Homeowners/Residents Howard T. Odum Florida Springs Institute Save the Manatee Club Septic System Contractors Wekiva Hunt Club Wekiva River Aquatic Preserve

Type of Entity	Name
	Wekiva Wilderness Trust

See **Appendix A** for links to resources referenced in this document. For additional information, contact:

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List of Acronyms and Abbreviations

ACE	Agricultural Cooperative Regional Water Quality Elements
ALG	Agricultural Land Acreage
AWT	Advanced Waste Treatment
BEBR	Bureau of Economic and Business Research
BMAP	Basin Management Action Plan
BMPs	Best Management Practices
CAFO	Concentrated Animal Feeding Operations
CASTNET	Clean Air Status and Trends Network
cfs	Cubic Feet Per Second
CMAQ	Community Multiscale Air Quality
DEP	Florida Department of Environmental Protection
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
EPA	Environmental Protection Agency
F.A.C.	Florida Administrative Code
F.A.R.	Florida Administrative Register
FDACS	Florida Department of Agriculture and Consumer Services
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
FF	Farm Fertilizer
FFS	Florida Forest Service
FGS	Florida Geological Survey
FLWMI	Florida Water Management Inventory
FOWA	Florida Onsite Wastewater Association
F.S.	Florida Statutes
FSAID	Florida Statewide Agricultural Irrigation Demand
FYN	Florida Yards and Neighborhoods
GIS	Geographic Information System
gpd	Gallons Per Day
HB	House Bill
IV	Implementation Verification
in/yr	Inch Per Year
lbs	Pounds
lbs/yr	Pounds Per Year
lbs-N/yr	Pounds of Nitrogen Per Year
LVS	Linear Vegetation Survey
LW	Livestock Waste
MFLs	Minimum Flows and Levels
mgd	Million Gallons Per Day
mg/L	Milligrams Per Liter
N	Nitrogen

NA	Not Applicable
NADP	National Atmospheric Deposition Program
NELAC	National Laboratory Environmental Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NHD	National Hydrography Database
NMP	Nutrient Management Plan
NNC	Numeric Nutrient Criteria
NOI	Notice of Intent
NPDES	National Pollutant Discharge and Elimination System
NSF	NSF International (formerly National Sanitation Foundation)
NSILT	Nitrogen Source Inventory Loading Tool
NTN	National Trends Network
OAWP	Office of Agricultural Water Policy (FDACS)
OFS	Outstanding Florida Spring
OSTDS	Onsite Sewage Treatment and Disposal System
PFA	Priority Focus Area
PSA	Public Service Announcement
QA/QC	Quality Assurance/Quality Control
RAP	Reasonable Assurance Plan
RIB	Rapid Infiltration Basin
RPS	Rapid Periphyton Survey
RRLA	Rapid-Rate Land Application
RSF	Regional Stormwater Facility
SBIO	DEP Statewide Biological Database
SCI	Stream Condition Index
SJRWMD	St. Johns River Water Management District
SOP	Standard Operating Procedure
SRLA	Slow-Rate Land Application
STF	Sports Turf Fertilizer
STORET	Florida Storage and Retrieval Database
SWIM	Surface Water Improvement and Management
SWMP	Stormwater Management Program
TBD	To Be Determined
TDEP	Total Atmospheric Deposition Model
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
UFA	Upper Floridan aquifer
UF-IFAS	University of Florida-Institute of Food and Agricultural Sciences
USGS	U.S. Geological Survey
UTF	Urban Turfgrass Fertilizer

WBID	Waterbody Identification (Number)
WIN	Florida Watershed Information Network Database
WMD	Water Management District
WWTF	Wastewater Treatment Facility

Executive Summary

The Florida Springs and Aquifer Protection Act (Chapter 373, Part VIII, Florida Statutes [F.S.]), along with the Watershed Restoration Act (section 403.067, F.S.), provide for the protection and restoration of Outstanding Florida Springs (OFS), which comprise 24 first magnitude springs, six additional named springs, and their associated spring runs. DEP has assessed water quality in each OFS and has determined that 26 of the 30 OFS are impaired for the nitrate form of nitrogen. Wekiwa Spring and Rock Springs are two of the impaired second magnitude OFS.

The Wekiwa Spring and Rock Springs Basins are located in Lake, Orange, and Seminole counties. The BMAP area is approximately 183,165 acres. Major centers of population in the basin include the cities of Altamonte Springs, Apopka, Maitland, Ocoee, Orlando, Winter Garden, and the Town of Oakland (**Figure ES-1**). Wekiwa Spring forms the headwater of the Wekiva River, a tributary to the St. Johns River. Rock Springs discharges into Rock Springs Run, which then joins the Wekiva River.

Wekiwa Spring and Rock Springs Priority Focus Area (PFA)

The PFA (**see Appendix D**) comprises 94,963 acres in the Wekiwa Spring and Rock Springs Basin within the BMAP boundary. The PFA represents the area in the basin where the aquifer is most vulnerable to inputs and where there are the most connections between groundwater and the springs.

Wekiwa Spring and Rock Springs BMAP and Wekiva River, Rock Springs Run, and Little Wekiva Canal BMAP

This iteration of the Wekiwa Spring and Rock Springs BMAP will be implemented in addition to the Wekiva River, Rock Springs Run, and Little Wekiva Canal surface water BMAP. The groundwater contributing area for the Wekiwa Spring and Rock Springs BMAP does not fully encompass the surface water contributing area for Wekiva River, Rock Springs Run, and Little Wekiva Canal. The BMAP for surface water will remain in place for those areas that are not included in the Wekiwa Spring and Rock Springs contributing area and for any direct discharge activities into the surface waters. In cases where the two concurrent BMAPs may conflict, the Wekiwa Spring and Rock Springs BMAP will supersede the Wekiva BMAP.

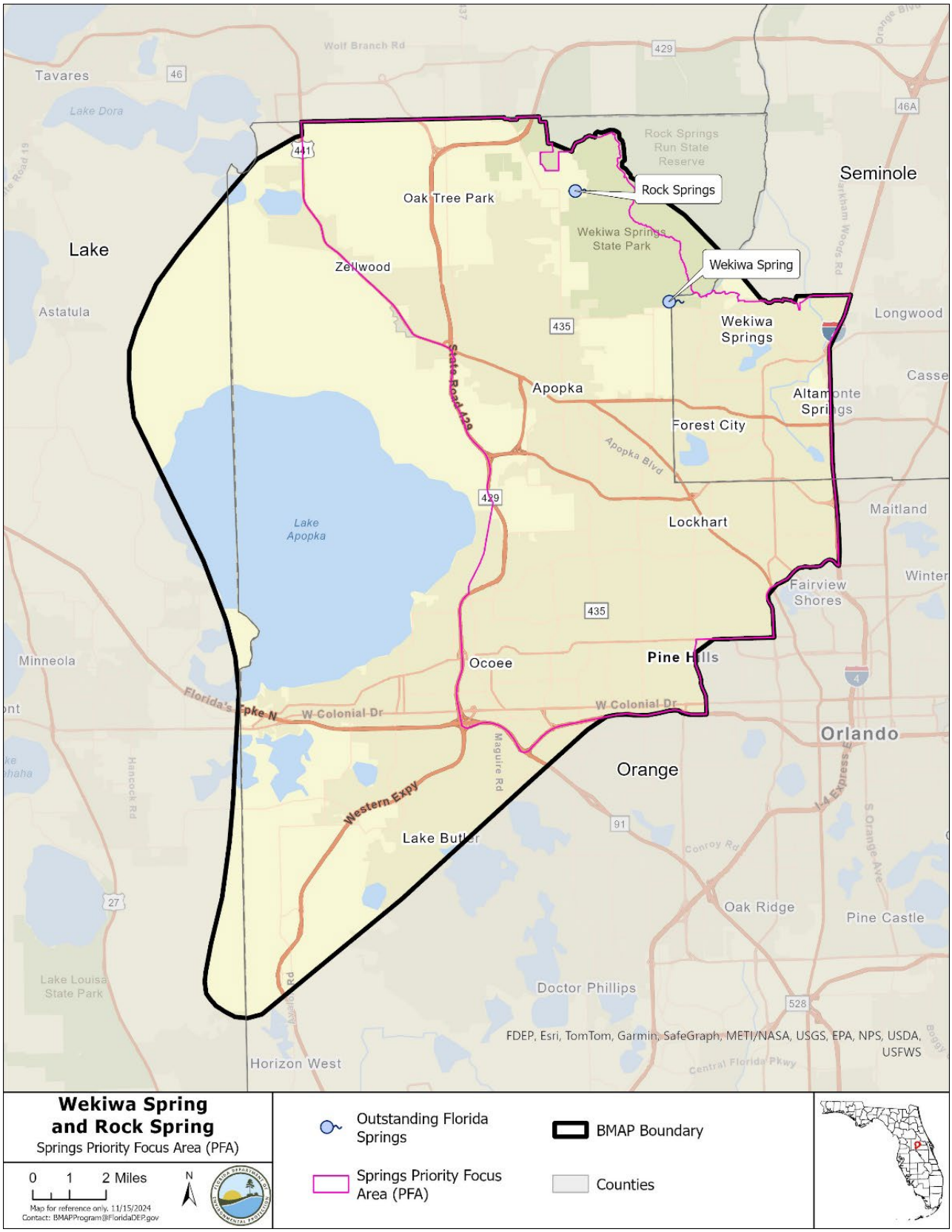


Figure ES-1. Wekiwa Spring and Rock Springs BMAP and PFA boundaries

Nitrogen Source Identification, Required Reductions, and Options to Achieve Reductions

Wekiwa Spring and Rock Springs was identified as impaired because of a biological imbalance caused by excessive concentrations of nitrate in the water. In 2008, total maximum daily loads (TMDLs) for nitrate and phosphorus were developed as water quality restoration targets for Wekiwa Spring and Rock Springs and Wekiwa Spring and Rock Springs Run. The TMDLs established a monthly average nitrate-nitrite target of 0.286 milligrams per liter (mg/L) of nitrate and 0.065 mg/L of total phosphorus (TP).

DEP developed the Nitrogen Source Inventory Loading Tool (NSILT) to provide information on the major categories of nitrogen sources in the groundwater and spring contributing areas for the springs. Among other sources, urban turfgrass fertilizer (UTF) represents 25% of the nitrogen loading to groundwater, onsite sewage treatment and disposal systems (OSTDS or septic systems) 52%, and sports turfgrass fertilizer (STF) 3% of the total loading to groundwater based on the DEP analysis conducted using the NSILT.

To achieve the TMDL targets at the spring vents, the total load reduction required is 926,589 pounds of nitrogen per year (lbs-N/yr). The following milestones are being established to measure progress towards achieving the total necessary load reduction of 926,589 pounds (lbs):

- 2028 - Reduction of 277,977 lbs-N/yr (30%).
- 2033 - Additional reduction of 463,295 lbs-N/yr (50%).
- 2038 - Additional reduction of 185,318 lbs-N/yr (20%).

Springs systems are complex, particularly because of the karst geology where conduits or fractures can impact the relative conveyance of water to the spring vents. In some areas, water can take decades to travel to the spring vent, but in others it can reach the spring vent in a matter of weeks or months. Due to the delayed impact projects may have on water quality at the spring vent, DEP will continue to monitor groundwater stations throughout the BMAP and the springs to better understand the benefits from the policies, implemented projects and management strategies within the springshed. The BMAP is designed to achieve 80% of the load reductions to the spring vents by 2033 and 100% by 2038. DEP will evaluate progress towards these milestones and will report to the Governor and Florida Legislature annually. Assessment of progress toward these milestones must be conducted every five years and revisions to the BMAP must be made as appropriate. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies; however, the restoration target, the TMDL, remains the same. If needed, policies and management strategies will be adjusted to ensure the target spring vent concentrations are achieved. This may include requiring additional management strategies or expanding the area to which the existing OSTDS remediation policies apply and any such change would be incorporated into a future updated BMAP through a formal adoption process.

Cost estimates were provided by stakeholders for more than 50% of the projects and management actions listed in the BMAP. For the projects where cost estimates were provided, the total estimated cost exceeds $820 million. Of the total estimated cost, approximately $276 million has been expended to date on completed projects. While stakeholders are required to implement additional projects listed in the BMAP, accurate cost estimates have not been developed for every project. The total cost estimate for all projects referenced in the BMAP is unknown until more cost information is provided. By the next 5-year BMAP milestone, stakeholders are projected to achieve additional reductions in annual nutrient loadings to the Wekiwa Spring and Rock Springs Basin, including 33,486 pounds of total nitrogen (TN), based on estimates of the planned and underway projects listed to date.

For the list of water quality improvement projects and management strategies, see **Appendix B**. Included are owner-implemented best management practices (BMPs) for farm fertilizer (FF), livestock waste (LW) and STF; wastewater treatment facility (WWTF) upgrades; projects to reduce UTF application; and OSTDS remediation projects.

Successful BMAP implementation requires commitment, dedicated funding and ongoing assessment. Stakeholders have expressed their intention to carry out the plan, monitor its effects, and continue to coordinate within and across jurisdictions to achieve nutrient reduction goals. As the BMAP and TMDLs must be achieved by 2038, DEP, water management districts (WMDs), FDOH, and FDACS will also implement state-level management strategies using relevant state and federal funding.

Restoration Approaches

Reduction in the nitrogen loading to the aquifer is needed to achieve the load reduction requirements at the spring vents. To ensure that load reductions are achieved at the spring vents, the restoration actions described below are being implemented. These actions are designed to reduce nutrient loading to the aquifer, which will reduce the load at the vents and ultimately achieve the TMDL targets. Monitoring at the spring vent during implementation will continue to assess progress.

- **New OSTDS** – Florida law (sections 373.811 and 403.067, F.S) and the OSTDS remediation plan required under subsection 373.807(3), F.S., prohibit new OSTDS on lots of one acre or less within the BMAP boundary, unless the systems are enhanced nutrient-reducing OSTDS systems or other wastewater treatment systems that achieve at least 65% nitrogen reduction.

- **Existing OSTDS** –For the BMAP remediation plan required under subsection 373.807(3), F.S. (detailed in **Appendix E**), within the PFA, any OSTDS on lots one acre or less that requires a permit to modify or replace an existing system pursuant to Chapter 62-6, Florida Administrative Code (F.A.C.), must connect to sewer if available, or if not available, upgrade or replace the OSTDS to meet enhanced nutrient reducing OSTDS requirements that achieve at least 65% nitrogen reduction, unless sewer connections will be available based on a BMAP-listed project. All OSTDS subject to

this policy must include enhanced nitrogen treatment by 2038. Local governments may expand the geographic extent of this requirement by incorporating it into their local ordinances and local government specific remediation plans required under section 403.067, F.S., however, local governments are responsible for implementing their ordinances. In the 2020 Clean Waterways Act, local governments were required to submit OSTDS remediation plans in accordance with section 403.067, F.S., if applicable, to DEP by Aug. 1, 2024, to address existing OSTDS and the potential for future OSTDS.

- **WWTFs** – The required treatment of wastewater effluent to advanced waste standards applies to all surface water disposal and certain reuse disposal determined necessary by the department within the BMAP area. In the 2020 Clean Waterways Act, local governments were required to submit WWTF plans in accordance with section 403.067, F.S., if applicable, to DEP by Aug. 1, 2024, to address wastewater loads and the potential for future additional loads, including those created from sewering OSTDS. Subparagraph 403.067(7)(a)9., F.S., was amended in 2024 to clarify that private domestic wastewater facilities must provide this information to local governments effective July 1, 2024. Information related to private facilities will need to be included in future local government WWTF plans if not captured in the initial plans.

- **Local Governments with OSTDS or WWTF** are expected to meet their overall reduction milestones and to keep their project lists current, including any efforts to address OSTDS loading and any necessary wastewater facility improvements. Private wastewater facilities are also expected to meet their assigned reductions and keep their project lists current. The projects identified in these plans have been included in the BMAP project list under **Appendix B** and are adopted as part of the BMAP requirements.

- **UTF** – UTF consists of fertilizers applied to turfgrass typically found in residential and urban areas (including residential lawns and public green spaces). Fertilizers are applied either by the homeowner or a lawn service company on residential properties. On nonresidential properties, fertilizers may be applied by contractors or maintenance staff. UTF sources are assigned to the applicable responsible entity. Strategies to address UTF include education, enforcement of local government ordinances related to appropriate use of fertilizer, and stormwater projects.

- **STF –** STF sources include golf courses and other sporting facilities. Reductions from most sports facilities, including publicly-owned golf courses and school district sites, are assigned to the applicable local government. Private sporting facilities are assigned to the owner. Sporting facilities are required to follow the 2025 Sports Turf BMP Manual to protect water resources. Reductions from private golf courses are assigned to the golf course owners. All golf courses within the BMAP are required to follow the 2021 DEP Golf Course BMP Manual and submit for approval a final nutrient management plan (NMP) to DEP within two years of BMAP adoption, and to follow their plan.

- **FF Enrollment** – All FF sources are required to implement BMPs or perform monitoring to demonstrate compliance with the TMDL. A 15% reduction to groundwater is estimated for owner-implemented BMPs. Additional reduction credits could be attained through better documentation of nutrient reductions achieved through BMP implementation or implementation of additional agricultural cost-share BMPs, projects or practices, such as precision irrigation, soil moisture probes, controlled release fertilizer and cover crops.

- **LW Enrollment** – All LW sources are required to implement BMPs or perform monitoring to demonstrate compliance with the TMDL. A 10% reduction to groundwater is estimated for owner-implemented BMPs. Additional credits may be attained through better documentation of nutrient reductions achieved through BMP implementation, NMP updates and implementation, and additional projects.

- **Additional Agriculture** – Cooperative agricultural regional water quality improvement elements are being developed to reduce agricultural nutrient loading in combination with owner-implemented BMPs, cost-share BMPs, state-sponsored regional projects and other measures. The BMAP outlines a collaborative framework for identifying, prioritizing and implementing regional projects that address nutrient loading from agricultural operations. Partner agencies will work in annual cycles with agricultural landowners to provide technical support, regulatory guidance and funding opportunities to further implementation and the success of regional water quality improvement initiatives.

Section 1. Background

1.1 Legislation

Chapter 373, Part VIII, F.S., the Florida Springs and Aquifer Protection Act, along with the Watershed Restoration Act (section 403.067, F.S.), provide for the protection and restoration of OFS, which comprise 24 first magnitude springs, six additional named springs, and their associated spring runs. DEP has assessed water quality in each OFS and determined that 26 of the 30 OFS are impaired for the nitrate form of nitrogen. Wekiwa Spring and Rock Springs are two impaired second magnitude OFS. Development of the BMAP to meet the requirements of the Florida Springs and Aquifer Protection Act for the Wekiwa Spring and Rock Springs Basin was initiated in 2016. Since adoption, additional statutory requirements in Chapter 373, F.S., and section 403.067, F.S., have been enacted and continue to enhance the protection and restoration of water quality throughout Florida. For specific requirements, please refer to the source management sections below.

1.2 Water Quality Standards and TMDLs

A TMDL represents the maximum amount of a given pollutant that a waterbody can assimilate and still meet water quality criteria. Wekiwa Spring and Rock Springs is a Class III waterbody with a designated use of recreation, propagation, and the maintenance of a healthy, well-balanced population of fish and wildlife. These waters are impaired by nitrate nitrogen, which in excess has been demonstrated to adversely affect flora or fauna through the excessive growth of algae. Excessive algal growth results in ecological imbalances in springs and rivers and can produce human health problems, foul beaches, inhibit navigation, and reduce the aesthetic value of the resources.

DEP adopted nutrient TMDLs for Wekiwa Spring and Rock Springs in 2008 (**Table 1)** of 0.286 mg/L of nitrate and 0.065 mg/L TP as a monthly average to be protective of the aquatic flora and fauna. The period of record for water quality data evaluated for the TMDL was 1999 through 2005.

Table 1. Restoration target for Wekiwa Spring and Rock Springs

Waterbody or Spring Name	Waterbody Identification (WBID) Number	Parameter	TMDL (mg/L)
Wekiwa Spring	2956C	Nitrate as monthly average	0.286
Rock Springs	-	Nitrate as monthly average	0.286
Wekiwa Spring	2956C	TP as monthly average	0.065
Rock Springs	-	TP as monthly average	0.065

It should be noted that since the development of the BMAP, the TMDL WBIDs may have been modified. The most updated version of WBID boundaries can be found on the DEP Watershed

Assessment Section webpage.

1.3 BMAP Requirements

Subsection 403.067(7), F.S., provides DEP with the statutory authority to develop and implement BMAPs. A BMAP is a comprehensive set of strategies to achieve the required pollutant load reductions. It requires any entity with a specific pollution load reduction to submit to DEP projects or strategies to meet 5-year pollution reduction milestones. In addition to this authority, the Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.) describes additional requirements and prohibitions for the 30 OFS.

Wekiwa Spring and Rock Springs BMAP and Wekiva River, Rock Springs Run, and Little Wekiva Canal BMAP

This iteration of the Wekiwa Spring and Rock Springs BMAP will be implemented in addition to the Wekiva River, Rock Springs Run, and Little Wekiva Canal surface water BMAP. The groundwater contributing area for the Wekiwa Spring and Rock Springs BMAP does not fully encompass the surface water contributing area for Wekiva River, Rock Springs Run, and Little Wekiva Canal. The BMAP for surface water will remain in place for those areas that are not included in the Wekiwa Spring and Rock Springs contributing area and for any direct discharge activities into the surface waters. In cases where the two concurrent BMAPs may conflict, the Wekiwa Spring and Rock Springs BMAP will supersede the Wekiva BMAP.

1.4 BMAP Area

The Wekiwa Spring and Rock Springs Basins are located in Lake, Orange, and Seminole counties. The BMAP area is approximately 183,165 acres. Major centers of population in the basin include the cities of Altamonte Springs, Apopka, Maitland, Ocoee, Orlando, Winter Garden, and the Town of Oakland (**Figure 1**). Wekiwa Spring forms the headwater of the Wekiva River, a tributary to the St. Johns River. Rock Springs discharges into Rock Springs Run, which then joins the Wekiva River.

This area includes the land, surface water basin and the groundwater contributing areas for the springs (or springshed). The springshed for the OFS was delineated by SJRWMD with input from the Florida Geological Survey. A springshed is the area of land that contributes water to a spring or group of springs, mainly via groundwater flow. For Wekiwa Spring and Rock Springs, the BMAP area is the springshed.

1.5 Priority Focus Area (PFA)

In compliance with the Florida Springs and Aquifer Protection Act, the 2018 BMAP delineated a PFA, defined as the area of a basin where the Floridan aquifer is generally most vulnerable to pollutant inputs and where there is a known connectivity between groundwater pathways and an OFS. The PFA provides a guide for focusing restoration strategies where science suggests these efforts will most benefit the springs. The document describing the delineation process for the PFA is on the DEP website (link is provided in **Appendix D)**.

1.5.1 Description

Nitrogen sources are more likely to influence groundwater quality under certain conditions. For example, where soils are sandy and well drained, less nitrogen is converted to gas and released into the atmosphere or taken up by plants, compared with other soil types. Therefore, local soil types play a role in how much nitrogen travels from the land surface to groundwater in a specific springshed. Also, the underlying geologic material influences the vulnerability of the underlying aquifers and the rate of lateral movement within the Floridan aquifer toward the springs. These conditions, and others, were considered in the delineation of the PFA (see **Appendix D**). The geographic information system (GIS) files associated with the PFA boundary are available to the public on the DEP Map Direct webpage.

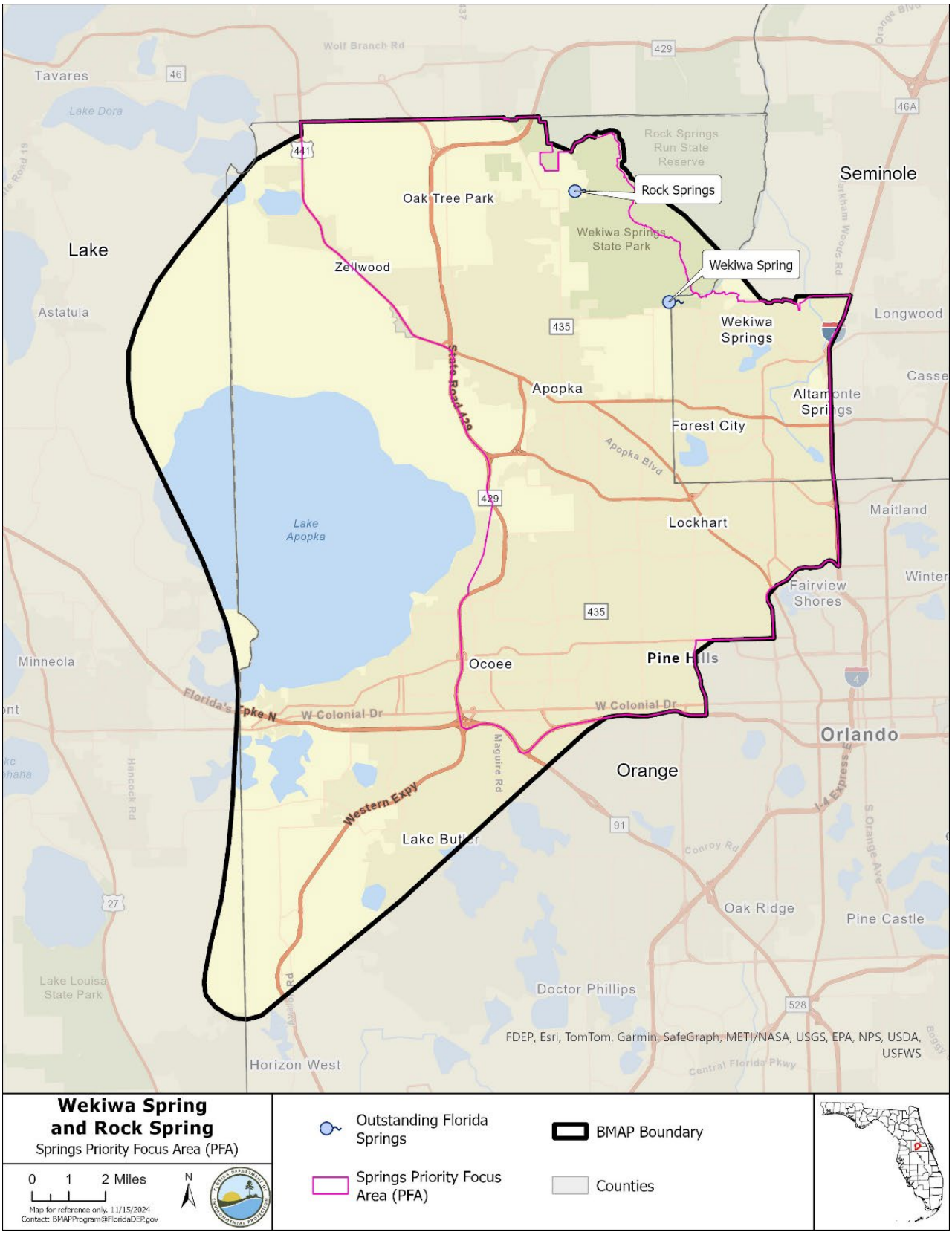


Figure 1. Wekiwa Spring and Rock Springs BMAP and PFA boundaries

1.5.2 Additional Requirements

In accordance with section 373.811, F.S., the following activities are prohibited in the BMAP boundary:

- New domestic wastewater disposal facilities, including rapid infiltration basins (RIBs), with permitted capacities of 100,000 gallons per day (gpd) or more, except for those facilities that meet an advanced waste treatment (AWT) standard of no more than 3 mg/L TN on an annual permitted basis.

- New OSTDS or septic systems on lots one acre or less inside the BMAP where central sewer is available. If central sewer is unavailable, then the owner must install a DEP-approved enhanced nutrient-reducing OSTDS that achieves at least 65% nitrogen reduction, or other wastewater system that achieves at least 65% reduction.

- New facilities for the disposal of hazardous waste.

- The land application of Class A or Class B domestic wastewater biosolids not in accordance with a DEP-approved NMP establishing the rate at which all biosolids, soil amendments, and sources of nutrients at the land application site can be applied to the land for crop production, while minimizing the amount of pollutants and nutrients discharged to groundwater or waters of the state.

- New agricultural operations that do not implement BMPs, measures necessary to achieve pollution reduction levels established by DEP, or groundwater monitoring plans approved by a WMD or DEP.

1.5.3 Biosolids and Septage Application Practices

The aquifer contributing to the springs is highly vulnerable to contamination by nitrogen sources and where soils have a high to moderate tendency to leach applied nitrogen. DEP previously documented elevated nitrate concentrations in groundwater beneath septage application zones in contributing areas to springs. Within BMAP areas for OFS, section 373.811, F.S. prohibits the land application of Class A or Class B domestic wastewater biosolids not in accordance with a department approved NMP establishing the rate at which all biosolids, soil amendments, and sources of nutrients at the land application site can be applied to the land for crop production while minimizing the amount of pollutants and nutrients discharges to groundwater or waters of the state. Further, there are additional requirements for biosolid and septage application practices under Chapter 62-640 F.A.C.

1.6 Other Scientific and Historical Information

In preparing this BMAP, DEP collected and evaluated credible scientific information on the effect of nutrients, particularly forms of nitrogen, on springs and springs systems. Some of the information collected is specific to the Wekiwa Spring and Rock Springs Basin, while other references provide information on related knowledge for restoring springs, such as nitrogen-reducing technologies, the treatment performance of OSTDS, and runoff following fertilizer applications.

1.7 Stakeholder Involvement

Stakeholder involvement is critical to develop, gain support for, and secure commitments in a BMAP. In the context of the BMAP, there are different organizations named in the plan.

- **R*esponsible entities*** are those organizations who are assigned load reductions and must comply with the BMAP provisions; these organizations are sometimes referred to as "***Lead Entities***."
- ***Responsible agencies*** may be accountable for reducing loads from their own activities or have an important public sector role in BMAP implementation such as regulatory oversight, monitoring, research, or other related duties.
- ***Interested stakeholders*** are those organizations that have engaged with BMAP development and implementation with the intention to influence the implementation process and outcomes.
- ***Stakeholders*** is a more general term often used in the BMAP context to include all three of the previously mentioned organizations—responsible entities, responsible agencies, and interested stakeholders.

The BMAP process engages responsible entities, responsible agencies, and interested stakeholders and promotes coordination and collaboration to address the pollutant load reductions necessary to achieve the TMDL. DEP invited stakeholders to participate in the BMAP development process and encouraged public participation and consensus to the greatest practicable extent. **Table ES-1** identifies the stakeholders who participated in the development of this BMAP.

During the development and update of the Wekiwa Spring and Rock Springs BMAP, DEP held a series of meetings involving stakeholders and the public. The purpose of these meetings was to consult with stakeholders to gather information, evaluate the best available science, define management strategies and milestones, update the NSILT, develop entity required reductions, and update monitoring requirements. Public meetings were held virtually in January 2024 and May 2024. An in-person meeting was held on September 24, 2024, in Apopka, Florida. All meetings were open to the public and noticed in the *Florida Administrative Register* (F.A.R.). Additionally, a final public meeting was held on April 17, 2025, that was noticed in the F.A.R. and in local newspapers.

In addition to public meetings, DEP held nine one-on-one meetings with the responsible stakeholders for this BMAP. Throughout the process, DEP made themselves available to answer stakeholder questions.

Upon BMAP adoption, DEP intends to facilitate annual meetings with stakeholders to review progress towards meeting entity required reductions identified for the milestones that are needed to achieve the TMDL.

1.8 Description of BMPs Adopted by Rule

Table 2 identifies FDACS adopted agricultural BMPs and BMP manuals relevant to this

BMAP, along with environmental resource permitting requirements for certain land use activities.

Table 2. BMPs and BMP manuals adopted by rule as of July 2025

Agency	F.A.C. Chapter	Chapter Title
FDACS Office of Agricultural Water Policy (OAWP)	5M-1	Office of Agricultural Water Policy
FDACS OAWP	5M-6	Florida Nursery Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-8	Florida Vegetable and Agronomic Crop (VAC) Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-9	Florida Sod Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-11	Florida Cattle Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-12	Conservation Plans for Specified Agricultural Operations
FDACS OAWP	5M-13	Florida Specialty Fruit and Nut Crop Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-14	Florida Equine Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-16	Florida Citrus Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-17	Florida Dairy Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-18	Florida Agriculture Wildlife Best Management Practices
FDACS OAWP	5M-19	Florida Poultry Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-21	Florida Small Farms and Specialty Livestock Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS Division of Agricultural Environmental Services	5E-1	Fertilizer
FDACS Division of Aquaculture	5L-3	Aquaculture Best Management Practices, 2023 Edition
FDACS Florida Forest Service	5I-6	Best Management Practices for Silviculture, 2008 Edition
FDACS Florida Forest Service	5I-8	Florida Forestry Wildlife Best Management Practices for State Imperiled Species
DEP	62-330	Environmental Resource Permitting

Additionally in 2024, the Florida Legislature ratified changes to the Statewide Stormwater Rule related to the minimum treatment requirements for Environmental Resource Permits for urban stormwater. The treatment requirements for nitrogen and phosphorus were increased to reduce the nutrient loading of future urban development and other structural changes to assist with water quality restoration in impaired waters.

Section 2. Implementation to Achieve TMDL

2.1 Allocation of Pollutant Loads

2.1.1 Nutrients in the Springs and Spring Systems

DEP developed the NSILT to provide information on the estimated nitrogen loading from major sources to groundwater in the spring contributing area for the OFS (**Table 3**). The NSILT was updated in 2023 with more current data and some methodology improvements and revised in 2024 based on stakeholder feedback. The NSILT is a GIS- and spreadsheet-based tool that provides spatial estimates of the relative contribution of nitrogen from major nitrogen sources to groundwater and accounts for the transport pathways and processes affecting the various forms of nitrogen as they move from the land surface through the soil and geologic strata to groundwater.

The first major factor to be considered in estimating the loading to groundwater in the NSILT is the attenuation of nitrogen as it moves from its source through the environment, before it reaches the Upper Floridan aquifer (UFA). Biological and chemical processes that occur as part of the nitrogen cycle, as well as hydrogeological processes, control the movement of nitrogen from the land surface to groundwater. Many of these processes attenuate (impede or remove) the amount of nitrogen transported to groundwater. An understanding of how water moves through the subsurface and the processes that transform the different forms of nitrogen is essential for estimating nitrogen loading to groundwater from various sources.

A second major factor to consider in estimating the loading to groundwater is the geologic features in the springshed and the related "recharge rate." Water movement between the shallow groundwater (surficial aquifer, where present) and the deeper aquifer (UFA) is slowed by a low permeability layer of clay, silt and fine sand that retards the vertical movement of infiltrating water from the surface. The UFA is in limestone that can be prone to dissolving and, over geologic time, develop numerous karst features (sinkholes, caves and conduits).

These features allow water to move directly and relatively rapidly from the land surface into the aquifer, and in some areas, the groundwater in the aquifer then moves rapidly to the springs.

Potential recharge rates from the surface to the UFA are affected by variations in geologic materials and the presence of karst features. DEP estimated three recharge rate categories, which were applied to the NSILT:

- Low recharge (Less than 5 inches per year [in/yr]).
- Medium recharge (5 to 15 in/yr).
- High recharge (15 in/yr or greater).

In the NSILT, DEP applied different attenuation factors to different types of sources to estimate

the various biological, chemical and hydrogeological effects. Attenuation is the process where the nitrogen source is removed or stored by chemical and biological processes before it reaches the groundwater. In the NSILT estimates, the attenuation rates ranged from 90% (for atmospheric deposition) to 25% (for wastewater disposal in a RIB). This means that, for these examples, only 10% of nitrogen from atmospheric deposition is expected to reach the aquifer, while 75% of nitrogen from a RIB is expected to reach groundwater, because the remainder is attenuated by various chemical and biological processes.

Phosphorus is naturally abundant in the geologic material underlying much of Florida and is often present in high concentrations in surface water and groundwater. Monitoring and evaluation of phosphorus and other chemical and biological influences on the springs continues as the nitrate-nitrite TMDL is implemented.

Table 3. Estimated total nitrogen load to groundwater by source in the BMAP area

Nitrogen Source	Total Nitrogen Load to Groundwater in Pounds of Nitrogen Per Year (lbs/yr)	% Contribution
OSTDS	628,072	52%
UTF	297,425	25%
Atmospheric Deposition	55,034	5%
FF	55,592	5%
STF	6,810	1%
STF- Golf	26,227	2%
LW	9,477	1%
WWTFs	134,595	11%
Total	**1,213,232**	**100%**

2.1.2 Assumptions and Considerations

The NSILT estimates are based on the following assumptions and considerations:

- **NSILT Nitrogen Inputs** – The methods used to estimate nitrogen inputs for each pollutant source were based on a detailed synthesis of information, including direct water quality measurements, census data, surveys following University of Florida-Institute of Food and Agricultural Sciences (UF-IFAS) trainings, WWTF permits, published scientific studies and reports, and information obtained in meetings with agricultural producers, WMDs and FDACS. For some pollutant source categories, nitrogen inputs were obtained using assumptions and extrapolations and, as a result, these inputs may be further refined if more detailed information becomes available. More details on the NSILT methodology and assumptions are in the NSILT Technical Support Document in **Appendix F**.

- **OSTDS Inventory and Load Contribution** – A per capita contribution to an OSTDS of 10

lbs-N/year was used to calculate the loading from OSTDS. The average household contribution was estimated based on 2020 U.S. Census Bureau Data on the average number of people per household by county (2.56 for Lake County, 2.87 for Orange County, and 2.6 for Seminole County).

The total number of OSTDS in the basin is estimated based on the Florida Water Management Inventory (FLWMI) data. OSTDS loading calculations in future BMAPs may be adjusted based on improved information on the number, location and type (conventional and enhanced nutrient-reducing) of existing septic systems, and will include updates on additional OSTDS installed in the area since the previous BMAP adoption.

Note that all values listed in this report are rounded, while the actual calculations were completed using whole numbers.

Other assumptions and considerations for BMAP implementation include the following:

- **Unquantified Project Benefits** – Nitrogen reductions for some of the projects and activities listed in this BMAP cannot currently be quantified. However, these projects are included because of their assumed positive impact to reduce pollutant loads, and estimated loading reductions may be determined at a later date.

- **Atmospheric Deposition** – Atmospheric sources of nitrogen are local, national and international. Local sources include the petroleum-fueled combustion engines of cars and trucks as well as fertilizers used for agricultural and residential uses. Other local or regional sources may include power plants and industrial facilities. Atmospheric sources have generally low nitrogen concentrations compared with other sources and are further reduced through additional biological and chemical processes before they reach groundwater. Himes and Dawson (2017) indicates that emissions of nitrogen have been generally decreasing in Florida with an up to 55% decrease in emissions estimated by 2028,possibly related to power plant fuel source changes and air treatment upgrades as well as the increased use of electric vehicles, decreasing mobile sources (Himes and Dawson, 2017) and increased use of solar energy. This gradual decrease in atmospheric emission of nitrogen will likely assist with creating the necessary reductions for this source. However, atmospheric deposition is a nitrogen source and is, therefore, estimated as a loading factor to the springs. As other sources are addressed and decreased, the relative percentage contribution of atmospheric sources is expected to increase. For this BMAP, atmospheric deposition sources and trends will be re-evaluated periodically. The regulatory programs that limit atmospheric sources are primarily national or international, which limits how this BMAP can regulate these sources.

- **PFA** – The PFA provides a guide for focusing strategies where science suggests efforts will best benefit the springs. The PFA boundary may be adjusted in the future if additional relevant information becomes available.

- **Project Collection Period –** The BMAP project collection period is limited to projects after

a certain date, based on the data used to calculate the reductions needed. Reductions from older projects are accounted for in the updated baseline loading. The timing eligibility for projects is dependent on the data used to estimate the NSILT loads, which also depend on the source type. The following project cutoff dates apply in this BMAP document, which are based on the data used in the most recent NSILT update.

  - Urban and agricultural stormwater projects: Projects completed in the BMAP, on or after January 1, 2009.
  - WWTF Improvements: Projects completed on or after January 1, 2022, or later. Prior projects were included in the NSILT estimates.
  - OSTDS Enhancements/50% Treatment or OSTDS Connection to Sewer: Projects completed on or after January 1 of the years listed below, based on the county in which the project is located and the FLWMI data year used in the 2023 NSILT update.
    - Lake County: 2022.
    - Orange County: 2023.
    - Seminole County: 2022.

- **WWTFs** – Allocations for WWTFs were determined by applying effluent limits to each WWTF. This approach allows WWTFs to assume additional flows as OSTDS are phased out and still meet their allocation. It also acknowledges those facilities that already meet a high level of treatment. With this concentration-based approach, the total percent reduction assigned to the WWTFs will be different than the percentage applied to other sources.

- **Legacy Sources** – Land uses, activities or management practices not currently active in the basin may still be affecting the nitrate concentration of the springs. The movement of water from the land surface through the soil column to the UFA and through the UFA to the spring system varies both spatially and temporally and is influenced by local soil and aquifer conditions. As a result, there may be a time lag between when nitrogen input to the UFA occurs and, ultimately, when that nitrogen arrives at the impaired springs. The timing of this delay is not fully known.

- **Milestones –** Assessment of progress toward the milestones must be conducted every five years and revisions to the plan must be made as appropriate. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies; however, the restoration target, or TMDL, remains the same.

- **Implementation Schedule** – Nutrient load reduction in BMAP implementation is intended to occur over 20 years. To meet the TMDL within this timeframe, this plan defines nitrogen

reduction milestones for 2028 (30%), 2033 (+50%) and 2038 (+20%) implementation (see **Section 2.1.5** for further details). Further, the total reductions and the project credits may be adjusted under the adaptive management approach used for the BMAP. This approach requires regular follow-up to ensure management strategies are carried out and their incremental effects are assessed. The process acknowledges that there is some uncertainty associated with the outcomes of proposed management strategies and the estimated response in nitrogen concentration at the springs. As more information is gathered and progress towards each milestone is reviewed, additional management strategies may be developed or existing strategies refined to better address the sources of nitrogen loading to achieve the TMDL.

- **Changes in Spring Flows** – The role of this BMAP is specifically to address the implementation of projects that reduce nitrogen load to groundwater, while the minimum flows and levels (MFLs) established for specific springs address water flows and levels. To maximize efforts between the two programs, it is recommended that when practicable, springs protection projects provide both water quality and quantity benefits.

2.1.3 Loading by Source

Based on the updated NSILT results, **Figure 2** depicts the estimated percentage of nitrogen loading to groundwater by source in the BMAP. For example, UTF represents 25% of the total nitrogen loading to groundwater, OSTDS loads are 52%, and STF loads are 3%. Stormwater loading to groundwater is incorporated into the various source categories.

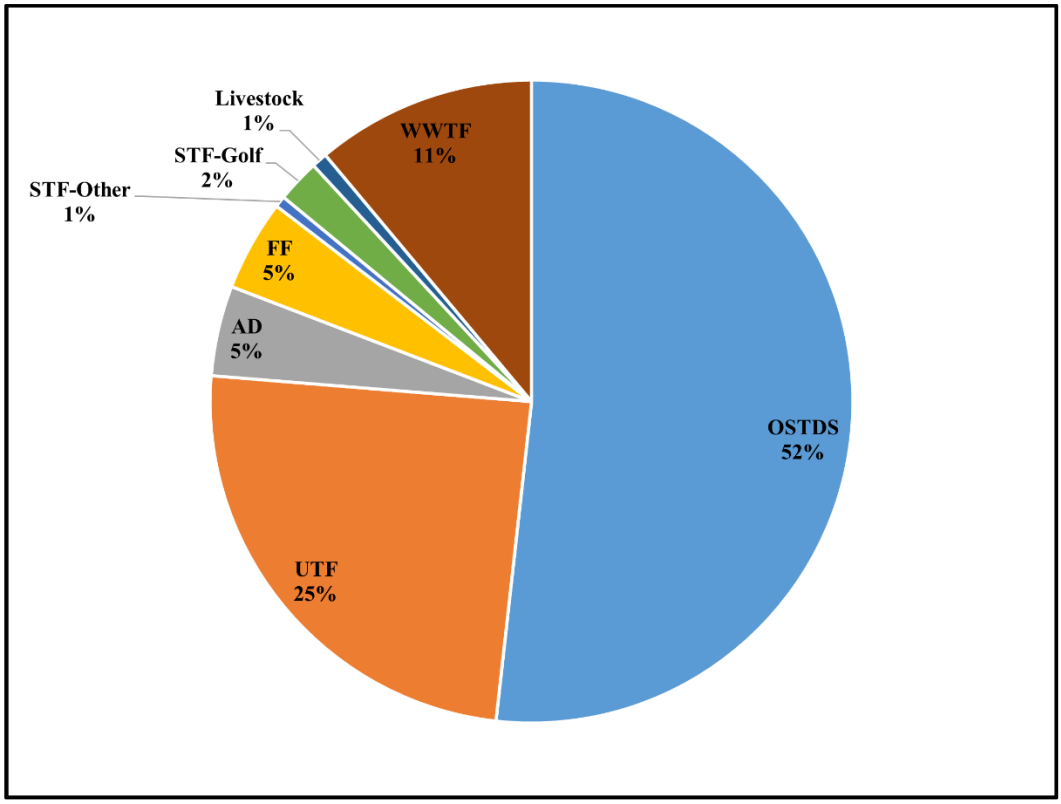


Figure 2. Loading to groundwater by source in the Wekiwa Spring and Rock Springs

BMAP area

2.1.4 Loading Allocation

The nitrogen source reductions are based on the estimated current nitrogen loading to groundwater in the NSILT, the measured nitrate concentrations and flows at the vents, and the TMDL target nitrate concentration. **Table 4** lists the measured nitrate (as nitrogen) loads at the spring vents compared with the TMDL nitrate target concentration of 0.286 mg/L. The difference between the spring vent loading and the TMDL loading target is the required percent reduction to meet the nitrate TMDL. The total required load reduction is allocated to sources and to entities based on existing loads.

