

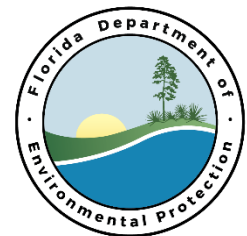
Wekiwa Spring and Rock Springs Basin Management Action Plan

**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 2018

**2600 Blair Stone Rd.
Tallahassee, FL 32399
floridadep.gov**



Acknowledgments

The Florida Department of Environmental Protection 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, with participation from affected local, regional, and state governmental interests; elected officials and citizens; and private interests.

Florida Department of Environmental Protection

Noah Valenstein, Secretary

Table A-1. Wekiwa Spring and Rock Springs stakeholders

Type of Entity	Name
Responsible Stakeholders	City of Altamonte Springs City of Apopka City of Maitland City of Ocoee City of Orlando City of Winter Garden Lake County Orange County Orange County Utilities Utilities, Inc. of Florida Seminole County Town of Oakland Turnpike Enterprises Wekiwa State Park
Responsible Agencies	Florida Department of Agriculture and Consumer Services Florida Department of Environmental Protection Florida Department of Health Florida Department of Transportation Florida Department of Health in Lake County Florida Department of Health in Orange County Florida Department of Health in Seminole County St. Johns River Water Management District
OSTDS Advisory Committee	City of Altamonte Springs City of Apopka Florida Department of Health in Lake County Florida Department of Health in Orange County Florida Department of Health in Seminole County Florida Onsite Wastewater Association Friends of Wekiwa River Citizens/Homeowners Lake County Orange County Seminole County
Other Interested Stakeholders	Environmental Interests Florida Fish and Wildlife Conservation Commission Friends of Wekiwa River

	Citizens/Homeowners Wekiva Hunt Club
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See **Appendix A** for links to important sources referenced in this document. For additional information on total maximum daily loads and nutrient management strategies for the Wekiwa Spring and Rock Springs, contact:

Moira Homann, Basin Coordinator
Florida Department of Environmental Protection
Water Quality Restoration Program, Watershed Planning and Coordination Section
2600 Blair Stone Road, Mail Station 3565
Tallahassee, FL 32399-2400
Email: Moira.Homann@dep.state.fl.us
Phone: (850) 245-8460

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List of Acronyms and Abbreviations

Ac	Acre
AWT	Advanced Wastewater Treatment
ATU	Aerobic Treatment Unit
BAF	Biochemical Attenuation Factor
BMAP	Basin Management Action Plan
BMPs	Best Management Practices
CASTNET	Clean Air Status and Trends Network
cfs	Cubic Feet Per Second
CMAQ	Community Multiscale Air Quality
CRF	Controlled-Release Fertilizer
DEP	Florida Department of Environmental Protection
DMR	Discharge Monthly Report
DO	Dissolved Oxygen
ERP	Environmental Resource Permit
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
FF	Farm Fertilizer
FGS	Florida Geological Survey
FLUCCS	Florida Land Use Cover and Forms Classification System
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
HA	Habitat Assessment
IA	Implementation Assurance
IV	Implementation Verification
in/yr	Inch Per Year
lb	Pound
lb-N/yr	Pounds of Nitrogen Per Year
LID	Low-Impact Development
LVS	Linear Vegetation Survey
LW	Livestock Waste
MFL	Minimum Flow and Level
mgd	Million Gallons Per Day
mg/L	Milligrams Per Liter
N	Nitrogen
N/A	Not Applicable

NADP	National Atmospheric Deposition Program
NELAC	National Environmental Accreditation Conference
NELAP	National Environmental Accreditation Program
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
PBTS	Performance-based Treatment System
PFA	Priority Focus Area
QA/QC	Quality Assurance/Quality Control
RIB	Rapid Infiltration Basin
RPS	Rapid Periphyton Survey
SBIO	DEP Statewide Biological Database
SCI	Stream Condition Index
SOP	Standard Operating Procedure
STF	Sports Turfgrass Fertilizer
STORET	Florida Storage and Retrieval System
SJRWMD	St. Johns River Water Management District
SWIM	Surface Water Improvement and Management
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
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
UTF	Urban Turfgrass Fertilizer
WAFR	Wastewater Facility Regulation (Database)
WBID	Waterbody Identification (Number)
WIN	Florida Watershed Information Network Database
WMD	Water Management District
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant
yr	Year

Executive Summary

Wekiwa Spring and Rock Springs Basin

The Florida Springs and Aquifer Protection Act (Chapter 373, Part VIII, Florida Statutes [F.S.]), provides for the protection and restoration of Outstanding Florida Springs (OFS), which comprise 24 first magnitude springs, 6 additional named springs, and their associated spring runs. The Florida Department of Environmental Protection (DEP) has assessed water quality in each OFS and determined that 24 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, or 286 square miles. 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 C**) in the Wekiwa Spring and Rock Springs Basin is a subarea 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

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.

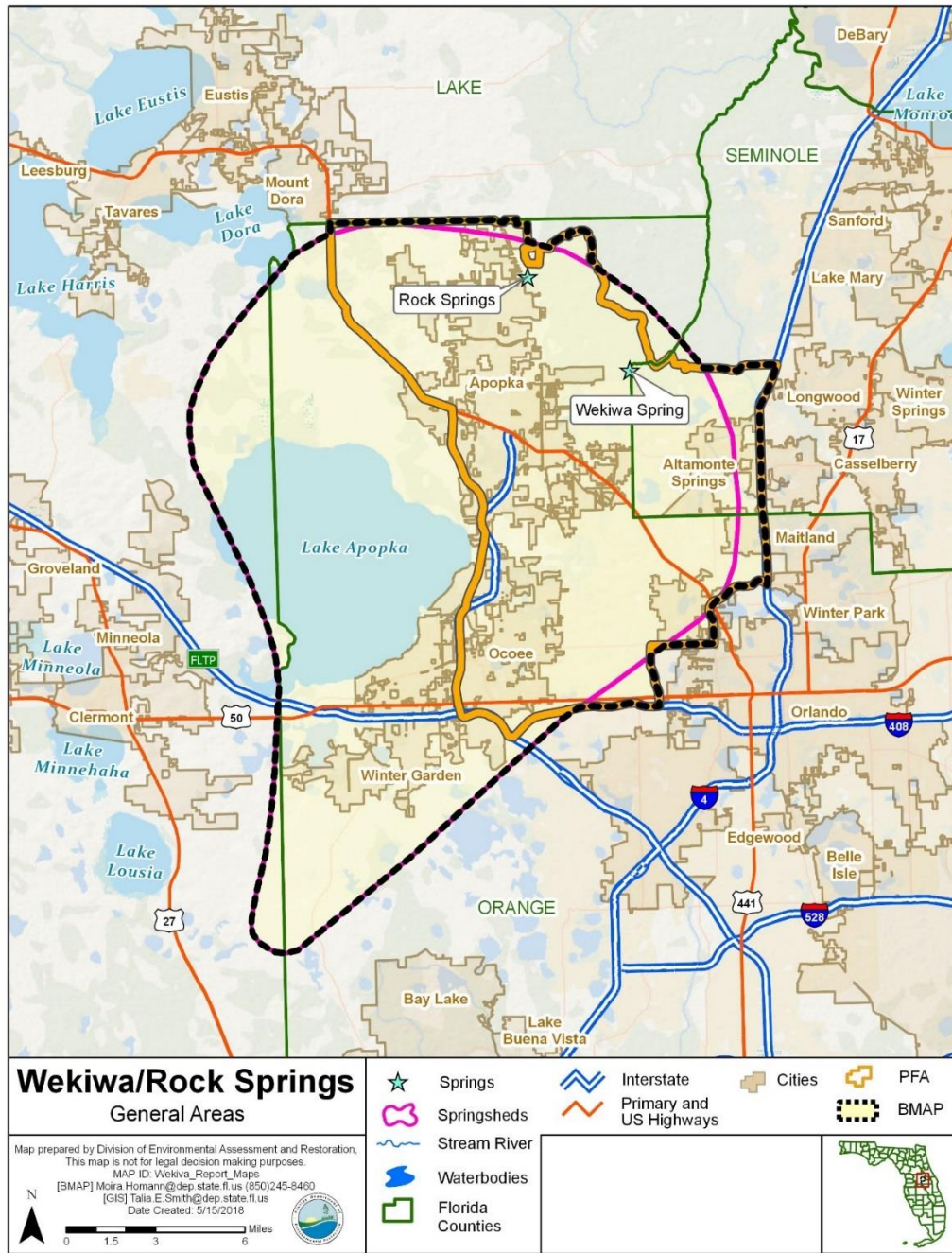


Figure ES-1. Wekiwa Spring and Rock Springs BMAP and PFA boundaries

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

Wekiwa Spring and Rock Springs are the main sources of water to the Wekiva River, Rock Springs Run and Little Wekiva Canal, which are 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. The TMDL established a monthly average nitrate target of 0.286 milligrams per liter (mg/L) of nitrate and 0.065 mg/L of total phosphorus (TP). Onsite sewage treatment and disposal systems (OSTDS or septic systems; the terms are used interchangeably throughout this document) represent 29 % of the estimated nitrogen loading to groundwater, urban turfgrass fertilizer (UTF) 26 %, and wastewater treatment facilities (WWTFs) 16 % of the total loading to groundwater based on the DEP analysis conducted using the Nitrogen Source Inventory Loading Tool (NSILT).

The total load reduction required to meet the TMDL at the spring vents is 209,428 pounds of nitrogen per year (lb-N/yr). To measure progress towards achieving the necessary load reduction, DEP is establishing the following milestones:

- Initial reduction of 62,828 lb-N/yr (30 %) within 5 years.
- An additional 104,714 lb-N/yr (50 %) within 10 years.
- The remaining 41,886 lb-N/yr (20 %) within 15 years.
- For a total of 209,428 lb-N/yr within 20 years.