Table 4. Total reduction required to meet the TMDL

Description	Nitrogen Loads (lbs/yr)	Notes Regarding Data Used
Total Load at Spring Vent	286,567	Upper 95% confidence interval - nitrate data and flow data from 2012 to 2022 (1.12 mg/L and 63.67 cubic feet per second [cfs] and 1.32 mg/L and 56.74 cfs)
TMDL Load	67,705	TMDL target is 0.286 mg/L and using the spring vent flow data from 2012 to 2022
Percent Reduction	76%	Calculated reduction needed based on the total load at the spring vent and the TMDL load
NSILT Load	1,213,232	Total load to groundwater from the updated NSILT
Required Reduction	**926,589**	**Percent reduction multiplied by the NSILT load**

2.1.5 Description of 2028, 2033, and 2038 Milestones/Reduction Schedule

In 2023, section 403.067, F.S., was amended to require that TMDL implementation be addressed through milestones that include a list of projects that will achieve the pollutant load reductions to meet the TMDL or the load allocations established pursuant to subsection 403.067(6), F.S. Each project must include a planning-level cost estimate and an estimated completion date. Any responsible entity within the BMAP that has a pollutant load reduction requirement must identify projects or strategies to undertake to meet the current 5-year pollution reduction milestone. The overall load reduction targets are 30% of the total by 2028, 80% of the total by 2033, and 100% of the total by 2038. DEP will evaluate progress towards these milestones and will report implementation progress and project information to the Governor and Florida Legislature annually through the statewide annual report. DEP will adjust management strategies if needed to reduce loading to the aquifer to ensure the target concentrations at the spring vents are achieved. This may include expanding the area to which the OSTDS remediation policies apply, requiring additional projects or management strategies, or developing other nutrient reduction policies. Any changes would be incorporated into a future BMAP update through a formal adoption process.

Table 5 lists the estimated nitrogen reduction schedule by milestone. Progress will be tracked yearly and adjustments made as needed. At the 2028 milestone, progress will be assessed and load reductions adjusted as necessary. Entities have flexibility in the types and locations of projects as long as they achieve their required load reductions. Consideration may be given to entities with projects that are planned or underway that will be completed in a future milestone phase, to allow adequate time for projects to be fully implemented. **Section 2.2** describes detailed source reduction strategies.

Table 5. Nitrogen reduction schedule (lbs/yr)

2028 Milestone (30% of Total)	2033 Milestone (+50% of Total)	2038 Milestone (+20% of Total)	Total Nitrogen Reduction (100%)
277,977	463,295	185,318	926,589

2.2 Load Reduction Strategy

A precise total load reduction to groundwater needed to meet the TMDLs is dependent on a number of complex factors and may be refined if additional information becomes available. Based on current information, there must be a reduction of at least 926,589 lbs/yr TN by 2038 to achieve the TMDLs. However, due to the distance of some reductions in relation to the spring vents and the uncertainties of fate and transport in the karst geology, additional studies, projects, or management strategies may be necessary to ensure that loading at the spring vents is reduced to achieve the TMDL targets within the timeline of the BMAP.

To increase our understanding of the relationship between project reductions and changes in concentrations at the spring vents, as well as the time lag of water movement within the springshed to the springs, water quality monitoring of existing groundwater within the BMAP and at the spring vents is essential.

2.3 Entity Allocations

The results from the NSILT and spring vent load analyses were used to calculate the nitrogen loads associated with each responsible stakeholder. **Table 6** summarizes the total required reductions assigned to each entity. Regional projects are state-sponsored management actions that treat nutrient loading from one or many urban sources Agriculture in **Table 6**, **Table 7**, and **Table 8** includes loading from FF and LW. A list of private golf courses with allocations can be found in **Appendix I**. A list of privately owned WWTFs can be found in **Appendix J**.

Table 6. Total required reductions by entity

*Total excludes reductions of atmospheric deposition.

Entity	Total Assigned Reductions by Entity (lbs/yr)
Agriculture	49,695
Lake County	2,236

Entity	Total Assigned Reductions by Entity (lbs/yr)
Town of Montverde	4
Orange County	518,907
City of Apopka	56,141
Town of Oakland	8,158
City of Ocoee	74,135
City of Orlando	5,790
City of Winter Garden	14,708
Town of Eatonville	848
Town of Windermere	3,636
City of Maitland	2,229
Seminole County	76,022
City of Altamonte Springs	15,470
Private WWTFs	5,241
Private Golf Courses	17,336
Regional Projects	34,003
Total, All Reductions	**884,557***

Table 7 includes the 5-year milestone required reductions for each entity. **Table 8** compares the current list of planned, underway, ongoing, and completed projects to the first 5-year milestone. Reductions are based on projects completed through October 2024. This date was chosen to allow adequate time to review project documentation and calculate reductions based on accepted methodologies and best management practice (BMP) efficiencies. Updated project information will be provided each year in the Statewide Annual Report and annual meetings. The management actions provided by responsible stakeholders to achieve these reductions are described in **Appendix B**.

Responsible entities must submit a sufficient list of creditable projects with estimated reductions which demonstrates how the entity is going to meet their milestone to DEP no later than January 14, 2026, to be compliant with the upcoming BMAP milestone or be subject to department enforcement.

If any lead entity is unable to submit a sufficient list of eligible management strategies to meet their next 5-year milestone reductions, specific project identification efforts are required to be submitted by January 14, 2026. Any such project identification efforts must define the purpose of and include a timeline to identify sufficient projects to meet the upcoming milestone. The project description and estimated completion date for any such project identification effort must be provided and reflect the urgency of defining, funding, and implementing projects to meet the upcoming and future BMAP milestones. These planning efforts are ineligible for BMAP credit themselves but are necessary to demonstrate that additional eligible management actions will be forthcoming and BMAP compliance will be achieved. Examples of project identification efforts

are included in **Appendix C**. Only those entities that provide sufficient project identification efforts will be deemed as possessing a defined compliance schedule. Those entities without an adequate project list nor a defined compliance schedule to meet their upcoming 5-year milestone may be subject to enforcement actions.

Table 7. 5-year milestone required reductions by entity

Entity	2028 Milestone Assigned Reductions (30%) (lbs/yr)	2033 Milestone Assigned Reductions (80%) (lbs/yr)	2038 Milestone Assigned Reductions (100%) (lbs/yr)
Agriculture	14,909	39,756	49,695
Lake County	671	1,789	2,236
Town of Montverde	1	3	4
Orange County	155,672	415,126	518,907
City of Apopka	16,842	44,913	56,141
Town of Oakland	2,447	6,526	8,158
City of Ocoee	22,240	59,308	74,135
City of Orlando	1,737	4,632	5,790
City of Winter Garden	4,412	11,766	14,708
Town of Eatonville	254	678	848
Town of Windermere	1,091	2,909	3,636
City of Maitland	669	1,783	2,229
Seminole County	22,807	60,817	76,022
City of Altamonte Springs	4,641	12,376	15,470
Private WWTFs	1,572	4,192	5,241
Private Golf Courses	5,201	13,869	17,336
Regional Projects	10,201	27,202	34,003
Total, All Reductions	**265,367**	**707,646**	**884,557**

Table 8. Progress towards next 5-year milestone by entity

** Planned and underway project reduction estimates are not verified by DEP.*

*** Projected reductions include projects with a project status of completed, ongoing, planned, and underway.*

†These reductions are a combination of projects completed by FDACS and the WMDs.

Entity	2028 Milestone Assigned Reductions (30%) (lbs/yr)	TN Reductions from Completed & Ongoing Projects (lbs/yr)	TN Reductions from Planned & Underway Projects* (Not Verified) (lbs/yr)	Total Projected** Project TN Reductions by Entity Through 2028 (lbs/yr)	TN Reductions Needed to Achieve 30% Milestone (2028) (lbs/yr)
Agriculture†	14,909	4,566	37	4,603	10,306
Lake County	671	77	0	77	594
Town of Montverde	1	0	0	0	1
Orange County	155,672	8,936	32,472	41,408	114,264
City of Apopka	16,842	3,198	144	3,342	13,500

Entity	2028 Milestone Assigned Reductions (30%) (lbs/yr)	TN Reductions from Completed & Ongoing Projects (lbs/yr)	TN Reductions from Planned & Underway Projects* (Not Verified) (lbs/yr)	Total Projected** Project TN Reductions by Entity Through 2028 (lbs/yr)	TN Reductions Needed to Achieve 30% Milestone (2028) (lbs/yr)
Town of Oakland	2,447	160	0	160	2,287
City of Ocoee	22,240	3,463	4,393	7,856	14,384
City of Orlando	1,737	410	611	1,021	716
City of Winter Garden	4,412	1,261	0	1,261	3,151
Town of Eatonville	254	0	0	0	254
Town of Windermere	1,091	0	0	0	1,091
City of Maitland	669	175	0	175	494
Seminole County	22,807	2,849	0	2,849	19,958
City of Altamonte Springs	4,641	1,089	0	1,089	3,552
Private WWTFs	1,572	0	0	0	1,572
Private Golf Courses	5,201	0	0	0	5,201
Regional Projects	10,201	306	0	306	9,895
Total, All Reductions	**265,367**	**26,490**	**37,657**	**64,146**	**-**

2.4 Prioritization of Management Strategies

Required under Chapter 373.807, F.S., management strategies listed in **Appendix B** are ranked with a priority of high, medium, or low. To help prioritize projects towards the next milestone as required under 403.067, F.S., planning-level details for each listed project, along with their priority ranking have been determined.

Project status was selected as the most appropriate indicator of a project's priority ranking based primarily on if the project is going towards the next 5-year milestone, as well as need for funding. Overall, any project that is needed by a responsible entity to meet their next reduction milestone is considered a priority. Projects classified as "underway" were assigned a high or medium priority because some resources have been allocated to these projects, but additional assistance may be needed for the project to be completed. High priority was assigned to projects listed with the project status "planned" that are needed to meet the next milestone, as well as certain "completed" projects that are designated as "ongoing" each year, and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

2.5 OSTDS Management Strategies

2.5.1 Management of New OSTDS Loads

As of July 1, 2023, sections 373.811 and 403.067, F.S., prohibited the installation of new conventional OSTDS serving a lot of one acre or less where central sewer is available. Within this BMAP area, if central sewer is unavailable on lots of one acre or

less, then the owner must install a DEP-approved enhanced nutrient-reducing OSTDS that achieves at least 65% nitrogen reduction, or other wastewater system that achieves at least 65% reduction.

2.5.2 Existing OSTDS Remediation

Existing OSTDS in the PFA on lots of one acre or less must receive additional nitrogen treatment. This BMAP contains remediation plans for OSTDS consisting of management actions, including those described in **Appendix B** and updated annually through the statewide reporting process that reduce loads from existing OSTDS through either sewer connection, adding enhancement nitrogen treatment to OSTDS, or installing another type of wastewater system on the property, as applicable.

If DEP receives a complete construction permit application for an authorization under Chapter 62-6, F.A.C., related to an existing OSTDS and enhanced nutrient reducing technology is required for existing OSTDS through this BMAP, then the existing OSTDS must be replaced with or upgraded to enhanced nutrient-reducing OSTDS as defined in subsection 381.0065(2)(f), F.S., or other wastewater system that achieves at least 65% nitrogen reduction, unless connection to central sewer is required pursuant to 381.00655, F.S.

Enhanced OSTDS can achieve an estimated 50% improvement in the load to groundwater compared to a conventional system. OSTDS replaced by sewer reduces the conventional nitrogen inputs by an estimated 95%, assuming a sewer connection to a WWTF meeting AWT levels. For projects addressing OSTDS loads, load reductions are estimated based on average nitrogen loads per person and the U.S. Census information on the county's average number of persons per household. The OSTDS location determines the applicable county. The improvement to groundwater is calculated by applying an attenuation rate as well as a location-based recharge factor, which estimates how likely the improved loading will travel into the deep groundwater system. For more information about how OSTDS loads were estimated, see the NSILT Technical Support Document in **Appendix F**.

2.5.2.1 Section 373.807, F.S.

Subsection 373.807(3), F.S., specifies that if, during the development of a BMAP for an Outstanding Florida Spring (OFS), DEP identifies OSTDS as contributors of at least 20% of nonpoint source nitrogen pollution in a PFA or if DEP determines OSTDS remediation is necessary to achieve the TMDL, the BMAP must include an OSTDS remediation plan. The OSTDS remediation plan requires policies for new and existing OSTDS to provide load reductions consistent with achieving the TMDL within 20 years of plan adoption (subparagraph 373.807(1)(b)8., F.S.).

DEP assessed the overall OSTDS loading compared to other nitrogen sources in the BMAP area. Based on these assessments, DEP has determined that OSTDS contribute more than 20% of nonpoint source nitrogen pollution to the OFS. Based on the Wekiwa Spring and Rock Springs NSILT update, OSTDS contribute 52% pollutant loading in the springshed area (628,072 lbs/yr). Cumulatively, nitrogen loading from OSTDS within this springshed results in degradation of

groundwater that impacts the Wekiwa Spring and Rock Springs BMAP area. Therefore, the comprehensive remediation of OSTDS, consistent with the requirements of this BMAP, is necessary to restore associated groundwater and surface to achieve the TMDL and to minimize nitrogen loads from future growth. As noted above, existing OSTDS in the PFA on lots of one acre or less must receive additional nitrogen treatment. The OSTDS remediation plan pursuant to section 373.807, F.S., is incorporated as **Appendix E**.

Based on FLWMI data (2023), there are approximately 35,327 known and likely OSTDS in the PFA and approximately 41,062 known and likely OSTDS in the BMAP (**Figure 3**). **Table E-1** in **Appendix E** summarizes the estimated count of OSTDS on lots one acre or less within the PFA. **Figure E-1** shows the locations of all OSTDS in the BMAP area based on FLWMI; however, local governments or utilities may have more current information about OSTDS locations in their jurisdiction.

This remediation plan (**Appendix E**) establishes the policy applicable to all existing OSTDS within the PFA on lots of one acre or less, based on (a) potential for reducing nitrogen loads by converting existing OSTDS to enhanced nitrogen removing systems or other wastewater systems achieving at least 65% nitrogen reduction, or by connecting existing OSTDS to central sewer; (b) total nitrogen load that must be reduced to achieve the TMDL; and (c) relative contribution of nitrogen load from existing OSTDS. Upon the need for a repair (major or minor) or a replacement OSTDS permit, an existing OSTDS must be upgraded to an enhanced nutrient-reducing OSTDS or other wastewater treatment system that achieves at least 65% nitrogen reduction. Repairs that qualify as new OSTDS permits will follow the requirements for new OSTDS as described above.

2.5.2.2 Subsection 403.067(7)(a)9., F.S

Subparagraph 403.067(7)(a)9., F.S., also requires local governments within a BMAP to develop an OSTDS remediation plan that is adopted as part of the BMAP no later than July 1, 2025, if DEP identifies OSTDS as contributors of at least 20% of point source or nonpoint source nutrient pollution or if DEP determines remediation is necessary to achieve the TMDL. When applicable, the OSTDS remediation plans must be developed by each local government in cooperation with DEP, WMDs, and public and private domestic wastewater facilities. Each OSTDS remediation plan for this BMAP must contain the information outlined in DEP Final Order 23-0135. This BMAP contains a remediation plan for OSTDS consisting of management actions, including those described in **Appendix B** and updated annually through the statewide reporting process that reduce loads from existing OSTDS through either sewer connection, adding enhancement nitrogen treatment to OSTDS, or installing another type of wastewater system on the property, as applicable. Local governments are required to submit projects describing how OSTDS loads are addressed as part of BMAP reporting and estimate the load reductions associated with each project. The estimated reductions to the springs from addressing these septic systems will be based on several factors, including how they are addressed (i.e., connection to sewer or enhancement) and the amount of attenuation and recharge that occurs. The OSTDS remediation plans are incorporated into this BMAP through the related management

actions listed in this Section as well as those in **Appendix B**. Copies will be made available upon request subject to any public records requirements.

2.5.2.3 Local Government Ordinances

Local governments may have existing ordinances or could adopt new ordinances that add additional requirements for enhancement of OSTDS. To expedite remediation of wastewater sources and to facilitate achievement of assigned milestones in this BMAP, DEP encourages local governments to adopt such ordinances.

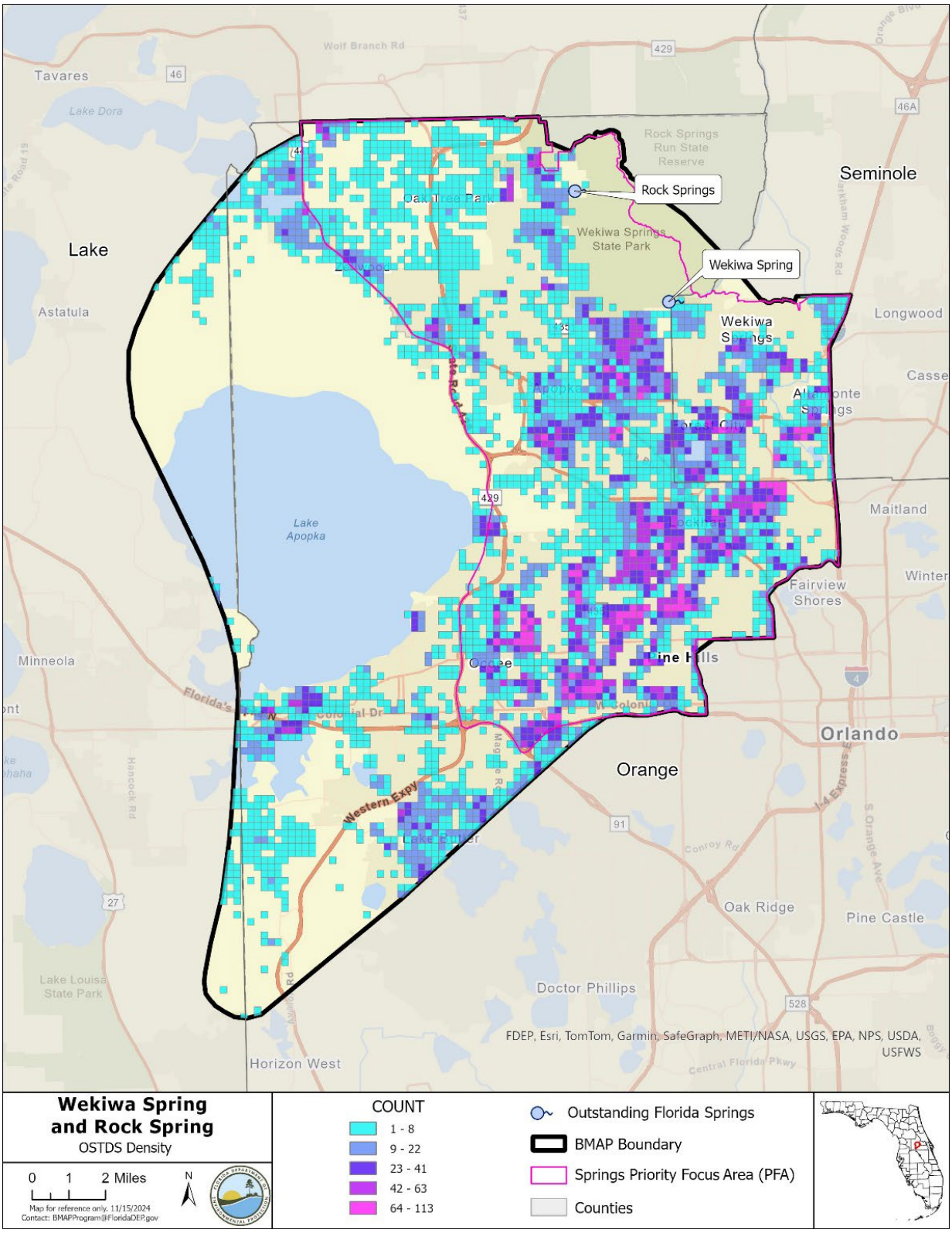


Figure 3. Estimated OSTDS location density in the Wekiwa Spring and Rock Springs BMAP area and PFA

2.6 WWTF Management Strategies

2.6.1 Facility Improvements and Effluent Limits

There are several WWTFs located in the Wekiwa Spring and Rock Springs BMAP area, including nine domestic WWTFs permitted to discharge more than 100,000 gallons of treated effluent per day (or 0.1 million gallons per day [mgd]). **Figure 4** shows the locations of domestic WWTFs in the Wekiwa Spring and Rock Springs BMAP.

In the Wekiwa Spring and Rock Springs BMAP area, effluent containing nitrogen is discharged to sprayfields and RIBs, or is reused for irrigation water. The nitrogen load from WWTFs is 134,595 lbs-N/year. The discharge location (such as proximity to the springs, highly permeable soils, etc.) and level of wastewater treatment are important factors to consider when calculating loadings to groundwater.

The U.S. EPA authorizes DEP to issue permits for discharges to surface waters under the National Pollutant Discharge and Elimination System (NPDES) Program. Permits for discharges to groundwater are issued by DEP based on Florida law and rules. Wastewater discharge permits establish specific limitations and requirements based on the location and type of facility or activity releasing industrial or domestic wastewater from a point source. In areas with an adopted, nutrient-related BMAP prior to July 1, 2023, section 403.086, F.S., requires any facility discharging to a waterbody to upgrade to AWT by January 1, 2033. Further, for any waterbody determined not to be attaining nutrient or nutrient-related standards after July 1, 2023, or subject to a nutrient or nutrient-related BMAP or adopted RAP after July 1, 2023, sewage disposal facilities are prohibited from disposing any waste into such waters without providing advanced waste treatment, as approved by the department within 10 years after such determination or adoption.

Further, section 373.811, F.S., prohibits new domestic wastewater disposal facilities, including those discharging to RIBs, with permitted capacities of 100,000 gallons per day or more, unless the discharge meets the AWT standard of no more than 3 mg/L TN, on an annual permitted basis, or a more stringent treatment standard if the department determines the more stringent standard is necessary to attain a TMDL for the OFS.

The nitrogen and phosphorus effluent limits set forth in **Table 9** and **Table 10** will be applied as an annual average, taken at end of pipe before any land disposal, to all new and existing WWTFs with a DEP-permitted discharge or disposal area within this BMAP pursuant to sections 403.067(7)(b), 403.086(1)(c)1.c., 2., or (2), F.S., as applicable. If a facility has effluent disposal located in an area where the boundaries of a surface water and an OFS BMAP overlap, the more stringent wastewater effluent limits apply. DEP will evaluate the need for more stringent nutrient effluent limits as appropriate.

Table 9. Nitrogen effluent standards for the BMAP area

*Including rapid-rate land application systems permitted under Part V of Chapter 62-610, F.A.C.

95% of the Permitted Capacity (gpd)	Surface Water Discharges (mg/L)	Slow-Rate Land Application (SRLA) and Rapid-Rate Land Application (RRLA) Systems (mg/L)	All Other Reuse or Effluent Disposal Methods, Excluding SRLA and RRLA* (mg/L)
Greater than 100,000	3	3	3
20,000 to 100,000	3	3	6
Less than 20,000	3	6	6

Table 10. Phosphorous effluent standards for the BMAP area

*Including rapid-rate land application systems permitted under Part V of Chapter 62-610, F.A.C.

95% of the Permitted Capacity (gpd)	Surface Water Discharges (mg/L)	Slow-Rate Land Application (SRLA) and Rapid-Rate Land (RRLA) Systems (mg/L)	All Other Reuse or Effluent Disposal Methods, Excluding SRLA and RRLA* (mg/L)
Greater than 100,000	1	1	6
20,000 to 100,000	1	3	6
Less than 20,000	1	6	6

Where the law does not provide a compliance timeframe, new effluent standards will take effect at the time of permit renewal or no later than five years after BMAP adoption, whichever is sooner.

Additionally, new and existing wastewater permits in the BMAP area must require at least quarterly sampling of the effluent discharge for TN concentrations and report these sampling results in the discharge monitoring reports (DMRs) submitted to DEP.

In 2021, subsection 403.064(16), F.S., was amended to require domestic wastewater utilities that dispose of effluent, reclaimed water, or reuse water by surface water discharge to submit for DEP review and approval, a plan for eliminating non-beneficial surface water discharge by January 1, 2032. A utility must fully implement the approved plan by January 1, 2032. If a plan was not timely submitted or approved by DEP, the utility's domestic WWTFs may not dispose of effluent, reclaimed water, or reuse water by surface water discharge after January 1, 2028. Violations are subject to administrative and civil penalties pursuant to sections 403.121, 403.131, and 403.141, F.S.

2.6.2 Reclaimed Water Effluent Limits

In accordance with section 403.086(1)(c)3., F.S., 10 years after adoption of this BMAP, any WWTF providing reclaimed water that will be used for commercial or residential irrigation or be otherwise land applied within a nutrient BMAP or RAP area is required to meet AWT standards

for TN and total phosphorus (TP), such that the reclaimed water product contains not more, on a permitted annual average basis, of 3 mg/L of TN and 1 mg/L of TP if DEP has determined in an applicable basin management action plan or reasonable assurance plan that the use of reclaimed water is causing or contributing to the nutrient impairment being addressed. These requirements do not apply to reclaimed water that is land applied as part of a water quality restoration project or water resource development project approved by DEP to meet a TMDL or minimum flow or level and where the TN and TP will be at or below AWT standards prior to entering groundwater or surface water.

At the time of this BMAP adoption, all facilities providing reclaimed water that will be used for commercial or residential irrigation or be otherwise land applied within the BMAP area that were determined to be causing or contributing to the nutrient impairment pursuant to section 403.086(1)(c)3., F.S., are already subject to the 3 mg/L of TN and 1 mg/L of TP AWT effluent standards established in **Table 9** and **Table 10**. DEP may determine in a future iteration of the BMAP that certain WWTFs providing reclaimed water for the purpose of commercial or residential irrigation or that is otherwise being land applied within this BMAP area are causing or contributing to the nutrient impairments, which would require the WWTF to be at AWT standards or an alternative treatment standard pursuant to 403.086(1)(c)3., F.S., to achieve the TMDL(s) or applicable water quality criteria.

Facilities that are subject to the nitrogen and phosphorus limits set forth in section 403.086(1)(c)3., F.S., have 10 years from determination to meet the applicable AWT standards. For facilities that did not have adequate information to complete an evaluation or where a change occurred to the facility's application of reclaimed water after the initial evaluation (e.g., an increase in facility capacity or change in location of reclaimed water application), the department will evaluate the land application of reclaimed water as more information becomes available pursuant to section 403.086(1)(c)3., F.S.

All new permitted facilities providing reclaimed water that will be used for commercial or residential irrigation or be otherwise land applied within the BMAP area are required to meet AWT standards for TN in accordance with section 403.086(1)(c)3., F.S.

DEP encourages the reuse of treated wastewater for irrigation as a water conservation measure. The expansion of reuse water for irrigation can reduce reliance on the Floridan aquifer for water supply. The nitrogen load to groundwater from reuse water is expected to be reduced through these WWTF policies, as improvements in reuse water quality will both reduce loads from this source and minimize future increases in nutrient loading from reuse because of higher treatment levels.

2.6.3 Wastewater Treatment Facility Plans

Subparagraph 403.067(7)(a)9., F.S., requires local governments within a BMAP to develop WWTF plans to be adopted as part of nutrient BMAPs no later than July 1, 2025, if DEP identifies domestic wastewater as contributors of at least 20% of point source or nonpoint source nutrient pollution or if DEP determines remediation is necessary to achieve the TMDL. The

WWTF plans must be developed by each local government in cooperation with DEP, WMDs, and public and private domestic wastewater facilities within the jurisdiction of the local government. Each local government's wastewater treatment plan for this BMAP must contain the information outlined in Final Order 23-0135 for each existing or proposed domestic wastewater facility in the local government's jurisdiction. The WWTF plans are incorporated into this BMAP through the related management actions listed in this Section as well as those in **Appendix B**. Copies will be made available upon request subject to any public records requirements.

Subparagraph 403.067(7)(a)9., F.S., was amended in 2024 to clarify that private domestic wastewater facilities must provide this information to local governments effective July 1, 2024. Information related to private facilities will need to be included in future local government WWTF plans if not captured in the initial plans.

2.6.4 Connection to Sewer

The installation of new OSTDS within a BMAP area is prohibited where connection to sewer lines is available. For existing OSTDS, the owner must connect to sewer within 365 days of written notification by the utility that connection to its sewer line is available. A utility is statutorily required (section 381.00655, F.S.) to provide written notice to existing OSTDS owners regarding the availability of sewer lines for connection. Additionally, existing OSTDS needing repair or modification must connect to available sewer lines within 90 days of notification by DEP.

To facilitate an inventory of noncompliant properties, by February 2, 2026, and every two years thereafter, each utility with sewer lines in the BMAP shall provide DEP a list of properties with existing OSTDS where sewer is available (as defined in 381.00655, F.S.) but have not been connected. For each identified property, include the date(s) which the utility provided written notice to the owners of the availability of sewer.

2.6.5 Biosolids and Septage

To provide assurance that nitrogen and phosphorus losses to surface water and groundwater are minimized from the permitted application of biosolids and septage in the BMAP area, the requirements in Chapter 62-640 F.A.C. apply to newly permitted application sites and existing application sites upon permit renewal. Where biosolids materials mixed with yard waste or other organic materials are distributed as compost or soil amendments, DEP recommends the recipients of these materials be notified of their increased nutrient content, so that any fertilization practices on the site can be adjusted accordingly.

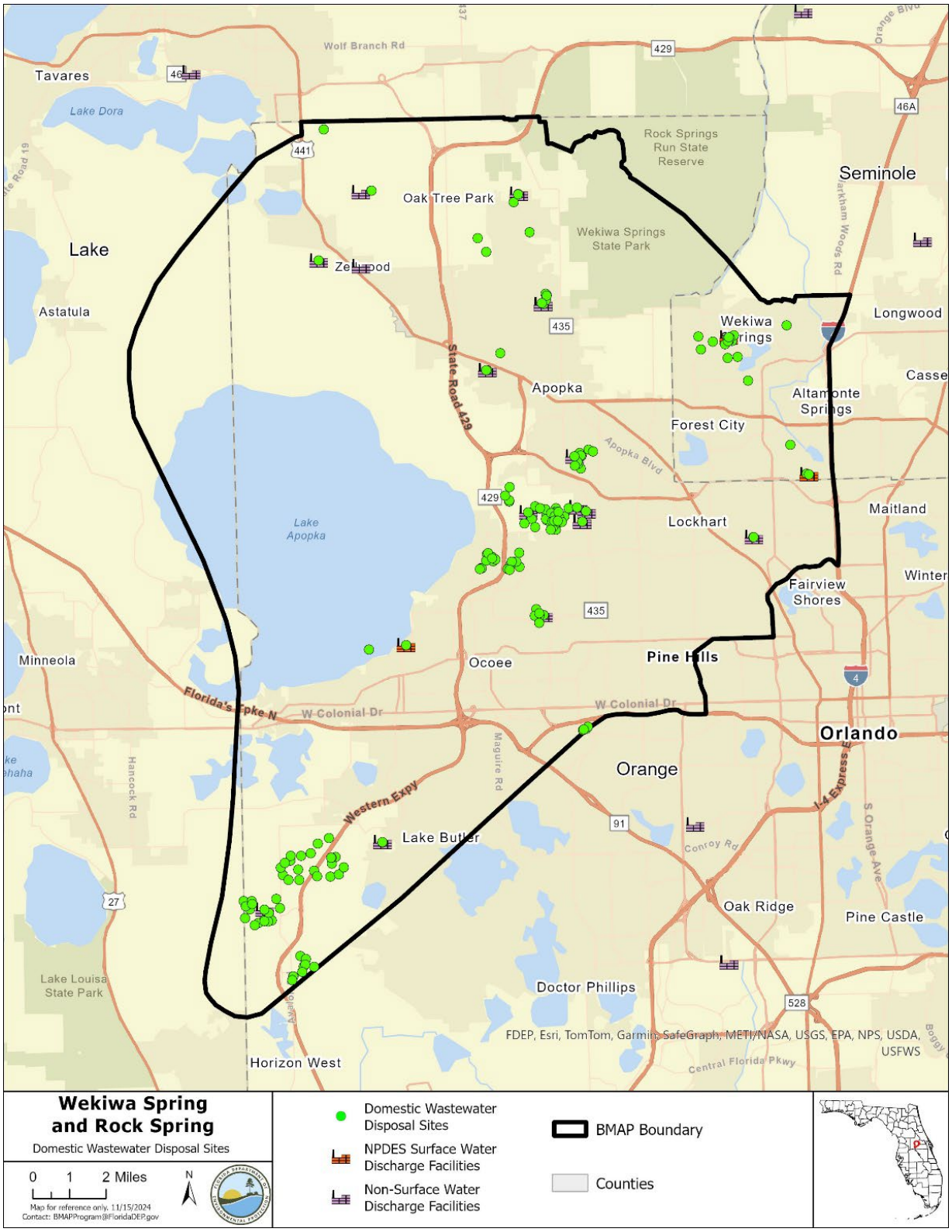


Figure 4. Locations of domestic WWTFs in the Wekiwa Spring and Rock Springs BMAP area

2.7 UTF Management Strategies

UTF consists of fertilizers applied to turfgrass typically found in residential and urban areas (including residential lawns and public green spaces). It is applied by either the homeowner or a lawn service company on residential properties, while on nonresidential properties they may be applied by contractors or maintenance staff. UTF can be addressed through a mix of efforts, including public education, enforcement of local ordinances (regulating fertilizer use and irrigation), land development codes or stormwater projects. Based on progress towards meeting the TMDL and water quality monitoring results, reduction requirements and crediting of projects such as fertilizer ordinances and education efforts may be reevaluated in future BMAP updates, particularly with respect to enforcement of fertilizer ordinances. As part of the annual reporting process, stakeholders will be required to provide a detailed and quantified description of their ordinance enforcement and environmental education activities to receive credits for these activities.

It is recommended that appropriate grasses are used based on soil characteristics, irrigation needs and fertilization needs. It is recommended that Bahia grass (*Paspalum notatum*), which is a durable grass that can be drought and heat tolerant should be used over St. Augustinegrass (*Stenotaphrum secundatum*) on sandy soils within spring BMAPs. Both homeowners and developers should follow the recommendations within the BMAP. If a local government has recommendations for what grasses should be used, DEP recommends that homeowners and developers follow them for the protection of water resources, if they are different than the BMAP.

Using reclaimed water is a way to distribute nutrients that need to be disposed of onto locations where nutrients are needed. However, caution needs to be exercised when applying nutrients (through fertilizer or reclaimed water) in the recharge area for the springs. For areas using reclaimed water for irrigation, it is important to understand the amount of nitrogen and phosphorus that is needed for the landscape and how much is being applied through reclaimed water. Monitoring the concentration of nitrogen and phosphorus in reclaimed water is important for understanding how much nutrients are being applied onto the urban landscape. The result may be that reclaimed water customers will not need to add more phosphorus or nitrogen, resulting in lower fertilizer costs and possibly fewer maintenance requirements and costs (e.g., mowing, turf replacement).

Given the limitations with the data used in the NSILT to estimate the UTF loading to groundwater, DEP will work with entities and other agencies to collect better data by requiring more detailed documentation on behavior changes and water quality improvements. In addition, DEP will work with stakeholders to improve measures to reduce residential and commercial property fertilizer application, such as requiring annual reporting on ordinance enforcement and results from local governments.

2.7.1 Fertilizer Ordinance Adoption

Subsection 373.807(2), F.S., requires local governments with jurisdictional boundaries that

include an OFS or any part of a springshed or delineated PFA of an OFS to develop, enact and implement a fertilizer ordinance by July 1, 2017. The ordinance is required to be based, at a minimum, on the DEP model ordinance for Florida-friendly fertilizer use on urban landscapes. As part of the annual reporting process, stakeholders will be required to provide a detailed and quantified description of their ordinance enforcement to receive credits for these activities.

2.7.2 Municipal Separate Storm Sewer System (MS4) Designations

Although loading from urban stormwater is not specifically estimated in the NSILT, urban stormwater is a considerable source of nutrient loading to Wekiwa Spring and Rock Springs and many urban areas are already regulated under the Municipal Separate Storm Sewer System (MS4) NPDES Stormwater Program. An MS4 is a conveyance or system of conveyances, such as roads with stormwater systems, municipal streets, catch basins, curbs, gutters, ditches, constructed channels, or storm drains. If an MS4 permittee is identified as a contributor in the BMAP, the permitted MS4 must undertake projects specified in the BMAP.

Regulated MS4s are required to implement stormwater management programs (SWMP) to reduce pollutants to the maximum extent practicable and address applicable TMDL allocations. Both Phase I and Phase II MS4 permits include provisions for the modification of SWMP activities. Phase I medium and large MS4s are regulated under an individual permit, with multiple permittees having coverage under the same permit as "co-permittees." Phase II small MS4s are regulated under a generic permit. Under the "NPDES Two-Step Generic Permit for Discharge of Stormwater from Phase II MS4s" (paragraph 62-621.300(7)(a), F.A.C.), regulated Phase II MS4s must develop a SWMP that includes BMPs with measurable goals and a schedule for implementation to meet six minimum control measures.

DEP can designate an entity as a regulated MS4 if its discharges meet the requirements of the rule and are determined to be a significant contributor of pollutants to surface waters of the state in accordance with Rule 62-624.800, F.A.C. A Phase II MS4 can be designated for regulation when a TMDL has been adopted for a waterbody or segment into which the MS4 discharges the pollutant(s) of concern. Because urban areas located in the BMAP that are not currently covered by an MS4 permit also significantly contribute to nutrient loading, individually or in aggregate, the NPDES Stormwater Program will evaluate any entity located in the BMAP area that serves a minimum resident population of at least 1,000 individuals that is not currently covered by an MS4 permit and designate eligible entities as regulated MS4s, in accordance with Chapter 62-624, F.A.C.

2.7.3 Stormwater Rule

On June 28, 2024, Governor Ron DeSantis signed Senate Bill 7040 into law, which updates Florida's stormwater rules and design criteria, including Chapter 62-330 F.A.C., to protect the state's waterways. The new regulations aim to manage runoff from developments, ensuring that future stormwater systems are better maintained. Operation and maintenance entities will be required to have estimates for the expected routine maintenance costs and to certify that they have the financial capability to maintain the stormwater system over time. The rule will also

provide for more consistent oversight through a required periodic inspection routine and reporting on the inspection results to the permitting agency.

Additionally, Chapter 62-330 F.A.C., establishes requirements for applicants to demonstrate, through calculations or modeling, that the future stormwater management systems would provide additional treatment to meet new Environmental Resource Permits stormwater treatment performance standards for an 80% reduction for TP and 55% reduction for TN, along with additional requirements that would apply where a project discharges to Outstanding Florida Waters or impaired waters. Additional permitting requirements to protect groundwater can be found within the Applicant Handbook Volume I, Section 8.5.2.

2.8 STF Management Strategies

Sports turfgrass areas fall into two main categories that are evaluated separately: golf courses and sporting facilities (such as baseball, football, soccer and other fields). There are seven golf courses covering 1,413 acres in the Wekiwa Spring and Rock Springs BMAP area. The golf course acreage is primarily located in high recharge areas. There are several sports fields covering 191 acres in the BMAP area. The majority of the sports field acreage is located in high recharge areas. DEP and UF-IFAS are collaborating to create a BMP manual addressing sports turfgrass management for public and private entities, which will be completed in 2025.

DEP will work with sports field managers and golf course superintendents to ensure relevant BMPs are implemented and to estimate reductions associated with these efforts. To improve the golf course loading estimate to groundwater over a literature-based approach, DEP will also confer with golf course superintendents to update fertilizer application rates based on site-specific data.

For other sports facilities, managers of sports fields can assist by reducing fertilizer use, using products that reduce leaching, and irrigating sports turf more efficiently.

2.8.1 Golf Courses

All golf course superintendents within the BMAP must obtain a certification for golf course BMPs (UF-IFAS Florida Golf Course Best Management Practices Program) under section 403.9339 F.S. and all golf courses must implement the BMPs described in the DEP golf course BMP manual, *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses (DEP, 2021)*. All golf courses located within a BMAP are required to submit an NMP to DEP that is designed to sustain even plant growth while minimizing excessive growth and nutrient losses. Required information for the NMP is available in **Appendix G**. A draft NMP must be submitted to DEP within one year of BMAP adoption and a final document is due two years after adoption. All soil, water and tissue sampling must include appropriate nitrogen and phosphorous analyses.

If a facility (either golf course or other sporting facility) uses fertilizer rates greater than those in the BMP manuals, the facility is required to conduct water quality monitoring prescribed by DEP

or a WMD that demonstrates compliance with water quality standards. Private golf courses in the BMAP area are listed in **Appendix I**.

2.9 Agricultural Sources Management Strategies

As presented in **Appendix H**, based on data including Florida Statewide Agricultural Irrigation Demand (FSAID) IX geodatabase land use, FDACS identified agricultural acreage within the BMAP. An estimated 16,666 acres of land in the BMAP are considered agricultural based on FDACS' assessment.

While agriculture is essential, it is important to manage potential environmental impacts associated with agricultural operations. Nitrogen and phosphorus, essential for crop growth, can enter waterways through various agricultural activities, including fertilizer application, livestock waste disposal and irrigation runoff. To address nutrient loading from agricultural operations effectively, it is necessary to have a balanced approach that supports agricultural productivity while safeguarding water resources. This entails promoting farming practices that optimize nutrient and water use efficiency, minimize runoff and enhance soil health.

Section 403.067, F.S., requires agricultural producers in adopted BMAPs either enroll and properly implement the applicable FDACS BMPs for their operation or to conduct water quality monitoring activities as required by Chapter 62-307, F.A.C. BMPs include practices such as nutrient management, irrigation management. and water resource protection. They can mitigate nutrient loading while promoting environmental stewardship. In many BMAPs, however, the implementation of BMPs alone will not be sufficient to meet water quality restoration goals, and regional projects and innovative technologies will be needed.

Information on agricultural enrollment and reductions in this BMAP was provided by FDACS and is available in **Appendix H**.

2.9.1 FF Loading

Nitrogen in agricultural fertilizer is applied at varying rates, depending on the crop and individual farm practices. The NSILT estimated total nitrogen load to groundwater from FF is 55,592 lbs/yr TN, or 5% of the total nitrogen load to groundwater in the BMAP area**.** FF includes commercial inorganic fertilizer applied to row crops, field crops, pasture, hay fields, and nurseries.

2.9.2 LW Loading

Agricultural practices specific to livestock management were obtained through meetings with UF-IFAS extension, FDACS, agricultural producers and stakeholders. The NSILT estimated total nitrogen load to groundwater from LW is 9,477 lbs/yr TN, or 1% of the total nitrogen load to groundwater in the BMAP area.

2.9.2.1 Dairies and Other Concentrated Animal Feeding Operations (CAFOs)

Dairies and other CAFOs permitted under Chapter 62-670, F.A.C., located within a BMAP, may not cause or contribute to a violation of water quality standards and must implement nutrient

management practices identified in their permits. To minimize infiltration of liquid manure, if a dairy uses a clay liner or some other type of engineered waste storage pond system, within two years of the BMAP adoption, the dairy will submit to DEP an evaluation identifying the environmental, technical and economic feasibility of upgrading to a concrete or geosynthetic liner. The evaluation may alternatively demonstrate that the existing liner/pond does not allow leaching that causes or contributes to water quality exceedances. Upon review of the evaluation, the DEP may identify required upgrades in a subsequent BMAP update.

Additionally, sampling for TN and TP of land applied effluent/wastewater must be included in the DEP-approved nutrient monitoring plan established in the permit and implemented in accordance with the monitoring plan.

2.9.2.2 Livestock Operations Without CAFO Permits

Livestock operations may not cause or contribute to a violation of water quality standards. Not all livestock operations are large enough to require an NPDES CAFO permit under Chapter 62-670, F.A.C. For these operations, section 403.067, F.S., requires the operation to enroll in the FDACS BMP Program and implement applicable BMPs or to conduct a monitoring program according to Chapter 62-307, F.A.C., that is approved by DEP or the applicable WMD.

2.9.3 Aquaculture

Under the federal Clean Water Act, aquaculture activities are defined as a point source. In 1999, the Florida Legislature amended Chapter 597, F.S., Florida Aquaculture Policy Act, to create a program within FDACS that requires those who sell aquatic species to annually acquire an Aquaculture Certificate of Registration and implement Chapter 5L-3, F.A.C., Aquaculture BMPs. Permit holders must be certified every year.

2.9.4 Silviculture

The Florida Forest Service (FFS) within FDACS is the lead entity responsible for assisting landowners, loggers, and forestry professionals with silviculture BMP implementation as well as for conducting statewide silviculture BMP training and compliance monitoring. The FFS implements Chapter 5I-6, F.A.C., and assists both private and public forest landowners across the state with BMP compliance and the rule. Compliance with the rule involves submitting a Notice of Intent to Implement BMPs (NOI) to the FFS and thereby committing to follow BMPs during all current and future silviculture operations.

2.9.5 Prioritized Management Strategies and Milestones

In addition to the above requirements, subsection 373.811(5), F.S., prohibits any new agricultural operations that do not implement either applicable FDACS BMPs, or measures necessary to achieve pollution reduction levels established by DEP, or groundwater monitoring plans approved by a WMD or DEP. Failure to implement BMPs or conduct water quality monitoring that demonstrates compliance with pollutant reductions may result in enforcement action by DEP (paragraph 403.067(7)(b), F.S.).

Every two years, FDACS is required to perform onsite inspections of each agricultural producer that enrolls in BMPs to ensure that the practices are being properly implemented. The

verification includes: review and collection of nutrient application records that producers must maintain to demonstrate compliance with the BMP Program; verification that all other applicable BMPs are being properly implemented; verification that any cost shared practices are being properly implemented; and identification of potential cost share practices, projects or other applicable BMPs not identified during enrollment. Rule 5M-1.008, F.A.C., outlines the procedures used to verify the implementation of agricultural BMPs. Producers not implementing BMPs according to the process outlined in Chapter 5M-1, F.A.C., are referred to DEP for enforcement action after attempts at remedial action by FDACS are exhausted. Failure to implement BMPs or conduct water quality monitoring that demonstrates compliance with pollutant reductions may result in enforcement action by DEP (paragraph 403.067(7)(b), F.S.).