The policies and submitted projects included within this BMAP are estimated to achieve a reduction of 311,612 to 413,656 lb-N/yr to groundwater. While reductions to groundwater will benefit the spring, it is uncertain to know with precision how those reductions will impact the necessary reductions at the spring. DEP will continue to monitor the spring to evaluate those reductions as projects are implemented against the required load reductions above. The BMAP is designed to achieve 80 % of the load reductions needed for the spring vent within 10 years of adoption and 100 % within 15 years. Projects are designed for nitrogen removal, but are expected to achieve phosphorus reductions as well. DEP will evaluate progress towards these milestones and will report to the Governor and Florida Legislature. DEP will adjust management strategies to ensure the target concentrations are achieved. This may include expanding the area to which the OSTDS remediation policies apply; any such change, however, would be incorporated into an updated BMAP through a formal adoption process.

For the list of projects to improve water quality, see **Appendix B**. Included are owner-implemented best management practices (BMPs) for FF, livestock waste (LW), sports turfgrass (STF); WWTF upgrades; projects to reduce UTF application; and OSTDS conversions to sewer.

Successful BMAP implementation requires commitment, dedicated state funding, and follow-up. 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 TMDLs must be achieved within 20 years, DEP, water management districts (WMDs), Florida Department of Health (FDOH), and Florida Department of Agriculture and Consumer Services (FDACS) will implement management strategies using the annual Legacy Florida appropriation from the legislature of at least \$50 million to reduce nitrogen in impaired OFS. DEP, working with the coordinating agencies, will continue to invest existing funds and explore other opportunities and potential funding sources for springs restoration efforts.

Restoration Approaches

Load reduction to the aquifer is needed to achieve the load reductions requirements at the spring vent. To ensure that load reductions are achieved at the spring vent, the following restorations actions are being established. These actions are designed to reduce the amount of nutrients to the aquifer, which will reduce the load at the vent and ultimately achieve the necessary reductions. Monitoring of the vent during implementation will be implemented to monitor progress.