Pursuant to paragraph 403.067(7)(c), F.S., where water quality problems are demonstrated despite the appropriate implementation, operation, and maintenance of adopted BMPs, DEP, a WMD or FDACS, in consultation with DEP, must conduct a reevaluation of the BMPs. If a reevaluation of the BMPs is needed, FDACS will include DEP, the appropriate WMD, and other partners in the reevaluation and BMP update processes.

FDACS works with applicable producers within the BMAP area to implement BMPs. As of July 2024, NOIs covered 3,975 acres in the Wekiwa Spring and Rock Springs BMAP area (3,975 of 7,610 adjusted agricultural acres). FDACS conducts an evaluation to determine if lands classified as agricultural have verified agricultural activity, and then adjusts the total agricultural acreage for enrollment accordingly, as described in **Appendix H.** Currently, no producers are conducting water quality monitoring in lieu of implementing BMPs. **Appendix B** lists project information. **Appendix H** provides detailed information on BMPs and agricultural practices in the BMAP area.

2.9.6 Agricultural Cooperative Regional Elements

Section 403.067, F.S., requires FDACS, DEP, and agricultural producers to work together to establish Agricultural Cooperative Regional Water Quality Elements (ACE) in BMAPs where agricultural nonpoint sources contribute at least 20% of nonpoint source nutrient discharges to impaired waterbodies, or where DEP determines this element is necessary to achieve the TMDLs. FDACS is responsible for providing DEP a list of projects which, in combination with BMPs, state-sponsored regional projects and other management strategies, will achieve the needed pollutant load reductions established for agricultural nonpoint sources. The list of projects included in the ACE must include a planning-level cost estimate of each project along with the estimated amount of nutrient reduction that project will achieve. Partner agencies and key stakeholders referred to in this process include FDACS, DEP and agricultural producers.

Addressing nutrient loading from agricultural sources requires partnership among the key stakeholders, and consultation with the WMDs. By fostering cooperation and engagement, the ACE framework facilitates the exchange of knowledge, resources, and expertise, leading to innovative solutions and effective strategies for tackling water quality challenges. Engaging producers in the decision-making process ensures that projects are practical, feasible, and

tailored to the needs and realities of agricultural operations. Partner agencies provide technical support, regulatory guidance, and funding opportunities that will enhance the implementation and success of regional water quality improvement initiatives. This cooperative effort is essential for implementing targeted actions that balance the economic and social benefits of agriculture with the obligation to address agricultural nonpoint source loading beyond BMP implementation and cost share.

The ACE framework leverages resources and technical expertise to efficiently identify regional projects and other strategies tailored to the diverse agriculture production methods, landscapes, and watersheds that will need to be implemented to achieve the TMDLs. Regional project types will vary among the different BMAPs, and can include, but are not limited to, a combination of traditional projects that focus on water treatment, land acquisition in fee or conservation easements on the lands of willing sellers, site-specific water quality improvement projects, dispersed water management projects, innovative technologies, and regional projects funded through existing or enhanced cost share programs administered by FDACS or the WMDs.

While FDACS is assigned the lead role on project solicitation, development, selection, and implementation, they work closely with all the key stakeholders, including DEP, to define and identify regional projects that will be included in the BMAP and to leverage existing programs and resources. FDACS will lead engagement with producers and industry groups through workshops to identify potential regional projects. Identified projects will be implemented through various mechanisms, such as existing cost share or grant programs or through a legislative budget request and eventual appropriation. Upon identification of a project, FDACS will update DEP on project development and implementation, including the funding strategy.

FDACS and DEP will work together to track progress on agricultural water quality projects under the ACE framework through the development of performance metrics and evaluation of water quality monitoring data in the basin or, if necessary, at the project level. The default performance measures will be the expected range of pollutant removal efficiencies associated with a project or strategy. Tools may be needed to determine the effectiveness of projects, such as modeling and where feasible onsite water quality monitoring.

FDACS will report on ACE projects annually through DEP's Statewide Annual Report (STAR) process and during BMAP update and/or development. Projects and other management strategies implemented through the ACE will be evaluated cooperatively by partner agencies using the predetermined performance metrics. The ACE process provides for adaptive management, allowing flexibility to adapt and improve based on regional project or management strategy results.

Agricultural sources contribute 5% of the TN nutrient sources in the Wekiwa Spring and Rock Springs BMAP. The department has determined that additional measures, in combination with state-sponsored regional projects, BMPs and other management strategies included in the Wekiwa Spring and Rock Springs BMAP, are necessary to achieve the TMDLs. Pursuant to

subparagraph 403.067(7)(e)1., F.S., an ACE is required in this BMAP. Most agricultural lands are engaged in livestock production **Table 11** shows the three dominant crop types within the Wekiwa Spring and Rock Springs BMAP.

Table 11. Dominant crop types in the Wekiwa Spring and Rock Springs BMAP

Crop Type	Acres
Grazing Land	4,878
Row Crops	2,610
Nursery	1,284

Targeting future funding toward precision agriculture, manure management, innovative technologies or soil health practices, including combining practices where applicable, to address nutrient impacts from row crop production on a regional scale could provide additional reductions.

FDACS will continue to work with key stakeholders in the Wekiwa Spring and Rock Springs BMAP to identify additional options for addressing agricultural nonpoint source nutrient loading. For more information on the FDACS Regional Projects Program, see the links in **Appendix H**.

2.10 Atmospheric Deposition Management Strategies

2.10.1 Summary of Loading

Atmospheric deposition is largely a diffuse, albeit continual, source of nitrogen. Nitrogen species and other chemical constituents are measured in wet and dry deposition at discrete locations around the U.S. In 2014, Schwede and Lear developed a hybrid model for estimating the total atmospheric deposition of nitrogen and sulfur for the entire U.S., referred to as the total atmospheric deposition model (TDEP). Deposition data from several monitoring networks, including the Clean Air Status and Trends Network (CASTNET); the National Atmospheric Deposition Program (NADP) Ammonia Monitoring Network; the Southeastern Aerosol Research and Characterization Network; and modeled data from the Community Multiscale Air Quality (CMAQ) Modeling System—are combined in a multistep process with National Trends Network (NTN) wet deposition values to model total deposition. The TDEP model run used for the NSILT included data from 2019 to 2020.

2.10.2 Description of Approach

Atmospheric sources of nutrients are local, national, and international. Nitrogen atmospheric sources are generally of low concentration compared with other sources and are further diminished through additional biological and chemical processes before they reach groundwater. Himes and Dawson (2017) indicates that emissions of nitrogen have been generally decreasing in Florida with an up to 55% decrease in emissions estimated by 2028, possibly related to power plant fuel source changes and air treatment upgrades as well as the increased use of electric vehicles, decreasing mobile sources (Himes and Dawson, 2017). This gradual decrease in emissions is likely to result in reductions to atmospheric deposition (**Figure 5**). Currently, since the scale of the national and international programs to address these air deposition loads are

difficult to integrate into the much smaller scale of this water quality plan, there are no specific reductions assigned to this source category. Atmospheric deposition sources and trends will be re-evaluated periodically.

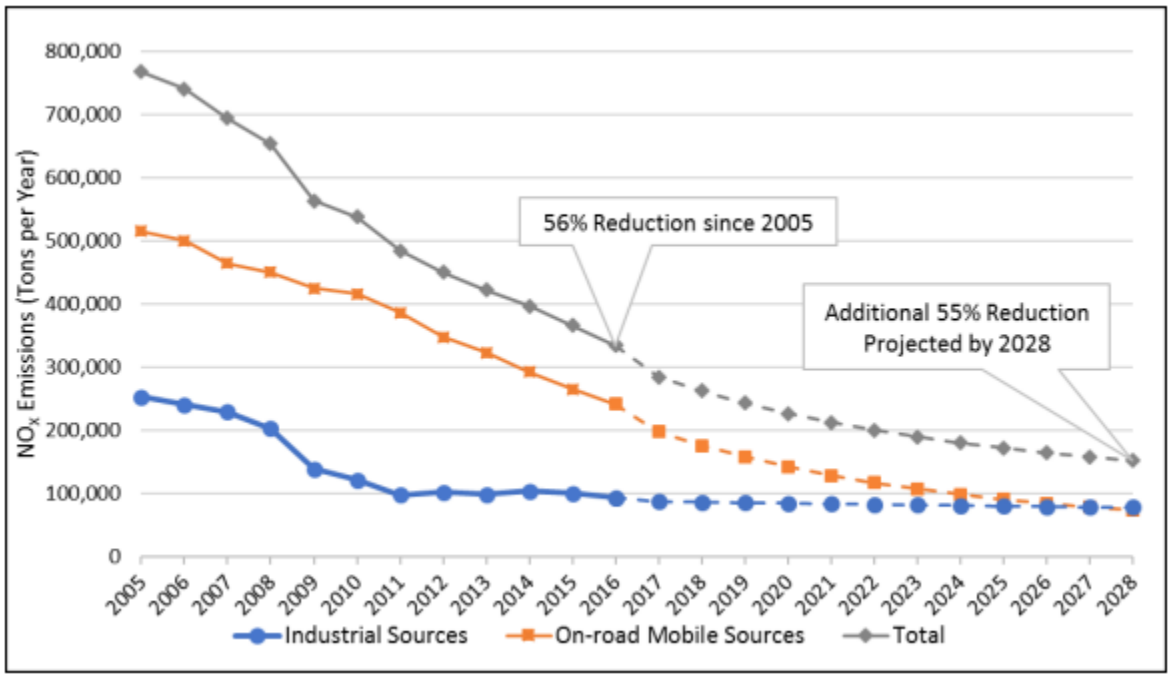


Figure 5. Florida NOx emissions for 2005 to 2016 and projected emission decreases for 2017 to 2028 from industrial and on-road mobile sources

2.11 Future Growth Management Strategies

Nutrient impacts from new development are addressed through a variety of mechanisms outlined in this BMAP, as well as provisions of Florida law. While most of the restoration projects and management strategies listed in this BMAP address current nutrient loading, the need to plan and implement sound management strategies to address additional population growth must be considered.

DEP has included in this BMAP specific elements to address current and future WWTF effluent, OSTDS loading and stormwater sources. Broader requirements—such as local land development regulations, comprehensive plans, ordinances, incentives, environmental resource permit requirements, and consumptive use permit requirements—all provide additional mechanisms and avenues to protect water resources and reduce the impact of new development and other land use changes as they occur.

Further strengthening of comprehensive plans is addressed under section 163.3177, F.S., which required local governments to amend their comprehensive plans with the following considerations:

- Identify and prioritize projects to meet the TMDLs.

- Update the wastewater section to include plans for treatment updates—not just capacity—and AWT must be prioritized.
- In developments with more than 50 lots with more than one OSTDS per acre, the plan must consider the feasibility of providing sanitary sewer within a 10-year planning horizon and identify the facility that could receive the flows. The plan must review the capacity of the facility and any associated transmission facilities; projected wastewater flow at that facility for the next 20 years, including expected future new construction and connections of OSTDS to sanitary sewer; and timeline for the construction of the sanitary sewer system. The plan was required to be updated by July 1, 2024.
- Comprehensive plans must contain capital improvements element to consider the need for and the location of public facilities:
    - Construction, extension, or increase in capacity of public facilities as well as principals for correcting existing public facility deficiencies. Components must cover at least a 5-year period.
    - Costs, timeline, general location, and projected revenue sources to fund the facilities.
    - Standards to meet an acceptable level of service.
    - Schedule of capital improvements, which may include privately funded projects.
    - A list of projects necessary to achieve the pollutant load reductions attributable to the local government, as established in a BMAP.
    - The element must address coordinating the extension of, increase in the capacity of, or upgrade in treatment of facilities to meet future needs; prioritizing AWT while maximizing the use of existing facilities and discouraging urban sprawl; conserving potable water resources; and protecting the functions of natural groundwater recharge areas and natural drainage features.

Through this array of laws and the requirements in this BMAP, new development must undertake certain nutrient-reduction measures before the development is complete. DEP recommends that local governments revise their planning and land use ordinance(s) to adequately address future growth and the associated environmental impact. Maintaining land at lower intensity uses through land purchases or easements for conservation and recreational use is one strategy that can help reduce water quality impacts in the basin. Any additional nutrient loading from land use intensification will be evaluated during future BMAP update efforts. If an increase in loading occurs, a responsible entity may receive new reduction allocations that will require additional management actions by the responsible entity to mitigate those water quality impacts.

2.11.1 Future Growth Analysis

An analysis was done to consider the impacts of future population growth and urban development on loading in the basin. Wastewater sources were evaluated using per-person

estimations calculated for portions of the population estimated to be served by OSTDS and those connected to central sewer. Stormwater sources were evaluated using per-acre estimations calculated for portions of a jurisdictional area that may be developed.

First, population growth for each county was taken from the Bureau of Economic and Business Research (BEBR) 2040 Medium Growth Projections. Then, a spatial analysis was performed to determine the proportion of developable land area attributed to each entity within each county. Areas where there are permanent waterbodies or which have been set aside for conservation are unlikely to see future development or increased population, so lakes and ponds identified in the National Hydrography Database (NHD) and Florida Natural Areas Inventory (FNAI) conservation lands were not considered developable and were removed from the analysis. The percentage of remaining land attributed to each entity was applied to the county projected population growth to determine the number of additional people anticipated to contribute to loading by 2040.

The next step was to distinguish the future population expected to be served by sewer versus those with OSTDS based on the most recent FLWMI for each BMAP county. For this, FLWMI parcels within each entity's jurisdiction were counted and categorized based on the Wastewater Type field. The number of points in "Known Sewer," "Likely Sewer," and "Somewhat Likely Sewer" divided by the total number of points estimated a portion of the population that are served by central wastewater collection system. The remainder are assumed to have an OSTDS.

Per person loading calculations were used to estimate future loads from WWTFs and OSTDS under different planning scenarios, described below. DEP's Domestic Wastewater Program estimates each person in Florida generates 100 gallons of wastewater per day. For OSTDS, FDOH estimates each person in Florida generates 10 lbs TN/yr. Average attenuation for wastewater effluent disposal and a weighted basin recharge factor were applied to loading calculations to derive the estimated future load to groundwater.

Per acre loading calculations were used to estimate future loads from increased urban turfgrass as a result of development under different planning scenarios, described below. First, a number of developed acres were derived by applying percentages to the developable lands from the initial GIS analysis for each entity. Then, the loadings were based on UF-IFAS recommended fertilization rates for different turfgrass species. Finally, attenuation for UTF and a weighted basin recharge factor were applied to loading calculations to derive the estimated future load to groundwater.

Scenario 1 represents a future planning scenario with the highest levels of treatment feasible. It assumes all local governments within the BMAP have a minimum of 90% of their population served by centralized sewer, and all domestic wastewater will be treated to AWT standards (3 mg/L TN or less and 1mg/L TP or less) by 2040 based on current Florida law and BMAP management strategies. This scenario also assumes that all future OSTDS will be enhanced nutrient-reducing systems or other wastewater systems with a nitrogen treatment efficiency of at least 65%. For urban development, this scenario represents a conservative growth future where

2% of developable land is converted to urban, development codes only allow a 10% coverage of turfgrass, and the species used is centipedegrass, which has low TN fertilization requirements.

Scenario 2 utilizes the current rates of sewer availability based on the FLWMI parcels to estimate the population served by central wastewater collection system. This future planning scenario assumes that all domestic wastewater will be treated to AWT standards (3 mg/L TN or less and 1mg/L TP or less) by 2040 based on current Florida law and BMAP management strategies. This scenario also assumes that all future OSTDS will be enhanced nutrient-reducing systems or other wastewater systems with a nitrogen treatment efficiency of at least 65%. For urban development, this scenario represents a moderate growth future where 10% of developable land is converted to urban, development codes only allow a 10% coverage of turfgrass, and the species used is centipedegrass, which has low TN fertilization requirements.

Scenario 3 represents a future planning scenario with the lowest levels of treatment feasible. It utilizes the current rates of sewer availability based on the FLWMI parcels to estimate the population served by central wastewater collection system and assumes that all domestic wastewater will be treated to 6 mg/L TN and 3 mg/L TP by 2040. This scenario also assumes that all future OSTDS will be conventional systems. For urban development, this scenario represents an extreme growth future where 17% of developable land is converted to urban, development codes allow up to 25% coverage of turfgrass, and the species used is St. Augustine grass, which has higher TN fertilization requirements.

Based on the methodology above, **Table 10** shows the estimated future loads from wastewater and urban stormwater sources that may be assigned to local governments if growth continues as projected under the three planning scenarios. DEP encourages local governments to consider these additional nutrient loads when authorizing new development or changes in land uses, and when developing local plans for wastewater infrastructure expansion and maintenance, to ensure that the TMDL target is achieved and maintained.

Table 12. Estimated nitrogen load from future growth in the BMAP area

Entity	BEBR 2040 Additional Population	2040 Additional Nitrogen Loading Scenario 1 (lbs/yr)	2040 Additional Nitrogen Loading Scenario 2 (lbs/yr)	2040 Additional Nitrogen Loading Scenario 3 (lbs/yr)
City of Altamonte Springs	1,240	323	530	4,441
City of Apopka	15,397	7,375	8,636	37,841
City of Maitland	723	169	228	1,421
City of Ocoee	7,473	1,746	2,012	14,008
City of Orlando	1,538	377	503	3,061
City of Winter Garden	7,626	1,909	2,534	15,256
Lake County	1,816	763	2,433	10,073

Entity	BEBR 2040 Additional Population	2040 Additional Nitrogen Loading Scenario 1 (lbs/yr)	2040 Additional Nitrogen Loading Scenario 2 (lbs/yr)	2040 Additional Nitrogen Loading Scenario 3 (lbs/yr)
Orange County	44,472	21,730	43,082	145,573
Seminole County	3,301	796	1,268	11,538
Town of Eatonville	269	69	91	541
Town of Montverde	6	2	9	33
Town of Oakland	1,016	237	103	1,563
Town of Windermere	327	76	30	497
Basin Totals	**85,203**	**35,573**	**61,459**	**245,847**

Scenario 1 resulted in an additional basin load of 35,573 lbs/yr TN. Scenario 3 resulted in an additional basin load of 245,847 lbs/yr TN. When compared to the results of the Wekiwa Spring and Rock Springs NSILT (1,213,232 lbs/yr TN), it is estimated that growth in the basin could result in a 3% to 20% increase in nitrogen loading to the groundwater by 2040.

While it is unlikely that additional nutrient loading from future populations can be entirely avoided, the results of this analysis provide local governments information on how to mitigate future nitrogen loading by pursuing planning scenarios which prioritize the expansion of centralized sewer services that meet or exceed AWT standards for wastewater effluent. Entities with minor changes in 2040 loading under Scenarios 1 and 2 already have a high rate of sewering in their jurisdiction.

This broad analysis is not being used to determine allocated reductions for responsible entities because it does not capture all local considerations and complexities of mixed land use, or current allocation approaches for wastewater. In addition, changes in nutrient loading from future population and development are difficult to model because much of it is dependent on the type and location of development, enforcement of local ordinances, future home values, and future social attitudes towards lawn maintenance and waste management. There are also complex dynamics associated with new urban development in which loading from human activities is compounded by potential removal or conversion of forest lands or green spaces, which had previously provided natural remediation of atmospheric and soil nutrients, as well as other ecosystem benefits. However, the results show trends in how loading in the basin might change in the coming decades without comprehensive local and regional planning.

Other mechanisms discussed in this section are available to local governments to further mitigate future nutrient loading from existing and future developed land. For example, strengthening and enforcing fertilizer ordinances, working with homeowners' associations or neighborhood groups to reduce fertilizer use on community landscaping, or incentivizing Florida Friendly development practices could reduce the overall impact of additional nutrient loading associated with urban fertilizer. Additionally, wastewater can be treated to higher standards than those built

into this analysis through upgrades to WWTFs and use of enhanced nutrient-reducing OSTDS certified with higher nitrogen treatment efficiencies or other wastewater treatment systems with higher treatment levels. Local governments can use this information to incorporate water quality considerations when developing and implementing local ordinances, comprehensive plans, stormwater planning, and enhanced OSTDS incentive programs in areas of urban expansion.

2.12 Funding Opportunities

Chapter 2023-169, Laws of Florida, expanded grant opportunities for local governments and eligible entities working to address a TMDL or impaired water. When funding is available, eligible entities can also apply for grant funding for stormwater, regional agricultural projects, and a broader suite of wastewater projects including collection systems and domestic wastewater reuse through the Water Quality Improvement Grant program. Projects are prioritized that have the maximum nutrient load per project, demonstrate project readiness, are cost-effective, have cost-share by the applicant (except for Rural Areas of Opportunity), have previous state commitment, and are in areas where reductions are most needed. There are multiple competitive funding resources available under the Protecting Florida Together website, including $50 million in springs-specific funding.

Financial and technical assistance through FDACS and the SJRWMD are available to agricultural producers within the Wekiwa Spring and Rock Springs BMAP. FDACS provides outreach and education on BMP implementation for enrolled operations, as well as working with interested producers to provide cost share funding for projects to improve on-farm nutrient and irrigation efficiencies that work in tandem with the applicable practices from the producer's BMP checklist. The SJRWMD cost share program also provides outreach and funding for projects that provide nutrient and irrigation management benefits. FDACS and the SJRWMD work closely to ensure their cost share programs complement each other to meet the needs of the producers while considering the characteristics of the region.

Section 3. Monitoring and Reporting

3.1 Methods for Evaluating Progress

DEP will work with stakeholders to track project implementation and organize and evaluate the monitoring data collected each year. The project and monitoring information will be presented in an annual update. Stakeholders have agreed to meet annually after the adoption of the BMAP to follow up on plan implementation, share new information, and continue to coordinate on TMDL restoration related issues. The following activities may occur at annual meetings.

Implementation data and reporting:

- Collect project implementation information from stakeholders, including FDACS agricultural BMP enrollment and FDOH-issued permits, and compare with the BMAP schedule.
- Discuss the data collection process, including any concerns and possible improvements to the process.
- Review the monitoring plan implementation, as detailed in **Section 3.3**.

Sharing new information:

- Report on results from water quality monitoring and trend information.
- Provide updates on new management strategies in the basin that will help reduce nutrient loading.
- Identify and review new scientific developments on addressing nutrient loads and incorporate any new information into annual progress reports.

Coordinating on TMDL restoration-related issues:

- Provide updates from DEP on the basin assessment cycle and activities related to any impairments, TMDL, and BMAP.
- Obtain reports from other basins where tools or other information may be applicable to the TMDL.

3.2 Adaptive Management Measures

Adaptive management involves making adjustments in the BMAP when circumstances change or monitoring indicates the need for additional or more effective restoration strategies. Adaptive management measures may include the following:

- Implementing procedures to determine whether additional cooperative strategies

are needed.

- Using criteria/processes for determining whether and when plan components need revision because of changes in costs, project effectiveness, social effects, watershed conditions or other factors.

- Revising stakeholders' roles during BMAP implementation and after BMAP completion.

- Updating information on corrective actions (and any supporting documentation) being implemented as data are gathered to refine project implementation schedules and performance expectations.

Key components of adaptive management are tracking plan implementation, monitoring water quality and pollutant loads, and holding periodic meetings.

3.3 Water Quality Monitoring

3.3.1 Objectives

Focused objectives are critical for a monitoring strategy to provide the information needed to evaluate implementation success. Since the BMAP implementation involves an iterative process, the monitoring efforts are related to primary and secondary objectives. The primary objectives focus on achieving water quality targets, while the secondary objectives focus on sub-regional effectiveness of projects and management strategies and other water quality parameters that can be used to provide information for future refinements of the BMAP. The monitoring strategy may be updated as necessary.

Primary objectives:

- Measure the water quality and biological response in the impaired springs and groundwater at the beginning of the BMAP period and during implementation.

- Document nutrient trends in the Wekiwa Spring and Rock Springs Basin.

Secondary objectives:

- Identify areas where groundwater data and modeling might help in understanding the hydrodynamics of the system.

- Evaluate groundwater quality trends and nutrient loading to the aquifer across the basin.

- Confirm and refine nutrient removal efficiencies of agricultural and/or urban BMPs, projects and other management efforts.

3.3.2 Parameters, Frequency and Network

To achieve the objectives listed above, the monitoring strategy will focus on two types of indicators to track improvements in water quality at the spring vents and in the groundwater: core and supplemental (**Table 11** and **Table 12**, respectively). The core indicators are directly related to the parameters causing impairment in the associated springs. Supplemental indicators will be monitored primarily to support the interpretation of core water quality parameters. The monitoring network is established for a variety of purposes.

For this BMAP, nitrate is the core parameter measured, to track progress in decreasing nitrogen concentrations in groundwater and the water surfacing at the spring vents. The other parameters are considered supplementary parameters for the BMAP, as they build information about groundwater and the springs but are not direct measurements of impairment.

At a minimum, the core parameters will be tracked to determine the progress that has been made toward meeting the TMDLs and/or achieving the numeric nutrient criteria (NNC). Resource responses to BMAP implementation may also be tracked. A significant amount of time may be needed for changes in water chemistry to be observed.

Table 13. Core water quality indicators and field parameters for spring vents and groundwater

Core Parameters
TN
Total Kjeldahl Nitrogen
Nitrate as Nitrogen
Orthophosphate as Phosphorus
TP

Table 14. Supplemental water quality indicators and field parameters for spring vents and groundwater

Supplemental Parameters
Specific Conductance
Dissolved Oxygen (DO)
pH
Temperature
Total Suspended Solids (TSS)
Total Dissolved Solids (TDS)
Turbidity
Chloride
Color
Ammonia (as nitrogen [N])
Total Organic Carbon
Calcium

Supplemental Parameters
Magnesium
Sodium
Potassium
Sulfate
Fluoride
Alkalinity

Surface water and groundwater monitoring network locations were selected to track changes in water quality and allow the annual evaluation of progress toward achieving the TMDL. **Figure 6** shows the locations of the river and spring stations currently being sampled that will be used for the BMAP monitoring in the Wekiwa Spring and Rock Springs Basin. Station locations for the monitoring networks will be reviewed and modified as needed.

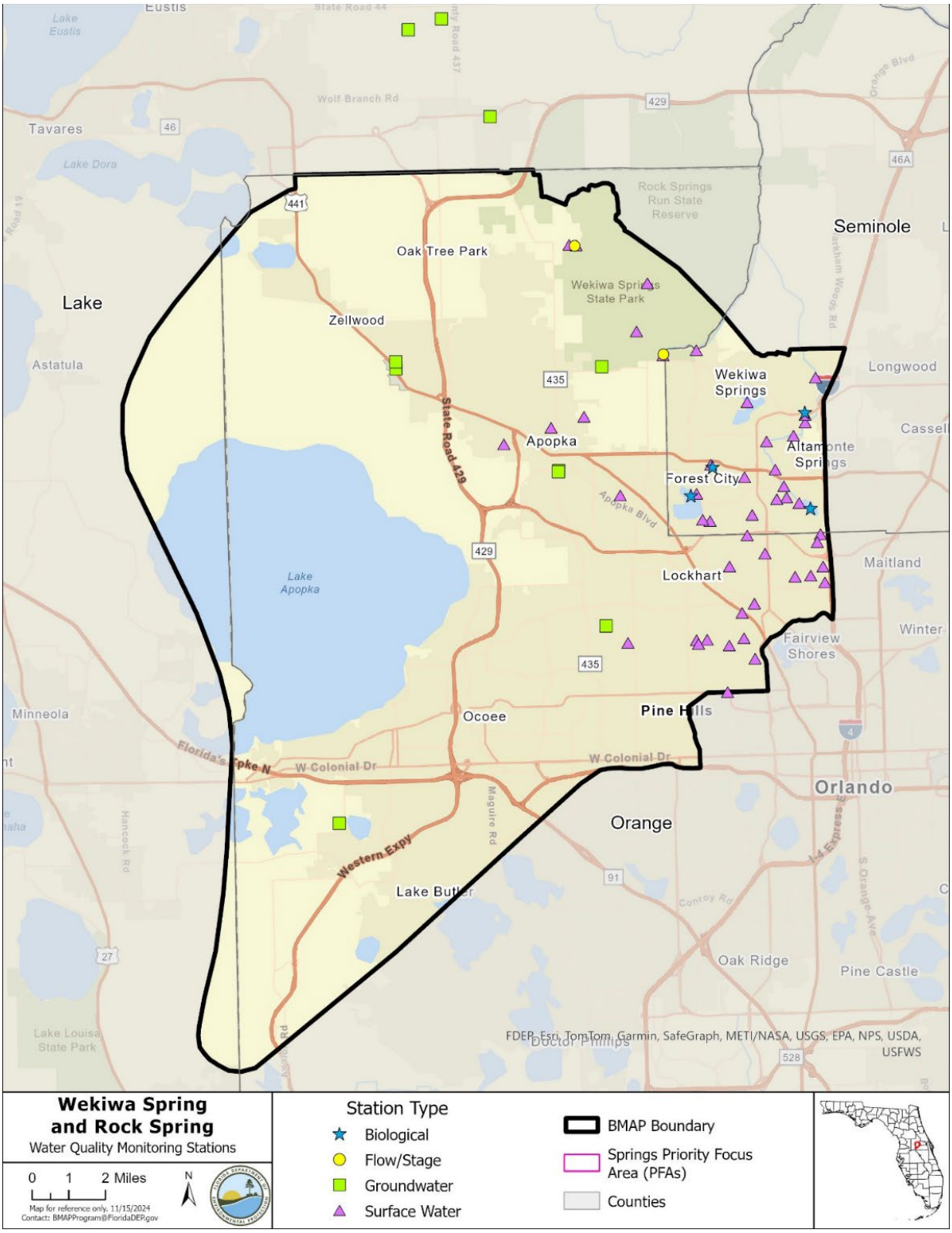


Figure 6. Water quality monitoring stations in the Wekiwa Spring and Rock Springs BMAP

3.3.3 Nutrient Monitoring

Water quality is monitored to evaluate progress towards achieving the TMDL target of 0.286 milligrams per liter (mg/L) of nitrate-nitrite to be protective of the aquatic flora and fauna. Surface water quality data are collected at the spring vents to determine if the TMDL nitrate targets are being achieved, and once achieved, are being maintained. Flow data are collected in support of the secondary objective of estimating total mass loading of nitrate at the vent and can be used to evaluate TN loading in the BMAP. Groundwater well data are collected to evaluate aquifer conditions in the source water for the springs. A robust groundwater monitoring program can be used to evaluate TN loading in the BMAP. Monitoring may give an indication of future changes in spring vents concentrations as nutrient levels in the groundwater are expected to respond to changes in loading prior to the spring vent due to transport time to the spring vents.

3.3.3.1 Spring Sampling

Samples are collected quarterly at both spring vent stations. Discharge measurements are recorded daily by the WMD. **Figure 7** and **Figure 8** display the nitrate plus nitrite concentration at the Wekiwa Springs and Rock Springs spring vent stations.

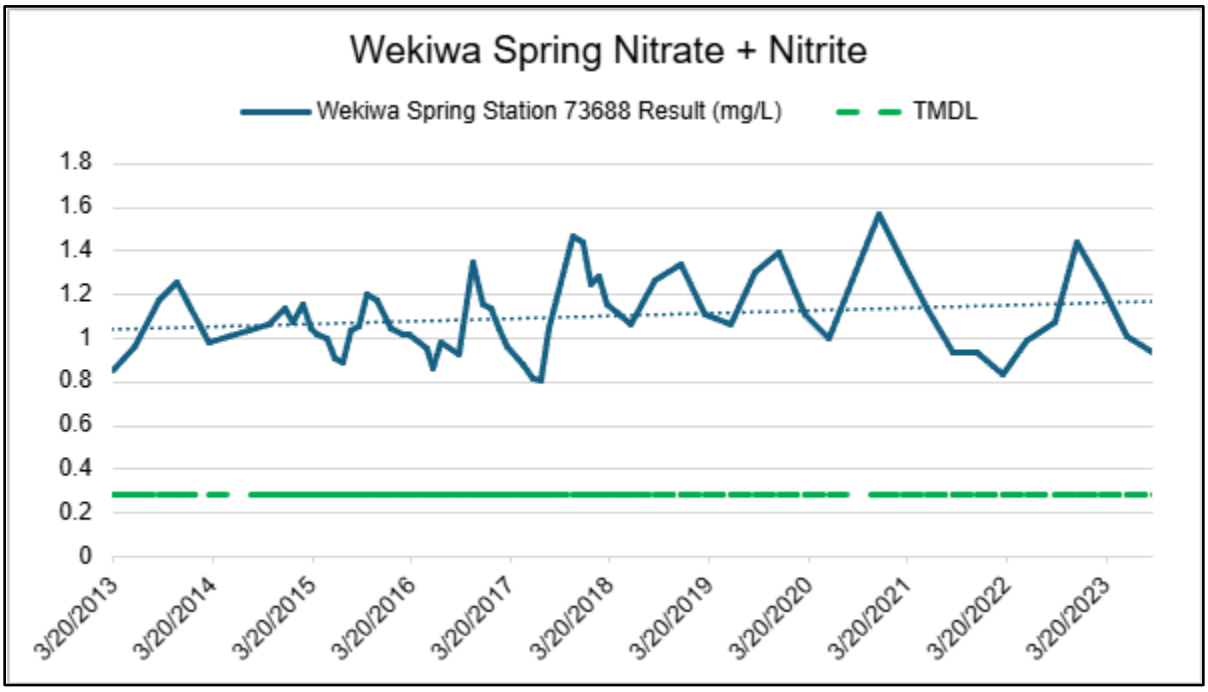


Figure 7. Nitrate plus nitrite concentration over time at the Wekiwa Springs station

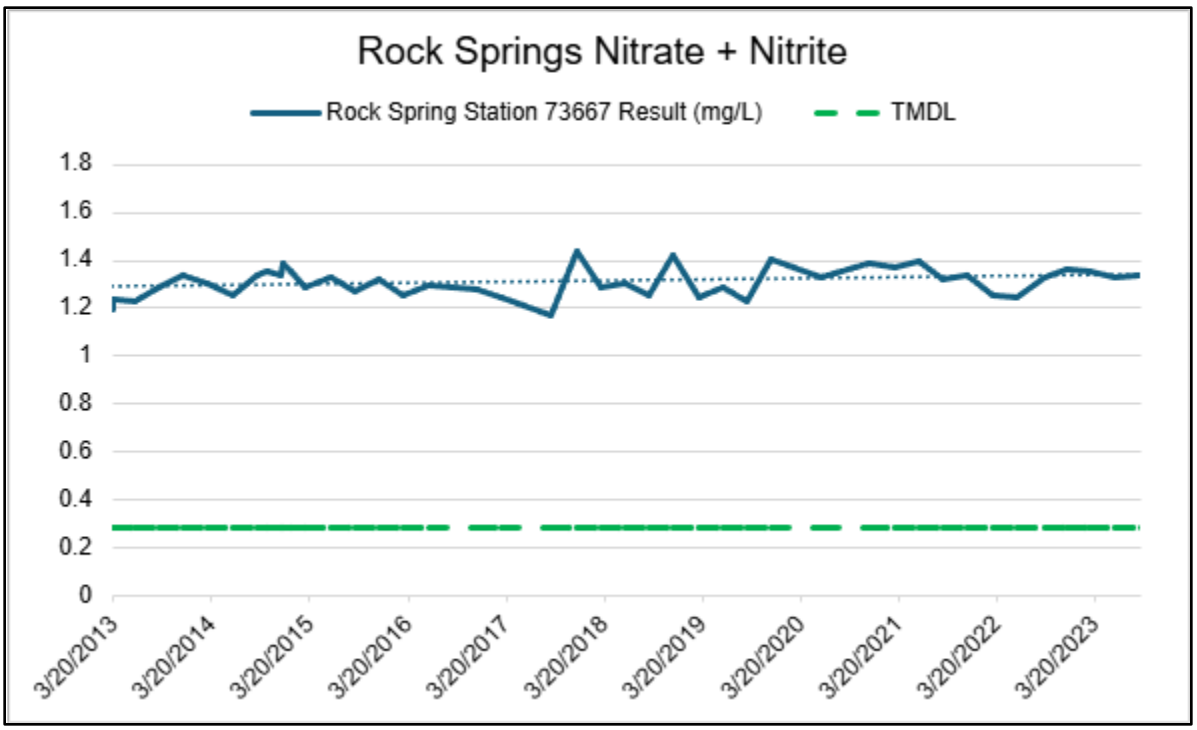


Figure 8. Nitrate plus nitrite concentration over time at the Rock Springs station

3.3.3.2 Groundwater Results and Discussion

Data from groundwater monitoring wells were obtained from DEP's Water Information Network (WIN) database and SJRWMD. To determine what wells would be included in the analysis, the frequency of sampling was considered. Wells that were sampled regularly through the period of record were considered "fixed". Wells with inconsistent sampling (i.e. less than four samples over the period of record) were considered "sporadic". Data from the fixed wells were preferred for analyses because comparisons between time periods represent changes in the same set of wells. In Wekiwa Spring and Rock Springs BMAP there has been limited collection of groundwater samples. There is insufficient data to perform an analysis of fixed or sporadic groundwater data within the Wekiwa Spring and Rock Springs BMAP area.

DEP is working to evaluate monitoring networks in this basin and develop a sampling schedule that will allow for trend analysis of groundwater conditions in future iterations of the BMAP. A review of spatial distribution and well construction details will allow DEP to focus monitoring efforts that will provide the most informative data about groundwater trends and potentially nitrogen loading.

3.3.4 Biological Monitoring

Biological resource responses represent improvements in the overall ecological health of the Wekiwa Spring and Rock Springs BMAP area (see **Table 13**). DEP recommends that several types of biological monitoring be conducted to assess the health of the Wekiwa Spring and Rock Springs.

Table 15. Biological response measures for spring runs

Biological Response Measures	Target Community	Sampling Methods
Chlorophyll *a*	Phytoplankton	DEP standard operating procedure (SOP) FS 2100
Stream Condition Index (SCI) score	Aquatic Macroinvertebrates	DEP SOP SCI 1000
Linear Vegetation Survey (LVS) score	Aquatic Vegetation	DEP SOP FS 7320
Rapid Periphyton Survey (RPS) score	Attached Algae (Periphyton)	DEP SOP FS 7230

The RPS is a rapid assessment tool for evaluating streams' ecological condition based on the attached algae. The RPS quantifies periphyton length and extent in a 100-meter stretch of a stream by assigning a rank category to the length of periphyton filaments. The LVS is a rapid assessment tool for evaluating the ecological condition of streams based on the nativity status and relative human disturbance tolerance of vascular plants. The RPS, LVS, and chlorophyll *a* are used to evaluate the floral integrity of the springs.

The SCI evaluates the aquatic macroinvertebrate community present in the river and/or springs. In addition, habitat assessments are conducted per DEP SOP FT 3100 to assess the habitat present to support the aquatic macroinvertebrates. Water quality samples and field measurements of physical water quality are collected with the biological monitoring.

3.3.4.1 Bioassessment Pilot Project

The BMAP was listed as impaired because of an imbalance of flora and fauna attributed to nutrients, specifically the level of nitrate. DEP and other agencies and local governments across the state conduct surveys of vegetation along numerous transects in a spring runs, measuring macrophytes and algae percent cover and biomass. As water quality projects and management strategies are implemented, a more intensive and routine monitoring approach is needed to measure biological changes as progress is made towards the TMDL. Existing bioassessment tools are include, RPS, SCI or Biorecon, and LVS. DEP, in collaboration with the SJRWMD and Southwest Florida Water Management District (SWFWMD), implemented a pilot study in 2022 to develop a robust monitoring plan to measure biological response over time using an adjustment to the above tools to be able to develop a routine protocol that can be consistently used across unique spring runs. One of the goals of the pilot study is to identify and track biological response of spring systems to determine if strategies for reducing nitrate concentration are effective at restoring biological condition. Results from this pilot study will be made available in future BMAP updates.

3.3.5 Data Management and Assessment

As of June 30, 2017, entities that collect water quality data in Florida enter the data into the WIN database, which replaced the Florida Storage and Retrieval System (STORET). DEP pulls water quality data directly from WIN and U.S. Geological Survey (USGS) databases to evaluate waters according to the Impaired Waters Rule, Chapter 62-303, F.A.C., and for TMDL development.

Data providers must upload their data regularly, so DEP can use the information as part of the water quality assessment process, for annual reporting and trend analyses. Data providers should upload their data to WIN upon completion of the appropriate quality assurance/quality control (QA/QC) checks. All data collected in the last quarter of the calendar year should be uploaded no later than April 1 of the following year.

DEP sampling teams enter their biological data into the DEP Statewide Biological (SBIO) database. Biological data should be collected and regularly provided to DEP following the applicable standard operating procedures. All biological data collected in the last quarter of the calendar year should be uploaded or provided no later than April 1 of the following year.

Available water quality data will be analyzed during BMAP implementation to determine trends in water quality and the health of the biological community. A wide variety of statistical methods are available for the water quality trend analyses. The selection of an appropriate data analysis method will depend on the frequency, spatial distribution, and period of record available from existing data. Specific statistical analyses were not identified during BMAP development.

3.3.6 QA/QC

Stakeholders participating in the BMAP monitoring plan must collect water quality data in a manner consistent with Chapter 62-160, F.A.C. Therefore, field samples must be collected following the DEP SOPs, and lab analyses must be conducted by National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratories.

Section 4. Commitment to Plan Implementation

4.1 Adoption Process

The 2025 BMAP update is adopted by Secretarial Order and assigns TN load reductions to the responsible stakeholders in the Wekiwa Spring and Rock Springs BMAP area.

4.2 Tracking Reductions

The required loading reductions are expected to be met by 2038. Each entity responsible for implementing management actions to meet their upcoming 5-year milestone as part of the BMAP will provide DEP, via the statewide annual report process, with an annual update of progress made in implementing load reductions. The update will track the implementation status of the management actions listed in the BMAP and document additional projects undertaken to further water quality improvements in the basin. DACS will continue to report acreage enrolled in NOIs at least annually to DEP.

4.3 Revisions to the BMAP

Adaptive management involves setting up a mechanism for making course corrections in the BMAP when circumstances change, or feedback mechanisms indicate that a more effective strategy is needed. Section 403.067, F.S., requires that the plan be revised, as appropriate, in collaboration with basin stakeholders. All or part of a revised BMAP must be adopted by Secretarial Order. Adaptive management measures include the following:

- Need to update based on new information, including model updates.
- New law requirements.
- Procedures to determine whether additional cooperative actions are needed.
- Criteria/process for determining whether and when plan components need to be revised because of changes in costs, environmental impacts, social effects, watershed conditions, or other factors.
- Descriptions of the stakeholders' role after BMAP completion.

Tracking implementation, monitoring water quality and pollutant loads, and holding periodic meetings to share information and expertise are key components of adaptive management.

Section 5. References

Florida Department of Environmental Protection. 2021. *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses*. Tallahassee, FL.

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Schwede, D.B., and G.G. Lear. 2014. A novel hybrid approach for estimating total deposition in the United States. *Atmospheric Environment* 92: 207–220.

University of Wisconsin. December 2024. *National Trends Network*. National Atmospheric Deposition Program. Retrieved December 31, 2024, from https://nadp.slh.wisc.edu/networks/national-trends-network/.

Appendices

Appendix A. Important Links

The links below were correct at the time of document preparation. Over time, the locations may change and the links may no longer be accurate. None of these linked materials are adopted into this BMAP.

- DEP Watershed Assessment Section WBID boundaries: https://floridadep.gov/dear/watershed-assessment-section/content/basin-411-0
- DEP Website: https://floridadep.gov/
- DEP Map Direct Webpage: https://ca.dep.state.fl.us/mapdirect/
- PFA information: https://floridadep.gov/dear/water-quality-restoration/content/bmap-public-meetings
- Florida Statutes: http://www.leg.state.fl.us/statutes:
    a. Florida Watershed Restoration Act (Section 403.067, F.S.)
    b. Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.)
- DEP Model Ordinances: https://ffl.ifas.ufl.edu/ffl-and-you/gi-bmp-program/fertilizer-ordinances/
- DEP Onsite Sewage Program: https://floridadep.gov/water/onsite-sewage/content/permitting-enhanced-nutrient-reducing-onsite-sewage-treatment-and
- DEP Standard Operating Procedures for Water Quality Samples: https://floridadep.gov/dear/quality-assurance/content/dep-sops
- NELAC National Environmental Laboratory Accreditation Program (NELAP): https://floridadep.gov/dear/florida-dep-laboratory/content/nelap-certified-laboratory-search
- FDACS BMPs: https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-Management-Practices
- FDACS BMP and Field Staff Contacts: https://www.fdacs.gov/Divisions-Offices/Agricultural-Water-Policy/Organization-Staff
- Florida Administrative Code (Florida Rules): https://www.flrules.org/
- SJRWMD 2002 Middle St. Johns River Surface Water Improvement and Management (SWIM) Plan: https://aws.sjrwmd.com/SJRWMD/plans/2002_MSJRB_SWIM_Plan.pdf

- SJRWMD 2025 Consolidated Annual Report: https://aws.sjrwmd.com/SJRWMD/plans/SJRWMD-2025-Consolidated-Annual-Report.pdf
- SJRWMD Springs: https://www.sjrwmd.com/waterways/springs/
- UF–IFAS Research: http://research.ifas.ufl.edu/

Appendix B. Projects to Reduce Nitrogen Sources

B.1 Prioritization of Management Strategies

BMAPs must now include projects that show how responsible entities will meet their 5-year milestones. To help prioritize projects towards the next milestone as required under 403.067, F.S., planning-level details for each listed project, along with their priority ranking have been determined. The management strategies listed in **Appendix B** are ranked with a priority of high, medium, or low.

Project status was selected as the most appropriate indicator of a project's priority ranking based primarily on if the project is going towards the next 5-year milestone, as well as need for funding. Overall, any project that is needed by a responsible entity to meet their next reduction milestone is considered a priority. Projects classified as "underway" were assigned a high or medium priority because some resources have been allocated to these projects, but additional assistance may be needed for the project to be completed. High priority was assigned to projects listed with the project status "planned" that are needed to meet the next milestone, as well as certain "completed" projects that are designated as "ongoing" each year, and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

B.2 Description of the Management Strategies

Responsible entities submitted these management strategies to the department with the understanding that the strategies would be included in the BMAP, thus requiring each entity to implement the proposed strategies as soon as practicable. However, this list of strategies is meant to be flexible enough to allow for changes that may occur over time. Any change in listed management strategies, or the deadline to complete these actions, must first be approved by the department. Substituted strategies must result in equivalent or greater nutrient reductions than expected from the original strategies.