- **New OSTDS** – Upon BMAP adoption, the OSTDS remediation plan prohibits new systems on lots of less than 1 acre within the PFA, unless the system includes enhanced treatment of nitrogen as defined by the OSTDS remediation plan, or unless the OSTDS permit applicant demonstrates that sewer connections will be available within 5 years. Local governments and utilities are expected to develop master wastewater treatment feasibility analyses within 5 years to identify specific areas to be sewerred or to have enhanced nitrogen reducing OSTDS within 20 years of BMAP adoption. The OSTDS remediation plan is incorporated as **Appendix D**.
- **Existing OSTDS** – Upon completion of the master wastewater treatment feasibility analyses, FDOH rulemaking, and funding program for homeowners included in the OSTDS remediation plan, but no later than five years after BMAP adoption, modification or repair permits issued by FDOH for all OSTDS within the PFA, on lots of less than one acre will require enhanced treatment of nitrogen, unless sewer connections will be available based on a BMAP-listed project. All OSTDS subject to the policy must include enhanced treatment of nitrogen no later than 20 years after BMAP adoption.
- **WWTFs** – The effluent standards listed in **Table ES-1** will apply to all new and existing WWTFs in the PFA.

Table ES-1. WWTF effluent standards

gpd = Gallons per day

95% of the Permitted Capacity (gpd)	Nitrogen Concentration Limits for Rapid Infiltration Basins (RIBs) and Absorption Fields (mg/L)	Nitrogen Concentration Limits for All Other Land Disposal Methods (mg/L)
Greater than 100,000	3	3
20,000 to 100,000	3	6
Less than 20,000	6	6

- **UTF** – UTF sources can receive up to 6 % credit for the DEP-approved suite of public education and source control ordinances. Entities have the option to collect and provide monitoring data to quantify reduction credits for additional measures.
- **STF** – STF sources include golf courses and other sporting facilities. Golf courses can receive up to 10 % credit for implementing the Golf Course BMP Manual. Other sports fields can receive up to 6 % credit for managing their fertilizer applications to minimize transport to groundwater.
- **FF** – 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 credits could be achieved through better documentation of reductions achieved through BMP implementation or implementation of additional agricultural projects or practices, such as precision irrigation, soil moisture probes, controlled-release fertilizer, and cover crops.
- **LW** – All LW sources are required to implement BMPs or perform monitoring. A 10 % reduction to groundwater is estimated for owner-implemented BMPs. Additional credits could be achieved through better documentation of reductions achieved through BMP implementation.

Section 1: Background

1.1 Legislation

Chapter 373, Part VIII, Florida Statutes (F.S.), the Florida Springs and Aquifer Protection Act provides for the protection and restoration of Outstanding Florida Springs (OFS), which comprise 24 first magnitude springs, 6 additional named springs, and their associated spring runs. The Florida Department of Environmental Protection (DEP) has assessed water quality in each OFS and determined that 24 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. Development of the basin management action plan (BMAP) to meet the new requirements of the Florida Springs and Aquifer Protection Act for the Wekiwa Spring and Rock Springs Basin was initiated in 2016.

1.2 Water Quality Standards and Total Maximum Daily Loads (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 are Class III waterbodies 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 resources.

DEP adopted nutrient TMDLs for the Wekiwa Spring and Rock Springs 2008 (**Table 1**). The TMDL established a target of a monthly average of 0.286 milligrams per liter (mg/L) of nitrate and 0.065 mg/L total phosphorus (TP) to be protective of the aquatic flora and fauna. The period of record for water quality data evaluated for the TMDL was January 1, 1999 through June 30, 2005.

Table 1. Restoration target for the Wekiwa Spring and Rock Springs

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

1.3 BMAP Requirements

Section 403.067(7), F.S., provides DEP the statutory authority for the BMAP Program. A BMAP is a comprehensive set of strategies to achieve the required pollutant load reductions. In addition to specifying BMAP statutory authority, the Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.) describes additional requirements for the 30 Outstanding Florida Springs.

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

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 BMAP area (**Figure 1**) comprises 183,165 acres located in central Florida in Lake, Orange and Seminole counties. The BMAP area contains two OFS springs. This area includes the surface water basin as well as the groundwater contributing areas for the spring (or springshed). The springshed for the OFS was delineated or reviewed by St. Johns River Water Management District (SJRWMD) with input from the Florida Geological Survey (FGS). A springshed is the area of land that contributes water to a spring or group of springs, mainly via groundwater flow.

1.5 Priority Focus Area (PFA)

In compliance with the Florida Springs and Aquifer Protection Act, this BMAP delineates a PFA, which is 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 documents that describe the delineation process for each PFA are on the DEP website. The link to the PFA documentation is provided in **Appendix C**.

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 soils 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 and river. These conditions, and others, were considered in the delineation of the PFA (see **Appendix C**).

Following BMAP adoption, DEP will ensure that the geographic information system (GIS) files associated with the PFA boundaries are available to the public on the DEP Map Direct webpage.

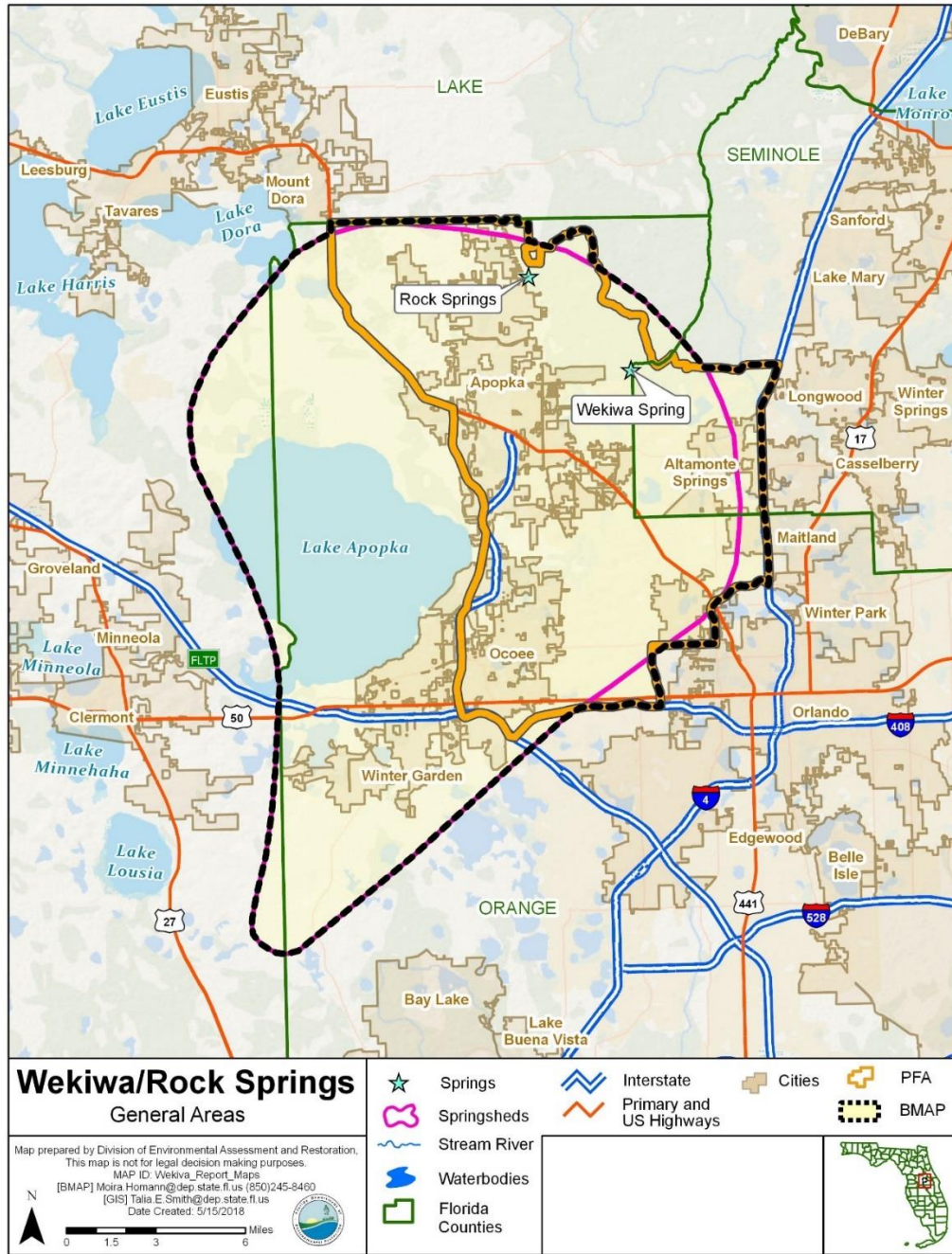


Figure 1. Wekiwa Spring and Rock Springs BMAP area and PFA boundaries

1.5.2 Additional Requirements

In accordance with Section 373.811, F.S., the following activities are prohibited in the PFA:

- 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 wastewater treatment (AWT) standard of no more than 3 mg/L total nitrogen (TN), on an annual permitted basis.
- New onsite sewage treatment and disposal systems (OSTDS or septic systems; the terms are used interchangeably throughout this document) on lots of less than one acre inside the PFA unless additional nitrogen treatment is provided, as specified in the OSTDS remediation plan (see **Appendix D** for details).
- 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 nutrient management plan 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 best management practices (BMPs), measures necessary to achieve pollution reduction levels established by DEP, or groundwater monitoring plans approved by a water management district (WMD) or DEP.

1.5.2.1 Biosolids and Septage Application Practices

In the PFA, the aquifer contributing to the spring is highly vulnerable to contamination by nitrogen sources and soils have a high to moderate tendency to leach applied nitrogen. DEP previously documented elevated nitrate concentrations in groundwater beneath septage application zones in spring areas. To assure that nitrogen losses to groundwater are minimized from permitted application of biosolids and septage in the PFA, the following requirements apply to newly-permitted application sites and existing application sites upon permit renewal.

All permitted biosolids application sites that are agricultural operations must be enrolled in the Florida Department of Agriculture and Consumer Services (FDACS) BMP Program or be within an agricultural operation enrolled in the FDACS BMP program for the applicable crop type. Implementation of applicable BMPs will be verified by FDACS in accordance with Chapter 5M-1, Florida Administrative Code (F.A.C.). Permitted biosolids application sites that are new agricultural operations must also comply with Subsection 373.811(5), F.S. Biosolids application sites must be certified as viable agricultural operations by an acknowledged agricultural professional such as an agricultural consultant or agricultural

extension agent. Effective nutrient management practices must be ongoing at the application zones in the permit. Plant uptake and harvesting are vital components of the nutrient management plan to remove nitrogen and prevent it from leaching to groundwater. If DEP determines that the site is not a viable agricultural site implementing a nutrient management plan, corrective action will be required.

Groundwater monitoring for nitrate is required for all biosolids and septage land application sites in the PFA to assure compliance with nutrient management objectives in this BMAP. However, groundwater monitoring is not required if the site nutrient management plan limits biosolids application rates of TN with no adjustment for available nitrogen normally allowed by subsections 62-640.500(5) and (6), F.A.C. (e.g. for a recommended fertilizer rate of 160 pounds of nitrogen per acre, only 160 pounds of TN per acre shall be applied). For septage application, groundwater monitoring is not required if the site nutrient management plan limits application rates to 30,000 gallons per acre for sites accepting mixtures of septage and grease (food establishment sludge) or to 40,000 gallons per acre for sites accepting septage without grease. The permit renewal application will include a trend analysis for nitrate in groundwater monitoring wells during the previous permit cycle, and an evaluation of the potential for the facility to cause or contribute to exceedance of the TMDL.

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 Wekiwa Spring and Rock Springs, while other references provided 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. The BMAP process engages stakeholders and promotes coordination and collaboration to address the pollutant load reductions necessary to achieve the TMDL. DEP invites stakeholders to participate in the BMAP development process and encourages public participation and consensus to the greatest practicable extent. **Table A-1** lists the stakeholders who participated in the development of this BMAP.

During the development of the Wekiwa Spring and Rock Springs BMAP, DEP held a series of meetings involving stakeholders and the general public. The purpose of these meetings was to consult with stakeholders to gather information, evaluate the best available science, develop an OSTDS remediation plan (including a public education plan), define management strategies and milestones, and establish monitoring requirements. All of the meetings were open to the public and noticed in the *Florida Administrative Register* (F.A.R.). Additionally, a public meeting on the current BMAP was held on May 23, 2018, and was noticed in the F.A.R. and in local newspapers.