While the 20-year planning period for this BMAP is 2018 to 2038, urban and agricultural stormwater projects completed since January 1, 2009, and wastewater projects completed since January 1, 2022, count toward the overall nitrogen reduction goals. OSTDS projects completed since January 1, 2022, in Lake and Seminole County and January 1, 2023, in Orange County count toward the overall nitrogen reduction goals.
Estimated nitrogen reductions provided by the responsible entity are subject to refinement based on DEP verification and/or on adjustment to calculations based on loading to groundwater that takes into consideration recharge and attenuation.

Projects with a designation of TBD (to be determined) denote information is not currently available but will be provided by the responsible entity when it is available. Projects with a designation of NA (not applicable) indicate the information for that category is not relevant to that project. Projects with a designation of "Not Provided" denote that information was requested by DEP but was not provided by the responsible entity.

Table B-1. Stakeholder projects to reduce nitrogen sources

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4634	City of Altamonte Springs	City of Altamonte Springs; SJRWMD; Seminole County; Orange County	AS-01	Little Wekiva River Erosion Management Projects (1, 2, and 3)	Install structural controls to provide riverbank stabilization.	Shoreline Stabilization	Completed	2000	25	$350,000.00	City of Altamonte Springs	City of Altamonte Springs - $350,000.00
4635	City of Altamonte Springs	City of Altamonte Springs; SJRWMD; Seminole County; Orange County	AS-02	Riverbend Apartments Shoreline Stabilization	Install structural controls to provide riverbank stabilization.	Shoreline Stabilization	Completed	2004	11	$250,000.00	City of Altamonte Springs	City of Altamonte Springs - $250,000.00
4636	City of Altamonte Springs	NA	AS-03	Stimmell Tract Land Preservation (Audubon Society)	Conservation project - purchase 268 acres of land for preservation.	Land Preservation	Completed	2004	NA	$398,444.00	City of Altamonte Springs	City of Altamonte Springs - $398,444.00
4637	City of Altamonte Springs	NA	AS-04	Altamonte Springs Shopping Center (Crossroads) Development	Construct 20,602-square-foot retail/restaurant building with attendant parking and site utilities, plus stormwater facilities, on 2.06-acre site, providing higher level of stormwater treatment as result of city ordinance.	Stormwater System Upgrade	Completed	2010	0	$0.00	NA	NA - $0.00
4638	City of Altamonte Springs	NA	AS-05	Brantley Terrace Condo	Phase 3 of Lake Lotus Club, multifamily condominium development.	Stormwater System Upgrade	Completed	2002	1	$0.00	NA	NA - $0.00
4639	City of Altamonte Springs	NA	AS-09	Gateway Clinic and Gateway Crossing Development	Stormwater management system with online dry retention/detention area, providing higher level of stormwater treatment as result of city ordinance.	Stormwater System Upgrade	Completed	2006	6	$0.00	NA	NA - $0.00
4640	City of Altamonte Springs	NA	AS-13	Spring Oaks, San Sebastian, and River Run Inlet Skimmer Baskets	Install 39 inlet skimmer baskets.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	2006	1	$23,890.00	City of Altamonte Springs	City of Altamonte Springs - $23,890.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4641	City of Altamonte Springs	NA	AS-14	West Altamonte Operations and Administration Center	Identified area does not contribute to Wekiva River; however, closed basin was not removed from consideration in TMDL due to potential influence on the springshed.	Non-contributing Basin	Completed	2008	26	$8,000,000.00	City of Altamonte Springs	City of Altamonte Springs - $8,000,000.00
4642	City of Altamonte Springs	NA	AS-15	Street Sweeping	Street sweeping occurs daily; total miles swept = 5,000 miles per year - Split between springshed and surface.	Street Sweeping	Ongoing	NA	518	$480,000.00	City of Altamonte Springs	City of Altamonte Springs - $480,000.00
4643	City of Altamonte Springs	NA	AS-16	Citywide Pollutant Loading Model/H&H Study	City is contracting with consultants to complete citywide pollutant model and H&H study. January 2024: City is postponing efforts in favor of prioritizing Citywide Stormwater Master Plan Update. City to pursue H&H study at a later date.	Study	Planned	TBD	NA	$0.00	City of Altamonte Springs	City of Altamonte Springs - $0.00
4644	City of Altamonte Springs	NA	AS-17	Lake Orienta, Adelaide, and Florida Hydrologic/Nutrient Budgets and Management Plans	City contracted with consultants to determine phosphorus and nitrogen loadings to lakes Orienta, Florida, and Adelaide; best pollutant load reduction options recommended based on study results.	Study	Completed	2009	NA	$105,000.00	City of Altamonte Springs	City of Altamonte Springs - $0.00
4645	City of Altamonte Springs	NA	AS-25	Citywide I&I Study	Contract with consultant to evaluate city's sewer system to identify areas prone to I&I and develop schedule for repair.	Study	Underway	NA	NA	$80,000.00	City of Altamonte Springs	City of Altamonte Springs - $80,000.00
4646	City of Altamonte Springs	NA	AS-26	Fertilizer Ordinance	The city is included in Seminole County's education and ordinances.	Regulations, Ordinances, and Guidelines	Ongoing	NA	491	$0.00	NA	NA - $0.00
4647	City of Altamonte Springs	SJRWMD	AS-27	pureALTA	Altamonte Springs Direct Potable Reuse Pilot Project further removes nutrients and other contaminants from reclaimed water to drinking water standards.	WWTF Diversion to Reuse	Completed	2017	TBD	$1,200,000.00	City of Altamonte Springs; SJRWMD	City of Altamonte Springs - $700,000.00; SJRWMD - $500,000.00
4648	City of Altamonte Springs	NA	AS-28	Walgreens/PDQ	Redevelopment of a commercial site and replacement of exfiltration system,	Exfiltration Trench	Completed	2018	TBD	$0.00	NA	NA - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
					raising level of treatment to current city standards.							
4649	City of Altamonte Springs	NA	AS-29	Little Wekiva River Erosion Control Improvements	Install structural controls to provide riverbank stabilization for City property and stormwater infrastructure.	Shoreline Stabilization	Completed	2020	NA	$5,538,596.80	City of Altamonte Springs; USDA NRCS	City of Altamonte Springs - $1,258,772.00; USDA NRCS - $4,279,825.00
4650	City of Altamonte Springs	FDOT	AS-30	Lake Adelaide Monitoring and Assessment	City contracted with consultants to determine phosphorus and nitrogen loadings to Lake Adelaide; best pollutant load reduction option based on study results lead to Project AS-31: State Road 436 Joint-Use Pond (City Pond 11 Expansion).	Study	Completed	2018	NA	$83,365.96	City of Altamonte Springs; FDOT	City of Altamonte Springs - $72,295.00; FDOT - $11,071.00
4651	City of Altamonte Springs	FDOT; Florida Hospital	AS-31	State Road 436 Joint-Use Pond (City Pond 11 Expansion)	The existing City Pond 11 will be expanded to accommodate and treat stormwater from the FDOT SR 436 Roadway Improvements and the Florida Hospital property in addition to the pond's existing stormwater contribution.	On-line Retention BMPs	Completed	2019	TBD	$278,687.00	City of Altamonte Springs; FDOT	City of Altamonte Springs - $105,923.00; FDOT - $172,764.00
4652	City of Altamonte Springs	NA	AS-32	Sanctuary at CenterPointe	New development of a commercial site with installation of exfiltration system.	Exfiltration Trench	Completed	2018	NA	$0.00	NA	NA - $0.00
5524	City of Altamonte Springs	Seminole County	AS-33	Lake Orienta Monitoring and Assessment	City contracted with consultants to determine phosphorus and nitrogen loadings to Lake Orienta.	Study	Completed	2019	NA	$91,462.60	City of Altamonte Springs; FDOT	City of Altamonte Springs - $91,463.00; FDOT - $0.00
6673	City of Altamonte Springs	Private Development	AS-34	Rooms to Go	Redevelopment of private property, providing WQ in post design.	On-line Retention BMPs	Completed	2022	10	$0.00	Private Developer	Private Developer - $0.00
7571	City of Altamonte Springs	City of Altamonte Springs	AS-35	Altamonte Springs Advanced Wastewater Treatment	Advanced wastewater treatment.	WWTF Nutrient Reduction	Underway	2033	8,063	$0.00	City of Altamonte Springs	City of Altamonte Springs - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
7576	City of Altamonte Springs	Private Developer	AS-36	Hampton Inn	The owner proposes to construct a new 78,151 sf six story hotel with amenities. This will include the demolition of three existing buildings and rerouting of existing utilities. A new stormwater treatment system will be constructed as part of the project.	Exfiltration Trench	Completed	2017	TBD	$0.00	Private Developer	Private Developer - $0.00
7381	City of Altamonte Springs	NA	AS-37	McDonald's Rebuild	Demolish existing restaurant and rebuild with new infrastructure.	Exfiltration Trench	Completed	2012	TBD	$0.00	Private Developer	Private Developer - $0.00
7579	City of Altamonte Springs	City of Altamonte Springs	AS-38	Westmonte Recreation Facility	Redevelopment to include two pre-treatment ponds and three on-line exfiltration trenches.	BMP Treatment Train	Completed	2020	TBD	$0.00	TBD	TBD - $0.00
7602	City of Altamonte Springs	Private Developer	AS-39	City Furniture (CITF) Altamonte Springs	Proposed furniture store and office complex with accompanying exfiltration system and stormwater management system.	Exfiltration Trench	Completed	2022	TBD	$0.00	Private Developer	Private Developer - $0.00
4613	City of Apopka	NA	A-01	Lester Road Improvement	City paved and improved the stormwater collection system.	Stormwater System Upgrade	Completed	2014	NA	$3,288,140.00	City of Apopka	City of Apopka - $3,288,140.00
4614	City of Apopka	Not provided	A-02	Shopke-Lester Road Pond Expansion and Improvement	Improve existing drainage system and dry retention pond to increase inflow mass and reduce outflow mass; pollutant removal efficiency increased from 75 % to 93 %.	On-line Retention BMPs	Completed	2010	TBD	$0.00	Not provided	Not provided - $0.00
4615	City of Apopka	NA	A-03	Street Sweeping	Removes sediment and debris from streets that would otherwise contribute potential nutrient loadings to Lake Apopka. In the past 12 months over 4000 miles have been cleaned.	Street Sweeping	Ongoing	NA	72	$0.00	City of Apopka	City of Apopka - $0.00
4616	City of Apopka	Not provided	A-04	Chalet North Mobile Home Park	City worked in cooperation with OCEPD and park to decommission package WWTF and effluent percolation pond and connect to city's collection system. Previously credited as 22,224 TN and 9,644 TP. Completion date falls outside of project collection period.	WWTF Upgrade	Completed	2014	NA	$0.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4617	City of Apopka	Not provided	A-05	Individual Septic to Sewer Projects	Septic tank phase out for Dr. Philip Trinh Dental Office, Honey Transport Inc., United Pentecostal Church, and Robinsons Restaurant. Original credit of 735 lbs-TN/yr. Project was captured in the updated loading estimates.	OSTDS Phase Out	Completed	2015	0	$0.00	Not provided	Not provided - $0.00
4618	City of Apopka	Not provided	A-06	Kelly Park Rd. at Rock Springs (Orange County Park)	Expand Rock Springs Rd. and Kelly Park Rd. collection system, allowing city to connect to collection system and abandon septic. Original credit of 282 lbs-TN/yr. Project was captured in the updated loading estimates.	OSTDS Phase Out	Completed	2010	0	$450,000.00	Not provided	Not provided - $0.00
4619	City of Apopka	Not provided	A-07	Kelly Park Rd. 8-inch Force Main	Install 1,250 feet of 8-inch force main along east end of Kelly Park Rd.; allows Orange County's Kelly Park to connect to city collection system and abandon septic; also allows for future septic connections near Wekiwa and Rock Springs area.	Wastewater Service Area Expansion	Completed	2009	NA	$0.00	Not provided	Not provided - $0.00
4620	City of Apopka	Not provided	A-08	U.S. Highway 441 Force Main Extension	Extend city wastewater collection system by installing 12,236 feet of 12-inch force main to Jones Ave., making connections to Zellwin Farms and Zellwood Elementary School), and providing availability for future connections in area.	Wastewater Service Area Expansion	Completed	2007	NA	$0.00	Not provided	Not provided - $0.00
4621	City of Apopka	Not provided	A-09	Yothers Rd. and Zellwood Station	Zellwood Mobile Home Park decommission package WWTF and effluent percolation pond, reducing effluent load to basin. Original credit of 13,424 lbs-TN/yr. Project was captured in the updated loading estimates.	Decommissio n/ Abandonment	Completed	2006	0	$0.00	Not provided	Not provided - $0.00
4622	City of Apopka	NA	A-11	Northwest Reclaimed/ Stormwater Storage Pond	Constructed 120-million-gallon (MG) lined reclaimed storage pond; pond also collects stormwater from 300-acre northwest recreation facility that is filtered and distributed for irrigation; this will also reduce ground water withdrawal.	Stormwater Reuse	Completed	2007	NA	$750,000.00	City of Apopka	City of Apopka - $750,000.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4623	City of Apopka	NA	A-12	Northwest Reclaimed/ Stormwater Storage Pond B	Construction of 21-MG lined reclaimed storage pond; pond also collects stormwater from 300-acre northwest recreation facility that is filtered and distributed for irrigation; this will also reduce ground water withdrawal.	Stormwater Reuse	Completed	2016	NA	$1,587,000.00	City of Apopka	City of Apopka - $1,587,000.00
4624	City of Apopka	NA	A-13	Northwest Reclaimed/ Stormwater Storage Pond C	Construction of 68-MG lined reclaimed storage pond; pond also collects stormwater from 300-acre northwest recreation facility that is filtered and distributed for irrigation; this will also reduce ground water withdrawal.	Stormwater Reuse	Completed	2018	NA	$1,380,000.00	City of Apopka	City of Apopka - $1,380,000.00
4625	City of Apopka	City of Altamonte Springs	A-14	Altamonte Springs to Apopka	The City of Altamonte sends up to 3.5 mgd of reuse water to Apopka to reduce the discharge to Little Wekiva River.	Stormwater Reuse	Completed	2018	NA	$0.00	Not provided	Not provided - $0.00
4626	City of Apopka	Orange County	A-15	Orange County Reuse to City	City is receives up to 3 MGD of reclaimed water that is currently going to Orange County RIBs; this helps to reduce ground water withdrawal from city.	WWTF Diversion to Reuse	Completed	2013	NA	$490,000.00	City of Apopka	City of Apopka - $490,000.00
4627	City of Apopka	Not provided	A-16	Lift Station 9 and 10 Wet Wells	Rehabilitate lift station wet well due to hydrogen sulfide dissolving concrete walls.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2009	NA	$41,945.00	Not provided	Not provided - $0.00
4628	City of Apopka	NA	A-17	Manholes (Alabama and 8th St.; Little St. and 9th St.; Park Ave; Charleston Park Subdivision)	Reline manholes with supercoat spray to prevent leaking between bricks.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2011	NA	$28,420.00	City of Apopka	City of Apopka - $28,420.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4629	City of Apopka	NA	A-18	Victoria Plaza, Forest Ave., 3rd St., Park Ave.	Reline to correct leaking joints.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2015	NA	$200,591.00	City of Apopka	City of Apopka - $200,591.00
4630	City of Apopka	DEP; SJRWMD	A-19	WWTP Expansion and Nutrient Removal	City completed the upgrades to the existing treatment plant for nutrient removal and to expand capacity to 8 mgd. Original credit of 35,357 lbs-TN/yr. Project was captured in the updated loading estimates.	WWTF Nutrient Reduction	Completed	2019	0	$68,000,000.00	SJRWMD Cost-Share Grant; DEP SRF	SJRWMD Cost-Share Grant - $3,000,000.00; DEP SRF - $63,000,000.00
4631	City of Apopka	Not provided	A-20	Harry Street Project	A drainage easement located off Harry Street in Apopka has become a dumping ground. We are removing all the garbage, debris, and litter. We are installing a new fence to protect the retention area. We are sodding the hill slope to prevent erosion.	BMP Cleanout	Completed	2018	NA	$26,000.00	City of Apopka	City of Apopka - $26,000.00
4632	City of Apopka	NA	A-21	MS4 Lake Sampling	Four lakes connected to major outfalls sampled quarterly to monitor yearly fluctuations in nutrients and parameters. Marshall Lake, monitored under TMDL program, is sampled quarterly to monitor nutrient loading and parameters.	Monitoring/Data Collection	Ongoing	NA	NA	$6,000.00	City of Apopka	City of Apopka - $6,000.00
4633	City of Apopka	Not provided	A-22	Fertilizer Reduction	The City has adopted the Orange County Ordinances. The City's grounds department only fertilizes twice a year instead of quarterly on all City owned and maintained (not recreational nor sports arena) landscapes.	Regulations, Ordinances, and Guidelines	Ongoing	NA	2,808	$0.00	NA	NA - $0.00
6513	City of Apopka	NA	A-23	Dream Lake Baffle Box	The City installed a nutrient removal baffle box in the north shore of Dream Lake to reduce nutrients from storm water runoff to the lake. This baffle box contains Bold and Gold ECT media.	Baffle Boxes-Second Generation with Media	Completed	2022	214	$230,000.00	City of Apopka	City of Apopka - $230,000.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
6514	City of Apopka	SJRWMD	A-24	Golden Gem Big Pond	The City installed a 300MG storage pond for holding and future supply of beneficial reuse to reduce ground water withdrawal, this pond includes a one million gallon aquifer recharge zone.	WWTF Diversion to Reuse	Completed	2022	NA	$0.00	City of Apopka	City of Apopka - $0.00
6515	City of Apopka	SJRWMD	A-25	Golden Gem Little Pond	The City installed a 50MG storage pond for holding and future supply of reuse to reduce ground water withdrawal, lining both the 50 MG and 300 MG ponds. This include a 1 million gallon aquifer recharge zone around the 50MG pond.	WWTF Diversion to Reuse	Completed	2022	NA	$2,800,000.00	City of Apopka	City of Apopka - $2,800,000.00
6552	City of Apopka	SJRWMD	A-26	Golden Gem Pump Station	The City is in the design phase for a filtration and repump station to distribute the water from the new storage ponds. This will allow us to supply reclaimed water to the ever going need in the western portion of the service area.	WWTF Diversion to Reuse	Planned	2025	NA	$4,000,000.00	City of Apopka	City of Apopka - $19,500,000.00
6531	City of Apopka	SJRWMD	A-27	OnSyte Septic Systems	The City partnered with St Johns and OnSyte septic systems for a pilot program to install 30 nutrient removal septic systems. Nutrients are monitored monthly. Original credit of 240 lbs-TN/yr. Project was captured in the updated loading estimates.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2022	0	$450,000.00	SJRWMD Cost-Share Grant; City of Apopka	SJRWMD Cost-Share Grant - $337,500.00; City of Apopka - $115,500.00
7598	City of Apopka	OnSyte	A-28	OnSyte Phase 2	Installation of 13 OnSyte systems.	OSTDS Conversion to Distributed Wastewater System	Completed	2024	104	$201,708.00	DEP; SJRWMD Cost-Share Grant	SJRWMD Cost-Share Grant - $500,000.00; DEP - $1,000,000.00
7599	City of Apopka	OnSyte	A-28a	OnSyte Phase 2 B	Installation for 18 systems.	OSTDS Conversion to Distributed Wastewater System	Planned	2025	144	$279,288.00	DEP; SJRWMD Cost-Share Grant	DEP - $1,000,000.00; SJRWMD Cost-Share Grant - $500,000.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4661	City of Maitland	NA	M-02	Education and Ordinances	Ordinances for fertilizer, pet waste, landscape, and irrigation. Public education including FYN and PSAs, websites, and brochures. Full suite of public education and ordinances covered under Orange County.	Regulations, Ordinances, and Guidelines	Ongoing	NA	175	$0.00	City of Maitland	City of Maitland - $0.00
5525	City of Maitland	NA	M-03	Citywide Sanitary Sewer Inspection Program	CCTV inspections, cleaning, smoke testing, inspections.	Sanitary Sewer Inspections	Ongoing	NA	NA	$10,000.00	City of Maitland	City of Maitland - $10,000.00
5526	City of Maitland	NA	M-04	Stormwater and Lakes Management Plan (SLMP)	Study to identify stormwater management improvement projects and water quality projects throughout the City.	Study	Completed	2023	NA	$45,000.00	City of Maitland	City of Maitland - $45,000.00
5527	City of Maitland	NA	M-05	Keller Road Sanitary Sewer Rehabilitation	Sanitary sewer rehabilitation project.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Planned	2027	NA	$3,500,000.00	City of Maitland	City of Maitland - $3,500,000.00
5528	City of Maitland	NA	M-06	Sewer System Master Plan Update	Study to identify sewer system improvement projects throughout the City.	Study	Completed	2021	NA	$70,000.00	City of Maitland	City of Maitland - $70,000.00
5529	City of Maitland	NA	M-07	CIPP of Wastewater Gravity Line	CIPP lining of wastewater gravity lines.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Ongoing	NA	NA	$0.00	City of Maitland	City of Maitland - $200,000.00
6366	City of Maitland	NA	M-08	Winfield Stormwater Improvements	Winfield stormwater improvements.	Stormwater System Upgrade	Completed	2022	NA	$293,765.00	City of Maitland	City of Maitland - $293,765.00
6977	City of Maitland	NA	M-09	Stormwater and Lakes Management Plan (SLMP)	Study to identify stormwater management improvement projects and water quality projects throughout the City.	Study	Planned	2027	NA	$200,000.00	City of Maitland	City of Maitland - $200,000.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4662	City of Ocoee	NA	O-01	ABC Fine Wine and Spirits Store # 52	2.96-acre project; proposed surface water management system will retain and recover three inches of runoff from increase in impervious area; sewered area.	Stormwater System Upgrade	Completed	2008	0	$0.00	Not provided	Not provided - $0.00
4663	City of Ocoee	NA	O-02	Arden Park South	98.52-acre project; construct 157 single-family residential subdivision with four dry retention ponds; surface water management system to store and recover pre- vs. post-development runoff volume from 25-year, 96-hour event; sewered area.	On-line Retention BMPs	Completed	2013	0	$0.00	Not provided	Not provided - $0.00
4664	City of Ocoee	NA	O-03	Cambridge Village Subdivision	Cambridge Village is 8.97-acre single-family residential subdivision located southeast of intersection of White Rd. and Clarke Rd. in Ocoee; surface water management system includes 30 lots, associated road, and one dry retention system.	On-line Retention BMPs	Completed	2002	0	$0.00	Not provided	Not provided - $0.00
4665	City of Ocoee	NA	O-04	Forest Trails Subdivision	Three dry retention ponds to serve 51.8-acre single-family residential development.	On-line Retention BMPs	Completed	2004	0	$0.00	Not provided	Not provided - $0.00
4666	City of Ocoee	NA	O-05	Hackney Prairie Park	4.26-acre project served by stormwater treatment retention system; sewered area.	On-line Retention BMPs	Completed	2015	0	$0.00	Not provided	Not provided - $0.00
4667	City of Ocoee	NA	O-06	Ingram Estates Subdivision	11.47-acre residential site, single lots, with stormwater system; two dry retention systems; recharge volume to be recovered within 72 hours; sewered area.	On-line Retention BMPs	Completed	2007	0	$0.00	Not provided	Not provided - $0.00
4668	City of Ocoee	NA	O-07	Oak Trail Reserve	Construct and operate surface water management system serving 61 single-family lots on 34.57-acre residential development located within Wekiva River Protection Basin; sewered area.	Stormwater System Upgrade	Completed	2017	1	$0.00	Not provided	Not provided - $0.00
4669	City of Ocoee	NA	O-08	Ocoee Carwash	1.79-acre car wash facility, Lake Lotta watershed; sewered area. Original credit of 2 lbs-TN/yr. Project was captured in the updated loading estimates.	OSTDS Phase Out	Completed	2009	0	$0.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4670	City of Ocoee	NA	O-09	Olympia Planned Unit Development	21.2-acre commercial and public development, including Walgreens store and public library; one wet detention system and one dry retention system constructed.	Stormwater System Upgrade	Completed	2001	1	$0.00	Not provided	Not provided - $0.00
4671	City of Ocoee	NA	O-10	Orchard Park Phase III Subdivision	Orchard Park Phase III 30.7-acre subdivision is west of Lake Addah, in west Orange County in Wekiva River Basin, within PFA; project consists of construction of single-family residential subdivision and dry retention pond.	On-line Retention BMPs	Completed	2001	0	$0.00	Not provided	Not provided - $0.00
4672	City of Ocoee	NA	O-11	Peach Lake Manor Drainage Improvements	Construct and operate dry retention system (retrofit) of BMPs to serve approximately 60-acre residential subdivision with no conventional stormwater treatment; sewered area.	On-line Retention BMPs	Completed	2014	33	$0.00	Not provided	Not provided - $0.00
4673	City of Ocoee	NA	O-12	Prairie Lake Reserve	Construct surface water management system to serve 42-acre residential subdivision (townhomes); 3 retention ponds permitted.	On-line Retention BMPs	Completed	2007	0	$0.00	Not provided	Not provided - $0.00
4674	City of Ocoee	NA	O-13	Remington Oaks Phase I and II Subdivision	140-lot single-family 49.5-acre subdivision with two dry retention ponds.	On-line Retention BMPs	Completed	Prior to 2015	NA	$0.00	Not provided	Not provided - $0.00
4675	City of Ocoee	NA	O-14	Sabinal Ct. and Geneva St. Drainage Improvements - Prima Vista Subdivision	Installation of a 2nd-generation baffle box, pipes and end treatments, channel repair; proposed improvements will alleviate flooding and improve water quality in subdivision that has no permitted stormwater management treatment system.	Baffle Boxes-Second Generation	Completed	2011	6	$76,500.00	City of Ocoee	City of Ocoee - $0.00
4676	City of Ocoee	NA	O-15	Villa Roma	8.92-acre project; construct 52-townhome subdivision to be served by wet detention system; project will provide 100-year compensating storage; sewered area.	Wet Detention Pond	Completed	2011	1	$0.00	Not provided	Not provided - $0.00
4677	City of Ocoee	NA	O-16	Villages of West Oak Subdivision	Construct two dry retention ponds to serve 33-lot, single-family, 5.5-acre subdivision.	On-line Retention BMPs	Completed	2000	0	$0.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4678	City of Ocoee	NA	O-17	Wellington Place Subdivision	Construct surface water management system to serve 14-acre residential subdivision.	Stormwater System Upgrade	Completed	2003	0	$0.00	Not provided	Not provided - $0.00
4679	City of Ocoee	NA	O-18	West Colonial Property	Construct 6.95-acre commercial development; sewered area.	Stormwater System Upgrade	Planned	TBD	1	$0.00	Not provided	Not provided - $0.00
4680	City of Ocoee	NA	O-19	Street Sweeping	Streets are swept daily; All Debris Collected from Street Sweeping and Pollution Boxes is stock piled and sent to Landfill, length = 82 miles; road length swept = 3,500 miles per year; 600 tons of debris removed annually.	Street Sweeping	Ongoing	NA	90	$0.00	City of Ocoee	City of Ocoee - $0.00
4681	City of Ocoee	NA	O-20	Lift Station #7 Rehab and Relocation	Existing lift station at end of life cycle and experiencing operational issues; relocate replacement station north 900 feet, provide new generator set, provide bypass pumping, and increase pump horsepower.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2015	TBD	$1,901,067.00	City of Ocoee	City of Ocoee - $0.00
4682	City of Ocoee	NA	O-21	Willows on the Lake	Construct surface water management system to serve 86-unit, single-family, 15.18-acre subdivision and 9.99-acre Publix shopping center.	Stormwater System Upgrade	Completed	2001	1	$0.00	Not provided	Not provided - $0.00
4683	City of Ocoee	NA	O-22	Bluford Ave. and Orlando Ave, Stormwater Improvements Project	Project consists of retrofitting area with no stormwater collection and treatment.	Stormwater System Upgrade	Completed	2016	5	$1,425,549.00	City of Ocoee	City of Ocoee - $0.00
4684	City of Ocoee	NA	O-23	Unity Park- Ocoee Downtown Master Stormwater Park	Project consists of revitalizing the city downtown area of approximately 38 acres with a regional stormwater collection and treatment. City to perform pre and post water quality evaluate impairment to Starke Lake.	Regional Stormwater Treatment	Completed	2022	0	$8,100,000.00	Bond; City of Ocoee	Bond - $0.00; City of Ocoee - $0.00
4685	City of Ocoee	NA	O-24	Public Works Complex Stormwater Management System	Retrofitting Public Works Complex with stormwater management system.	Wet Detention Pond	Completed	2016	1	$147,041.00	City of Ocoee	City of Ocoee - $0.00
4686	City of Ocoee	NA	O-25	White Road Stormwater Improvements	Retrofitting Road with exfiltration system design.	Exfiltration Trench	Completed	2017	1	$405,960.00	City of Ocoee	City of Ocoee - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4687	City of Ocoee	NA	O-26	Arden Park North Phase 2	310-acre site with construction of seven dry retention ponds. Runoff from the site will be conveyed to the master system for the required treatment volume and attenuation and discharge the same as in the pre-development condition.	On-line Retention BMPs	Completed	2016	NA	$0.00	Not provided	Not provided - $0.00
4688	City of Ocoee	NA	O-27	McCormick Reserve	Project consists of residential roadway, stormsewer system, and one dry retention pond. Runoff from the site will be conveyed to the dry retention pond for the required treatment volume and attenuation and discharge to meet predevelopment conditions.	On-line Retention BMPs	Completed	2016	NA	$0.00	Not provided	Not provided - $0.00
4689	City of Ocoee	NA	O-28	Forest Lake Estates	Ocoee Pines is a proposed single family development that will consist of approximately 278 single-family homes located in the City of Ocoee consisting of expansion to the existing pond previously permitted under ERP 40-095-70576-6.	Stormwater System Rehabilitation	Completed	2016	NA	$0.00	Not provided	Not provided - $0.00
4690	City of Ocoee	NA	O-29	Spring Lake Reserve	The proposed project is a single-family subdivision, and the system includes 79 single-family lots, roads storm sewer system, and three dry retention ponds (two interconnected). The project is located within Wekiva River Hydrologic Basin.	On-line Retention BMPs	Completed	2016	NA	$0.00	Not provided	Not provided - $0.00
4691	City of Ocoee	NA	O-30	Flewelling Avenue Stormwater Treatment System Project	The proposed modification consists of retrofitting a 113 acre watershed with a second generation baffle box.	Baffle Boxes-Second Generation	Completed	2018	29	$340,000.00	City of Ocoee	City of Ocoee - $0.00
4692	City of Ocoee	NA	O-31	City of Ocoee LDC Chapter 176, Ordinance 2020-016 Fertilizer Managament, Grass Clippings and Vegetation Material/Debris and Pet Waste	Fertilizer ordinance, pet waste ordinance, landscape ordinance, irrigation ordinances, FYN, and public education. Covered by Orange County.	Regulations, Ordinances, and Guidelines	Ongoing	NA	1,867	$0.00	NA	NA - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
5530	City of Ocoee	NA	O-32	Bluford Avenue Phase 2 Project - FM and Sewer Utilities Project	Construct 16" FM and gravity sewer system to serve downtown area along Bluford Avenue (From Delaware Avenue to Silver Star Road).	Wastewater Service Area Expansion	Completed	2019	NA	$120,000.00	City of Ocoee	City of Ocoee - $0.00
5531	City of Ocoee	NA	O-33	Lake Prima Vista Nutrient Reduction Program	Nutrient reduction study for the Category 4e to serve approximately 84 acres of residential and citrus land use. Receives approximately 425 lbs of TP and 1463 lbs of TN annually from sources. Lake Prima Vista connected to Starke Lake with two drain wells.	Study	Underway	2024	NA	$2,500,000.00	City of Ocoee	City of Ocoee - $0.00
5532	City of Ocoee	NA	O-34	AD Mims Road Baffle Box	Stormwater Retrofit to serve approximately 30 acres of residential landuse discharging untreated stormwater runoff to Spring Lake.	Baffle Boxes-Second Generation	Planned	TBD	10	$250,000.00	City of Ocoee	City of Ocoee - $0.00
5533	City of Ocoee	NA	O-35	E. Oakland Avenue Baffle Box	Stormwater Retrofit to serve approximately 15 acres of City Hall/Lakeshore Center Parking/residential areas discharging untreated stormwater runoff to Starke Lake. Retrofitted with Bold and Gold Media Filter.	Baffle Boxes-Second Generation with Media	Completed	2021	7	$250,000.00	City of Ocoee	City of Ocoee - $0.00
5814	City of Ocoee	NA	O-36	Cumberland Avenue Baffle Box	Stormwater Retrofit to serve approximately 23.8-acres of City Hall/Ocoee Downtown Commerical/Residential areas discharging untreated stormwater runoff to Starke Lake. Retrofitted with Bold and Gold Media Filter.	Baffle Boxes-Second Generation with Media	Completed	2021	16	$250,000.00	City of Ocoee	City of Ocoee - $0.00
6367	City of Ocoee	NA	O-37	Lake Prima Vista Alum and Phoslock Surface and Sediment Treatment	As part of the Lake Prima Vista Nutrient Reduction Program under the 4e DEP Nutrient Reduction Program, City had performed and alum and phoslock treatment.	In Waterbody - Alum Injection System	Completed	2021	NA	$128,000.00	City of Ocoee	City of Ocoee - $0.00
6368	City of Ocoee	NA	O-38	Lake Prima Vista Seepage Collection/Denitrification Project	As part of the Lake Prima Vista Nutrient Reduction Program under the 4e DEP Nutrient Reduction Program, City will be installing a groundwater seepage water collection	Denitrification Walls	Planned	2024	TBD	$2,500,000.00	City of Ocoee	City of Ocoee - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
					system/denitrification wall for nutrient reduction to Lake Prima Vista.							
6541	City of Ocoee	NA	O-39	Water Conservation Ordinance Chapter 175	Water Conservation practices limiting irrigation frequency, quantity, and scheduling to minimize losses to the atmosphere and as runoff.	Regulations, Ordinances, and Guidelines	Completed	2012	NA	$0.00	City of Ocoee	City of Ocoee - $0.00
6543	City of Ocoee	CEPRA Landscape	O-40	POWR Garden	A demonstration garden open to the community that identifies native and non-native plants which are best suited to Central Florida's climate, can reduce irrigation requirements, and can reduce runoff.	Enhanced Public Education	Completed	2023	NA	$75,000.00	City of Ocoee	City of Ocoee - $75,000.00
6572	City of Ocoee	NA	O-41	WWTF Treatment Process Optimization-Phase 1	Increased DO levels to reduce TN.	WWTF Nutrient Reduction	Completed	2022	1,403	$0.00	City of Ocoee	City of Ocoee - $0.00
6542	City of Ocoee	NA	O-42	Water Reclamation Ordinance Chapter 174	Treated effluent of the WWTF is recycled as landscape irrigation.	WWTF Diversion to Reuse	Completed	2012	NA	$0.00	City of Ocoee	City of Ocoee - $0.00
6534	City of Ocoee	Wright-Pierce	O-43	Advanced Wastewater Treatment: Nitrogen Reduction Study	Worked with Wright-Pierce to identify treatment options to meet Wekiva BMAP effluent nitrogen requirement (max 3.0 mg/L).	Study	Completed	2022	NA	$36,000.00	City of Ocoee	City of Ocoee - $36,000.00
6522	City of Ocoee	NA	O-44	Floodplain Ordinance Amendment	Amendments to the City's Floodplain Management Ordinance to adopt higher standards that exceed minimum NFIP requirements for better community flood resiliency.	Regulations, Ordinances, and Guidelines	Completed	2024	NA	$0.00	City of Ocoee	City of Ocoee - $0.00
6521	City of Ocoee	NA	O-45	Sidewalk Chalk Art Contest	A trial of the sidewalk chalk activity is going to take place on March 9th at the City of Ocoee's Spring into Conservation event held at Unity Park to measure the level of engagement before taking it Citywide.	Enhanced Public Education	Planned	TBD	NA	$750.00	City of Ocoee	City of Ocoee - $750.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
6938	City of Ocoee	Orange County Library System (OCLS)	O-49	Stormwater Outreach with OCLS West Oaks Branch	Quarterly events with the OCLS West Oaks Branch to engage the City's youth in interactive activities to learn everyday BMPs to provide water quality protections to community's waterbodies and waterways.	Enhanced Public Education	Ongoing	NA	NA	$1,114.49	City of Ocoee	City of Ocoee - $1,114.49
7063	City of Ocoee	VMG Construction , Inc	O-50	North Cumberland Lift Station #69 Project	Construct a public lift station on N Cumberland Ave which will accept flow from a commercial parcel with stub outs for future sewer service to three residential parcels and one additional commercial parcel.	OSTDS Phase Out	Completed	2023	NA	$236,500.00	City of Ocoee	City of Ocoee - $236,500.00
7014	City of Ocoee	NA	O-51	Lakewood Avenue FM Pinch Point	Replacement of approximately 100 LF of existing 6" force main north of the Lakewood Ave/Wurst Rd intersection with a 8" force main to accommodate wastewater flows from future development on N Lakewood Ave/Fullers Cross Rd.	Wastewater Service Area Expansion	Completed	2023	NA	$156,000.00	City of Ocoee	City of Ocoee - $156,000.00
7016	City of Ocoee	NA	O-52	Transmission Main from OC Inner-connect to New Pump Facility	Construct 12" reclaimed water main from the Orange County Interconnect south on Lauren Beth Ave to the new storage tank at the WWTF to allow reclaimed water from Orange County be brought into the City's reclaimed system.	WWTF Diversion to Reuse	Planned	2026	NA	$3,300,000.00	ARPA; Grants	ARPA - $2,300,000.00; Grants - $1,000,000.00
7011	City of Ocoee	NA	O-53	Floral Street Sewer Project	Construct approximately 1,700-LF of gravity sewer which will extend the gravity sewer system to further serve the downtown area.	Wastewater Service Area Expansion	Completed	2024	NA	$2,291,000.00	City of Ocoee	City of Ocoee - $2,291,000.00
7015	City of Ocoee	NA	O-54	New Reclaimed Storage Tank and Pumping Facility	Construct a new reclaimed water storage tank, reclaimed pump station, and associated infrastructure which will accept supplemental reclaimed water reserve from Orange County to boost system pressure, increase supply.	WWTF Diversion to Reuse	Planned	2026	NA	$5,365,000.00	ARPA; Grants	Grants - $1,000,000.00; ARPA - $4,365,000.00
7118	City of Ocoee	SJRWMD	O-55	Starke Lake Revegetation	Wetland restoration by revegetating the littoral zones of Starke Lake to promote nutrient absorption of aquatic	Creating/ Enhancing	Planned	2026	NA	$181,555.00	Grants; City of Ocoee	Grants - $0.00; City of Ocoee - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
					vegetation and to create additional wildlife habitat.	Living Shoreline						
6539	City of Ocoee	NA	O-56	WWTF Electrical Upgrades	Electrical upgrades to increase capacity for future WWTF upgrades.	WWTF Capacity Expansion	Underway	2026	NA	$4,500,000.00	ARPA	ARPA - $4,500,000.00
6525	City of Ocoee	Orange County	O-57	West Orange Industrial Park Drainage Study	Drainage study to serve approximately 128 acers of industrial property in the Lake Lotta basin to reduce flooding and improve water quality.	Study	Underway	2024	NA	$0.00	City of Ocoee; FEMA HMGP	City of Ocoee - $0.00; FEMA HMGP - $0.00
7515	City of Ocoee	NA	O-58	Advanced Wastewater Treatment Phase II - Post Anoxic Basin with Aeration Basin (Nitrogen Removal)	Construct a post anoxic basin with two compartments and a re-aeration basin downstream of the existing phase isolation ditches to increase nitrogen removal and comply with the future effluent TN concentration limit of 3 mg/L. Partial credit in ProjID 6572.	WWTF Upgrade	Planned	2038	855	$20,000,000.00	NA	NA - $0.00
7524	City of Ocoee	NA	O-59	New Ocoee Wastewater Treatment Facility	Construction of a new WWTF to replace the City's current WWTF. The new WWTF will be Advanced Wastewater Treatment, meet the 3 mg/L TN BMAP effluent requirement, and meet the City's projected growth in wastewater demand. AWT credits listed in ProjID 7518.	WWTF Upgrade	Planned	2038	TBD	$90,000,000.00	NA	NA - $0.00
7012	City of Ocoee	NA	O-60	Lakewood Avenue Gravity Sewer Phase I Sewer Expansion	Construct approximately 1,400-LF of gravity sewer on N Lakewood Ave from Security Cir to Laurel Ridge Ave, along with stub outs for future gravity sewer on N Lakewood Ave cross streets to serve existing development.	Wastewater Service Area Expansion	Planned	2030	NA	$2,800,000.00	EPA Grant; City of Ocoee	City of Ocoee - $1,400,000.00; EPA Grant - $1,400,000.00
7520	City of Ocoee	NA	O-61	RAS Station Manifold Re-design	Upgrade the WWTF clarifier RAS system from a single pump to individual pumps, improving control of RAS flow into oxidation ditch headworks and allowing further optimization of the wastewater treatment process (and effluent nutrient reduction).	WWTF Upgrade	Planned	2026	TBD	$163,000.00	City of Ocoee	City of Ocoee - $163,000.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
7377	City of Ocoee	NA	O-62	Lakewood Avenue Gravity Sewer Phase II OSTDS Phase Out	OSTDS phase out for 2 parcels w/ existing OSTDS on N Lakewood Ave from Laurel Ridge Ave to Wurst Rd.	OSTDS Phase Out	Planned	2031	50	$46,000.00	NA	NA - $0.00
7378	City of Ocoee	NA	O-62a	Lakewood Avenue Gravity Sewer Phase II Sewer Expansion	Construct approximately 1,800-LF of gravity sewer on N Lakewood Ave from Laurel Ridge Ave to Wurst Rd, along with stub outs for future gravity sewer on N Lakewood Ave cross streets to serve existing development.	Wastewater Service Area Expansion	Planned	2030	NA	$2,688,000.00	NA	NA - $0.00
7403	City of Ocoee	NA	O-63	Ocoee Downtown OSTDS Phase Out	OSTDS phase out for 41 parcels w/ existing OSTDS in downtown Ocoee.	OSTDS Phase Out	Planned	2027	4,393	$943,000.00	NA	NA - $0.00
7522	City of Ocoee	NA	O-64	Ocoee WWTF Sand Filter Addition	The addition of a new Traveling Bridge Sand Filter to the Ocoee WWTF. The 3rd filter will increase the filter capacity to 4 MGD with any one filter off-line.	WWTF Capacity Expansion	Planned	2033	TBD	$963,000.00	NA	NA - $0.00
7419	City of Ocoee	NA	O-65	Bluford Ave Gravity Sewer Phase II OSTDS Phase Out	OSTDS phase out for 17 parcels w/ existing OSTDS on Bluford Ave from E Geneva S to E Delaware St.	OSTDS Phase Out	Planned	2035	292	$391,000.00	City of Ocoee	City of Ocoee - $0.00
7404	City of Ocoee	NA	O-65a	Bluford Ave Gravity Sewer Phase II Sewer Expansion	Construct approximately 1,600-LF of gravity sewer along Bluford Ave from E Geneva St to E Delaware St to serve existing development.	Wastewater Service Area Expansion	Planned	2034	NA	$0.00	City of Ocoee	City of Ocoee - $0.00
7376	City of Ocoee	NA	O-67	Lakewood Avenue Gravity Sewer Phase I OSTDS Phase Out	OSTDS phase out for 9 parcels w/ existing OSTDS on N Lakewood Ave from Security Cir to Laurel Ridge Ave.	OSTDS Phase Out	Planned	2031	856	$153,000.00	NA	NA - $0.00
6540	City of Ocoee	NA	O-69	Advanced Wastewater Treatment Phase I - Additional Oxidation Ditch Rotors (Nitrogen Removal)	Replace existing oxidation ditch rotors with two new rotors, gear box, motor, and bearings to improve system redundancy, treatment capacity, and increase increase nitrogen removal to comply with the future effluent TN concentration limit of 3 mg/L.	WWTF Nutrient Reduction	Planned	2025	TBD	$746,000.00	ARPA	ARPA - $746,000.00
7380	City of Ocoee	NA	O-70	Bluford Ave Gravity Sewer Phase I OSTDS Phase Out	OSTDS phase out for 7 parcels w/ existing OSTDS on Bluford Ave from Ocoee Town Center Blvd to E Geneva St.	OSTDS Phase Out	Planned	2033	424	$161,000.00	NA	NA - $0.00