Upon BMAP adoption, DEP intends to facilitate annual meetings with stakeholders to review progress towards achieving the TMDLs.

1.8 Description of BMPs Adopted by Rule

Table 2 lists the adopted BMPs and BMP manuals relevant to this BMAP.

Table 2. BMPs and BMP manuals adopted by rule as of June 2017

Agency	F.A.C. Chapter	Chapter Title
FDACS Office of Agricultural Water Policy (OAWP)	5M-6	Florida Container Nursery BMP Guide
FDACS OAWP	5M-8	BMPs for Florida Vegetable and Agronomic Crops
FDACS OAWP	5M-9	BMPs for Florida Sod
FDACS OAWP	5M-11	BMPs for Florida Cow/Calf Operations
FDACS OAWP	5M-12	Conservation Plans for Specified Agricultural Operations
FDACS OAWP	5M-13	BMPs for Florida Specialty Fruit and Nut Crop Operations
FDACS OAWP	5M-14	BMPs for Florida Equine Operations
FDACS OAWP	5M-16	BMPs for Florida Citrus
FDACS OAWP	5M-17	BMPs for Florida Dairies
FDACS OAWP	5M-18	Florida Agriculture Wildlife BMPs
FDACS OAWP	5M-19	BMPs for Florida Poultry
FDACS Division of Agricultural Environmental Services	5E-1	Fertilizer
FDACS Division of Aquaculture	5L-3	Aquaculture BMPs
FDACS Florida Forest Service	5I-6	BMPs for Silviculture
FDACS Florida Forest Service	5I-8	Florida Forestry Wildlife BMPs for State Imperiled Species
DEP	62-330	Environmental Resource Permitting

Section 2: Implementation to Achieve the TMDLs

2.1 Allocation of Pollutant Loads

DEP collected and evaluated credible scientific information on the effect of nutrients, particularly forms of nitrogen, on Wekiwa Spring and Rock Springs, as described below.

2.1.1 Nutrients in the Springs and Spring Systems

DEP developed a Nitrogen Source Inventory Loading Tool (NSILT) to provide information on the major sources of nitrogen in the groundwater contributing area and spring contributing area for the OFS. In addition, this tool is used to estimate nitrogen loads to groundwater from these sources in the spring contributing area. The NSILT is a GIS and spreadsheet-based tool that provides spatial estimates of the relative contribution of nitrogen from major nitrogen sources 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.

The first major factor to consider 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). The movement of nitrogen from the land surface to groundwater is controlled by biological and chemical processes that occur as part of the nitrogen cycle, as well as hydrogeological processes. 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 occurs in limestone that can be prone to dissolving, and, over geologic time, the development of numerous karst features (sinkholes, caves, and conduits). These features allow water from the land surface to move directly and relatively rapidly into the aquifer and in some areas for groundwater in the aquifer to move rapidly to the springs.

Potential recharge rates from the surface to the UFA are affected by variations in the geologic materials and the presence of karst features. DEP estimated the recharge rate ranges and grouped them into three rate categories, which were applied in 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, so that various biological, chemical, and hydrogeological effects could be estimated. The attenuation that was applied means that the amount of nitrogen leaving a source (such as a livestock operation or a newly fertilized yard) reduces the amount of nitrogen predicted to reach the aquifer. 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 influences on the springs continues as the nitrate TMDLs are implemented.

2.1.2 Estimated Nitrogen Loads

Table 3 lists the estimated nitrogen loads to groundwater by source. Note that urban stormwater loads are included in urban turfgrass fertilizer (UTF) estimates, while agricultural stormwater loads are included in farm fertilizer (FF) and livestock waste (LW) estimates. Nitrogen loading to surface water will be reduced through the activities and strategies for the sources identified in this chapter for groundwater loading.