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7379	City of Ocoee	NA	O-70a	Bluford Ave Gravity Sewer Phase I Sewer Expansion	Construct approximately 2,600-LF of gravity sewer along Bluford Ave from Ocoee Town Center Blvd to E Geneva St to serve existing development.	Wastewater Service Area Expansion	Planned	2032	NA	$4,781,000.00	City of Ocoee	City of Ocoee - $0.00
4758	City of Orlando	NA	ORL-01	Compliance Inspections of Private Stormwater Systems	Inspect annually all 233 commercial, single, and multifamily stormwater systems in basin for functionality and adherence to design standards with maximum pollutant removal efficiency.	Stormwater System Rehabilitation	Ongoing	NA	NA	$0.00	City of Orlando	City of Orlando - $0.00
4759	City of Orlando	NA	ORL-02	Stormwater System Inspections	Conduct proactive inspections and perform routine maintenance on 13 ponds and 31 ditches in basin to ensure systems are being maintained at optimal pollutant removal efficiency (and flood prevention).	Stormwater System Rehabilitation	Ongoing	NA	NA	$0.00	City of Orlando	City of Orlando - $0.00
4760	City of Orlando	Not provided	ORL-03	Two Inlet Baskets Around Lake Daniel	Install (2006) 2 inlet baskets in Lake Daniel Basin. Both baskets are in the surface water portion of the BMAP.	Catch Basin Inserts/Inlet Filter Cleanout	Canceled	NA	NA	$0.00	City of Orlando	City of Orlando - $0.00
4761	City of Orlando	Not provided	ORL-04	22 Inlet Baskets Around Lake Orlando	Install (2008) 22 inlet baskets in Lake Orlando Basin. 850 cubic feet per year of material collected.	Catch Basin Inserts/Inlet Filter Cleanout	Ongoing	NA	9	$7,770.00	City of Orlando	City of Orlando - $0.00
4762	City of Orlando	Not provided	ORL-12	Street Sweeping	Streets are swept every two weeks; 102,813 cubic feet per year of material collected. 2.36% of the total credits are applied to groundwater and 97.3% is applied to surface to reflect the percentage of the city within each.	Street Sweeping	Ongoing	NA	15	$0.00	City of Orlando	City of Orlando - $0.00
4763	City of Orlando	Not provided	ORL-13a	Little Wekiva River - Preliminary Engineering Evaluation Lake Lawne, Center of Commerce, and Lake Orlando Sites	Nutrient reduction projects in Little Wekiva River watershed, using suggested drainage improvements from CDM report.	Study	Completed	2008	NA	$49,900.00	City of Orlando	City of Orlando - $0.00
4764	City of Orlando	Not provided	ORL-15	Fairview Shores - North Service Area	Improve sanitary sewer, drainage, and roadway; install new sanitary force main, lift station (#165), and gravity pipes in area with septic tanks to reduce	Wastewater Service Area Expansion	Completed	2008	NA	$4,522,401.00	City of Orlando	City of Orlando - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
					nutrient seepage into ground water table.							
4765	City of Orlando	Not provided	ORL-20	Lift Station #85 Variable Frequency Drive	Install variable frequency drives that will extend life of pump motors, preventing potential overflows; will also be more energy efficient at future cost savings to city.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2014	NA	$0.00	City of Orlando	City of Orlando - $0.00
4766	City of Orlando	NA	ORL-21	Lift Station #93 Improvements	Relocate and completely rebuild lift station with new, upgraded equipment, including generator not present at previous location.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2001	NA	$767,632.00	City of Orlando	City of Orlando - $0.00
4767	City of Orlando	DEP	ORL-28	Water Conserv II Treatment Improvements	Updated WWTF infrastructure to achieve lower nutrient concentrations. Original credit of 24,994 lbs-TN/yr. Project was captured in the updated loading estimates.	WWTF Nutrient Reduction	Completed	2016	0	$12,500,000.00	DEP SRF	DEP SRF - $11,700,000.00
4768	City of Orlando	NA	ORL-30	OSTDS Identification, Assessment and Alternatives Development Study	Identify and inventory OSTDS areas within the City service area and Wekiva Overlay District; Develop ranking criteria and cost estimates for retrofit of OSTDS; Prioritize areas for retrofit consideration.	Study	Completed	2018	NA	$112,000.00	City of Orlando	City of Orlando - $112,000.00
5535	City of Orlando	NA	ORL-33a	BMP Cleanout	3,974 cubic feet per year of material collected from storm lines and BMP structures. Project is proportioned between WEKR and WEKS. See ProjID 5534 for additional credits.	BMP Cleanout	Ongoing	NA	1	$0.00	City of Orlando	City of Orlando - $0.00
4769	City of Orlando	NA	ORL-34	Education and Ordinances	Ordinances for fertilizer, pet waste, landscape, and irrigation. Public education including FYN and PSAs, websites, and brochures. Full suite of	Regulations, Ordinances, and Guidelines	Ongoing	NA	385	$0.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
					public education and ordinances implemented.							
7114	City of Orlando	DEP	ORL-40	Rosemont Septic to Sewer Conversion Project	Installing sanitary pipes in area for homeowners and commercial properties to connect from septic to sanitary sewer. (64 residential).	OSTDS Phase Out	Planned	2026	611	$785,000.00	City of Orlando; DEP	City of Orlando - $314,000.00; DEP - $471,000.00
4819	City of Winter Garden	Not provided	WG-01	Tucker Ranch	City purchased approximately 208 acres of agricultural land to convert to primitive campground/ park. Land use change captured in updated loading estimates.	Land Use Change	Completed	2016	0	$2,100,000.00	NA	NA - $0.00
5843	City of Winter Garden	TBD	WG-01	Crest Ave WWTF Capacity Expansion & Process Optimization	Modifications to WWTF (convert to MBR) to increase treatment capacity and meet more stringent effluent objectives (5 mg/L BOD5; 5 mg/L Sus. Solids; 3 mg/L TN; 1 mg/L TP).	WWTF Upgrade	Underway	2028	TBD	$132,640,000.00	City of Winter Garden; SRF	City of Winter Garden - $0.00; SRF - $0.00
4820	City of Winter Garden	Not provided	WG-02	Dillard Street Pond Expansion	Project is part of permitting process for new city hall in Winter Garden; modify storm sewer system adjacent to pond to treat previously untreated runoff.	Stormwater System Upgrade	Completed	2009	41	$0.00	Not provided	Not provided - $0.00
4821	City of Winter Garden	Not provided	WG-03	Plant St. Segment 1	Project involves widening Plant St., including blowing out intersection of West Crown Point Rd. in Winter Garden; no stormwater treatment for this section of road prior to widening.	Stormwater System Upgrade	Completed	2016	38	$0.00	Not provided	Not provided - $0.00
4822	City of Winter Garden	Not provided	WG-04	Street Sweeping	Streets are swept weekly; total miles swept = 12,266 miles per year. Catch basins vacuumed quarterly. Total material collected was 1,772,000 lbs. split between sweeping and BMP cleanouts.	Street Sweeping	Ongoing	NA	202	$0.00	Not provided	Not provided - $0.00
4823	City of Winter Garden	Not provided	WG-05	State Road 50 Utility Relocation	Replace city utilities due to widening of State Road 50; project includes replacement of 5,210 linear feet of 24-inch clay pipe and 2,650 linear feet of 18-inch clay pipe.	Sanitary Sewer and Wastewater Treatment Facility	Completed	2012	TBD	$0.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
						(WWTF) Maintenance						
4824	City of Winter Garden	DEP; SJRWMD	WG-06	Stormwater Capture and Reuse and Recharge	The berming of 2 direct-discharge canals to Lake Apopka and treat the stormwater to reuse standards to be put into the distribution system.	Stormwater Reuse	Completed	2018	TBD	$3,360,000.00	SJRWMD; DEP; Winter Garden	SJRWMD - $750,000.00; DEP - $750,000.00; Winter Garden - $1,860,000.00
4825	City of Winter Garden	Orange County	WG-07	Education and Ordinances	Ordinances for fertilizer, pet waste, landscape, and irrigation. Public education including FYN and PSAs, websites, and brochures. Full suite of public education and ordinances covered under Orange County.	Regulations, Ordinances, and Guidelines	Ongoing	NA	980	$0.00	Not provided	Not provided - $0.00
5815	FDACS	Agricultural Producers	FDACS-01a	BMP Implementation and Verification - Farm Fertilizer	Enrollment and verification of BMPs by agricultural producers. Acres treated and reductions estimated using FDACS June 2024 Enrollment and NSILT Loading tool (based on FSAID IX) developed by FDACS.	Agricultural BMPs	Ongoing	NA	2,227	$0.00	FDACS	FDACS - $0.00
5816	FDACS	Agricultural Producers	FDACS-02a	BMP Implementation and Verification - Livestock Waste	Enrollment and verification of BMPs by agricultural producers. Acres treated and reductions estimated using FDACS June 2024 Enrollment and NSILT Loading tool (based on FSAID IX) developed by FDACS.	Agricultural BMPs	Ongoing	NA	58	$0.00	FDACS	FDACS - $0.00
	FDACS	Agricultural Producers	FDACS-04	Cost-Share BMP Projects	Cost-share projects paid for by FDACS. Project treatment areas and reductions based on FDACS June 2024 Enrollment and NSILT Loading tool (based on FSAID IX) developed by FDACS.	Agricultural BMPs	Ongoing	NA	2,210	$0.00	Not provided	Not provided - $0.00
4656	FDOT District 5	NA	FDOT-02	FM: 239289 (2 Treatment Projects)	State Road 438: Treatment Basin 2 (Ponds 2A, 2B, and 2C) and Wet Detention Pond 4 providing treatment for runoff generated from existing and proposed pavement.	BMP Treatment Train	Completed	2004	13	$0.00	Florida Legislature	Florida Legislature - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4657	FDOT District 5	NA	FDOT-07	FM: 410983-1	State Road 50: from Avalon Road to State Road 429/ Western Beltway; Wet Detention Pond L-4, L-7, M-10/11, and N-2/2A providing treatment for existing and new pavement.	Stormwater System Upgrade	Completed	2014	59	$0.00	Florida Legislature	Florida Legislature - $0.00
4658	FDOT District 5	NA	FDOT-15	FM: 239496-3-52-01	SR 423 (John Young Parkway) from SR 50 to Shader Rd. - Add lanes and reconstruct.	Wet Detention Pond	Completed	2021	14	$0.00	Florida Legislature	Florida Legislature - $0.00
4660	Lake County	NA	LC-13	Fertilizer Ordinance	Enhanced fertilizer ordinance (above model ordinance requirements), landscape ordinance, irrigation ordinances, FYN, and public education.	Regulations, Ordinances, and Guidelines	Ongoing	NA	77	$0.00	Lake County	Lake County - $0.00
4659	Management Strategies	TBD	GC-01	Private Golf Course Approach	Private golf courses are expected to follow the BMP manual. Additionally, all golf courses will be required to submit nutrient management plans to DEP.	Golf Course or Sports Field BMPs	Planned	TBD	NA	$0.00	TBD	TBD - $0.00
4828	Management Strategies	TBD	WU-01	Wastewater Treatment Facility Approach	Achieved by WWTF policy if implemented BMAP-wide. The policy will be implemented through the permit renewal process.	WWTF Upgrade	Planned	TBD	NA	$0.00	TBD	TBD - $0.00
4706	Orange County	Not provided	OC-01	Elba Way	Erosion protection of Little Wekiva River; install gabions, grade control structures, river reshaping.	Shoreline Stabilization	Completed	2009	24	$1,000,000.00	Not provided	Not provided - $0.00
4707	Orange County	Not provided	OC-02	Gusty Lane	Remove existing triple aluminum pipes along Little Wekiva River at Gusty Lane Dr. and replace with control structure using rip-rap and gabion materials; install pipe and inlet for existing ditch adjacent to canal.	Control Structure	Completed	2010	5	$132,000.00	Not provided	Not provided - $0.00
4708	Orange County	Not provided	OC-03	NRCS Riverside Acres	Erosion protection of Little Wekiva river bank, install rip-rap, project length = 287 feet.	Shoreline Stabilization	Completed	2010	7	$650,000.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4709	Orange County	Not provided	OC-04	NRCS Riverside Park Ave.	Erosion protection of Little Wekiva river bank, install rip-rap, project length 150 feet. Project completion is outside acceptable date range. Previous credits of 4 lb-TN/yr and 6 lb-TP/year.	Shoreline Stabilization	Completed	2008	NA	$350,000.00	Not provided	Not provided - $0.00
4710	Orange County	Not provided	OC-05	Riverside Acres Arch Pipe	Replace existing 1,750 feet of pipe-arch pipe in Riverside Acres subdivision with open channel section and restore to reflect original river configuration. Project completion is outside acceptable date range.	Hydrologic Restoration	Completed	2005	NA	$5,000,000.00	Not provided	Not provided - $0.00
4711	Orange County	Not provided	OC-06	Riverside Park Rd.	Banks in main stem of river and into Lake Lovely Outfall Canal, including grade control structure; project includes gabions, Reno mattress, and riprap channel bottom and side bank protection.	Shoreline Stabilization	Completed	2010	25	$600,000.00	Not provided	Not provided - $0.00
4712	Orange County	Not provided	OC-07	Sherry Dr.	Erosion protection of Little Wekiva River bank; install gabion block and Reno mattress; project length = 400 feet. Project completion is outside the acceptable date range. Previous credits of 10 lb-TN/yr and 15 lb-TP/yr.	Shoreline Stabilization	Completed	2007	NA	$600,000.00	Not provided	Not provided - $0.00
4713	Orange County	Not provided	OC-08	Little Wekiva Slope Stabilization West/East Banks	Eliminate erosion of banks by using steel sheet pile. Project completion is outside acceptable date range. Previous credits of 32 lb-TN/yr and 49 lb-TP/year.	Shoreline Stabilization	Completed	2000	NA	$700,000.00	Not provided	Not provided - $0.00
4714	Orange County	Orange County	OC-09	Lake Lucie Conservation Area	Previous land use = agriculture; management focus = scrub habitat and water resource, passive recreational; acreage = 166.22. Land use change captured in update.	Land Use Change	Completed	2005	0	$4,397,800.00	Not provided	Not provided - $0.00
4715	Orange County	Lake County; Orange County; Orlando-Orange	OC-10	Neighborhood Lakes	DEP, SJRWMD, OOCEA, and Lake and Orange Counties partnered to buy land and put into conservation; previous land use = agriculture; management focus = water resource, passive; acreage = 1,584 (498 acres in Orange County).	Land Acquisition	Completed	2007	NA	$7,000,000.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
		County Central Florida Expressway Authority (OOCEA); SJRWMD; TIIF										
4716	Orange County	Orange County	OC-11	Pine Plantation	Previous land use = agriculture; management focus = passive recreation, preservation; acreage = 40. Land use change captured in update.	Land Use Change	Completed	2009	0	$1,000,000.00	NA	NA - $0.00
4717	Orange County	Orange County	OC-12	Sandhill Preserve	Previous land use = agriculture; management focus = water resource, sandhill; acreage = 83.03. Land use change captured in update.	Land Use Change	Completed	2005	0	$3,320,000.00	NA	NA - $0.00
4718	Orange County	Not provided	OC-13	Stormwater Pond Inspection	Inspect private/public stormwater ponds for compliance with performance and permit conditions.	Stormwater System Rehabilitation	Completed	2014	NA	$0.00	Not provided	Not provided - $0.00
4719	Orange County	Not provided	OC-14	Tree Planting at Elba Way/Riverside Park	Project will reduce temperature of water and improve SCI.	Creating/ Enhancing Living Shoreline	Completed	2009	NA	$55,000.00	Not provided	Not provided - $0.00
4720	Orange County	Not provided	OC-15	11th and 12th St. Improvement	New stormwater treatment to serve 11th and 12th Streets; 8.8 acres. Previously credited as 12 TN and 69 TP. Completion date falls outside of project collection period.	Stormwater System Upgrade	Completed	2014	NA	$0.00	Not provided	Not provided - $0.00
4721	Orange County	Not provided	OC-16	Clarcona Ocoee East and West Segments	4-lane road improvement; existing 2 lanes do not have stormwater treatment; project length = 2.5 miles.	Stormwater System Upgrade	Underway	2025	8	$0.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4722	Orange County	Not provided	OC-22	Rock Spring Road	4-lane road improvement; existing 2 lanes do not have stormwater treatment; project length = 2 miles.	Stormwater System Upgrade	Completed	2014	7	$0.00	Not provided	Not provided - $0.00
4723	Orange County	Not provided	OC-23	11th Ave.	Pave .3-acre dirt road; treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2007	0	$0.00	Not provided	Not provided - $0.00
4724	Orange County	Not provided	OC-24	13th Ave.	Pave .5-acre dirt road; treatment with open swales and ditch blocks. Project completion is outside acceptable date range. Previous credits of 1 lb-TN/yr and 4 lb-TP/year.	Grass swales with swale blocks or raised culverts	Completed	2007	NA	$0.00	Not provided	Not provided - $0.00
4725	Orange County	Not provided	OC-25	15th Ave.	Pave .3-acre dirt road; treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2007	0	$0.00	Not provided	Not provided - $0.00
4726	Orange County	Not provided	OC-26	17th Ave.	Pave .6-acre dirt road; treatment with open swales and ditch blocks. Project completion is outside acceptable date range. Previous credits of 1 lb-TN/yr and 5 lb-TP/year.	Grass swales with swale blocks or raised culverts	Completed	2007	NA	$0.00	Not provided	Not provided - $0.00
4727	Orange County	Not provided	OC-27	Lake Pleasant Rd. Improvement	Pave .12-acre dirt road; treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2009	0	$0.00	Not provided	Not provided - $0.00
4728	Orange County	Not provided	OC-28	Quenton Ave. and Range Dr.	Pave 0.3-acre dirt road; treatment with open swale and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2014	0	$0.00	Not provided	Not provided - $0.00
4729	Orange County	Not provided	OC-29	Ridge Terrace and Roan Rd.	Pave 1-acre dirt road; treatment with open swale and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2014	1	$0.00	Not provided	Not provided - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4730	Orange County	Not provided	OC-30	New Hampshire	Pave 0.6-acre dirt road; treatment with open swale and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2009	1	$0.00	Not provided	Not provided - $0.00
4731	Orange County	Not provided	OC-31	Sadler Rd.	Pave 1.1-acre dirt road; treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2014	2	$0.00	Not provided	Not provided - $0.00
4732	Orange County	Not provided	OC-32	Alternative Surface Program - Group IIIA Projects	Pave 98.93-acre dirt road; treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2014	140	$0.00	Not provided	Not provided - $0.00
4733	Orange County	Not provided	OC-33	Alternative Surface Program - Group IIIB Projects	Multiple locations. Pave 61.53-acre dirt roads; treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2014	87	$0.00	Not provided	Not provided - $0.00
4734	Orange County	Not provided	OC-34	Boxwood Dr. and Bull Run Rd.	Pave 0.9-acre dirt road; treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2015	1	$0.00	Not provided	Not provided - $0.00
4735	Orange County	Not provided	OC-35	Hereford Rd., Highland St., and Holly St.	Pave 1.5-acre dirt road; treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	2014	2	$0.00	Not provided	Not provided - $0.00
4736	Orange County	Not provided	OC-36	Street Sweeping	Streets are swept every six weeks; 481,128 pounds of material removed per year.	Street Sweeping	Ongoing	NA	29	$0.00	Not provided	Not provided - $0.00
4737	Orange County	Not provided	OC-37	Lake Gandy Hydrologic and Nutrient Study	Study to evaluate hydrologic conditions and nutrient loadings to Lake Gandy.	Study	Completed	2012	NA	$150,000.00	OC BCC	OC BCC - $150,000.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4738	Orange County	Not provided	OC-39	Force Main/Gravity Replacement	New force mains to prevent leakage; All American Blvd. from Clarcona Ocoee to Kennedy; Avalon Rd. to Hiawassee Rd.; Clarcona Ocoee Rd. from Ingram to Clarke; Indian Hill Rd. to PS #3411; North Pine Hills Rd. at Indian Hill Rd. and Clarcona Ocoee Rd.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Underway	2024	NA	$10,494,000.00	Not provided	Not provided - $0.00
4739	Orange County	Not provided	OC-40	Pump Station Removal/Relocation (R/R)	Replace multiple pump stations.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2015	NA	$13,263,500.00	Not provided	Not provided - $0.00
4741	Orange County	NA	OC-42	Little Wekiva STA Design	Stormwater treatment train.	BMP Treatment Train	Underway	2025	NA	$920,191.63	Orange County	Orange County - $920,191.63
4742	Orange County	Not provided	OC-43	Lake Gandy BMP	Stormwater treatment train.	BMP Treatment Train	Canceled	NA	NA	$1,000,000.00	OC BCC	OC BCC - $0.00
4743	Orange County	Not provided	OC-44	Kathleen Dr.	Erosion control.	Shoreline Stabilization	Completed	2018	TBD	$514,000.00	Orange County	Orange County - $0.00
4745	Orange County	Not provided	OC-46	Little Wekiva CIBs	Install 180 CIBs around Little Wekiva Basin.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	2017	11	$196,899.00	Orange County	Orange County - $0.00
4746	Orange County	OCEPD	OC-47	Trimble Park Office Septic	Septic upgrade to Passive nitrogen treatment. Original credit of 1 lbs-TN/yr. Project was captured in the updated loading estimates.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2018	0	$0.00	Vendor	Vendor - $0.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4747	Orange County	Facilities; Parks	OC-48	Magnolia Park Sanitary Connection	Conversion of park facilities from septic to sanitary. Original credit of 122 lbs-TN/yr. Project was captured in the updated loading estimates.	OSTDS Phase Out	Completed	2018	0	$484,000.00	DEP LF	DEP LF - $250,000.00
4748	Orange County	Facilities; Parks	OC-49	Camp Joy Sanitary Connection	Conversion of park facilities from septic to sanitary.	OSTDS Phase Out	Completed	2019	0	$461,555.00	Orange County	Orange County - $0.00
4749	Orange County	Orange County Librarty System (OCLS)	OC-50	North Orange Branch Sanitary Connection	Conversion of facilities from septic to sanitary. Original credit of 275 lbs-TN/yr. Project was captured in the updated loading estimates.	OSTDS Phase Out	Completed	2018	0	$105,832.00	OCLS	OCLS - $105,832.00
4750	Orange County	DEP; OCEPD	OC-51	Lake Gandy BMP Treatment Train Construction: Magnolia Village	Treatment train pond modification with modular wetlands, tree boxes, and upflow biosorption activated media filter.	BMP Treatment Train	Completed	2023	2	$475,680.45	OC BCC; DEP	OC BCC - $334,650.45; DEP - $141,030.00
5537	Orange County	NA	OC-51a	Lake Gandy BMP Treatment Train Feasibility Study	Design BMP treatment train feasibility assessment.	Study	Completed	2017	NA	$89,850.00	OC BCC	OC BCC - $89,850.00
5538	Orange County	NA	OC-51b	Lake Gandy BMP Treatment Train Design	Design BMP treatment train and post-design constructions services.	BMP Treatment Train	Completed	2024	NA	$229,355.28	OC BCC	OC BCC - $229,355.28
6704	Orange County	NA	OC-51c	Gandy Treatment Train: Magnolia Village Performance Monitoring	Monitoring/modeling of all inflow and outflow concentrations and flow rates of Gandy Treatment Train project (Magnolia Village). This includes two tree boxes, one modular wetland system, one upflow filter and all bypass flows.	Monitoring/Data Collection	Ongoing	NA	NA	$215,178.81	OC-BCC	OC-BCC - $215,178.81
6703	Orange County	NA	OC-51d	Lake Gandy BMP Treatment Train Construction: Magnolia Lakes	Treatment train pond modification with modular wetlands, subsurface gravel wetland, and upflow biosorption activated media filter.	Stormwater System Upgrade	Completed	2024	16	$1,884,238.48	OC-BCC	OC-BCC - $1,827,700.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
4751	Orange County	NA	OC-52	Education and Ordinances	Ordinances for fertilizer, pet waste, landscape, and irrigation. Public education including FYN and PSAs, websites, and brochures. Full suite of public education and ordinances implemented.	Regulations, Ordinances, and Guidelines	Ongoing	NA	8,576	$0.00	NA	NA - $0.00
4609	Orange County	NA	OC-53	Black Lake Hydrological and Nutrient Assessment	Data and information from the assessment can be used by stakeholders to refine TMDL, provide allocation information within the watershed, and identify potential BMP effectiveness. Feasibility Study will evaluate selected BMPs for implementability.	Study	Completed	2019	NA	$193,795.60	OC BCC	OC BCC - $0.00
4752	Orange County	NA	OC-53a	Black Lake Feasibility Study	Feasibility Study will evaluate selected BMPs for implementability.	Study	Completed	2021	NA	$119,835.54	OC-BCC	OC-BCC - $119,835.54
4610	Orange County	NA	OC-54	Lake Tilden Hydrological and Nutrient Assessment	Data and information from the assessment can be used by stakeholders to refine TMDL, provide allocation information within the watershed, and identify potential BMP effectiveness. Feasibility Study will evaluate selected BMPs for implementability.	Study	Completed	2019	NA	$198,000.00	OC BCC	OC BCC - $198,000.00
4753	Orange County	NA	OC-54a	Lake Tilden Hydrological and Feasibility Study	Feasibility Study will evaluate selected BMPs for implementability.	Study	Completed	2021	NA	$22,648.74	NA	NA - $22,648.74
4611	Orange County	NA	OC-55	Lake Weston Hydrological and Nutrient Assessment	Data and information from the assessment can be used by stakeholders to refine TMDL, provide allocation information within the watershed, and identify potential BMP effectiveness.	Study	Completed	2020	NA	$197,871.12	OC BCC	OC BCC - $197,871.12
4754	Orange County	NA	OC-55a	Lake Weston Feasibility Study #1	Feasibility Study will evaluate selected BMPs for constructability. (Mosher Drive NSBB and P&T water quality improvement BMPs).	Study	Completed	2023	NA	$96,605.24	OC BCC	OC BCC - $96,605.24

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
6683	Orange County	NA	OC-55b	Lake Weston BMP Feasibility Study #2	Evaluate constructability of WQI BMP.	Study	Completed	2024	NA	$96,652.94	OC BCC	OC BCC - $96,652.94
4755	Orange County	NA	OC-56	Edgewater	Erosion control and bank stabilization along Little Wekiva River. Gabion basket wall and articulated concrete mat to be installed. Total project length is approximately 1045'.	Shoreline Stabilization	Completed	2022	NA	$2,098,734.76	Orange County	Orange County - $2,098,735.00
4756	Orange County	NA	OC-57	Lake Roper Hydrological and Nutrient Assessment & Feasibility Study	Data and information from the assessment can be used by stakeholders to refine TMDL, provide allocation information within the watershed, and identify potential BMP effectiveness. Feasibility Study will evaluate selected BMPs for implementability.	Study	Completed	2021	NA	$192,318.82	OC BCC	OC BCC - $192,318.82
4757	Orange County	NA	OC-58	Lake Rose Hydrological and Nutrient Assessment	Data and information from the assessment can be used by stakeholders to refine TMDL, provide allocation information within the watershed, and identify potential BMP effectiveness.	Study	Completed	2020	NA	$186,584.72	OC BCC	OC BCC - $186,584.72
5539	Orange County	NA	OC-59	Lake Lawne SIF Performance Monitoring (Y1).	Y1 Nutrient removals: 19 lbs TP, 244 lbs TN, 1027 lbs TSS. Project credited in ProjID 4061.	Monitoring/Data Collection	Completed	2021	NA	$79,148.00	OC BCC	OC BCC - $79,148.00
5540	Orange County	NA	OC-59a	Lake Lawne SIF Performance Monitoring (Y2).	BMP performance assessment. Y2 Removals: 115 lbs TP, 620 lbs TN, 15927 lbs TSS. See Table 6-1, Page 26 of report. Project credited in ProjID 4061.	Monitoring/Data Collection	Completed	2021	NA	$92,247.00	OC BCC	OC BCC - $92,247.00
6370	Orange County	NA	OC-59b	Lake Lawne SIF Performance monitoring (Y3)	BMP performance assessment. Y3 nutrient reductions: 163 lbs TP, 3259 lbs TN, 12033 lbs TSS. Project credited in ProjID 4061.	Monitoring/Data Collection	Completed	2022	NA	$62,630.34	OC BCC	OC BCC - $62,630.00

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6371	Orange County	NA	OC-59c	Lake Lawne SIF Performance Monitoring (Y4)	BMP performance assessment. Y4 Nutrient reductions: 826 lbs TP, 2566 lbs TN, 35435 lbs TSS. Project credited in ProjID 4061.	Monitoring/Data Collection	Completed	2023	NA	$64,465.94	OC BCC	OC BCC - $64,466.00
5541	Orange County	NA	OC-60	Wekiva PFA Pilot Projects Study	Assessment of loading in the Wekiva PFA intended to target optimum BMP locations.	Study	Completed	2021	NA	$195,865.00	OC BCC	OC BCC - $195,865.00
5542	Orange County	NA	OC-60a	Wekiva BMAP Pond #6794 Retrofit Design	Project to retrofit a dry retention pond with BAM to improve nutrient pollutant reduction efficiencies.	Retention/Detention BMP Retrofit with Nutrient Reducing Media	Underway	2024	NA	$118,750.00	OC BCC	OC BCC - $118,750.00
5543	Orange County	OC BCC	OC-60b	Wekiva BMAP Pond #6794 Retrofit Construction	Construction to retrofit existing pond forebay with BAM.	Retention/Detention BMP Retrofit with Nutrient Reducing Media	Planned	2026	241	$1,106,111.83	OC BCC	OC BCC - $1,106,111.83
5823	Orange County	NA	OC-61	Wekiva BMAP Data Integration and Gap Analysis	Groundwater quality and data needs assessment.	Study	Completed	2022	NA	$84,970.00	OC BCC	OC BCC - $84,970.00
5824	Orange County	NA	OC-62	Breckenridge Pond #6544 Retrofit Design	Design and bid solicitation package deliverable.	Retention/Detention BMP Retrofit with Nutrient Reducing Media	Canceled	NA	NA	$0.00	NA	NA - $0.00
5825	Orange County	NA	OC-63	Wekiva BMAP Groundwater Assessment	Groundwater quality assessment in the Wekiva BMAP area.	Study	Completed	2021	NA	$84,970.00	OC BCC	OC BCC - $84,970.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
5826	Orange County	NA	OC-64	Black Lake Siplin Pond #6749 Retrofit Design	Design of pond retrofit side bank media filter.	Retention/Detention BMP Retrofit with Nutrient Reducing Media	Underway	2025	TBD	$94,307.68	OC BCC	OC BCC - $94,307.68
5827	Orange County	NA	OC-65	Johns Lake Hydrological and Nutrient Assessment	Data and information from the assessment can be used by stakeholders to refine TMDL, provide allocation information within the watershed, and identify potential BMP effectiveness.	Study	Underway	2025	NA	$318,877.00	OC BCC	OC BCC - $0.00
5828	Orange County	OC BCC	OC-66	Lake Weston Surface Alum Treatment	Whole lake alum treatment.	In Waterbody - Alum Injection System	Underway	2025	NA	$269,265.54	OC BCC	OC BCC - $269,265.54
5829	Orange County	NA	OC-67	Little Wekiva at Edgewater Dr.	Construction of 600 linear feet of 14x10 foot high gabion lined channel with 2,500 cubic yards of gabion baskets. Additionally 520 tons of riprap, 1700 square yard of concrete block, 1000 feet of fencing, 3500 square yards of sod.	Stormwater System Upgrade	Underway	2026	NA	$1,325,884.00	Orange County	Orange County - $1,325,884.00
5830	Orange County	DEP	OC-68	Springs Fertilizer Campaign	Design and implement Springs Basin Fertilizer Campaign targeting residential turf fertilizer application and awareness of effects on Wekiwa and Rock springs.	Enhanced Public Education	Ongoing	NA	NA	$250,000.00	DEP 319; Orange County	DEP 319 - $150,000.00; Orange County - $0.00
5831	Orange County	NA	OC-69	Groundwater Vulnerability Study	Countywide assessment of the risk and vulnerability of the groundwater and surface water to contamination from septic systems.	Study	Completed	2024	NA	$202,438.00	OC BCC	OC BCC - $202,438.00
6372	Orange County	NA	OC-70	Wekiva BMAP Pond #7006 BMP Feasibility Study	Evaluate proposed BMP for nitrate removal from groundwater in PFA.	Study	Completed	2024	NA	$143,670.70	OC BCC	OC BCC - $143,670.70

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
6374	Orange County	NA	OC-70a	Wekiva BMAP Pond #7006 Retrofit Design	Retrofit existing pond by creating a BAM forebay to treat groundwater nitrate.	Retention/Detention BMP Retrofit with Nutrient Reducing Media	Planned	2026	TBD	$180,000.00	OC BCC	OC BCC - $180,000.00
6373	Orange County	NA	OC-71	Wekiva BMAP Pond #6360 BMP Feasibility Study	Evaluate proposed stormwater pond BMP retrofit to increase nutrient pollutant removal efficiencies.	Study	Completed	2024	NA	$162,203.51	OC BCC	OC BCC - $162,203.51
6375	Orange County	NA	OC-71a	Wekiva BMAP Pond #6360 TBD Retrofit Design	Retrofit existing pond forebay with BAM.	Retention/Detention BMP Retrofit with Nutrient Reducing Media	Underway	2024	TBD	$114,285.43	OC BCC	OC BCC - $114,285.43
6376	Orange County	NA	OC-72	Wekiva BMAP Pond #0007 Pilot FS	Groundwater pump-and-treat for nitrate using existing dry retention pond.	Retention/Detention BMP Retrofit with Nutrient Reducing Media	Underway	2026	TBD	$144,146.46	OC BCC	OC BCC - $144,146.46
6377	Orange County	NA	OC-73	Wekiva PFA GW Monitoring Well Cluster Installation	Install well cluster to characterize groundwater nitrate concentrations resulting from fertilizer and/or OSTDS usage.	Monitoring/Data Collection	Underway	2024	NA	$160,250.29	OC BCC	OC BCC - $160,250.29
6378	Orange County	NA	OC-73a	Wekiva PFA Well Cluster Groundwater Quality Monitoring	Install well cluster to characterize groundwater nitrate concentrations due to fertilizer and / or OSTDS usage.	Monitoring/Data Collection	Completed	2023	NA	$87,968.50	OC BCC	OC BCC - $87,968.50
6379	Orange County	NA	OC-74	Lake Orlando Pollutant Load Monitoring (Y1)	Data collection and load monitoring to inform WASP/HSPF modeling.	Monitoring/Data Collection	Completed	2022	NA	$120,124.12	OC BCC	OC BCC - $120,124.00

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6380	Orange County	NA	OC-74a	Lake Orlando Pollutant Load Monitoring (Y2)	Data collection and load monitoring to inform WASP/HSPF modeling of in situ WQs.	Monitoring/Data Collection	Underway	2024	NA	$50,312.28	OC BCC	OC BCC - $50,312.00
6381	Orange County	DEP; Florida Legislature; SJRWMD	OC-75	Wekiwa Springs Septic Tank Retrofit Project - Phase 1	Convert 207 parcels from septic tanks to central sewer. Original credit of 1,596 lbs-TN/yr. Project was captured in the updated loading estimates.	OSTDS Phase Out	Completed	2024	0	$10,088,000.00	SJRWMD; DEP; Florida Legislature; MSBU; OCU	SJRWMD - $1,500,000.00; DEP - $4,300,000.00; Florida Legislature - $500,000.00; MSBU - $1,266,000.00; OCU - $2,522,000.00
6382	Orange County	DEP; Florida Legislature; SJRWMD	OC-75a	Wekiwa Springs Septic Tank Retrofit Project - Phase 2	Convert 154 parcels from septic tanks to central sewer.	OSTDS Phase Out	Underway	2024	1,966	$11,000,000.00	OCU; SJRWMD; DEP; Florida Legislature; MSBU	OCU - $2,117,000.00; SJRWMD - $1,722,000.00; DEP - $3,051,000.00; Florida Legislature - $500,000.00; MSBU - $924,000.00
6771	Orange County	DEP; MSBU; OCU; SJRWMD	OC-75b	Wekiwa Springs Septic Tank Retrofit Project - Phase 3	Convert 213 parcels from septic tanks to central sewer.	OSTDS Phase Out	Underway	2025	2,750	$13,500,000.00	DEP; MSBU; OCU; SJRWMD	DEP - $6,361,020.00; MSBU - $1,284,000.00; OCU - $3,304,980.00; SJRWMD - $2,550,000.00
6772	Orange County	DEP; MSBU; OCU; SJRWMD	OC-75c	Wekiwa Springs Septic Tank Retrofit Project - Phase 4	Convert 396 parcels from septic tanks to central sewer.	OSTDS Phase Out	Underway	2026	4,825	$29,700,000.00	MSBU; DEP; SJRWMD; OCU	MSBU - $2,970,000.00; DEP - $12,436,280.00; SJRWMD -

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
												$3,000,000.00; OCU - $7,425,000.00
6773	Orange County	DEP; MSBU; OCU	OC-75d	Wekiwa Springs Septic Tank Retrofit Project - Phase 6	Convert 83 parcels from septic tanks to central sewer.	OSTDS Phase Out	Underway	2026	1,372	$6,225,000.00	DEP WW; MSBU	DEP WW - $0.00; MSBU - $6,225,000.00
6774	Orange County	DEP	OC-75e	Pine Hills Neighborhood Improvement District - Septic to Sewer	Convert 173 parcels from septic tanks to central sewer.	OSTDS Phase Out	Underway	2024	2,972	$22,140,000.00	OCU; DEP WW	OCU - $2,145,000.00; DEP WW - $4,290,000.00
6890	Orange County	DEP; MSBU; OCU	OC-75f	Wekiwa Springs Septic Tank Retrofit Project - Phase 5	Convert 427 parcels from septic tanks to central sewer.	OSTDS Phase Out	Underway	2026	7,205	$32,000,000.00	DEP; MSBU; OCU	DEP - $0.00; MSBU - $3,172,500.00; OCU - $25,320,000.00
6999	Orange County	NA	OC-77	Lake Weston 4e Pond 6330 BMP Design	Create a BMP to treat stagnant canal water before it reached Lake Weston.	Stormwater System Upgrade	Planned	2026	TBD	$199,136.09	OC BCC	OC BCC - $199,136.09
6995	Orange County	NA	OC-78	Lake Weston 4E BMP Design (Alum)	In lake treatment with buffered alum to sequester TP.	In Waterbody - Alum Injection System	Canceled	NA	NA	$0.00	OC BCC	OC BCC - $265,931.14
6996	Orange County	NA	OC-79	Lake Weston 4e BMP #1 Mosher Dr. NSBB Design	Curb inlet NSBB with a BAM filter.	Baffle Boxes-Second Generation with Media	Underway	2026	TBD	$137,396.82	OC BCC	OC BCC - $137,396.82
6998	Orange County	NA	OC-80	Lake Lovely Watershed Assessment	Watershed scale assessment of nutrient sources & sinks. Study produces a ranked list of water quality improvement projects.	Study	Underway	2025	NA	$230,451.35	OC BCC	OC BCC - $230,451.35

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7618	Orange County	NA	OC-81a	Update Chapter 37 Wastewater Code	Increased sewer connection requirements in OC-PVAs and PFA: <2 ERU fronting gravity or force main, >2 ERU connect within 600 ft of main Enhanced Septic (65% N Reduction) in OC-PVAs lots one acre or less. Septic <150' from waterbody must be enhanced.	Regulations, Ordinances, and Guidelines	Underway	2025	NA	$0.00	OC BCC	OC BCC - $0.00
7642	Orange County	NA	OC-82	Lake Weston 4e Satel Canal In Stream Treatment Mini FS	Develop 3 in-stream treatment concepts to treat stagnant canal water before it reached Lake Weston.	Study	Planned	2025	NA	$199,136.09	OC BCC	OC BCC - $199,136.09
7615	Orange County	DEP	OC-83	OC-PVA Septic Upgrade Incentive Program	Incentive Funding up to $15,000 provided to upgrade an estimated 30 conventional septics to enhanced 65% nitrogen-reducing systems in Orange County Priority Vulnerability Areas (PVAs).	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	2027	271	$450,000.00	DEP Water Quality	DEP Water Quality - $0.00
7616	Orange County	DEP	OC-83a	BMAP Septic Upgrade Incentive Program	Incentive Funding up to $15,000 provided to upgrade an estimated 40 conventional septics to enhanced 65% nitrogen-reducing systems in BMAP areas.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	2027	362	$600,000.00	DEP Water Quality	DEP Water Quality - $0.00
7617	Orange County	DEP	OC-83b	PFA Septic Upgrade Incentive Program	Incentive Funding up to $10,000 provided to upgrade an estimated 238 conventional septics to enhanced 65% nitrogen-reducing systems in the Wekiwa PFA.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Underway	2027	2,152	$2,376,222.23	DEP Water Quality	DEP Water Quality - $2,376,222.23
7625	Orange County	NA	OC-84a	OC-Facilities West District Septic to Sewer Feasibility	Septic to sewer feasibility is being evaluated at Tibet Butler, Willow Street, Apopka R&D, RD Keen, LEVO, West Beach, Rolling Hills, West Orange Highway, Trimble Park, Orlo Vista	OSTDS Phase Out	Underway	2027	TBD	$820,000.00	OC BCC	OC BCC - $820,000.00

Proj ID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
					Park, Shadow Bay Park, Parks & Rec Warehouse, Frederick Douglas.							
7626	Orange County	NA	OC-85	Killarney Station Sewer Connection	Killarney Station sewer connection.	OSTDS Phase Out	Underway	2027	TBD	$930,000.00	OC BCC	OC BCC - $930,000.00
4740	Orange County (Utilities)	Not provided	OC-41	Force Main/Gravity Sewer Rehab	Combine cured in place pipe (CIPP) and point repairs to restore gravity sanitary sewer, including lining or coating 40 manholes. Upsized storm pipes that go to Lake Robin, replacing force main, gravity line, and manholes to reduce leakage of sewage.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Canceled	2016	NA	$1,780,000.00	Not provided	Not provided - $0.00
4744	Orange County (Utilities)	OCU	OC-45	Northwest Water Reclamation Facility (NWRF) Phase III Expansion	Reduction is 28,271 lb-N/yr. The NSILT used data with the new effluent concentration. The reduction has been zeroed out to avoid double counting, however improvements were made within the project collection period and prior to the new effluent standards.	WWTF Nutrient Reduction	Completed	2012	0	$31,000,000.00	OCUD	OCUD - $0.00
7610	Orange County (Utilities)	DEP; MSBU	OC-75g	Wekiwa Springs Septic Tank Retrofit Project - Phase 7	Convert 486 parcels from septic tanks to central sewer.	OSTDS Phase Out	Underway	2027	8,348	$36,450,000.00	MSBU; OCU; DEP	MSBU - $3,645,000.00; OCU - $16,805,000.00; DEP - $16,000,000.00
4774	Seminole County	SJRWMD	SC-01	Sweetwater Cove Dredging and Drainage Improvements and Sweetwater Tributary Erosion Project	Increase water quality treatment resonance time through water quality treatment pond expansion, construct online sedimentation basin; carry out erosion control measures along Sweetwater Creek; area served = 2,181 acres.	Stormwater System Upgrade	Completed	2010	396	$2,700,000.00	SJRWMD	SJRWMD - $1,381,570.00

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4775	Seminole County	NRCS	SC-02	Grade Control Structures 6 and 7 (Weathersfield)	Completed Prior to 2009. Reduce sediment loads through bank stabilization and river grade control structures in Little Wekiva River; area served = >5,000 acres.	Shoreline Stabilization	Completed	2009	26	$300,000.00	NRCS	NRCS - $0.00
4776	Seminole County	NA	SC-03	Horse Lovers Lane Erosion Control Project	Completed Prior to 2009. Reduce sediment loads through bank stabilization along Spring Lake outfall, tributary to Little Wekiva River; use gabions and grade control structures plus replace culverts; area served = >1,000 acres.	Shoreline Stabilization	Completed	2009	17	$700,000.00	NA	NA - $0.00
4777	Seminole County	NA	SC-04	North Western Erosion Control Project	Project Completed Prior to 2009. Reduce sediment loads through bank stabilization along Little Wekiva River; area served >5,000 acres.	Shoreline Stabilization	Completed	2009	5	$950,000.00	Utilities Inc of Florida	Utilities Inc of Florida - $20,659.00
4778	Seminole County	NRCS	SC-05	Weathersfield Erosion Control Project	Project Completed Prior to 2009. Reduce sediment loads through bank stabilization along Little Wekiva River; area served >5,000 acres.	Shoreline Stabilization	Completed	2009	4	$750,000.00	NRCS	NRCS - $0.00
4779	Seminole County	NA	SC-10	Mirror Lake	Exotics removal/ revegetation with native species. Accomplished using in-house staff, residents, and volunteers.	Exotic Vegetation Removal	Completed	2010	NA	$75,000.00	NA	NA - $0.00
7301	Seminole County	Seminole County	SC-100	Project Area 40 (No Listed Subdivision)	Convert 1 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$12,000.00	TBD	TBD - $12,000.00
7327	Seminole County	Seminole County	SC-101	Project Area 43 (No Listed Subdivision)	Convert 1 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$12,000.00	TBD	TBD - $12,000.00
7328	Seminole County	Seminole County	SC-102	Project Area 44 (Sanlando Springs)	Convert 1 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$12,000.00	TBD	TBD - $12,000.00

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7286	Seminole County	Seminole County	SC-103	Project Area 26 (Sanlando Estates)	Convert 12 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	160	$500,000.00	TBD	TBD - $500,000.00
7287	Seminole County	Seminole County	SC-104	Project Area 27 (Little Acres/Orange Villa)	Convert 11 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	146	$230,000.00	TBD	TBD - $230,000.00
7262	Seminole County	Seminole County	SC-105	Project Area 5 (Forest Heights/Forest Lake/Pearl lake Heights)	Convert 232 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	3,089	$3,600,000.00	TBD	TBD - $3,600,000.00
7277	Seminole County	Seminole County	SC-106	Project Area 19 (Gracevilla Heights/Milton/Shady Oaks)	Convert 66 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	879	$500,000.00	TBD	TBD - $500,000.00
7290	Seminole County	Seminole County	SC-107	Project Area 30 (Douglas Place/Sanlando Springs)	Convert 8 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	107	$220,000.00	TBD	TBD - $220,000.00
7336	Seminole County	Seminole County	SC-108	Project Area 50 (Goldie Manor)	Convert 1 property(s) to enhanced on-site septic treatment within the Wekiva PFA.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	TBD	7	$12,000.00	TBD	TBD - $12,000.00
7343	Seminole County	Seminole County	SC-109	Project Area 51 (Forest City)	Convert 3 property(s) to enhanced on-site septic treatment or convert to gravity sewer within the Wekiva PFA.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	TBD	21	$28,000.00	TBD	TBD - $28,000.00

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7345	Seminole County	Seminole County	SC-110	Project Area 53 (Weathersfield)	Convert 1 property(s) to enhanced on-site septic treatment or convert to gravity sewer within the Wekiva PFA.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	TBD	7	$14,000.00	TBD	TBD - $14,000.00
7288	Seminole County	Seminole County	SC-111	Project Area 28 (Douglas Center and Condominiums/Douglas Heights)	Convert 18 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	240	$350,000.00	TBD	TBD - $350,000.00
7289	Seminole County	Seminole County	SC-112	Project Area 29 (Riverside at the Springs)	Convert 10 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	133	$140,000.00	TBD	TBD - $140,000.00
7281	Seminole County	Seminole County	SC-113	Project Area 23 (Lake Brantley Hills/ West Lake Brantley Hills)	Convert 14 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	186	$1,000,000.00	TBD	TBD - $1,000,000.00
7285	Seminole County	Seminole County	SC-114	Project Area 25 (Melody Acres)	Convert 10 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	133	$230,000.00	TBD	TBD - $230,000.00
7296	Seminole County	Seminole County	SC-115	Project Area 35 (Forest City)	Convert 1 property to low pressure sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$23,000.00	TBD	TBD - $23,000.00
7332	Seminole County	Seminole County	SC-116	Project Area 46 (No Listed Subdivision)	Convert 1 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$23,000.00	TBD	TBD - $23,000.00
7258	Seminole County	Seminole County	SC-117	Project Area 2 (Lynwood/Paradise/Sunset Shores)	Convert 342 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	4,553	$230,000.00	TBD	TBD - $230,000.00

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7326	Seminole County	Seminole County	SC-118	Project Area 42 (Viscaya)	Convert 1 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$12,000.00	TBD	TBD - $12,000.00
7333	Seminole County	Seminole County	SC-119	Project Area 47 (No Listed Subdivision)	Convert 1 property(s) to enhanced on-site septic treatment or convert to gravity sewer within the Wekiva PFA.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	TBD	7	$12,000.00	TBD	TBD - $12,000.00
7334	Seminole County	Seminole County	SC-120	Project Area 48 (Sanlando Springs)	Convert 1 property(s) to enhanced on-site septic treatment or convert to gravity sewer within the Wekiva PFA.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	TBD	7	$23,000.00	TBD	TBD - $23,000.00
7335	Seminole County	Seminole County	SC-121	Project Area 49 (Longview Heights)	Convert 3 property(s) to enhanced on-site septic treatment or convert to gravity sewer within the Wekiva PFA.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	TBD	21	$12,000.00	TBD	TBD - $12,000.00
7282	Seminole County	Seminole County	SC-122	Project Area 24 (Pearl Lake Heights)	Convert 27 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	359	$1,500,000.00	TBD	TBD - $1,500,000.00
4780	Seminole County	NA	SC-14	Bear Lake Rd. Reconstruction	Completed Prior to 2009. Provide water quality treatment to existing roadway and subdivision through increased wet retention and utilization of existing dry retention pond; area served = 32 acres.	Stormwater System Upgrade	Completed	2009	14	$2,200,000.00	NA	NA - $0.00
4781	Seminole County	NA	SC-15	Bunell Rd. Widening	Provide treatment to untreated roadway through construction of new wet retention basin and exfiltration trench;	Stormwater System Upgrade	Completed	2010	5	$3,200,000.00	NA	NA - $0.00

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					designed to hold treatment volume plus 50%; area served = 7.5 acres.							
4782	Seminole County	NA	SC-16	Eden Park Rd.	Provide treatment to untreated roadway through exfiltration, installation of CDS units, and new wet retention basin; area served = 10.6 acres.	Stormwater System Upgrade	Completed	2010	9	$3,500,000.00	NA	NA - $0.00
4783	Seminole County	NA	SC-19	Triangle Drive Treatment Pond	Construct wet detention pond and provide ecological restoration on drainage parcel near Triangle Drive prior to draining into Lake Brantley; area served = 372 acres.	Wet Detention Pond	Canceled	NA	NA	$800,000.00	NA	NA - $0.00
4784	Seminole County	NA	SC-20	Wekiva Springs Rd. at Sweetwater Creek	Completed Prior to 2009. Construct two interconnected sedimentation ponds to provide additional water quality treatment for two square miles of residential development; area served = two square miles.	On-line Retention BMPs	Completed	2009	25	$220,000.00	NA	NA - $0.00
4785	Seminole County	NA	SC-21	Wekiva Springs Rd. Hunt Club to Fox Valley	Completed Prior to 2009. Provide water quality treatment to existing roadway through swales; area served = 7 acres.	Grass swales without swale blocks or raised culverts	Completed	2009	8	$1,800,000.00	NA	NA - $0.00
4786	Seminole County	NA	SC-22	West Wekiva Tr. Treatment Pond	Construct wet detention pond and provide ecological restoration on drainage parcel north of West Wekiva Tr. prior to discharge into Wekiva River; area served = 220 acres.	Wet Detention Pond	Canceled	NA	NA	$0.00	NA	NA - $0.00
4787	Seminole County	NA	SC-24	Wekiva Springs Rd. State Road 434 to Sabal Point	Project Completed Prior to 2009. Provide water quality treatment for new impervious portions of roadway improvements through construction of on-line exfiltration trench; area served = 3.4 acres.	Exfiltration Trench	Completed	2009	2	$6,900,000.00	NA	NA - $0.00

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4788	Seminole County	NA	SC-25	Street Sweeping	Street sweeping within the Big Wekiva and Little Wekiva drainage basins.	Street Sweeping	Ongoing	NA	3	$0.00	NA	NA - $0.00
4789	Seminole County	NA	SC-26	Bear Lake Chain-of-Lakes Hydrology/Nutrient Budget and Water Quality Management Plan	Detailed nutrient and hydrologic study, quantifying all nutrient sources, including internal loading, ground water, surface water, precipitation, etc., Management plan includes potential structural and nonstructural water quality improvements.	Study	Completed	2012	NA	$0.00	NA	NA - $0.00
4790	Seminole County	NA	SC-27	Spring Lake/Spring Lake Watershed Hydrology/Nutrient Budget and Water Quality Management Plan	Detailed nutrient and hydrologic study, quantifying all nutrient sources, including internal loading, ground water, surface water, precipitation, etc., Management plan includes potential structural and nonstructural water quality improvements.	Study	Completed	2016	NA	$0.00	NA	NA - $0.00
4791	Seminole County	NA	SC-28	Wekiva Basin Stormwater Pond Enhancement Feasibility Study for Nitrogen Transport	Preliminary analysis of nitrogen transport into and out of retention pond/ground water, and follow-up analysis of improvements made to ground water discharge after addition of Bold and Gold™ amendment to pond bottom.	Study	Planned	TBD	NA	$0.00	TBD	TBD - $0.00
4792	Seminole County	NA	SC-29	Seminole County Water Quality Master Plan	Countywide assessment of all water quality data, monitoring programs, regional ponds, CIP projects, etc., to improve effectiveness of existing programs and identify additional structural/nonstructural improvement projects.	Study	Planned	TBD	NA	$0.00	NA	NA - $0.00
4793	Seminole County	NA	SC-31	Bridgewater Dr.	Completed Prior to 2015. Manhole sealing.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2015	NA	$16,179.00	NA	NA - $0.00

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4794	Seminole County	NA	SC-33	Lift Station Rehab	Seal wet well and rehabilitate lines (Wilson School LS, Breckenridge LS, Stockbridge LS, Lake Forest #5 LS, Buckingham LS, Retreat at Wekiva LS, Aster Farms LS, Bel-Aire #3 LS, Bel-Aire #1 LS, Heathrow Master LS).	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2017	NA	$324,353.00	NA	NA - $0.00
4795	Seminole County	NA	SC-35	Bear Lake Drainage Improvements (Hamilton Pond)	Regional stormwater facility (RSF) for Bear Lake, Little Bear.	Regional Stormwater Treatment	Completed	2019	21	$1,150,000.00	NA	NA - $0.00
4796	Seminole County	DEP	SC-37	Alton Drive Stormwater Pond	Modify existing stormwater pond to increase treatment efficiency and reroute untreated stormwater into existing pond.	Wet Detention Pond	Completed	2021	78	$1,104,114.00	DEP LF	DEP LF - $825,000.00
4797	Seminole County	NA	SC-39	Lake Asher Restoration	Mechanical removal of vegetative material and associated organic matter. Shoreline planting with natives.	Aquatic Vegetation Harvesting	Completed	2018	TBD	$285,000.00	DEP LF	DEP LF - $233,171.00
4798	Seminole County	Sweetwater MSBU	SC-43	Sweetwater Cove Shoreline Restoration	Planted native aquatic vegetation along individual homeowner shorelines. Acres treated estimated as the cove acreage.	Creating/ Enhancing Living Shoreline	Completed	2017	TBD	$0.00	NA	NA - $0.00
4799	Seminole County	Lake Brantley Preservation Association	SC-44	Lake Brantley Shoreline Restoration	Planted native aquatic vegetation along individual homeowner shorelines. Acres treated estimated as the lake acreage.	Creating/ Enhancing Living Shoreline	Completed	2017	TBD	$0.00	NA	NA - $0.00
4800	Seminole County	Mirror Lake MSBU	SC-45	Mirror Lake Shoreline Restoration	Planted native aquatic vegetation along individual homeowner shorelines.	Creating/ Enhancing Living Shoreline	Completed	2017	TBD	$0.00	NA	NA - $0.00
4801	Seminole County	TBD	SC-46	Bear Lake Shoreline Restoration	Planted native aquatic vegetation along individual homeowner shorelines. Estimated acres treated as the lake size but once planting is completed, will update with shoreline acreage.	Creating/ Enhancing Living Shoreline	Planned	TBD	TBD	$0.00	TBD	TBD - $0.00

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4802	Seminole County	Sweetwater MSBU	SC-47	Sweetwater Cove Lyngbya Harvesting	Harvesting of lyngbya.	Macroalgal Harvesting	Completed	2017	NA	$0.00	Sweetwater MSBU	Sweetwater MSBU - $24,000.00
4804	Seminole County	NA	SC-52	Lynwood Gravity Main and Manhole Repairs	Seal and coating of 5 manholes; CIPP lining of 1,445 linear feet of 8-inch gravity main.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2017	NA	$57,000.00	NA	NA - $0.00
4805	Seminole County	NA	SC-53	Foxwood Pump Station Rehab	Rehab including 2 new Flygt, new pump base plates & elbow; new 4-inch stainless steel discharge piping.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2017	NA	$48,000.00	NA	NA - $0.00
4806	Seminole County	Altamonte; Casselberry; Lake Mary; Longwood; Oviedo	SC-54	Seminole County Fertilizer Ordinance	Ordinances for fertilizer, pet waste, landscape, and irrigation. Public education including FYN and PSAs, websites, and brochures. Full suite of public education and ordinances implemented.	Regulations, Ordinances, and Guidelines	Ongoing	NA	2,191	$150,000.00	City; Seminole County; DEP	City - $28,000; Seminole County - $37,000; DEP - $100,000
4807	Seminole County	Altamonte; Casselberry; Lake Mary; Longwood; Oviedo	SC-54a	Seminole County Ordinance and Education Credits	Additional credits from Seminole County ordinance outside of standard 6 % because the ordinance is more restrictive than the state model.	Regulations, Ordinances, and Guidelines	Ongoing	NA	TBD	$150,000.00	City; Seminole County; DEP	City - $28,000.00; Seminole County - $37,000.00; DEP - $100,000.00
4808	Seminole County	NA	SC-55	Spring Lake Baffle Box	Retrofit existing inlet as a pollutant removal structure.	Baffle Boxes-Second Generation	Completed	2022	4	$200,000.00	NA	NA - $0.00
4809	Seminole County	TBD	SC-56	Spring Lake Outfall Canal Excavation	Excavate and recontour outfall canal to remove existing accumulations of organic muck and vegetation debris.	Stormwater System Upgrade	Planned	2024	NA	$100,000.00	TBD	TBD - $0.00

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4810	Seminole County	NA	SC-57	Spring Lake Hills Outfall Weir Rehab	Rehab the weir in the Spring Lake Hills wetland to maximize retention time.	Control Structure	Completed	2016	TBD	$1,400.00	NA	NA - $0.00
4811	Seminole County	NA	SC-58	Hibiscus Lane Baffle Box	Construct baffle box system to provide water quality treatment for portions of drainage basin entering Bear Lake.	Baffle Boxes-Second Generation with Media	Completed	2021	41	$225,000.00	NA	NA - $0.00
5832	Seminole County	TBD	SC-59	Cecilia Drive Baffle Boxes	Install baffle boxes at 2 existing pipe outfall locations into Bear Lake	Baffle Boxes-Second Generation with Media	Canceled	NA	NA	$0.00	TBD	TBD - $0.00
5833	Seminole County	DEP	SC-60	Wekiva Springshed Well Monitoring and Nitrate Source Evaluation	This study is intended to supplement groundwater data already collected by DEP and Orange County within the Wekiva Priority Focus Area.	Study	Completed	2023	NA	$185,000.00	DEP	DEP - $92,500.00
5834	Seminole County	FEMA HMGP	SC-61	Hillview Drive Drainage RSF	Drainage improvements along Hillview Drive with new curb and gutter, storm sewer system and wet detention pond.	Wet Detention Pond	Underway	2024	TBD	$4,757,700.00	FEMA HMGP	FEMA HMGP - $2,800,000.00
5836	Seminole County	Lake Asher MSBU	SC-63	Lake Asher Shoreline Revegetation	Planted native aquatic vegetation along individual homeowner shorelines.	Creating/ Enhancing Living Shoreline	Completed	2022	TBD	$0.00	NA	NA - $0.00
5837	Seminole County	Buttonwood Pond MSBU	SC-64	Buttonwood Pond Revegetation	Planted native aquatic vegetation along individual homeowner shorelines.	Creating/ Enhancing Living Shoreline	Completed	2022	TBD	$0.00	NA	NA - $0.00
7107	Seminole County	TBD	SC-67	Septic to Enhanced Onsite Treatment and Disposal System Conversion	The project would convert conventional septic systems in the Priority Focus Area (PFA) to enhanced septic systems that provide a reduction of nitrogen of 65% . Target areas are those lots unable to be served by public sanitary sewer.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	TBD	1,155	$987,000.00	DEP	DEP - $2,222,222.00

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7186	Seminole County	Altamonte; Casselberry; Lake Mary; Longwood; Oviedo	SC-68	Seminole County Fertilizer Ordinance - Commercial Education Campaign	Reduction of nitrogen and phosphorus sources education campaign focused on commercial retailers.	Enhanced Public Education	Completed	2023	NA	$150,000.00	DEP	DEP - $90,000.00
7503	Seminole County	Seminole County	SC-70	Project Area 15 (Sanlando Estates)	Convert 53 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	706	$3,100,000.00	TBD	TBD - $3,100,000.00
7293	Seminole County	Seminole County	SC-71	Project Area 32 (No Listed Subdivision)	Convert 1 property to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$35,000.00	TBD	TBD - $35,000.00
7344	Seminole County	Seminole County	SC-72	Project Area 52 (No Listed Subdivision)	Convert 1 property(s) to enhanced on-site septic treatment or convert to gravity sewer within the Wekiva PFA.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Planned	TBD	7	$14,000.00	TBD	TBD - $14,000.00
7324	Seminole County	Seminole County	SC-73	Project Area 41 (Harringtons)	Convert 1 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$12,000.00	TBD	TBD - $12,000.00
7279	Seminole County	Seminole County	SC-74	Project Area 21 (Brantley Shores/Lake Brantley/Lloyds Terrace)	Convert 209 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	2,782	$900,000.00	TBD	TBD - $900,000.00
7274	Seminole County	Seminole County	SC-75	Project Area 17 (Des Pinar/Edgewater/Ibis Woods)	Convert 72 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	959	$5,000,000.00	TBD	TBD - $5,000,000.00
7275	Seminole County	Seminole County	SC-76	Project Area 9 (Bonaventure Heights/Hickory Hill/Palm Park)	Convert 285 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	3,794	$2,200,000.00	TBD	TBD - $2,200,000.00

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7329	Seminole County	Seminole County	SC-77	Project Area 45 (No Listed Subdivision)	Convert 1 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$12,000.00	TBD	TBD - $12,000.00
7272	Seminole County	Seminole County	SC-78	Project Area 14 (Meridith Manor/Mobile Manor/Village Springs Center)	Convert 213 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	2,836	$4,800,000.00	TBD	TBD - $4,800,000.00
7273	Seminole County	Seminole County	SC-79	Project Area 16 (Estates at Spring Landing)	Convert 85 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	1,132	$2,600,000.00	TBD	TBD - $2,600,000.00
7260	Seminole County	Seminole County	SC-80	Project Area 3 (Bear Lake/Orange Blossom Business Center/Willow Acres)	Convert 447 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	5,951	$8,200,000.00	TBD	TBD - $8,200,000.00
7245	Seminole County	Seminole County	SC-81	Project Area 1 (Sweetwater Club)	Convert 173 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	2,303	$350,000.00	TBD	TBD - $350,000.00
7261	Seminole County	Seminole County	SC-82	Project Area 4 (Beverly Terrace/Cimarron Groves/Grove Hill Villas)	Convert 440 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	5,858	$5,900,000.00	TBD	TBD - $5,900,000.00
7263	Seminole County	Seminole County	SC-83	Project Area 6 (Academy Heights/Forest Slopes/Lake Harriet Estates)	Convert 306 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	4,074	$9,000,000.00	TBD	TBD - $9,000,000.00
7297	Seminole County	Seminole County	SC-84	Project Area 36 (Peace Valley Miami Springs)	Convert 2 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	27	$23,000.00	TBD	TBD - $23,000.00

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7299	Seminole County	Seminole County	SC-85	Project Area 38 (No Listed Subdivision)	Convert 3 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	40	$12,000.00	TBD	TBD - $12,000.00
7300	Seminole County	Seminole County	SC-86	Project Area 39 (Highland Memory Gardens)	Convert 2 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	27	$12,000.00	TBD	TBD - $12,000.00
7264	Seminole County	Seminole County	SC-87	Project Area 7 (Bear Lake Crossing/Holliday Bear Lake)	Convert 182 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	2,423	$2,000,000.00	TBD	TBD - $2,000,000.00
7265	Seminole County	Seminole County	SC-88	Project Area 8 (Lavada Court/McNeil Woods/Orange Villa)	Convert 96 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	1,278	$2,200,000.00	TBD	TBD - $2,200,000.00
7266	Seminole County	Seminole County	SC-89	Project Area 10 (Sandy Lane Reserve)	Convert 26 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	346	$4,930,000.00	TBD	TBD - $4,930,000.00
7268	Seminole County	Seminole County	SC-90	Project Area 11 (Little Wekiwa Estates)	Convert 60 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	799	$6,300,000.00	TBD	TBD - $6,300,000.00
7269	Seminole County	Seminole County	SC-91	Project Area 12 (Brantley Hall Estates/Brantley Harbor/Cherry Hill)	Convert 74 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	985	$2,000,000.00	TBD	TBD - $2,000,000.00
7271	Seminole County	Seminole County	SC-92	Project Area 13 (Meridith Manor/Place 434/RLPS Professional Center)	Convert 181 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	2,410	$3,800,000.00	TBD	TBD - $3,800,000.00

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7276	Seminole County	Seminole County	SC-93	Project Area 18 (Sanlando Springs)	Convert 71 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	945	$6,900,000.00	TBD	TBD - $6,900,000.00
7278	Seminole County	Seminole County	SC-94	Project Area 20 (Weathersfield/Stonecrest)	Convert 135 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	1,797	$1,600,000.00	TBD	TBD - $1,600,000.00
7280	Seminole County	Seminole County	SC-95	Project Area 22 (Cutler Cove)	Convert 11 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	146	$230,000.00	TBD	TBD - $230,000.00
7292	Seminole County	Seminole County	SC-96	Project Area 31 (Hillview/Matthews/Mc Norton)	Convert 21 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	280	$170,000.00	TBD	TBD - $170,000.00
7294	Seminole County	Seminole County	SC-97	Project Area 33 (No Listed Subdivision)	Convert 2 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	27	$23,000.00	TBD	TBD - $23,000.00
7295	Seminole County	Seminole County	SC-98	Project Area 34 (The Estates at Spring Landing)	Convert 4 properties to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	53	$12,000.00	TBD	TBD - $12,000.00
7298	Seminole County	Seminole County	SC-99	Project Area 37 (No Listed Subdivision)	Convert 1 property(s) to gravity sewer within the Wekiva PFA.	OSTDS Phase Out	Planned	TBD	13	$12,000.00	TBD	TBD - $12,000.00
6384	SJRWMD	Total Ag Care LLC	SJRWMD-01	Irrigation Retrofit/Precision Fertilizer	Installation of an irrigation retrofit with soil moisture sensors and purchase of precision fertilizer equipment.	Agricultural BMPs	Completed	2021	53	$208,666.00	Total Ag Care LLC; SJRWMD	Total Ag Care LLC - $52,166; SJRWMD - $156,500

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6969	SJRWMD	Long and Scott Farms; SJRWMD	SJRWMD-03	Irrigation Conversion - Long and Scott Farms	This project involves performing an irrigation conversion from seepage to drip on approximately 90 acres of vegetables.	Agricultural BMPs	Underway	2025	37	$125,040.00	Long and Scott Farms; SJRWMD Cost Share	Long and Scott Farms - $31,260.00; SJRWMD Cost Share - $93,780.00
7213	SJRWMD	SJRWMD; Tom West Blueberries	SJRWMD-04	Tom West Blueberries Precision Fertilizer Equipment	This project involves the purchase and implementation of precision fertilizer application equipment for 20 acres of blueberries.	Agricultural BMPs	Completed	2024	18	$48,520.00	Tom West Blueberries ; SJRWMD Cost Share	Tom West Blueberries - $12,130.00; SJRWMD Cost Share - $36,390.00
4812	Sunshine Water Services	Not provided	SUC-02	Wekiva WWTF Rehab	Improved treatment process that results in increased reliability and consistency in producing reuse quality effluent.	WWTF Diversion to Reuse	Completed	2018	NA	$1,837,324.00	Sanlando Utilities	Sanlando Utilities - $0.00
4813	Sunshine Water Services	Not provided	SUC-03	Wekiva Filter Media Replacement	Improved treatment process that results in increased reliability and consistency in producing reuse quality effluent.	WWTF Diversion to Reuse	Completed	2016	TBD	$85,747.00	Sanlando Utilities	Sanlando Utilities - $0.00
4814	Sunshine Water Services	Not provided	SUC-04	Shadow Hills WWTF Diversion	Shadow Hills WWTF is in secondary zone of Wekiva Protection Area, uses perc ponds for disposal. Project will divert all plant flow to Wekiva Hunt Club, treated to reuse standards, and thus reduce nutrient load on surficial aquifer.	WWTF Diversion to Reuse	Completed	2018	NA	$7,781,739.00	Sanlando Utilities	Sanlando Utilities - $0.00
4693	Town of Oakland	Individual property owners	OAK-01	Single-Family Residential Infill Depressions	Install depressional retention on all new infill single-family residences in old part of town to increase recharge and decrease surface flow.	On-line Retention BMPs	Completed	Prior to 2015	NA	$0.00	Not provided	Not provided - $0.00
4694	Town of Oakland	Town of Oakland	OAK-02	Southern Oaks - Phase 1 & 2	Drainage conveyance maintenance in established neighborhood to enable proper treatment of stormwater flows. Lack of maintenance had caused sheet flows to bypass existing treatment ponds.	Stormwater System Rehabilitation	Completed	2017	NA	$30,000.00	Not provided	Not provided - $0.00

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4695	Town of Oakland	Town of Oakland	OAK-03	Speer Park Stormwater	Construction of earthen berm to intercept sheet flows from Speer Park and adjacent streets. Improvements provide attenuation and treatment of stormwater flows to reduce pollutant loading and erosion.	Stormwater System Upgrade	Completed	2016	TBD	$15,000.00	Not provided	Not provided - $0.00
4696	Town of Oakland	DEP; EPA; SJRWMD; Town of Oakland; DEP	OAK-04	Stormwater/ Drainage Improvements - Mid-Town - Phase 1	New stormwater collection system comprised of biofiltration retention ponds, storm pipes and inlets, and swales in the Town's Lower Basin (Phase 1). Three existing retention ponds will be modified and will use Bold and Gold™ bioabsorption material.	Stormwater System Upgrade	Completed	2018	8	$579,787.00	DEP	DEP - $0.00
4697	Town of Oakland	Town of Oakland	OAK-05	Town-wide Drainage Maintenance	Drainage conveyance maintenance in established neighborhoods to enable proper treatment of stormwater flows.	Stormwater System Rehabilitation	Completed	2017	NA	$0.00	Town of Oakland	Town of Oakland - $20,000.00
4698	Town of Oakland	Town of Oakland	OAK-06	Oakland Sewer Master Plan	Creation of centralized wastewater system to enable "Zero Growth" of septic systems, and to allow for conversions of existing septic systems.	Wastewater Service Area Expansion	Completed	2016	NA	$0.00	Not provided	Not provided - $0.00
4699	Town of Oakland	DEP	OAK-07	Oakland Sanitary Sewer - Phase 1A	Construction of regional sewage lift station and forcemain that conveys sewage to Clermont for treatment.	Wastewater Service Area Expansion	Completed	2017	NA	$700,000.00	DEP	DEP - $250,000.00
4700	Town of Oakland	DEP	OAK-08	Oakland Sanitary Sewer - Phase 1B & 1C	Expansion of wastewater system to eliminate existing septic systems and allow new growth without septic.	Wastewater Service Area Expansion	Completed	2018	NA	$1,385,000.00	DEP	DEP - $1,000,000.00
4701	Town of Oakland	Town of Oakland	OAK-09	Nature Preserve Expansion	Acquisition of approximately 35 acres of wetlands and approximately 2 acres of upland along the south shore of Lake Apopka.	Land Acquisition	Completed	2018	NA	$0.00	NA	NA - $0.00

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4702	Town of Oakland	DEP	OAK-10	Oakland Sewer Expansions - 2017	Installation of centralized sewer in existing industrial area (Industrial Extension) and improvements to serve areas east of SR 50 & Turnpike interchange.	Wastewater Service Area Expansion	Completed	2020	NA	$1,385,000.00	DEP	DEP - $1,000,000.00
4703	Town of Oakland	Pulte Homes	OAK-11	Turnpike force main & Longleaf at Oakland Development	Construction of sanitary sewer forcemain under SR 50 and Florida Turnpike interchange, and sewer network to serve future expansions.	Wastewater Service Area Expansion	Completed	2018	NA	$5,490,000.00	Town of Oakland	Town of Oakland - $5,000,000.00
4704	Town of Oakland	Pulte Homes	OAK-12	Construction of LS #4 and service area.	Construction of regional sewage lift station and associated gravity sewer to serve 184 residential units, and to provide for future septic system abandonments.	Wastewater Service Area Expansion	Completed	2019	NA	$435,000.00	Developer	Developer - $430,000.00
4705	Town of Oakland	Orange County	OAK-13	Education and Ordinances	Ordinances for fertilizer, pet waste, landscape, and irrigation. Public education including FYN and PSAs, websites, and brochures. Full suite of public education and ordinances covered under Orange County.	Regulations, Ordinances, and Guidelines	Ongoing	NA	121	$0.00	Not provided	Not provided - $0.00
5544	Town of Oakland	NA	OAK-14	Speer and Daniels Drainage Improvement	Installation of drainage swale/conveyance, with some retention value, in an area of sheet flows from three different roadways.	On-line Retention BMPs	Completed	2019	TBD	$18,000.00	Not provided	Not provided - $0.00
5545	Town of Oakland	NA	OAK-15	Town-wide Drainage Maintenance	Ongoing effort to clean grates, inlets, culverts, etc.	BMP Cleanout	Ongoing	NA	23	$0.00	Town of Oakland	Town of Oakland - $10,000.00
5546	Town of Oakland	NA	OAK-16	MS4 Phase II Permit Requirement	Ongoing effort to sweep streets. 547 lane miles - 38 cubic yards of debris annually.	Street Sweeping	Ongoing	NA	8	$0.00	Town of Oakland	Town of Oakland - $5,000.00
5547	Town of Oakland	DEP	OAK-17	Nutrient Reduction - Upper Basin	A 2 year effort to monitor the effectiveness of "Bold and Gold" filter media installed earlier.	Monitoring/Data Collection	Completed	2020	NA	$0.00	Town of Oakland; DEP	Town of Oakland - $0.00; DEP - $0.00

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5548	Town of Oakland	NA	OAK-18	Septic to Sewer Conversion	Circle K store and ABC Bus taken off septic and placed on sewer. About 8,500 gallons removed from septic DAILY.	OSTDS Phase Out	Completed	2019	0	$0.00	Private Owners	Private Owners - $0.00
5839	Town of Oakland	DEP; DEO; SJRWMD	OAK-19	Septic to Sewer Conversion	Appx. 50 septic systems being abandoned in a predominantly low to moderate income neighborhood.	OSTDS Phase Out	Completed	2021	0	$1,500,000.00	DEP; Town of Oakland; DEO; SJRWMD	DEP - $550,000.00; Town of Oakland - $0.00; DEO - $600,000.00; SJRWMD - $429,000.00
5840	Town of Oakland	DEP	OAK-20	Construction of Lift Station #5	Construction of lift station to serve immediate growth needs and to serve future septic to sewer conversions.	Wastewater Service Area Expansion	Completed	2021	NA	$400,000.00	DEP	DEP - $0.00
5841	Town of Oakland	Meritage Homes	OAK-21	Construction of Lift Station #2 and service area	Construction of sewage lift station and associated gravity sewer to serve 305 residential units, and to provide for future septic system abandonments.	Wastewater Service Area Expansion	Completed	2018	NA	$0.00	Developer	Developer - $500,000.00
5842	Town of Oakland	MI Homes	OAK-22	Construction of Lift Station #3 and service area.	Construction of sewage lift station and associated gravity sewer to serve 108 residential units, and to provide for future septic system abandonments.	Wastewater Service Area Expansion	Completed	2019	NA	$500,000.00	Developer	Developer - $825,000.00
4815	Turnpike Enterprise	NA	TP-01	Widen Turnpike, Beulah to State Road 50	Roadway; three inches treated in dry retention; recovered in 72 hours.	On-line Retention BMPs	Completed	2016	62	$0.00	Turnpike Enterprise	Turnpike Enterprise - $0.00
4816	Turnpike Enterprise	NA	TP-02	Widen Turnpike - Gotha to Beulah	Roadway; 1.25 inches treated in dry retention, recovered in 72 hours.	On-line Retention BMPs	Completed	2016	158	$0.00	Turnpike Enterprise	Turnpike Enterprise - $0.00
4817	Turnpike Enterprise	NA	TP-04	Education Efforts	No fertilizer on right-of-ways, educational signage, illicit discharge training.	Education Efforts	Ongoing	NA	NA	$0.00	NA	NA - $0.00

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4818	Turnpike Enterprise	NA	TP-05	Street Sweeping	Street sweeping mile post (MP) (265-274) 600 LM per year.	Street Sweeping	Ongoing	NA	NA	$0.00	NA	NA - $0.00
4826	Wekiwa State Park	Not provided	WSP-01	Pine Plantation	Previous land use = agriculture; Management focus = ground water recharge, natural community restoration and preservation; acreage 344.73.	Land Use Change	Completed	Prior to 2015	NA	$0.00	NA	NA - $0.00
4827	Wekiwa State Park	Not provided	WSP-02	Remove Wekiva State Park from Septic	Four-phase plan.	OSTDS Phase Out	Completed	2013	0	$1,616,775.00	State Park Trust Fund	State Park Trust Fund - $0.00

Appendix C. Planning for Additional Management Strategies

Responsible entities must submit a sufficient list of credited projects with estimated reductions which demonstrates how the entity is going to meet their milestone to DEP no later than January 14, 2026, to be compliant with the upcoming BMAP milestone or be subject to department enforcement.

If any lead entity is unable to submit a sufficient list of eligible management strategies to meet their next 5-year milestone reductions, specific project identification efforts are required to be submitted by January 14, 2026. Any such project identification efforts must define the purpose of and include a timeline to identify sufficient projects to meet the upcoming milestone. The project description and estimated completion date for any such project identification effort must be provided and reflect the urgency of defining, funding, and implementing projects to meet the upcoming and future BMAP milestones.

These planning efforts are ineligible for BMAP credit themselves but are necessary to demonstrate additional eligible management actions will be forthcoming and BMAP compliance will be achieved. Only those entities that provide sufficient project identification efforts will be deemed as possessing a defined compliance schedule. Those entities without an adequate project list or a defined compliance schedule to meet their upcoming 5-year milestone may be subject to enforcement actions. Examples of project identification efforts include the following:

- Planning and identifying water quality projects and related costs and schedules in specific plans.
  - Feasibility studies (e.g., stormwater feasibility studies or wastewater feasibility studies).
  - Flood mitigation plans with nutrient management components.
  - Basinwide water quality management plans.
  - Nutrient management plans.
- Applying for external project funding.
- Developing interagency/interdepartmental agreements or MOUs for collaboration on nutrient reduction projects that cross jurisdictional or administrative boundaries.
- Updating future growth considerations in local comprehensive plans, land development reviews, and audits of relevant codes and ordinances
- Updating existing remediation plans.
- Monitoring water quality in support of project planning and implementation.
- Researching innovative technologies.

Appendix D. Wekiwa Spring and Rock Springs PFA Report

During the development of the 2018 Wekiwa Spring and Rock Springs BMAP, the PFA was defined as the area of the basin where the Floridan aquifer is generally most vulnerable to pollutant inputs and where there is a known connectivity between groundwater pathways and an OFS. As required by the Florida Springs and Aquifer Protection Act, DEP defined a PFA which is incorporated by reference into this BMAP. Information on this and other springshed PFAs are available at the following link: https://floridadep.gov/dear/water-quality-restoration/content/bmap-documents-meeting-materials-and-recordings.

Appendix E. OSTDS Remediation Plan

Section 373.807, F.S., requires that if, during the development of a BMAP for an OFS, DEP identifies OSTDS as contributors of at least 20% of nonpoint source nitrogen pollution in a PFA or if DEP determines remediation is necessary to achieve the TMDL, the BMAP must include an OSTDS remediation plan. Based on the Wekiwa Spring and Rock Springs NSILT estimates and GIS coverages, OSTDS contribute approximately 52% of the pollutant loading in the BMAP Irrespective of the percent contribution from OSTDS, DEP has determined that an OSTDS remediation plan is necessary to achieve the TMDLs and to limit the increase in nitrogen loads from future growth.

Permitting for OSTDS is implemented either by DEP, delegated counties, or by County Health Departments under an interagency agreement. To aid in implementation, the DEP Map Direct webpage includes a detailed downloadable springs PFA boundary shapefile for planning purposes. DEP also maintains on its website an interactive map of the PFA and BMAP boundaries; the map can be easily searched for specific street address locations (currently available at https://floridadep.gov/BMAPs-ARP-OSTDS).

E.1 Plan Elements

E.1.1 Installation of New OSTDS

Beginning July 1, 2023, sections 373.811 and 403.067, F.S., prohibit any new conventional OSTDS serving a lot of one acre or less where central sewer is available. Within this BMAP area, if central sewer is unavailable on lots of one acre or less, then the owner must install a DEP-approved enhanced nutrient-reducing OSTDS that achieves at least 65% nitrogen reduction, or other wastewater system that achieves at least 65% reduction.

Installation of new OSTDS is permitted pursuant to Chapter 62-6, F.A.C., and includes not only systems installed on a property where one has not previously been installed, but also systems installed to replace illegal systems, systems installed in addition to existing systems, and other new systems. Permitting requirements with respect to the definition of "new" or "one acre or less" will be followed for this remediation plan. To meet the enhanced nitrogen treatment requirement, the system must be a DEP-approved enhanced nutrient reducing system meeting at least 65% nitrogen reduction.

E.1.2 Modification or Repair of Existing OSTDS

The OSTDS remediation plan must provide loading reductions consistent with achieving the TMDL within 20 years of plan adoption (see subparagraph 373.807(1)(b)8., F.S.). This plan therefore establishes the following remediation policy for existing systems, based on (a) the potential for reducing nitrogen loads by converting existing OSTDS to enhanced nitrogen removing systems or by connecting homes to central sewer, (b) the total amount of nitrogen load that must be reduced to achieve the TMDL, and (c) the relative contribution of nitrogen load from existing OSTDS.

The remediation policy for existing systems in the Wekiwa Spring and Rock Springs BMAP applies to all existing OSTDS within the PFA on lots one acre or less and is effective upon BMAP adoption. Upon the need for any construction permit under chapter 62-6, F.A.C. to repair, modify, or replace an existing OSTDS affected by the remediation policy, a DEP-approved enhanced nutrient reducing system meeting 65% nitrogen reduction must be installed unless the OSTDS permit applicant provides documentation that sewer connection to the property is planned and funded, and structures on the lot will be connected.

For existing OSTDS, the owner must connect to sewer within 365 days of written notification by the utility that connection to its sewer line is available. A utility is statutorily required (section 381.00655, F.S.) to provide written notice to existing OSTDS owners regarding the availability of sewer lines for connection. Additionally, existing OSTDS needing repair or modification must connect to available sewer lines within 90 days of notification by DEP.

To facilitate an inventory of noncompliant properties, by February 2, 2026, and every two years thereafter, each utility with sewer lines in the BMAP shall provide DEP a list of properties with existing OSTDS where sewer is available but have not been connected. For each identified property, include the date(s) which the utility provided written notice to the owners of the availability of sewer.

E.1.3 Achieving Necessary Load Reductions

All conventional OSTDS in areas subject to the remediation policy for existing systems are required to meet enhanced nutrient reducing OSTDS requirements, install other wastewater systems that can achieve at least 65% reduction, or connect to central sewer no later than 20 years after BMAP adoption.

E.1.4 Other Plan Elements

Section 373.807, F.S., also requires that the OSTDS remediation plan contain the following elements.

- An evaluation of credible scientific information on the effect of nutrients, particularly forms of nitrogen, on springs and spring systems. (See **Section E.2**.)
- Options for repair, upgrade, replacement, drain field modification, the addition of effective nitrogen-reducing features, connection to a central sewer system, or other action. (See **Section E.3**.)
- A public education plan to provide area residents with reliable, understandable information about OSTDS and springs. (See **Section E.4**.)
- Cost-effective and financially feasible projects necessary to reduce the nutrient impacts from OSTDS. (See **Section 2** and **Appendix B**.)
- A priority ranking for each project for funding contingent on appropriations in the General Appropriations Act. (See **Section 2** and **Appendix B**.)

Section 373.807, F.S., defines an OSTDS as a system that contains a standard subsurface, filled, or mound drain field system; an aerobic treatment unit; a graywater system tank; a laundry wastewater system tank; a septic tank; a grease interceptor; a pump tank; a solids or effluent pump; a waterless, incinerating, or organic waste–composting toilet; or a sanitary pit privy that is installed or proposed to be installed beyond the building sewer on land of the owner or on other land on which the owner has the legal right to install such a system. The term includes any item placed within, or intended to be used as a part of or in conjunction with, the system. The term does not include package sewage treatment facilities and other treatment works regulated under Chapter 403, F.S.

E.2 Collection and Evaluation of Credible Scientific Information

As discussed in **Section 2,** DEP developed the Wekiwa Spring and Rock Springs NSILT, a planning tool that provides estimates of nitrogen loading to groundwater based on best available scientific data for a particular geographic area. The NSILT results were peer reviewed by SJRWMD and FDACS. Additional technical support information concerning the NSILT can be found in **Appendix F**.

DEP developed calculation methods to estimate nitrogen reductions associated with OSTDS enhancement and replacement projects, WWTF projects, golf course BMPs, other sports turfgrass BMPs, and urban turfgrass BMPs.

Monitoring and research:

- Improve understanding of the ecological responses to nutrient enrichment and reductions.
- Maintain and expand water quality monitoring programs.
- Report annual status and trends.
- Evaluate new and emerging technologies.
- Research and develop advanced septic systems.
- Monthly water sampling at the spring.

Completed projects:

- Florida Onsite Sewage Nitrogen Reduction Strategies Study.
- Long Term Performance and Operational Experience for Non-Proprietary Passive Nitrogen Reducing Onsite Sewage Treatment And Disposal Systems (https://floridadep.gov/water/onsite-sewage/content/onsite-sewage-research-reports)

Ongoing projects:

- Quarterly springs water quality monitoring.
- Stream water quality monitoring.
- UFA nutrient modeling.
- Springs initiative modeling.
- Monitoring of in-ground nitrogen reducing biofilters.

Proposed projects:

- Groundwater quality monitoring for BMAP assessment.
- Performance monitoring on advanced OSTDS in Florida.
- Other DEP projects.

E.3 Remediation Options

As required by Florida law, this OSTDS remediation plan identifies remediation options for existing OSTDS, including repair, upgrade, replacement, drain field modification, the addition of effective nitrogen-reducing features, connection to a central sewer system, or other action. More simply, remediation options can be classified as enhancement or replacement. DEP's Onsite Sewage Program maintains a list of approved nitrogen-reducing systems on its website: https://floridadep.gov/water/onsite-sewage/content/product-listings-and-approval-requirements.

The NSILT estimates that OSTDS contribute approximately 52% of the pollutant loading to groundwater in the BMAP. **Table E-1** lists the number of existing OSTDS on lots one acre or less in the PFA and the estimated nitrogen reductions associated with enhancement or connection to sewer. **Figure E-1** shows the areas where OSTDS are located.

Table E-1. Estimated reduction credits for OSTDS enhancement or sewer

*Estimated reductions are for either enhancement or sewer per parcel classification. Reductions cannot be combined for the same parcel classification but can be combined between the different classifications. For example, the sewer credit associated with parcels one acre or less in size can be combined with the sewer credit associated with parcels one acre or greater in size.

Recharge Area	OSTDS Parcels One Acre or Less in PFA	Credit for Enhancement (lbs/yr)	Credit for Sewer (lbs/yr)
High	24,645	220,525	418,998
Medium	6,133	30,289	57,550
Low	241	220	418
Totals	**31,019**	**251,035**	**476,967**

Estimated reductions are for either enhancement or sewer per parcel classification. Reductions

cannot be combined for the same parcel classification but can be combined between the different classifications.

Nitrogen impacts from new development could also be reduced through prohibiting new conventional OSTDS on all lot sizes throughout the BMAP area. Local governments can develop programs to help fund the additional costs required to upgrade existing OSTDS to include nutrient reducing features. The funding program will be designed to prioritize OSTDS where it is most economical and efficient to add nutrient reducing features (i.e., systems needing a permit for a repair or modification, within the PFA, and on lots of one acre or less). Local governments can apply for competitive grant funding from DEP programs, which are available at ProtectingFloridaTogether.com.

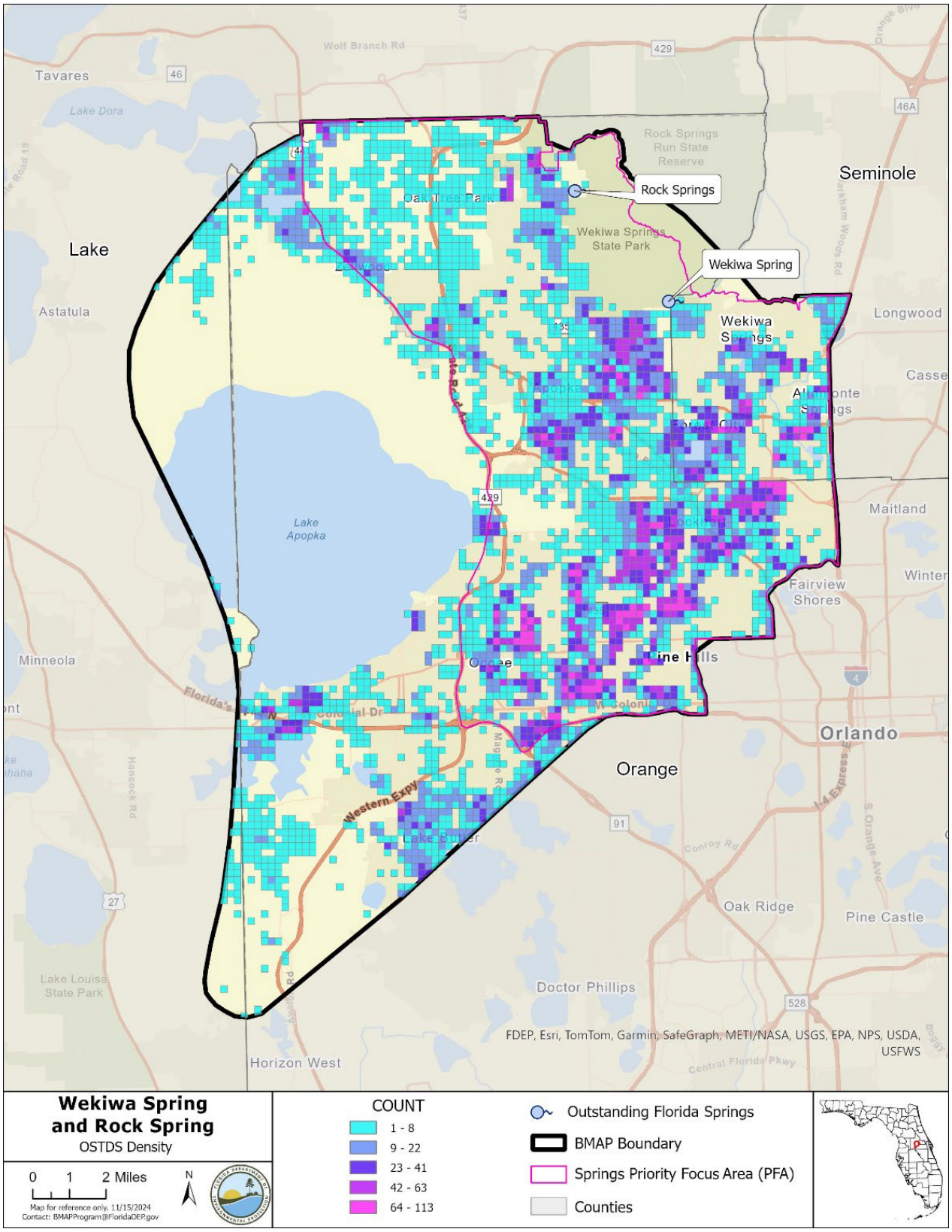


Figure E-1. Locations of OSTDS in the PFA in the Wekiwa Spring and Rock Springs BMAP

E.4 Public Education Plan

DEP will develop and disseminate educational material focused on homeowners and guidance for builders and septic system contractors. The materials will identify the need for enhanced nitrogen reducing OSTDS along with the requirements for installing nitrogen reducing technologies under this OSTDS remediation plan. DEP will coordinate with industry groups such as Florida Home Builders Association and Florida Onsite Wastewater Association (FOWA).

DEP's Onsite Sewage Program's website provides information on the following:

- The requirements for nitrogen-reducing systems for springs protection and BMAPs (https://floridadep.gov/water/onsite-sewage/content/springs-protection-and-basin-management-action-plans-bmaps).

- Information for septic system owners and buyers (https://floridadep.gov/water/onsite-sewage/content/information-septic-system-owners-and-buyers).

- Information for septic tank contractor (https://floridadep.gov/water/onsite-sewage/content/septic-tank-contractor-registration).

UF-IFAS has developed a website that includes frequently asked questions, and extensive information for septic system owners and local governments (https://water.ifas.ufl.edu/septic-systems/your-septic-system/).

Appendix F. Technical Support Information

The pages that follow are the Technical Support Document that describe the methods that were used for the NSILT. This document is a stand-alone report, so the pages, tables, and figures are numbered accordingly.

Technical Support Document
2023 Nitrogen Source Inventory Loading Tools for Springs
Basin Management Action Plans

Division of Environmental Assessment and Restoration
Watershed Planning & Coordination
Florida Department of Environmental Protection

June 2025

2600 Blair Stone Rd.
Tallahassee, FL 32399
Floridadep.gov

Acknowledgments

This document describes the data sources and values that were used by the Florida Department of Environmental Protection (DEP) in the 2023 Nitrogen Source Inventory Loading Tools (NSILTs) updates for the following basin management action plans (BMAPs) 2025 updates:

- Chassahowitzka/Homosassa Springs Groups
- Crystal River/Kings Bay
- DeLeon Spring
- Gemini Springs
- Jackson Blue Spring and Merritts Mill Pond Basin
- Lower and Middle Suwannee River Basin
- Rainbow Springs Group and Rainbow Springs Run/Silver Springs, Silver Springs Group, and Upper Silver River
- Santa Fe River Basin
- Upper Wakulla River and Wakulla Spring
- Volusia Blue Spring
- Wacissa River and Wacissa Spring Group
- Weeki Wachee/Aripeka Spring
- Wekiwa and Rock Springs

For additional information on NSILTs and springs water quality restoration efforts, please contact:

Florida Department of Environmental Protection/ Water Quality Restoration Program
2600 Blair Stone Road, Mail Station 3565
Tallahassee, FL 32399-2400
Email: BMAPProgram@FloridaDEP.gov

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Introduction

The Florida Department of Environmental Protection (DEP) developed a Nitrogen Source Inventory and Loading Tool (NSILT) to provide information on the major sources of nitrogen in the springs basin management action plan (BMAP) areas (Eller and Katz 2017). These major sources are as follows: Atmospheric deposition; wastewater treatment facilities (WWTFs); urban fertilizers; onsite sewage treatment and disposal systems (OSTDS, also known as "septic systems"); biosolids; livestock waste; and agricultural fertilizers. The approach applies to the groundwater contributing area (or springshed) for the impaired springs and the surface waters they augment. Over time, the nitrogen sources in the spring BMAP areas have changed and the DEP methodology for estimating nitrogen loads has improved. These improvements are a result of additional information as well as new tools that provide better estimates of nitrogen loads.

This technical support information identifies the data sources and methodology used for the 2023 NSILT estimates. This report documents the assumptions used by DEP when applying the NSILT approach to the adopted springs BMAPs as of January 2025. The NSILT is an Arc geographic information system (ArcGIS) and spreadsheet-based tool that provides spatial estimates of the relative current contributions from major nitrogen sources. The NSILT approach involves estimating the nitrogen load to the land surface for various source categories, then applying a source-specific biochemical attenuation factor and a location-specific recharge factor to determine the impact to groundwater quality in the Upper Floridan aquifer (UFA). The estimated load to groundwater determines the scope of reduction strategies needed for BMAP implementation for each source category. Multiple public meetings were held to share the NSILT methodology and results as well as to solicit comments. Between January 2023 to January 2025, location-specific adjustments were made based on feedback from stakeholders. Additional NSILT data and resources are available upon request.

Figure 1 shows the BMAPs that have updated NSILTs described by this document, which includes the following springsheds:

- Chassahowitzka Spring Group
- Homosassa Springs Group
- Crystal River/Kings Bay
- DeLeon Spring
- Gemini Springs
- Jackson Blue Spring
- Rainbow Springs Group
- Santa Fe: Devil's Ear, Hornsby, and Ichetucknee Springs, and Outside Springsheds
- Silver Springs Group
- Suwannee: Madison Blue, Middle Suwannee, Fanning/Manatee Springs, and Outside Springsheds
- Volusia Blue Spring
- Wacissa Spring Group
- Wakulla Spring
- Weeki Wachee/Aripeka Spring
- Wekiwa/Rock Springs

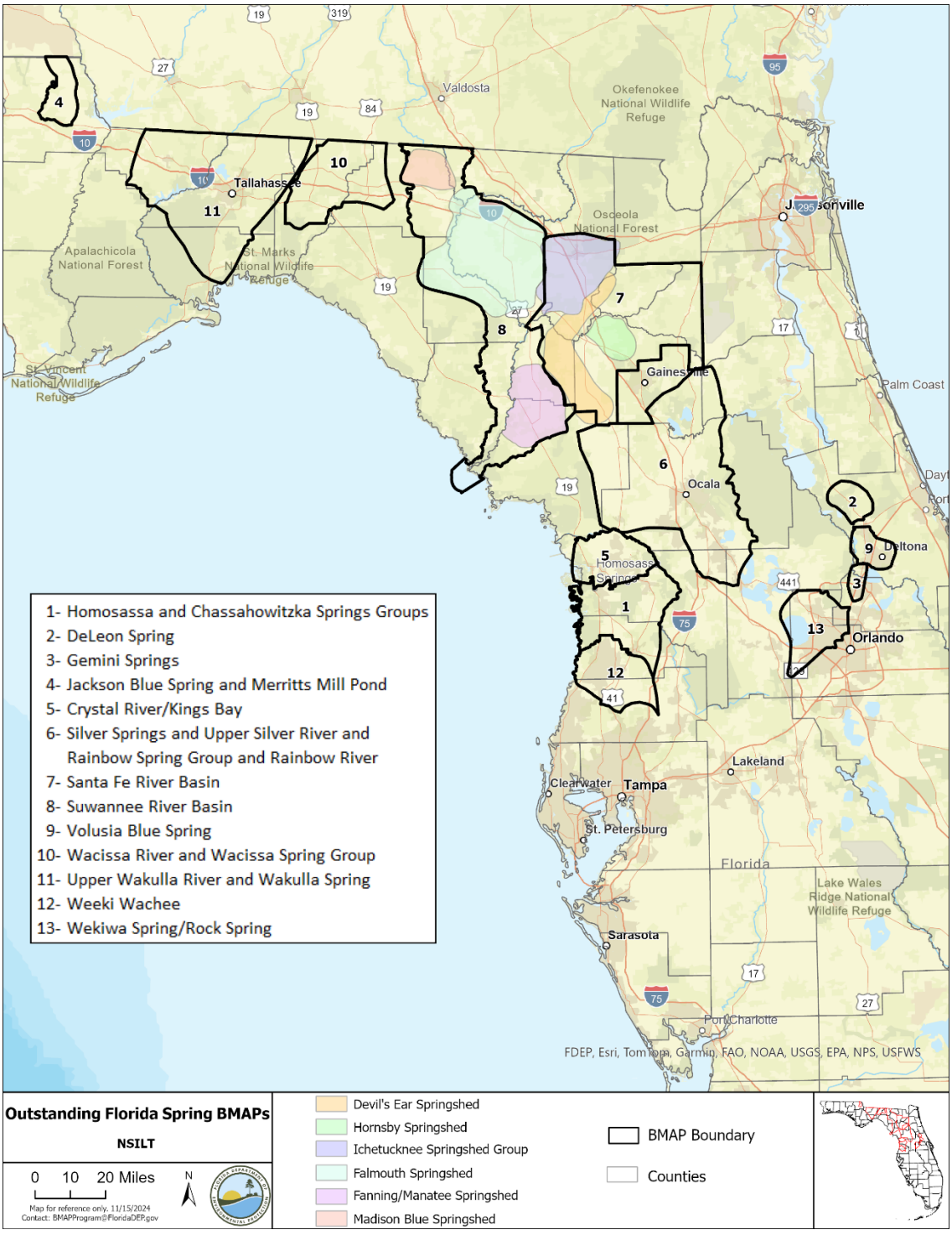


Figure 1. Map of the spring BMAPs and springsheds with updated NSILTs

Background

Florida springs provide sites of recreational and cultural value as well as sources of potable water and afford a way to assess regional groundwater quality. Springs integrate groundwater

vertically, spatially, and temporally from the UFA--the highly transmissive limestone aquifer that is the source of water flowing from the springs (Bush and Johnston 1988; Katz 1992, 2004; Davis 1996). Rainfall that infiltrates into the subsurface and recharges the aquifer system contains nitrogen and other dissolved chemicals of concern originating from anthropogenic activities at or near the land surface. Groundwater with elevated nitrate concentrations flows toward the spring. Elevated nitrate concentrations in Florida's springs contribute to water quality degradation in their receiving surface waters. Therefore, the NSILT results are used in the development and implementation of the BMAPs for impaired spring systems, by focusing nitrogen source reduction efforts on the sources in order to achieve the greatest improvement in water quality. A link to the Water Quality Restoration Program website and the BMAP documents is located in **Appendix A**.

The NSILT does not account for legacy loads of nitrogen that may already be present in the aquifer and continue to adversely impact groundwater quality. Several spring basin studies have reported increasing nitrate-N concentrations in groundwater and springs over time. Nitrogen that entered groundwater from past anthropogenic practices may slowly exit the groundwater flow system via springs, given that the average groundwater residence times in large spring basins in Florida is on the order of decades (Katz et al. 1999, Katz 2004, Phelps 2004, Happell et al. 2006, Toth and Katz 2006, and Knowles et al. 2010).

Estimating Nitrogen Inputs to the Land Surface

Springshed Boundary Adjustments

The NSILT analysis was run on the springshed boundaries which were consistent with the BMAP boundary or the springshed plus outside springshed areas (i.e., the Lower and Middle Suwannee BMAP and the Santa Fe BMAP) that were included in the BMAP boundary because there are adjacent areas that feed the groundwater system that supplies additional springs and baseflow for the river or augments the adjacent contributing tributaries and rivers. Springshed boundaries were previously defined in the first iteration of the NSILTs, published between 2015 and 2018. Where appropriate, the springshed boundaries remained consistent with the previous NSILT evaluation. Some springshed boundaries were adjusted to meet the requirements of priority focus area (PFA) boundaries as defined in the 2016 Springs and Aquifer Protection Act. Requirements of the act dictated that priority focus areas should follow easily identifiable landmarks or political boundaries. To address this requirement, the boundaries for DeLeon, Volusia Blue, Wekiwa, Jackson Blue, Wacissa, and Weeki Wachee springsheds were adjusted.

In their original NSILTs, the Weeki Wachee springshed overlapped the southern part of the Chassahowitzka and the Homosassa springsheds, respectively. In the updated NSILTs, the overlapping area was removed from the Chassahowitzka and Homosassa areas and accounted for in the Weeki Wachee contributing area. Comparably to the prior NSILT versions, the NSILT methodology was run separately on the Homosassa and Chassahowitzka springsheds.

Another boundary change made in the 2023 NSILTs is that the Aripeka and Weeki Wachee springsheds were analyzed as one, instead of separating the two springsheds. Rainbow and Silver springsheds were also analyzed as one area.

It is important to note that the Wekiva River surface water contributing area is a separate BMAP area from the Wekiwa Springs area. For the Wekiwa and Rock Springs NSILT, only the springshed area is evaluated; the surface watershed for the Wekiva River is excluded from the NSILT. Management actions in the Wekiva River BMAP are attributed to benefiting the surface watershed of the river, but projects are needed in the springshed area to benefit the springs.

In the Santa Fe BMAP area, there are three separate springshed areas that are analyzed separately; the Santa Fe springsheds are the following:

- Devil's Ear Complex;
- Ichetucknee; and
- Hornsby springsheds.

In the Suwannee BMAP area, there are also three separate springshed areas that are analyzed separately; the Suwannee springsheds are as follows:

- Fanning/Manatee;
- Falmouth/Troy/Lafayette/Peacock; and
- Madison Blue springsheds.

In Santa Fe and Suwannee springsheds, the areas outside the springsheds but within the BMAP boundary are considered contributing to the rivers. These areas were evaluated in a separate NSILT analysis. The total maximum daily loads (TMDLs) for the Suwannee and Santa Fe BMAPs include numeric nutrient criteria for river water quality. Due to this requirement, a nutrient loading evaluation was performed separately to better characterize impact on outside the springshed areas and surface water quality. The NSILT was applied to support nitrogen source identification and to estimate the nutrient reductions that are needed in these areas to ensure that water quality in both rivers meets the TMDL targets.

Boundary Data

For the 2023 updates, a springshed GIS layer was created for the NSILT analysis, which also includes the county boundaries and the recharge areas. These boundaries were used for all the county-level and recharge-based calculations. The springsheds boundaries used are the same as the BMAP boundary expect for Suwannee and Santa Fe which each are broken up into three springsheds plus the outside areas, respectively. This GIS boundary layer is available upon request.

Atmospheric Deposition

Estimates of nitrogen loading from atmospheric deposition are derived from the U.S. National Atmospheric Deposition Program (NADP) Total Deposition (TDEP) Science Committee's hybrid model. The TDEP model evaluates wet and dry deposition monitoring network data and calculates an estimated total nitrogen deposition load (Schwede and Lear 2014). TDEP data are provided as an annual total and presented in a four-kilometer by four-kilometer grid raster file. Data from the 2019 and 2020 datasets were averaged to estimate nitrogen loading (see link to the

NADP TDEP in **Appendix A**). Data were then spatially evaluated to determine the loading in areas of each groundwater recharge category within each BMAP or springshed. Recharge and biochemical attenuation factors (see **Table 11**) were then applied to the estimated loading to land surface to estimate loading to groundwater.

WWTFs

The average annual input of nitrogen to the land surface for WWTFs was estimated for each effluent land application site for all facilities disposing of effluent in the BMAP area. The average annual input was estimated using the mean total nitrogen (TN) concentration in milligrams per liter (mg/L) and mean discharge volume in million gallons per day (MGD) for each WWTF. The data were sourced from the DEP Wastewater Facility Regulation (WAFR) database for effluent discharged from January 2019 through December 2021.

WWTFs were considered to contribute to loading to a BMAP if the effluent was disposed of within the BMAP, regardless of whether the facility itself was within the BMAP. Some WWTFs were not required to monitor and report TN effluent concentrations, and, therefore, did not have TN data available in the WAFR database. Some of these facilities that did not report TN concentrations reported nitrate-N (NO_3-N) concentrations. For those facilities, an estimated TN concentration was calculated assuming that nitrate-N would compose 38.5% of the TN concentration (Helgeson and McNeal 2009). In cases where no TN data or nitrate-N data were collected at a facility during the data period or the data quality was questionable, an effluent value based on a review of similar-sized facilities within springs BMAP areas was used to estimate the TN concentration. The facilities were classified as "small," "medium," or "large" based on their average daily flow. The estimated TN concentrations for facilities with insufficient WAFR data for a direct estimate are summarized in **Table 1**.

Table 1. Average TN concentration by facility size for WWTFs with insufficient data

Facility Size	Flow (MGD)	Estimated Average TN Effluent Concentration (mg/L)
Large	> 0.1	4.34
Medium	0.1 – 0.02	7.22
Small	< 0.02	11.76

Facilities report nitrogen concentration data and flow data at different intervals depending on their specific permit requirements. When available, the reported monthly average data were used to calculate flow and concentration. If monthly average data were not available, summary data was prioritized in the following order: weekly average, quarterly average, annual average, 3-month rolling average, and maximum. When multiple flow and/or nitrogen monitoring sites existed for a facility, the effluent information that best reflected the effluent quality at the disposal site was used for evaluation.

All applicable wastewater effluent reuse and disposal practices were considered: direct surface water discharges; rapid infiltration basins (RIBs); sprayfields; public access reuse (e.g., golf course and residential reuse); absorption fields; and wetland disposal. Direct surface water discharges were considered surface water sources and excluded as loads to groundwater. For all

other reuse and disposal types, an appropriate biochemical attenuation factor was applied, dependent on the practice (**Table 11**). Effluent disposal locations were spatially evaluated to determine the recharge category of the deposition site, and the appropriate recharge factor was applied to determine the loading to groundwater.

OSTDS

OSTDS loading was calculated by estimating the number of septic systems within a BMAP and multiplying the number of OSTDS by the expected loading per system. The Florida Department of Health (DOH) Florida Water Management Inventory (FLWMI) data were used to estimate the number of OSTDS within each BMAP (see link to the FLWMI in **Appendix A.**

FLWMI data identifies a wastewater source for every parcel in the state in one of eight categories: "Known Septic," "Likely Septic," "Somewhat Likely Septic," "Known Sewer," "Likely Sewer," "Somewhat Likely Sewer," "Unknown," and "Undetermined." Parcels identified as "Known Septic," "Likely Septic," and "Somewhat Likely Septic" in the FLWMI database were considered to use septic systems for wastewater treatment. There was assumed to be one septic system per parcel. FLWMI data were spatially evaluated to determine the appropriate recharge category for each OSTDS location. FLWMI data are provided by county. For this analysis, all FLWMI data used were updated between 2021 and 2023. **Table 2** shows the year of OSTDS data that were used from the FLWMI for the estimated number of septic systems by county.

Table 2. Year the FWRI data were updated by county

County	Update Year
Citrus, Hernando, Orange, Pasco, and Sumter	2023
Alachua, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Lake, Levy, Madison, Marion, Putnam, Seminole, Suwannee, Taylor, Union, and Volusia	2022
Gadsden, Jackson, Jefferson, Leon, and Wakulla	2021

Loading per septic system was estimated by determining the persons per household and multiplying this by a per capita loading rate. The 2020 U.S. Census data were used to estimate the number of persons per household, by county, as shown in **Table 3.** A per capita contribution of 10 pounds of nitrogen per year (lbs-N/yr) was estimated based on the Florida Onsite Sewage Nitrogen Reduction Strategies Study Final Report (Armstrong 2015), which was an update to the prior NSILT estimates of 9.012 lbs-N/yr.

Loading to the land surface was calculated by multiplying the number of OSTDS by the loading rate. OSTDS locations were spatially evaluated as the centroid of the parcel, and the appropriate recharge factor was determined. A biochemical attenuation factor (**Table 11**) and a recharge factor were then applied to estimate loading to groundwater.

Table 3. 2020 U.S. Census persons per household by county

County	Persons Per Household Based On the 2020 U.S. Census
Alachua	2.48
Baker	2.91

County	Persons Per Household Based On the 2020 U.S. Census
Citrus	2.25
Columbia	2.62
Dixie	2.5
Gadsden	2.43
Gilchrist	2.53
Hamilton	2.6
Hernando	2.46
Jackson	2.27
Jefferson	2.21
Lafayette	2.8
Lake	2.56
Leon	2.38
Levy	2.39
Madison	2.38
Marion	2.4
Orange	2.87
Pasco	2.54
Putnam	2.43
Seminole	2.6
Sumter	2.04
Suwannee	2.82
Taylor	2.51
Union	2.36
Volusia	2.43
Wakulla	2.59

Farm Fertilizer

Farm fertilizer loading to land surface estimates were calculated by determining the agricultural area used for specific crops within a BMAP, multiplied by an estimated crop specific fertilizer application rate. The Florida Department of Agriculture and Consumer Services (DACS) Florida Statewide Irrigation Agricultural Demand 9 (FSAID 9) geodatabase was used to estimate the total area used to produce each crop type (**Appendix A**). Fertilization rates for each specific crop category are based on an annual average per acre and are based on estimates previously used in the NSILT with some updates based on feedback received from DACS, Florida water management districts (WMDs), and the University of Florida-Institute of Food and Agricultural Sciences (UF-IFAS).

When a parcel was identified as rotating crops (changes in crop type from year to year), the application rate was estimated as an average of the annual application rates for the individual crops. When crops are grown as double or triple crops (more than one crop grown on a parcel in a single year), the fertilizer application rate was estimated by summing the application rate for

each crop type. Some adjustments to application rates for crops grown in a multi-crop system were made based on feedback from DACS. Hay was assumed to be fertilized at 80 pounds of nitrogen per acre (lbs-N/ac) per cutting with an average of 2.5 cuttings per year. Crop-specific fertilizer application rates were consistent across all BMAP areas except for the following adjustments as described in the sections below.

Blueberries

Blueberries fertilizer application rate was reduced to 75 lbs-N/ac per year in the Wakulla BMAP area, based on stakeholder feedback and consistent with the previous NSILT.

Soybeans

Based on stakeholder feedback, soybeans are grown as a commodity crop in the Suwannee and Santa Fe BMAPs and are expected to have an annual application rate of 20 lbs-N/ac per year for these BMAPs. In other BMAPs, soybeans are used most commonly as a cover crop and have no expectation for fertilization.

Sorghum

Based on DACS feedback, sorghum is not grown for grain in the Suwannee and Santa Fe BMAPs and has a lower application rate of 50 lbs-N/ac per year as opposed to an estimated rate of 150 lbs-N/ac per year in other BMAPs.

Field Crops

Based on feedback from the DACS and SJRWMD, producers in the St. Johns River Region tend to grow more nutrient-intensive field crops and recommended an application rate of 90 lbs-N/ac per year for the field crop commodity in the region. **Table 4** describes the fertilizer application rates used in this NSILT update. Note that when more than one crop type is listed in the table, the category is a double or triple crop type.

Table 4. FSAID crop categories fertilizer application rates in lbs-N/ac

Crop	Default Fertilizer Application Rates (lbs-N/ac)	Wakulla Application Rates (lbs-N/ac)	Suwannee & Santa Fe Application Rates (lbs-N/ac)	DeLeon, Gemini, Volusia Bule, Wekiwa, and Silver Springs Application Rates (lbs-N/ac)
Asparagus Fern	90	90	90	90
Aspidistra	90	90	90	90
Beans	100	100	100	100
Berries	100	100	100	100
Blackberries	100	100	100	100
Blueberries	100	75	100	100
Cabbage	175	175	175	175
Cabbage_Kale	175	175	175	175
Cabbage_Onions_Vegetables	175	175	175	175
Carrots	300	300	300	300

Crop	Default Fertilizer Application Rates (lbs-N/ac)	Wakulla Application Rates (lbs-N/ac)	Suwannee & Santa Fe Application Rates (lbs-N/ac)	DeLeon, Gemini, Volusia Bule, Wekiwa, and Silver Springs Application Rates (lbs-N/ac)
Carrots_Corn	300	300	300	300
Carrots_Rye	340	340	340	340
Citrus	140	140	140	140
Container Nursery	150	150	150	150
Coontie Fern	90	90	90	90
Corn	240	240	240	240
Corn	180	180	180	180
Corn_Cotton	175	175	175	175
Corn_Cucumbers	270	270	270	270
Corn_Oats	280	280	280	280
Corn_Peanuts	130	130	130	130
Corn_Rye	280	280	280	280
Corn_Soybeans	120	120	130	120
Cotton	110	110	110	110
Cotton_Peanuts	65	65	65	65
Cropland_Pastureland	50	50	50	50
Cucumbers	150	150	150	150
Cucumbers Fall_Melons	150	150	150	150
Dry Beans_Tomatoes Spring	200	200	200	200
Fern	90	90	90	90
Field Corn	240	240	240	240
Field Corn_Hay	210	210	210	210
Field Crops	60	60	60	90
Field Nursery	90	90	90	90
Grass_Pasture	80	80	80	80
Fruit_Nuts	100	100	100	100
Grains	70	70	70	70
Grapes	90	90	90	90
GreenBeans	100	100	100	100
Hay	180	180	180	180
Hay_Improved Pastures	180	180	180	180
Hay_Melons	180	180	180	180
Hay_Oats	220	220	220	220
HorseFarms	50	50	50	50
Improved Pastures	50	50	50	50
Leatherleaf	90	90	90	90
Liriope	90	90	90	90

Crop	Default Fertilizer Application Rates (lbs-N/ac)	Wakulla Application Rates (lbs-N/ac)	Suwannee & Santa Fe Application Rates (lbs-N/ac)	DeLeon, Gemini, Volusia Bule, Wekiwa, and Silver Springs Application Rates (lbs-N/ac)
Melons	150	150	150	150
Millet	50	50	50	50
Millet_Rye	90	90	90	90
Mixed Crops	60	60	60	60
Nurseries and Vineyards	90	90	90	90
Nursery	90	90	90	90
Oats	70	70	70	70
Oats_Peanuts	60	60	60	60
Onions_Vegetables	150	150	150	150
Ornamentals	90	90	90	90
Other Groves	90	90	90	90
Other Hay_NonAlfalfa	180	180	180	180
Pasture	50	50	50	50
Pasture_Peanuts	50	50	50	50
Pasture_Rye	90	90	90	90
Peaches	60	60	60	60
Peanuts	20	20	20	20
Peanuts_Cotton	65	65	65	65
Peanuts_Rye	60	60	60	60
Peanuts_Wheat	60	60	60	60
Peas	60	60	60	60
Pecans	100	100	100	100
Pittosporum	90	90	90	90
Potatoes	300	300	300	300
Row Crops	60	60	60	60
Rye	70	70	70	70
Small Grains	70	70	70	70
Small Veg	150	150	150	150
Small Veg Fall_Small Veg Spring	150	150	150	150
Small Veg Spring	150	150	150	150
Snap Beans	100	100	100	100
Sod	200	200	200	200
Sorghum	150	150	50	150
Soybeans	0	0	20	0
Specialty Farms	30	30	30	30
Spring Onion_Vegetables	150	150	150	150
Squash	150	150	150	150

Crop	Default Fertilizer Application Rates (lbs-N/ac)	Wakulla Application Rates (lbs-N/ac)	Suwannee & Santa Fe Application Rates (lbs-N/ac)	DeLeon, Gemini, Volusia Bule, Wekiwa, and Silver Springs Application Rates (lbs-N/ac)
Squash_Vegetables	300	300	300	300
Strawberries	150	150	150	150
Sweet Corn	300	300	300	300
Sweet Corn_Zucchini	450	450	450	450
Sweet Potatoes	60	60	60	60
Timber Nursery	50	50	50	50
Tobacco	80	80	80	80
Tobacco_Rye	120	120	120	120
Tomatoes	200	200	200	200
Tomatoes Fall	200	200	200	200
Tomatoes Fall_Tomatoes Spring	400	400	400	400
Tomatoes Spring	200	200	200	200
Tree Nurseries	90	90	90	90
Vegetables	150	150	150	150
Watermelon	150	150	150	150
Wheat	80	80	80	80
Wildlife Strip Crops	30	30	30	30
Winter Wheat	40	40	40	40
Zucchini	150	150	150	150

Crop production areas were spatially evaluated to determine the appropriate acreage for each recharge category. Recharge and attenuation factors (**Table 11**) were applied to estimate the loading to groundwater.

Nurseries

Loading to land surface from nurseries was calculated in a similar way to general farm fertilizer. However, due to greater plant spacing and lower fertilizer leaching rates related due to containerization, adjustments were made to the application rates. It was estimated that only 80% of the acreage identified as nurseries is fertilized. Further, the fertilization leaching amount was reduced by 70% due to the applied fertilizer remaining in the container compared to typical, ground-planted agricultural operations. This container adjustment was not applied to fern crops in Volusia County based on feedback from SJRWMD that these operations are typically ground-planted and not container-based. The nursery crop categories are listed in **Table 5**. Recharge and attenuation factors (**Table 11**) were applied to estimate the loading to groundwater.

Pasture Lands

Loading to land surface from pasture lands was calculated in a similar way to farm fertilizer. However, based on information from DACS, pasture locations are rotated, and it is only

anticipated that 20% of pasture areas will be fertilized in a given year. The acreage of pasture lands identified in FSAID was reduced to 20% of the total, then multiplied by the expected application rate to determine the loading from land surface for pastures. The farm fertilizer biochemical attenuation factors were also used for pasture lands (**Table 11**). Where the rotation adjustment was applied for crop categories that were categorized as pasture lands are identified in **Table 5**.

Table 5. FSAID nursery and pasture crop categories

***** Denotes nursery crop categories adjusted for container practices outside Volusia County.

Nursery Crop Categories	Pasture Crop Categories
Asparagus Fern*	**Grass Pasture**
Aspidistra*	**Horse Farms**
Container Nursery	**Improved Pastures**
Coontie Fern*	**Pasture**
Fern*	
Field Nursery	
Leatherleaf*	
Nurseries and Vineyards	
Nursery	
Ornamentals	
Pittosporum*	
Timber Nursery	
Tree Nurseries	

Livestock Waste, Except Dairies

Twelve types of livestock waste were considered in NSILT loading estimates. However, dairy cows were evaluated differently than the other 11 livestock types (see **Dairies** section below). Cattle farms are included in the NSILT as non-dairy livestock operations. Livestock waste loading to land surface was calculated by estimating the population of each livestock type in each BMAP area and multiplying the estimated count by a livestock type specific waste factor. The livestock waste factors are consistent with the 2018 NSILT and are summarized in **Table 6** below. To estimate livestock populations, the 2017 U.S. Department of Agriculture (USDA) Census of Agriculture data were used (see link in **Appendix A** to the 2017 Census of Agriculture site). The 2017 census data provided estimated animal head count totals, by county, for each livestock type. For cattle, an average of the 2020 and 2021 USDA Survey of Agriculture (see

link in **Appendix A** to the USDA National Agricultural Statistics Service) estimates for cattle were used to determine head county by county. For basins with identified dairies, the estimated cows included in the dairy calculations were removed from the head count for the county in which the dairy was located. To estimate calf numbers, it was estimated that 35% of the cattle were calves.

USDA head counts for the whole county were adjusted based on the proportion of livestock land in the county that was also within the BMAP or springshed, as reported in FSAID 9. The headcounts were also evaluated by recharge category in each BMAP or springshed compared to the livestock land of that recharge category in the county as a whole.

Further adjustments included the consideration that broiler chickens and cow/calves are not anticipated to provide loading for the entire year because they are not *in situ* for an entire 12 months. Broiler chickens are anticipated to be on an eight-week rotation, and cow/calves are estimated to be on a six-month rotation. Annual loading was reduced accordingly to account for these rotations.

Once a livestock waste loading to the land surface was calculated based on the estimated headcount in the springshed by recharge area, waste load based on the type of animal, and rotation considerations, a biochemical attenuation factor (**Table 11**) and a recharge factor were then applied to estimate loading to groundwater.

Table 6. Livestock waste factors by livestock type

Sources: Goolsby et al. 1999; Katz et al. 1999; Chelette et al. 2002; Ruddy et al. 2006; Meyer 2012; and Sprague and Gronberg 2013.

Livestock Type	Waste Factor Per Animal (lbs-N/day)
Beef Cattle	0.337
Other Cattle	0.31
Calves	0.068
Donkeys	0.1
Horses	0.273
Chicken, Broilers	0.002
Chicken, Layers	0.003
Goats	0.035
Hogs	0.19
Sheep	0.198
Turkeys	0.006

Dairies

In the 2023 NSILTs, dairies were divided into concentrated animal feeding operations (CAFOs) where waste is managed under an industrial wastewater permit issued by DEP, and non-CAFO dairies, where a facility's presumption of compliance is through the Best Management Practice (BMP) Program administered by DACS. The evaluation for each type is described below.

CAFOs

CAFO dairies operate under an industrial permit from DEP that requires annual reporting of operations and a nutrient management plan that oversees the waste handling processes for dairy waste. For CAFO dairies, loading to land surface estimates were made by multiplying the number of animals at the operation based on the average of 2019 and 2020 annual reported herd counts as required by the permit, by a per animal waste factor calculated in the nutrient management plan, then reduced by waste load based on their waste handling processes as identified in the nutrient management plan. Nutrient management plans are site specific and vary from operation to operation. Attenuation (**Table 11**) and recharge factors were applied to the estimated loading to land surface to estimate loading to groundwater.

Non-CAFO Dairies

Non-CAFO dairies are governed by the adopted DACS Dairy BMP Manual and the applicable BMPs. Non-CAFO dairies in BMAP areas have a statutory obligation to enroll in the DACS BMP Program or conduct water quality monitoring that is approved by the state. Dairies enrolled in the BMP Program by DACS are subject to DACS Implementation Verification procedures. Non-CAFO dairy information was provided by DACS, including information on herd size, waste handling practices, and animal confinement.

If a dairy herd was identified as grazed in pasture, it was estimated that they would be confined for 15% of the time to account for time in the milking parlors. A waste factor of 0.36 lbs-N/day for dairy cows and 0.15 lbs-N/day for non-milking cows was estimated. Annual loading was estimated by multiplying the number of cows by the daily waste factor, multiplied by 365 days per year, multiplied by application loss coefficients based on waste handling practices. Generally, a 50% application loss factor was applied for waste generated in pasture. For waste generated and collected in confinement, nitrogen loss percentages for specific waste handling practices are identified in **Table 7**.

Table 7. Nitrogen loss percentages for non-CAFO manure handling practices

Manure Handling Practices	Nitrogen Loss %
Scraped Solids	25%
Applied Solids	20%
Concrete Waste Storage Ponds	60%
Sprayfields	30%
Direct Deposition	60%
Sand Separator	5%
Screen Separator	7%
Static "Vat" Separator Solids	85%
Static "Vat" Separator Effluent	15%
Screw Press Solids	80%

Manure Handling Practices	Nitrogen Loss %
Screw Press Effluent	20%
Earthen Lagoon	30%

Horse Farms/Cattle Farms

For the Rainbow Springs and Silver Springs BMAP where there are more such operations than other BMAPs, horse farms and cattle farms were evaluated as separate loading categories. For horse farms and cattle farms, loading from farm fertilizer crops that are associated with these operations were estimated, as well as loading from the livestock categories for the relevant livestock types.

In Silver Springs, of the total pasture lands and hay crop area, it was estimated that 20% of pasture lands and hay acreages were horse farms. Additionally, 100% of acres identified as horse farm area was associated with horse farm operations for the NSILT. In Rainbow Springs, it was estimated that of the total pasture lands and hay crop area in the springshed, 40% of pasture lands and hay acres were horse farms. Also, 100% of horse farmlands identified in the FSAID land use data were associated with horse farms. The remaining pasture lands and hay crop acreages in each springshed, respectively, were attributed to cattle farms.

For livestock waste estimates, 100% of horse livestock waste was attributed to horse farms, and 100% of beef cattle, "other" cattle, and calves were associated with cattle farms in both springsheds. Loading for farm fertilizer and livestock waste categories associated with horse farms and cattle farms were calculated as described above in the livestock waste section, including the spatial evaluation to determine recharge areas. The loading for these categories was removed from the general farm fertilizer and livestock waste categories to avoid double-counting loads. A horse farm- and cattle farm-specific attenuation factor (**Table 11**) was applied to the surface loading to determine the loading to groundwater.

UTF

Since the development of the original NSILT, the methodology used for estimating nitrogen inputs from urban fertilizer has significantly improved. Fertilizers applied to turfgrass typically found in urban areas (including residential lawns, commercial properties, and public green spaces) are referred to as urban turfgrass fertilizers. The UTF load to land surface was estimated separately for single family residential parcels and other UTF as described below. For all UTF loads, a recharge factor was applied based on location, as well as a biochemical attenuation factor (**Table 11**) was applied to land surface loading estimates to determine loading to groundwater.

Single Family Residential Fertilizer Loading

Single family residential UTF loading was estimated using a number of steps. The first step determined the area of single family residential parcels and an impervious area coefficient was applied to remove pervious area from the evaluation. Next, a maximum amount of fertilized area

per parcel was set to evaluate likeliness to fertilize, and finally estimating fertilization amount for the area expected to receive fertilization. The section below goes into these steps in more detail.

Determining Parcels

To determine the area of single family residential parcels, the Florida Department of Revenue CADASTRAL database and land use code DOR001 was used. It was estimated that 27.8% of all single family residential parcels are impervious (Tilley, 2006). For BMAPs with predominantly rural areas, it was estimated that a maximum of 0.5 acres of land per parcel would be fertilized because the parcels tend to be larger and less landscaped, while for predominantly urban BMAPs, it was estimated that a maximum of one acre of land per parcel would be fertilized.

Determining Likeliness to Fertilize

Prior to applying the fertilizer application rates to the pervious land area, the probability that a homeowner will fertilize the lawn needed to be considered. Based on socioeconomic studies, property values can be used as an indicator of probability of fertilization by homeowners in residential areas (Kinzig et al. 2005, Law et al. 2004, Zhou et al. 2008, Cook et al. 2012). Three tiers of property values were considered in each BMAP, where it was estimated that there was a 10%, 75%, and 90% likeliness to fertilize for the low, medium, and high property value categories, respectively. Property value ranges were BMAP specific and were based on property value estimates used in the previous NSILT analysis. There was an estimated increase of 79% since the prior NSILT based on State of Florida average home price evaluations (**Appendix A**) so low and high home value break points were adjusted accordingly.

Fertilization Rates by BMAP

The estimated urban turfgrass self-fertilization amounts were regional and based on survey data. The Florida panhandle region fertilization rate assumptions were updated from the previous NSILT evaluation. These revised NSILT used fertilization values determined by a recent City of Tallahassee survey and were applied in the Jackson Blue, Wakulla, and Wacissa estimates (Skybase7 2023). Fertilization rates for other BMAP areas were consistent with the previous NSILT evaluations (Martin 2008, Suoto 2009). Local ordinances were reviewed for seasonal fertilizer bans; where seasonal bans were in effect, fertilizer application was adjusted proportionately to the period of the year that fertilization was not allowed.

Table 8. Single family residential UTF information

Springshed	Max Fert. Acres	Low Value Break	High Value Break	Average Self Fertilizer Application (lbs-N/ac/year)	Lawn Service Application Rate (lbs-N/ac/year)	% Service	% Self	% None	Average Fert. Rate (lbs-N/ac/year)
Chassahowitzka Spring Group	1	89,500	268,500	96.30	131	32.0%	68.0%	0.0%	107.30
DeLeon Spring	1	89,500	268,500	98.27	131	33.0%	51.0%	16.0%	93.24
Devil's Ear Spring	0.5	136,040	257,402	93.03	108.9	32.0%	68.0%	0.0%	98.11
Falmouth Spring	0.5	89,500	223,750	93.03	108.9	32.0%	68.0%	0.0%	98.11

Springshed	Max Fert. Acres	Low Value Break	High Value Break	Average Self Fertilizer Application (lbs-N/ac/year)	Lawn Service Application Rate (lbs-N/ac/year)	% Service	% Self	% None	Average Fert. Rate (lbs-N/ac/year)
Fanning Springs and Manatee Spring	0.5	98,450	259,550	93.03	108.9	32.0%	68.0%	0.0%	98.11
Gemini Springs	1	89,500	268,500	98.27	131	33.0%	51.0%	16.0%	93.24
Homosassa Spring Group	1	89,500	268,500	96.30	131	32.0%	68.0%	0.0%	107.30
Hornsby Spring	0.5	141,410	304,300	93.03	108.9	32.0%	68.0%	0.0%	98.11
Ichetucknee Spring Group	0.5	108,653	239,860	93.03	108.9	32.0%	68.0%	0.0%	98.11
Jackson Blue Spring	0.5	89,500	268,500	56.91	108.9	19.0%	16.0%	65.0%	29.80
Kings Bay	1	89,500	268,500	96.30	131	32.0%	68.0%	0.0%	107.30
Madison Blue Spring	0.5	89,500	223,750	93.03	108.9	32.0%	68.0%	0.0%	98.11
Rainbow Spring Group	1	107,400	259,550	114.28	131	33.0%	51.0%	16.0%	101.41
Silver Springs	1	89,500	268,500	114.28	131	33.0%	51.0%	16.0%	101.41
Volusia Blue Spring	1	89,500	161100	85.14	131	34.4%	49.6%	16.0%	87.18
Wacissa Spring Group	0.5	85,920	214,800	56.91	108.9	19.0%	16.0%	65.0%	29.80
Wakulla Spring	0.5	89,500	268,500	56.91	108.9	19.0%	16.0%	65.0%	29.80
Weeki Wachee Spring Group	1	89,500	268,500	96.30	131	32.0%	68.0%	0.0%	107.30
Wekiwa Spring	1	89,500	268,500	98.27	131	33.0%	51.0%	16.0%	93.24

Due to different methodologies used in the previous NSILTs, some BMAPs captured the percentage of the population expected to apply zero fertilizer in the average self-application rate, while others separately defined a specific percentage of parcels that do not apply fertilizer that were not included in the self-application rate. The variability in the application rate calculations resulted in some BMAPs being described with 0% of the population applying no fertilizer, when the portion of the population with zero fertilizer application is already incorporated in the average self-application rate.

Other UTF

UTF loading to land surface from non-residential sources was estimated by determining the area of land use types likely to apply fertilizer, applying an impervious area coefficient to remove impervious area from the evaluation, estimating the pervious area likely to receive fertilizer, and estimating the fertilizer application rate for fertilized areas (**Table 9**). Water management district land cover data was used to determine the land area likely to receive fertilizer (**Appendix A**). Fifteen land cover categories were considered likely to receive fertilization, and an estimated impervious area was applied to each land cover category (Tilley 2006). The area of these land cover categories was evaluated against the areas already assessed as single family residential,

and any area that overlapped with single family residential areas was removed from evaluation as area that could receive fertilizer as "other UTF."

Table 9. Other UTF land use categories and estimated impervious area

WMD Land Cover Code	Percent Impervious	Percent of Pervious Area Receiving Fertilizer
1220: Medium Density, Mobile Home Units	32.6%	17.7%
1230: Medium Density, Mixed Units (Fixed and Mobile Home Units)	32.6%	15.4%
1320: High Density, Mobile Home Units	44.4%	20.7%
1330: Multiple Dwelling Units, Low Rise	44.4%	27.8%
1340: High Density, Multiple Dwelling Units, High Rise (Four Stories or More)	44.4%	32.8%
1400: Commercial and Services	72.2%	31.3%
1411: Shopping Centers	72.2%	31.3%
1480: Cemeteries	8.3%	42.2%
1700: Institutional	34.4%	43.3%
1710: Educational	30.3%	60.6%
1720: Religious	39.9%	37.7%
1740: Medical and Health Care	72.2%	33.8%
1750: Governmental	35.4%	41.0%
1850: Parks and Zoos	12.5%	44.9%
1860: Community Recreational Facilities	12.5%	59.8%

Not all pervious area for these land cover codes will be fertilized. To estimate the area of pervious area that will be fertilized, land cover tree canopy coverage data provided by the City of Tallahassee was used to estimate the percentage of pervious area that would receive fertilization as summarized in **Table 9**. It was assumed that all area expected to receive fertilization would be managed by landscaping professionals that would apply fertilizer consistent with the *Green Industries Best Management Practices Manual* (GI-BMP) guidelines (DEP 2010) (see link in **Appendix A**). An evaluation for the GI-BMP was performed to estimate the application rate by region for the north and central regions and is summarized in **Table 10** below.

Table 10. Green Industries BMP regional fertilizer application rates

Region	Annual Fertilizer Application Rate
North	2.5 lbs-N/1,000 square feet
Central	3.0 lbs-N/1,000 square feet

Sports Turfgrass Fertilizer

Golf Courses

Golf course loading to the land surface was estimated by evaluating the active golf courses in each BMAP area, estimating the total acreage of each golf course, and determining the fertilizer application rate based on prior NSILT course-specific survey responses or using an estimated regional fertilizer application rate. The estimated regional rate was derived from a survey of regional golf course practices published by Hort Technology (Shaddox et al. 2023) and

amounted to an estimated application rate of 2.2 lbs-N/1,000 square feet for the whole of the golf course property. Golf courses no longer in operation were excluded as current loading sources. Additionally, the management of each golf course was identified as a local government, special district, or private entity for possible consideration in the allocation process**.**

Other (Non-Golf) Sports Turfgrass Fertilizer

Sports turfgrass loading estimates were consistent with the previous NSILT evaluations. Sports turfgrass area was determined by reviewing areas with the property appraisers land use categories that may include sports turfgrass and performing an aerial review to determine the total acreage used as sports turfgrass. It was assumed that these lands are fertilized at rates and frequencies applied by lawn service companies following the GI-BMP recommendations (DEP 2010). Fertilizer application rates are consistent with the previous NSILT evaluations.

Biosolids

Biosolids loading to the land surface was estimated by determining what biosolid application sites were within BMAP boundaries and reviewing annual reports to determine the application quantity. Annual reports from 2018 to 2022 were evaluated. Data were provided in tons of material applied. It was estimated that biosolids had an approximate nitrogen concentration of five percent. The location of biosolids application sites was spatially evaluated to determine the appropriate recharge categories for the area, and attenuation and recharge factors were applied to estimate loading to groundwater. The biosolid application process and leaching is estimated based on site-specific data. Loading estimates will be refined in future updates to protect the aquifer under vulnerable karstic features. DEP will continue to evaluate data and update loads and allocations as appropriate.

Estimating Loading to Floridan Aquifer

Biochemical Attenuation

A source-specific specific biochemical attenuation factor (BAF) was applied to each loading source to account for near-surface biochemical process that result in a reduction of nitrogen available to leach to groundwater. Processes such as denitrification, volatilization, immobilization, and cation exchange all contribute to the reduction of leachable nitrogen. These processes occur to varying degrees depending on the application method, the form of nitrogen, soil properties, and other factors. BAFs used in this evaluation, listed in **Table 11**, represent the estimated percentage of the nitrogen attenuated or removed by subsurface processes.

Table 11. 2023 NSILT biochemical attenuation factors

*Includes sports turfgrass fertilizer and golf courses.

Nitrogen Source Category	BAF	Literature References
Atmospheric Deposition	90%	Katz et al. 2009; Lombardo Associates 2011; Howard T. Odum Florida Springs Institute 2011
WWTFs-Reuse	75%	Jordan et al. 1997; Candela et al. 2007; Rahil and Antonopoulos 2007

Nitrogen Source Category	BAF	Literature References
WWTFs-RIBs and Absorption Fields	25%	Merritt and Toth 2006; Sumner and Bradner 1996
WWTFs-Sprayfield	60%	Katz et al. 2009; Lombardo Associates 2011; Howard T. Odum Florida Springs Institute 2011
WWTFs-Wetland Treatment	85%	Thompson and Milbrandt, 2016; Liu et al. 2024
Urban Fertilizer*	70%	Goolsby et al. 1999; Erikson et al. 2001; Barton and Colmer 2006; Katz et al. 2009
OSTDS	30%	Armstrong, J.H. 2015
Livestock Waste (Non-Dairy)	90%	Dubeux et al. 2007; Silveira et al. 2007; Burns et al. 2009; Dubeux et al. 2009; Obour et al. 2010; Sigua 2010; Sigua et al. 2010; Silveira et al. 2011; Woodard et al. 2011; White-Leech et al. 2013a; White-Leech et al. 2013b
Farm Fertilizer	80%	McNeal et al. 1995; Wang and Alva 1996; Paramasivam and Alva 1997; Newton et al. 1999; Hochmuth 2000a; Hochmuth 2000b; Simonne et al. 2006; He et al. 2011; Liu et al. 2013
Farm Fertilizer – Irrigated	65%	McNeal et al. 1995; Wang and Alva 1996; Paramasivam and Alva 1997; Newton et al. 1999; Hochmuth 2000a; Hochmuth 2000b; Simonne et al. 2006; He et al. 2011; Liu et al. 2013
Livestock Waste - Dairy (non-CAFO)	50%	Woodard et al. 2002; Landig et al. 2010
Livestock Waste - Dairy (CAFO)	85%	Cabrera et al. 2006
Cattle Farms (Silver and Rainbow Only)	90%	Dubeux et al. 2007; Silveira et al. 2007; Burns et al. 2009; Dubeux et al. 2009; Obour et al. 2010; Sigua 2010; Sigua et al. 2010; Silveira et al. 2011; Woodard et al. 2011; White-Leech et al. 2013a; White-Leech et al. 2013b
Horse Farms (Silver and Rainbow Only)	90%	Dubeux et al. 2007; Silveira et al. 2007; Burns et al. 2009; Dubeux et al. 2009; Obour et al. 2010; Sigua 2010; Sigua et al. 2010; Silveira et al. 2011; Woodard et al. 2011; White-Leech et al. 2013a; White-Leech et al. 2013b
Biosolids	50%	Division of Water Resource Management Staff Feedback

Generally, biochemical attenuation factors are consistent with the prior NSILT evaluation, with a few exceptions. OSTDS attenuation for all BMAPs was revised based on Florida-specific data provided by the DEP Onsite Sewage Program (Armstrong 2015). Attenuation factors for the springsheds in the Suwannee BMAP were updated to be consistent with other BMAPs. The Jackson Blue NSILT was the only BMAP to evaluate farm fertilizer loading with separate irrigated and non-irrigated attenuation factors, respectively, consistent with the previous NSILT evaluation.

Recharge

Nitrogen that is not attenuated during biochemical attenuation processes can leach to groundwater and impact water quality at the spring vent. Subsurface processes dictate the impact of the leached nitrogen on water quality at the spring vents. To evaluate the relative impact of leached nitrogen, a recharge factor was applied to the attenuated load based on the hydrologic conditions of the location of the loading. Four recharge categories were considered: high, medium, low, and discharge. Leaching to groundwater is a function of the properties of the soil and unsaturated (vadose) zone, drainage, wetness, depth to water table, and hydraulic conductivity. In areas where water can readily recharge through the vadose zone into underlying formations that have high hydraulic conductivity, it is anticipated that the majority of nitrogen will impact water quality at the spring vent and would be considered a high recharge area. In areas where water cannot readily recharge the Floridan aquifer due to characteristics of overlying soils, the presence of a surficial aquifer, or other properties that would otherwise retard the movement of leached water to the Floridan aquifer, a low recharge factor was applied, reducing the expected impact on water quality at the spring vent. In areas where water is expected to discharge from the Floridan aquifer, such as in wetland areas, it is not anticipated that nitrogen deposited in these areas will impact at spring vents and the loading was not included in the NSILT evaluation.

For all BMAPs, in areas that were considered to have high recharge, it was estimated that 90% of the attenuated load would impact water quality at the spring vent. In areas that were considered to have low recharge, it was estimated that only 10% of the attenuated nitrogen would impact water quality at spring vents. At all BMAPs except for Wakulla Spring and Jackson Blue Spring, in areas considered to have medium recharge it is estimated that 50% of the attenuated load will impact the spring vent water quality. In Wakulla, the recharge evaluation was based on confinement of the Floridan aquifer, and it was estimated that in semiconfined areas only 40% of the attenuated load would impact the spring vent. In the Jackson Blue springshed, recharge was primarily based on soils. While there is some variation in soils in this springshed, it was determined that it would be unlikely that 50% of the attenuated load would be reduced due to areas with slightly different soils and it was considered that 60% of the load would impact the spring vent.

All recharge factors are consistent with the previous NSILT evaluation, additional information on BMAP specific recharge can be found in the technical support documents in the appendices of the previous BMAP documents.

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TSD Appendix A. Important Links

The links below were correct at the time of document preparation. Over time, the locations may change, and the links may no longer be accurate. None of these linked materials were adopted into the BMAP.

- Atmospheric Deposition Program (NADP) Total Deposition (TDEP) data: https://catalog.data.gov/dataset/nadp-total-deposition-data

- DEP Springs BMAP documents: https://floridadep.gov/dear/water-quality-restoration/content/florida-springs-basin-management-action-plans

- Florida Friendly Best Management Practices for Protection of Water Resources by Green Industries, GI-BMP Manual: https://ffl.ifas.ufl.edu/ffl-and-you/gi-bmp-program/gi-bmp-manual/

- Florida Statewide Agricultural Irrigation Demand Geodatabase, Version 9: https://www.DACS.gov/Agriculture-Industry/Water/Agricultural-Water-Supply-Planning

- Florida Water Management Inventory with locations of known and estimated septic systems: https://ww10.doh.state.fl.us/pub/bos/Inventory/FloridaWaterManagementInventory/

- Home value price resources:
  - www.roofstock.com
  - www.neighborhoodscout.com
  - www.visualcapitalist.com

- Previous NSILT technical supporting documents: publicfiles.dep.state.fl.us -/DEAR/NSILT/

- Statewide Land Use Land Cover: https://geodata.dep.state.fl.us/datasets/FDEP::statewide-land-use-land-cover/about

- U.S Census Data, 2020: https://www.census.gov/programs-surveys/decennial-census/decade/2020/2020-census-results.html

- USDA Census of Agriculture, 2017: https://www.nass.usda.gov/Publications/AgCensus/2017/index.php

- USDA Survey of Agriculture: https://quickstats.nass.usda.gov/

- Water Quality Restoration Program, DEP: https://floridadep.gov/dear/water-quality-restoration

Appendix G. Golf Course NMPs

The fertilizers used to maintain golf courses can be significant sources of nutrients in watersheds that are impaired for nitrogen and/or phosphorous. To achieve the TMDL target(s), all nutrient sources need to reduce their nutrient loading. Similar to other sources, golf courses are required to implement management strategies to mitigate their nutrient loading and be in compliance with the BMAP. Florida BMAPs are adopted by Secretarial Order and therefore legally enforceable by the DEP. Requirements for golf courses located in BMAPs are below.

1. **Golf Course BMP Certification, Implementation, and Reporting.**

   a. In areas with an adopted BMAP, all golf courses must implement the BMPs described in DEP's golf course BMP manual, *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses* (DEP, 2021).

   b. At minimum, the superintendent for each golf course must obtain and maintain certification through the UF-IFAS Florida Golf Courses Best Management Practices Program. It is highly recommended that course managers and landscape maintenance staff also participate in the certification program to ensure proper BMP implementation and understanding of nutrient-related water quality issues and the role of golf courses in water quality restoration and protection. By no later than January 14, 2026, the golf course superintendents must confirm to DEP whether they have completed the certification. Certification must be completed by December 31, 2026. This certification must be renewed every four years.

   c. Beginning in 2026, nutrient application records and management action updates (fertilizer, reuse, BMPs, etc.) must be submitted each year during the BMAP statewide annual reporting process.

   d. Fertilizer rates should be no greater than the UF-IFAS recommendations to help prevent leaching (**Table G-1**). This includes nutrients from reuse or any other source applied. If a facility uses fertilizer rates greater than those in the BMP manual they are required to conduct water quality monitoring prescribed by DEP or WMD that demonstrates compliance with water quality standards.

   e. Example golf course BMPs applicable to protecting water quality are listed below.

      - Use slow release fertilizer to prevent volatilization.
      - Use of lined media in stormwater features.
      - Use of denitrification walls.
      - Use of rain gardens.

- Use of tree boxes.
- Use of bioswales.

Table G-1. Nutrient ranges for warm-season turfgrass species

Note: For more information refer to the Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses (DEP, 2021).

Nutrient	Bermudagrass (%)	St. Augustinegrass (%)	Seashore Paspalum (%)	Centipedegrass (%)	Zoysia (%)
N	1.95 - 4.63	1.53 - 2.41	2.80 -3.50	1.5 - 2.9	2.04 - 2.36
P	0.15 - 0.43	0.30 - 0.55	0.30 - 60	0.18 - 0.26	0.19 - 0.22
Potassium (K)	0.43 - 1.28	1.1 - 2.25	2.00 - 4.00	1.12 - 2.50	1.05 - 1.27
Calcium (Ca)	0.15 - 0.63	0.24 - 0.54	0.25 - 1.50	0.50 - 1.15	0.44 - 0.56
Magnesium (Mg)	0.04 - 0.10	0.20 - 0.46	0.25 - 0.60	0.12 - 0.21	0.13 - 0.15
Sulfur (S)	0.07 - 0.02	0.15 - 0.48	0.20 - 0.60	0.20 - 0.38	0.32 - 0.37
Sodium (Na)	0.05 - 0.17	0.00 - 0.17	-	-	-

2. All golf courses located within a BMAP are required to submit a NMP that is designed to, while maintaining even plant growth, prevent nutrient losses to the Floridan aquifer and surrounding surface waters. A draft NMP must be submitted to DEP within one year of BMAP adoption and a final document is due two years after adoption. The NMP must include the following:

a. A brief description of the goals of the nutrient management plan.

This should be a paragraph that describes the goals of your NMP. Talk about how you are managing for high quality turf and water quality.

b. Identification of areas where nutrient applications will be made including greens, tees, fairways and roughs.

Discuss the areas of the course where you plan to use fertilizer, and why. Also discuss the areas that do not need or get any fertilizer applications.

Include a GIS shapefile identifying all of these areas.

Complete the table(s) detailing your nutrient application practices.

Turf Details

Turf Type	Turf Species	Acreage
Tees		
Greens		
Fairways		
Roughs		
Totals		

Fertilizer Applications

Sample fertilizer application table

Month	Turf Type	TN Application Rate (lbs/acre)	TP Application Rate (lbs/acre)	Number of Applications	Total TN Applied (lbs/acre)	Total TP Applied (lbs/acre)
January	Tees					
	Greens					
	Fairways					
	Roughs					
February	Tees					
	Greens					
	Fairways					
	Roughs					
March	Tees					
	Greens					
	Fairways					
	Roughs					
April	Tees					
	Greens					
	Fairways					
	Roughs					
May	Tees					
	Greens					
	Fairways					
	Roughs					
June	Tees					
	Greens					
	Fairways					
	Roughs					
July	Tees					
	Greens					
	Fairways					
	Roughs					
August	Tees					
	Greens					
	Fairways					
	Roughs					
September	Tees					
	Greens					

Month	Turf Type	TN Application Rate (lbs/acre)	TP Application Rate (lbs/acre)	Number of Applications	Total TN Applied (lbs/acre)	Total TP Applied (lbs/acre)
	Fairways					
	Roughs					
October	Tees					
	Greens					
	Fairways					
	Roughs					
November	Tees					
	Greens					
	Fairways					
	Roughs					
December	Tees					
	Greens					
	Fairways					
	Roughs					
Totals						

Amount of Reuse/Reclaimed Water Applied

Sample reclaimed water and fertilizer use table

*Supply reuse/reclaimed water volumes applied, if applicable.

	Reuse/Reclaimed Water Quantity (Gallons)	Monthly Average TN (mg/L)	Monthly Average TP (mg/L)	Quantity of TN Applied (lbs)	Running Total of TN Applied per Acre (lbs/acre)	Quantity of TP Applied (lbs)	Running Total of TP Applied per Acre (lbs/acre)
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Totals							

Are any other sources of nutrients (i.e. manure, etc.) applied to the grounds? If so, please detail in a table similar to the reuse and fertilizer tables.

c. Current BMP implementation.

Describe existing BMPs and other nutrient management actions here.

d. Soil sampling methods and results for each area receiving fertilizer applications. Areas receiving fertilizer applications shall be sampled once every three years. Soil samples shall be collected and analyzed according to UF-IFAS/DEP recommendations or standard industry practice. Soil samples shall be analyzed, at minimum, for:

1. Nitrogen
2. Phosphorus

Describe existing soil sampling here. Describe your planned soil sampling schedule. Provide information about how long you have been soil sampling and what part of the course you are prioritizing.
If soil samples from areas of similar soil, fertilizer use and management are combined, describe the process and justify combining for a "representative" sample.
Keep all soil test results (or copies of them) in this file as part of your nutrient management plan. Please do not send them in to DEP individually. If you've been soil testing for years, remember to add copies of all those past results to your NMP file.

e. Water quality sampling methods and results. Water quality sampling and analysis should be conducted in accordance with DEP's Standard Operating Procedures. Water quality samples shall be analyzed, at minimum, for:

1. Nitrogen
2. Phosphorus.

If applicable, describe existing water quality sampling. Describe your planned water quality sampling schedule. Provide information about how long you have been doing water quality sampling and what part of the course you are prioritizing.

Keep all water quality test results (or copies of them) in this file as part of your nutrient management plan. Please do not send them in to DEP individually. If you've been testing for years, remember to add copies of all those past results to your NMP file.

f. Tissue sampling methods and results. Tissue samples shall be collected and analyzed according to UF-IFAS/DEP recommendations or standard industry practice.

Describe existing tissue sampling plan. Keep all test results (or copies of them) in this file

as part of your nutrient management plan. Please do not send them in to DEP individually. If you've been testing for years, remember to add copies of all those past results to your NMP file.

g. Soil, tissue and water quality sample results shall be maintained for a minimum of five years. Please provide records.

h. When developing new (or expanding) golf courses, pre- and post- monitoring should be implemented in accordance with UF-IFAS/DEP recommendations.

Appendix H. Agricultural Enrollment and Reductions

FDACS provided the following information for this appendix for each BMAP.

Agricultural Landowner Requirements

Section 403.067, F.S., requires agricultural producers and landowners located within BMAP areas to either enroll in the FDACS Best Management Practices (BMP) Program and properly implement BMPs applicable to their property and operation or to conduct water quality monitoring activities as required by Rule Chapter 62-307, F.A.C. Producers or agricultural landowners who are enrolled in the FDACS BMP Program and are properly implementing the applicable BMPs identified on the BMP Checklist, or who are in compliance with the Equivalent Program requirements of Rule Chapter 5M-1, F.A.C., are entitled to a presumption of compliance with state water quality standards per section 403.067(7)(c)3., F.S.

FDACS Office of Agricultural Water Policy (OAWP) BMP Program

Best Management Practices (BMPs) Definition

For the purposes of the OAWP BMP Program, the term "best management practice" means a practice or combination of practices determined based on research, field-testing, and expert review, to be the most effective and practicable on-location means, including economic and technological considerations, for improving water quality in agricultural discharges. Section 403.067, F.S., requires that BMPs reflect a balance between water quality improvements and agricultural productivity. FDACS works closely with the FDEP, water management districts (WMDs), industry experts, and academic institutions to understand the environmental and agronomic effects addressed by BMPs.

Section 403.067, F.S., authorizes and directs FDACS to develop and adopt by rule BMPs that will help Florida's agricultural industry achieve the pollution reductions allocated in BMAPs. To date, FDACS OAWP has adopted 11 commodity specific BMP manuals by rule, covering cattle, citrus, equine, dairy, nurseries, poultry, sod, small farms and specialty livestock, specialty fruit and nut, vegetable and agronomic crops, and wildlife operations. All OAWP BMP manuals are periodically revised, updated, and subsequently reviewed and preliminarily verified by DEP before re-adoption. BMPs serve as part of a multidisciplinary approach to water resource restoration and protection that includes public/private partnerships, landowner agreements and regional treatment technologies, which together form the comprehensive strategy needed to meet the goals established in BMAPs.

Enrolling in a FDACS BMP Program

To initially enroll in the FDACS BMP Program, agricultural landowners and producers must meet with an FDACS representative on site to determine the appropriate practices that are applicable to their operation(s) and to document the BMPs on the Notice of Intent (NOI) and BMP Checklist. FDACS representatives consider site-specific factors when determining the applicability of BMPs including commodity type, topography, geology, location of production, soil type, field size, and

type and sensitivity of the ecological resources in the surrounding areas. Producers collaborate with the FDACS representative to complete an NOI to implement the BMPs and the BMP Checklist from the applicable BMP manual.

Once the NOI and Checklist are completed, signed, and submitted to OAWP, the producer is formally enrolled in the BMP Program. Because many agricultural operations are diverse and are engaged in the production of multiple commodities, a landowner may sign multiple NOIs for a single parcel. Producers must properly implement all applicable BMPs as soon as practicable, but no later than 18 months after completion and execution of the NOI and associated BMP Checklist.

Enrollment Prioritization

To address the greatest resource concerns, OAWP utilizes a phased approach based on commodity type, irrigation, and agricultural acreages, while ensuring that all entities identified as agriculture will be notified. Enrollment efforts have previously focused on enrolling parcels that are most impactful to water quality including parcels containing many agricultural acres, irrigated acres, or more intense agricultural land uses.

Implementation Verification

Section 403.067, F.S., requires FDACS to conduct an Implementation Verification (IV) site visit at least every two years to ensure that agricultural landowners and producers are properly implementing the applicable BMPs identified in the BMP Checklist. An IV site visit includes: review and collection of nutrient application records that producers must maintain to demonstrate compliance with the BMP Program; verification that all other applicable BMPs are being properly implemented; verification that any cost shared practices are being properly implemented; and identification of potential cost share practices, projects or other applicable BMPs not identified during enrollment. During the IV site visit, FDACS representatives also identify opportunities for achieving greater nutrient, irrigation, or water resource management efficiencies, including opportunities for water conservation. Procedures used to verify the implementation of agricultural BMPs are outlined in Rule 5M-1.008, F.A.C.

Nutrient Application Records

Enrolled landowners and producers are required to keep records on the total pounds of nitrogen (N) and phosphorus (P) fertilizer from all sources that are applied to their operations to comply with BMP program requirements, including AA bio-solids. Nutrient records from Class A or B biosolids applied in accordance with Chapter 62-640, F.A.C. are collected through the DEP permitting process as described in 5M-1.008(5). FDACS will collect information pertaining to these records for a two-year period identified when an IV site visit is scheduled. OAWP adopted a Nutrient Application Record Form (NARF) (FDACS-04005, rev. 06/24, incorporated in 5M-1.008(4), F.A.C.), to help simplify the record keeping requirement. The form is available under Program Resources at https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-

Management-Practices. As these records relate to processes or methods of production, costs of production, profits, other financial information, fertilizer application information collected during an IV site visit is considered confidential and may be exempt from public records under chapters 812 and 815, Florida Statutes (F.S.), and Section 403.067, F.S. In accordance with subsection 403.067(7)(c)5., F.S., FDACS is required to provide DEP the nutrient application records.

Compliance Enforcement

If multiple efforts to contact agricultural landowners and producers within BMAPs about enrollment in the BMP Program are unsuccessful or if the landowner or producer chooses not to enroll in the BMP Program FDACS refers them to DEP for enforcement action per Section 403.067(7)(b), F.S.

If a producer is enrolled in the FDACS BMP program and the producer chooses not to properly implement the applicable BMPs, FDACS representatives provide the landowner or producer with a list of corrective measures and the timeframes within which they must be implemented. If a landowner or producer does not cooperate with FDACS to identify or implement corrective or remedial measures, or refuses an IV site visit, FDACS refers them to DEP for enforcement action after attempts at corrective and remedial action are exhausted. Chapter 5M-1, F.A.C. outlines the process to ensure compliance with the BMP Program requirements.

Equivalent Programs

Enrollees operating under one of the Equivalent Programs listed in Rule 5M-1.001(7), F.A.C., are required to complete an NOI and meet the other requirements for Equivalent Programs specified in Rule Chapter 5M-1, F.A.C. Compliance with BMPs on the area(s) of the NOI property subject to the Equivalent Program instrument is demonstrated by fulfilling the requirements of Rule 5M-1.008(8), F.A.C. An Enrollee under an Equivalent Program listed in Rule 5M-1.001(7)(a)-(b), F.A.C., that is not required to complete a BMP Checklist is not subject to IV site visits. For Enrollees under an Equivalent Program listed in Rule 5M-1.001(7)(a)-(b), F.A.C., implementation verification shall be undertaken by the agency that issued the permit pursuant to its statutory and/or rule authority.

Other FDACS BMP Programs

FDACS implements other regulatory programs that help minimize nonpoint source pollution from agricultural activities.

Aquaculture

The FDACS Division of Aquaculture develops and enforces regulations governing the commercial aquaculture industry in Florida. Chapter 597, F.S., Florida Aquaculture Policy Act, requires Floridians who engage in commercial aquaculture to annually acquire an Aquaculture Certificate of Registration and implement all applicable Aquaculture Best Management Practices listed in Rule Chapter 5L-3.004, F.A.C. Facilities with certain production and discharge rates also

require an NPDES permit from DEP. The Aquaculture BMPs were last updated by rule in November 2023.

FDACS Division of Aquaculture conducts annual site visits at certified facilities to confirm compliance with BMPs. These include management practices in areas of construction, containment, shrimp culture, sturgeon culture, shellfish culture, live rock culture, aquatic plants, including fertilizer application, and health management. For more information about FDACS Division of Aquaculture and Aquaculture BMPs go to https://www.fdacs.gov/Divisions-Offices/Aquaculture.

Within the Wekiwa Spring and Rock Springs BMAP, there are five aquaculture facilities under certification with the FDACS Division of Aquaculture as of November 2024. As with agricultural land use in Florida, aquaculture facilities are frequently in and out of production. The facilities being provided may no longer be in operation and/or there may be new companies in different parts of the basin by the next BMAP iteration.

Forestry

The FDACS Florida Forest Service (FFS) develops, implements (through education and training), and monitors Silviculture BMPs in Florida. Silviculture BMPs are applicable to bona-fide ongoing silviculture operations and are not intended for use during tree removal or land clearing operations that are associated with a land-use change to a non-forestry objective. The FFS Silviculture BMP Manual is adopted under Chapter 5I-6.002 F.A.C. and was last updated in 2008. FFS is currently in the process of updating the manual with guidance from the FDACS Silviculture BMP Technical Advisory Council. The current manual is composed of fourteen BMP categories covering many aspects of silviculture operations including timber harvesting, site preparation, forest roads, stream and wetland crossings, and forest fertilization. The primary objectives of Silviculture BMPs are to minimize the risks to Florida's water resources from silviculture-related sources of nonpoint source pollution and maintain overall ecosystem integrity. Section 403.067, F.S., provides silviculture practitioners implementing Silviculture BMPs a presumption of compliance with state water quality standards for the pollutants addressed by the BMPs.

The FFS Silviculture BMP implementation monitoring program was initiated in 1981 and follows the criteria which have been established for state forest agencies in the southeastern United States by the Southern Group of State Foresters. Monitoring surveys are conducted biennially on a random sample of recently conducted silviculture operations throughout Florida with the goal of determining the level of implementation and compliance with Silviculture BMPs. For the period of record (1981 to 2023), Florida's statewide Silviculture BMP compliance rates range from 84% (1985) to 99.7% (2019) and have shown an overall average compliance rate above 98% since 2005. For more information about Silviculture BMPs and to download a copy of the latest FFS Silviculture BMP Implementation Survey Report go to https://www.fdacs.gov/bmps.

Agricultural Land Use

Agricultural Land Use in BMAPs

Land use data are helpful as a starting point for estimating agricultural acreage, determining agricultural nonpoint source loads, and developing strategies to reduce those loads in a BMAP area, but there are inherent limitations in the available data. Agriculture acreages fluctuate when volatile economic markets for certain agricultural commodities provide incentive for crops to change at a fast pace, properties are sold, leases are terminated, production areas decrease, or production ceases, among other reasons. Florida's recent population growth has also resulted in accelerated land use changes statewide, some of which include transitioning agricultural or fallow agricultural lands to developed land uses. The dynamic nature of Florida's agricultural industry creates challenges with comparing agricultural acres from year to year.

When developing a BMAP, agricultural nonpoint source loading is estimated using a broad methodology based on statewide land use data. Oftentimes, this results in properties being designated as agricultural nonpoint pollution sources and creates an obligation for these properties to enroll in the FDACS BMP Program when they may be better addressed under other programs more applicable to the practices occurring on those properties. Examples of these properties include: rural residential/homesteads, ranchettes, or single-family homes with accessory structures for livestock or groves that serve the needs of those living on the property. Continued identification of these properties as agricultural nonpoint sources limits the ability to reliably direct programmatic resources to meet water quality restoration goals.

FDACS uses the parcel-level polygon agricultural lands (ALG) data that is part of the Florida Statewide Agricultural Irrigation Demand (FSAID) Geodatabase to estimate agricultural acreages statewide. FSAID provides acreages and specific crop types of irrigated and non-irrigated agricultural lands statewide. FSAID is updated annually based on water management district land use data, county property appraiser data, OAWP BMP enrollment data, U.S. Department of Agriculture data for agriculture, such as the Cropland Data Layer and Census of Agriculture, FDACS Division of Plant Industry citrus data, as well as field verification performed by the U.S. Geological Survey, water management districts, and OAWP. As the FSAID is detailed and updated on an annual basis, it provides a reliable characterization of agricultural land uses that accounts for the fast-growing population and resultant land use changes taking place statewide. The FSAID also provides FDACS a clearer picture of agriculture's impact on the landscape and consistent method to better track, direct, and assess BMP implementation, cost share projects, and regional projects.

Table H-1 and **Figure H-1** show the percentage of agricultural land use within the Wekiwa Spring and Rock Springs BMAP, determined by comparing the FSAID 11 ALG and total acreage of the BMAP boundary. Understanding what proportion of a BMAP is comprised of agriculture provides insight as to the potential contribution of agricultural nonpoint sources.

Table H-1. Agricultural land use in the Wekiwa Spring and Rock Springs BMAP

Non-agricultural acres	175,451
Agricultural acres	7,610

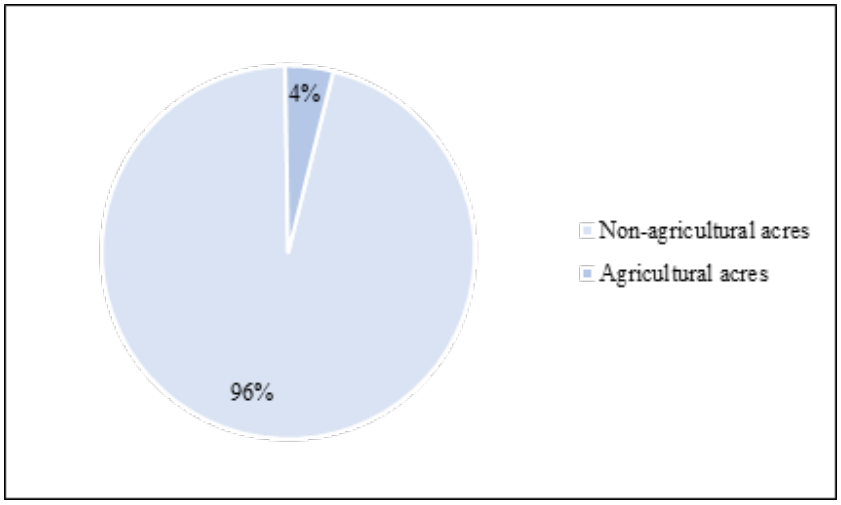


Figure H-1. Agricultural acres compared to non-agricultural acres in the BMAP area

FDACS BMP Program Metrics

Enrollment Delineation and BMAP Metrics

BMP enrollments are delineated in GIS using county property appraiser parcels. In terms of NOIs, enrolled acreage fluctuates when parcels are sold, when leases end or change hands, or when production areas downsize or production ceases, among other reasons. Nonproduction areas such as forest, roads, urban structures, and water features are often included within the parcel boundaries. Conversely, agricultural lands in the FSAID ALG only include areas identified as agriculture. To estimate the agricultural acres enrolled in the BMP program, OAWP overlays the FSAID ALG and BMP enrollment data within GIS to calculate the acres of agricultural land in an enrolled parcel.

Summary Tables

Table H-2. Agricultural lands enrolled in the Wekiwa Spring and Rock Springs BMAP area by BMP Program Commodity

Commodity	Agricultural Acres Enrolled
Citrus	265
Cow/Calf	450
Equine	49
Fruit/Nut	195
Multiple Commodities	886
Nursery	1,214
Row/Field Crop	551
Sod	364

Commodity	Agricultural Acres Enrolled
Total	**3,974 (52%)**

As of July 2024, 52% of the agricultural acres in the Wekiwa BMAP area are enrolled in FDACS' BMP program. **Table H-2** shows the acreages enrolled in the BMP Program by commodity. It is important to note that producers often undertake the production of multiple commodities on their operations, resulting in the requirement to implement the applicable BMPs from more than one BMP manual. When this occurs, the acres enrolled under more than one BMP manual are classified as “multiple commodity” and not included in the individual commodity totals to prevent duplication.

Enrollment Map

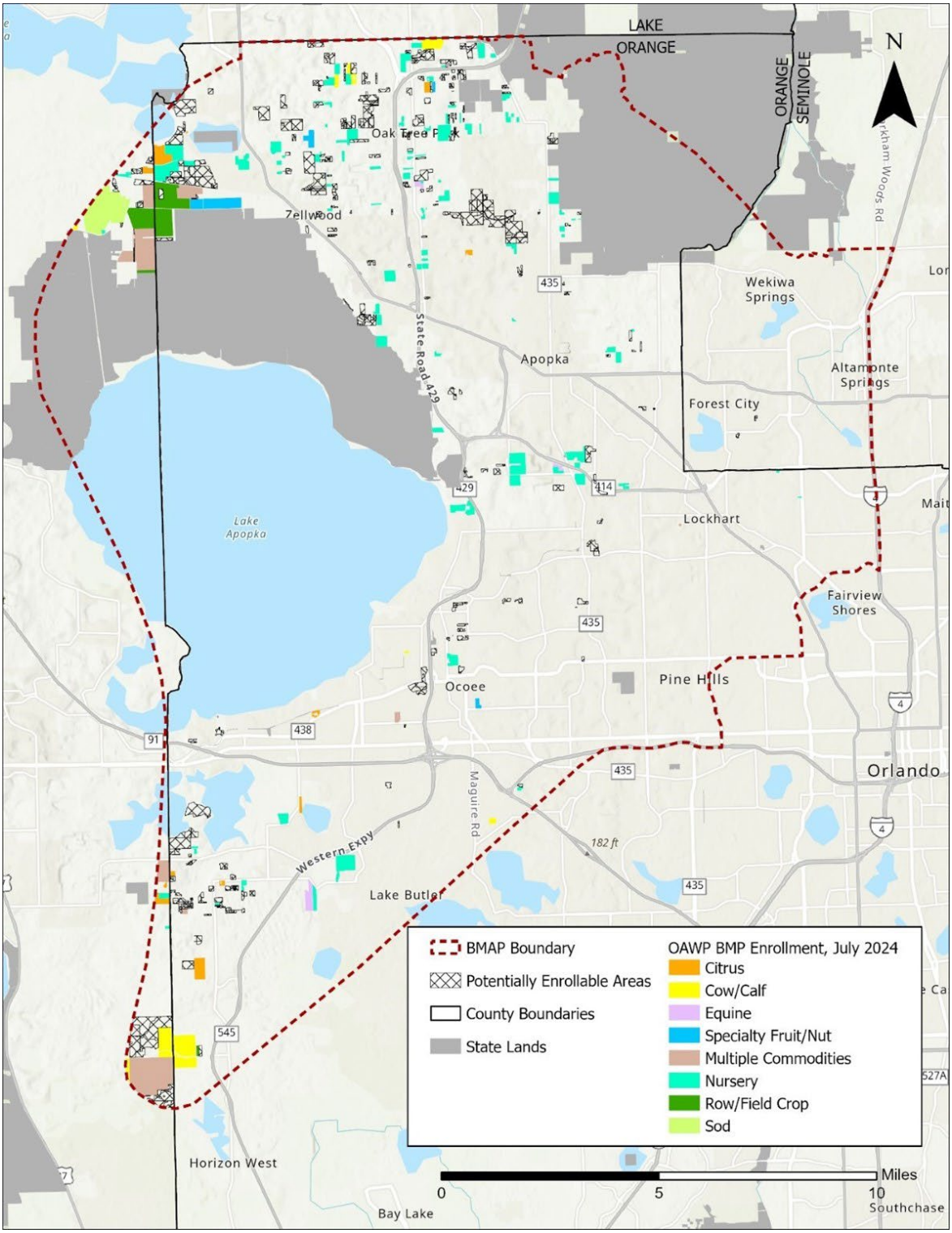


Figure H-2. Agricultural enrollment in the Wekiwa Spring and Rock Springs BMAP

Unenrolled Agricultural Lands

Oftentimes, there are lands initially identified as agriculture which, upon closer evaluation, raise questions as to whether there is agricultural activity and whether it is enrollable within the purview of OAWP. FDACS characterizes lands classified as agriculture in the FSAID ALG, but not currently enrolled in the FDACS BMP Program using property appraiser data such as parcel owner information, agricultural tax valuation for exemption purposes, other parcel land use details to determine whether the remaining lands are potentially enrollable. More information about the "Unenrolled agricultural lands" characterization analyses is available in ***FDACS Annual Status of Implementation of BMPs Report***.

The assessment of unenrolled agricultural lands at a more granular scale provides an indication of which areas are more likely (or unlikely) to have enrollable agricultural activities occurring on them. It also provides an estimate of the number of parcels and the associated agricultural acres deemed to be enrollable. The number of parcels is a useful proxy for the level of resource dedication needed to enroll the associated agricultural acres and where best to focus finite resources and staffing needs. It is often the case that much of the potentially enrollable acreage is encompassed within many smaller parcels which may require additional resources to enroll and require further evaluation, such as those that have agricultural activity intended solely for personal use ancillary to a residence, those that do not have an agricultural land use per the property appraiser, as well as parcels where there is no current activity to enroll.

Table H-3 shows the breakdown of agricultural lands within the Wekiwa Spring and Rock Springs BMAP based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

Table H-3. Agricultural lands in Wekiwa Spring and Rock Springs BMAP

** Enrollment information current as of July 2024.*

Crediting Location	Agricultural Acres	Unenrolled - Unlikely Enrollable Acres	Agricultural Acres - Adjusted	Agricultural Acres Enrolled*
BMAP Wide	16,666	9,056	7,610	3,975

Potentially Enrollable Lands

There are 7,610 acres of potentially enrollable lands within the Wekiwa Spring and Rock Springs BMAP based on the assessment of unenrolled agricultural lands performed by FDACS. **Table H-4** shows the potentially enrollable acreages by crop type. **Figure H-3** shows the count of potentially enrollable parcels based on size classifications used by FDACS.

Table H-4. Potentially enrollable acres by crop type

Crop Type	Acres
Citrus	164
Crops	23

Crop Type	Acres
Fallow	1,141
Grazing Land	1,949
Livestock	96
Sod	6
Nursery	214
Open Lands	42
Total	**3,635**

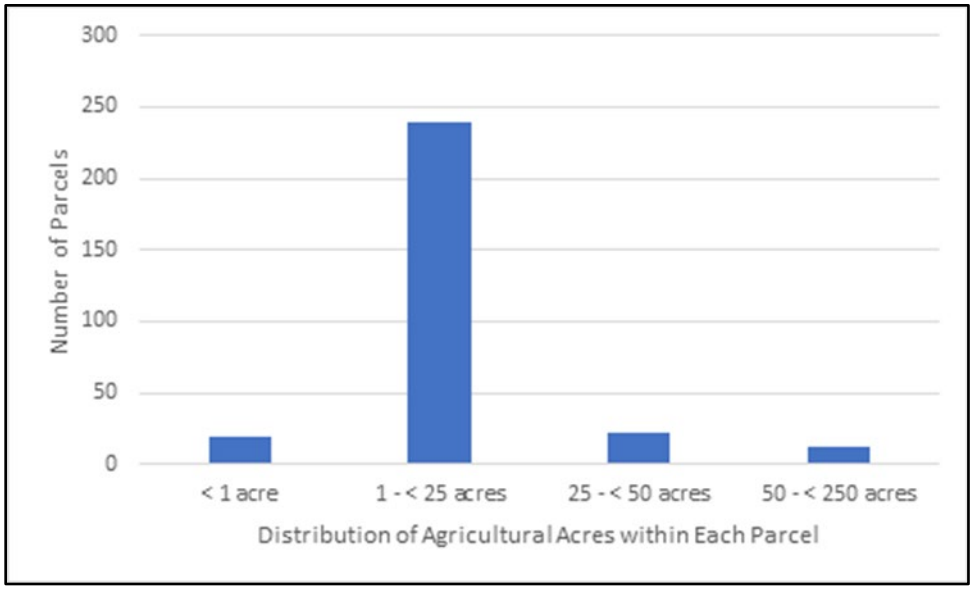


Figure H-3. Count of potentially enrollable parcels by size class

FDACS Cost Share

Enrollment in and proper implementation of BMPs makes a producer eligible for cost share for certain BMPs, other practices, and projects. The availability of cost share funds depends on annual appropriations by the Florida Legislature, and therefore, the amount available can vary each year. Cost share applications may be submitted once a producer has enrolled in the BMP Program and has been assigned an NOI number. Cost share practices are categorized as nutrient management, irrigation management, or water resource protection. BMPs, other practices, and projects eligible for cost share funding may include precision agriculture technologies, variable rate irrigation methods, water control structures, and tailwater recovery systems. OAWP seeks to leverage its cost share funding with other cost share programs offered by FDACS and other state and federal agencies. The United States Department of Agriculture NRCS offers funding through its Environmental Quality Incentives Program, and certain WMDs have agricultural cost share programs. Applicants are encouraged to use OAWP cost share in conjunction with other available conservation programs although funding cannot be duplicative.

Cost share project types and estimated nutrient reduction efficiencies

Table H-5 identifies agricultural technologies eligible for funding through cost-share assistance and the associated nutrient reductions[1]. The nutrient reductions were used to develop a methodology to estimate nutrient reductions for NOIs that have received cost-share funding[2]. The NOI boundary, based on property appraiser parcel data, was considered the area treated by the cost-shared agricultural technology or project. For parcels with more than one cost-share project, OAWP identified the order of treatment to determine the reductions for the multiple projects based on each cost-shared agricultural technology. Estimated nutrient reductions from FDACS cost share in the Wekiwa Spring and Rock Springs BMAP are shown in **Table H-6**.

Table H-5. Cost share project types and estimated nutrient reduction efficiencies

Project Types	BMP Category	Mechanism	N Impact
Nutrient Management Plan	Precision Nitrogen Management	N application reduction	15%
Plastic Mulch Layer - Drip Tape	Precision Nitrogen Management	N leaching reduction	18%
Controlled Release Fertilizer	Precision Nitrogen Management	N leaching reduction	20%
Applicator (Hoop Sprayer)	Precision Nitrogen Management	N application reduction	20%
Applicator (Liquid)	Precision Nitrogen Management	N application reduction	15%
Spreader (Dry Variable)	Precision Nitrogen Management	N application reduction	15%
Applicator (Dry Banding)	Precision Nitrogen Management	N application reduction	25%
Cover Crops	Tillage, Cover Crops and Soil Health BMPs	N leaching reduction	30%
Vertical Till	Tillage, Cover Crops and Soil Health BMPs	N leaching reduction	6%
Flail Mower	Tillage, Cover Crops and Soil Health BMPs	N application reduction	8%
Integrated Crop-Livestock Rotations	Livestock BMPS	N leaching reduction	50%
Rhizoma Peanut Mix Pasture System	Livestock BMPS	N application reduction	31%
Fencing	Livestock BMPS	N leaching reduction	20%
Livestock Water Exclusion	Livestock BMPS	N runoff reduction	33%
Alternative Water Supply - Livestock	Livestock BMPS	N runoff reduction	33%
Free Stall Barn	Livestock BMPS	N leaching reduction	30%
Culvert/Riser	Drainage and Erosion Reduction BMPs	N runoff reduction	16%
Water Control Structures or Stormwater Improvement	Drainage and Erosion Reduction BMPs	N runoff reduction	17%

[1] FDACS, 2024. Nitrogen Benefits of Agricultural Best Management Practices for Florida: Summary of Findings. Florida Department of Agriculture and Consumer Services (FDACS) Office of Agricultural Water Policy. In collaboration with The Balmoral Group.

[2] FDACS, 2024. Nitrogen Reductions BMP Analysis: Results and Process Description. Florida Department of Agriculture and Consumer Services (FDACS) Office of Agricultural Water Policy. In collaboration with The Balmoral Group.

Project Types	BMP Category	Mechanism	N Impact
Tailwater Recovery Ponds	Drainage and Erosion Reduction BMPs	N runoff reduction	42%
Storage – Compost	Storage	N leaching reduction	26%
Storage – Potting Soil	Storage	N leaching reduction	23%
Rotation – mobile corral	Livestock BMPS	N leaching reduction	20%
Rotation – portable feeder/wagon	Livestock BMPS	N leaching reduction	20%

Table H-6. Nutrient reductions from FDACS cost share

BMP Category	Estimated TN Reductions to Groundwater
Drainage and Erosion Reduction BMPs	0
Irrigation	1,129
Precision Nitrogen Management	1,079
Storage	1
Total	**2,210**

Future Efforts

Outreach

To address resource concerns, FDACS continues enhancing coordination with producers, agencies, and stakeholders to increase enrollment in the BMP program. OAWP is sending correspondence to agricultural landowners within BMAPs that are not currently enrolled in the BMP program to increase enrollment rates and verify land uses where additional focus may be required to achieve resource protection. This effort is utilizing a phased approach and targeting priority land uses, and then evaluating the amount of agricultural acreage for the remaining unenrolled lands, while ensuring that all entities identified as agriculture will be notified. Additionally, OAWP continues to coordinate with industry groups and outreach partners to educate and inform agricultural producers about the BMP program.

Legacy Loads

Legacy loading can present an additional challenge to measuring progress in many areas of Florida with adopted BMAPs. Based on research, initial verification by DEP, and long-term trends in water quality in the BMAP area, it is expected that current efforts, such as BMP implementation, will continue to provide improvements in overall water quality despite the impacts from legacy loads.

While the implementation of BMPs will improve the water quality in the basin, it is not reasonable to assume that BMP implementation alone can overcome the issues of legacy loads, conversion to more urban environments, and the effects of intense weather events. BMP implementation is one of several complex and integrated components in managing the water

resources of a watershed.

Collaboration between DEP, FDACS, the water management districts, and other state agencies, as well as local governments, federal partners, and agricultural producers, is critical in identifying projects and programs, as well as locating funding opportunities to achieve allocations provided for under this BMAP. To improve water quality while retaining the benefits that agricultural production provides to local communities, wildlife enhancement, and the preservation of natural areas requires a commitment from all stakeholders to implementing protective measures in a way that maintains the viability of agricultural operations.

Appendix I. Private Golf Courses with BMAP Responsibilities

The table below lists privately owned and operated golf courses that have been identified as contributing sources of nitrogen loading to the groundwater in the Wekiwa Spring and Rock Springs BMAP. Publicly-owned facilities have been assigned as a part of the responsible entities allocation. The golf courses in **Table I-1** are subject to nutrient management strategies identified in **Section 2.8.1** and **Appendix G** of this document. All facilities listed below have been assigned required TN reductions to meet the TMDLs. DEP encourages coordination between public and private entities as necessary to address loading in the basin.

Table I-1. Privately owned or operated golf courses in the Wekiwa Spring and Rock Springs BMAP

County	Golf Course Name	2028 Milestone/30% Reduction TN (lbs/yr)	2033 Milestone/80% Reduction TN (lbs/yr)	2038 Milestone/100% Reduction TN (lbs/yr)
Orange	Stoneybrook West	460	1,226	1,532
Orange	Sweetwater Golf & Country Club	657	1,753	2,192
Orange	West Orange Country Club	104	278	348
Orange	Forest Lake Golf Club	1,356	3,615	4,519
Orange	Zellwood Station Country Club	2,091	5,575	6,969
Orange	Crooked Cat/Tooth Courses at OC National Golf Center	533	1,422	1,777

Appendix J. Private Wastewater Treatment Facilities with BMAP Responsibilities

The table below lists privately owned and operated facilities that have been identified as contributing sources of nitrogen loading to the groundwater in the Wekiwa Spring and Rock Springs BMAP. Publicly-owned facilities have been assigned as a part of the responsible entities allocation. The WWTFs in **Table J-1** are subject to relevant nutrient management strategies identified in **Section 2.6** of this document. All facilities listed below must meet the applicable effluent limit **(Table 9)** to meet the TMDLs. DEP encourages coordination between public and private entities as necessary to address loading in the basin.

Table J-1. Privately owned or operated WWTFs in the Wekiwa Spring and Rock Springs BMAP

Facility ID	WWTF Name
FLA010948	Brightwood Manor WWTF
FLA010851	Clarcona Resort WWTF
FLA010831	Lost Lake RV Resort
FLA010862	Magnolia MHP
FLA010871	Rock Springs MHP WWTF
FLA010891	Valencia Estates MH Community
FLA010895	Valley WWTF
FLA010887	West Orange Country Club WWTF
FL0036251	Wekiva Hunt Club WWTP
FLA010508	Mt. Dora WWTF