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

Nitrogen Source	Total Nitrogen Load to Groundwater in Pounds of Nitrogen Per Year (lb-N/yr)	% Contribution
OSTDS	296,984	29 %
UTF	261,552	26 %
Atmospheric Deposition	61,328	6 %
FF	110,089	11 %
Sports Turfgrass Fertilizer (STF)	80,902	8 %
LW	8,318	1 %
Nurseries	35,760	3 %
Wastewater Treatment Facilities (WWTF)	168,770	16 %
Total	1,023,703	100 %

2.1.3 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, WWTF permits, published scientific studies and reports, and information obtained in meetings with agricultural producers. For some pollutant source categories, nitrogen inputs were obtained using assumptions and extrapolations and, as a result, these inputs could be subject to further refinement if more detailed information becomes available.
- **OSTDS Load Contribution** – A per capita contribution to an OSTDS of 9.012 pounds of nitrogen per year (lb-N/yr) was used to calculate the loading from OSTDS. The average household contribution was estimated based on 2010 U.S. Census Bureau data on the average number of people per household by county (2.45 for Lake County, 2.72 for Orange County, and 2.57 for Seminole County) and additional information on the time spent away from home by the school-age population and labor force (adjusted effective persons per household of 2.03 for Lake County, 2.15 for Orange County, and 2.05 for Seminole County).
- **Nitrogen Attenuation Factors** – To estimate the amount of nitrogen loading to the aquifer, DEP applied two nitrogen attenuation factors. Biological and chemical processes that occur as part of the nitrogen cycle, as well as hydrogeological processes that control the movement of nitrogen from the land surface to groundwater. Biochemical attenuation accounts for biochemical processes that convert or transform the different forms of nitrogen, while hydrogeological attenuation accounts for spatial variations that affect the rate of water infiltrating through geological media to recharge the UFA. Given the relatively large range of literature-reported values of biochemical nitrogen attenuation for each source category, DEP used an average biochemical attenuation factor for each source based on land use practices and hydrogeological (i.e., recharge) conditions in the contributing areas.

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, because of their positive impact, it is assumed that these actions will help reduce pollutant loads, and estimated loading reductions may be determined at a later date and assigned to these activities.
- **Atmospheric Deposition** – Atmospheric sources of nitrogen are local, national, and international. Atmospheric sources are generally of low nitrogen concentration compared with other sources and are further diminished through additional biological and chemical processes before they reach groundwater. Atmospheric deposition sources and trends will be re-evaluated periodically.

- **OSTDS Inventory and Loading Calculations** – The total number of OSTDS in the basin is estimated based on local information and FDOH data. Future BMAPs and the associated OSTDS loading calculations may be adjusted based on improved data on the number, location, and type (conventional and enhanced nitrogen reducing) of existing septic systems, and may include additional OSTDS installed since BMAP adoption.
- **PFA** – The PFA provides a guide for focusing strategies where science suggests efforts will best benefit the springs. The PFA boundaries 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 already accounted for in the baseline loading. Projects completed in the springshed after January 1, 2009, were considered for inclusion in this BMAP.
- **Legacy Sources** – Land uses 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 delay between when nitrogen input to the UFA occurs and when that load ultimately arrives at an OFS. The impact of this delay is not fully known.
- **Implementation Schedule** – BMAP implementation is a 20-year process. This plan defines nitrogen reduction milestones for 5-year (30 %), 10-year (50 %), and 15-year (20 %) implementation, so that the TMDL will be met no later than the 20-year goal (see **Section 2.1.6** for further details). Further, the total reductions and project credits may be adjusted under the adaptive management approach used for the BMAP. This approach requires regular follow-up to ensure that management strategies are carried out and that their incremental effects are assessed. This process acknowledges that there is some uncertainty associated with the outcomes of proposed management strategies and the estimated response of concentration at the springs. As more information is gathered and progress towards each 5-year milestone is reviewed, additional management strategies to achieve the TMDL will be developed or existing strategies refined to better address the sources of nitrogen loading.
- **Changes in Spring Flows** – The role of this BMAP is specifically to promote the implementation of projects that reduce the 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, spring protection projects should provide both water quality and quantity benefits.

2.1.4 Loading by Source

Based on the NSILT estimates, the pie chart in **Figure 2** depicts the estimated percentage of nitrogen loading to groundwater by source in the springshed. Septic systems represent 29 % of the nitrogen sources, UTF 26 %, and WWTFs 16 %. Stormwater loading to groundwater is incorporated into the various source categories.

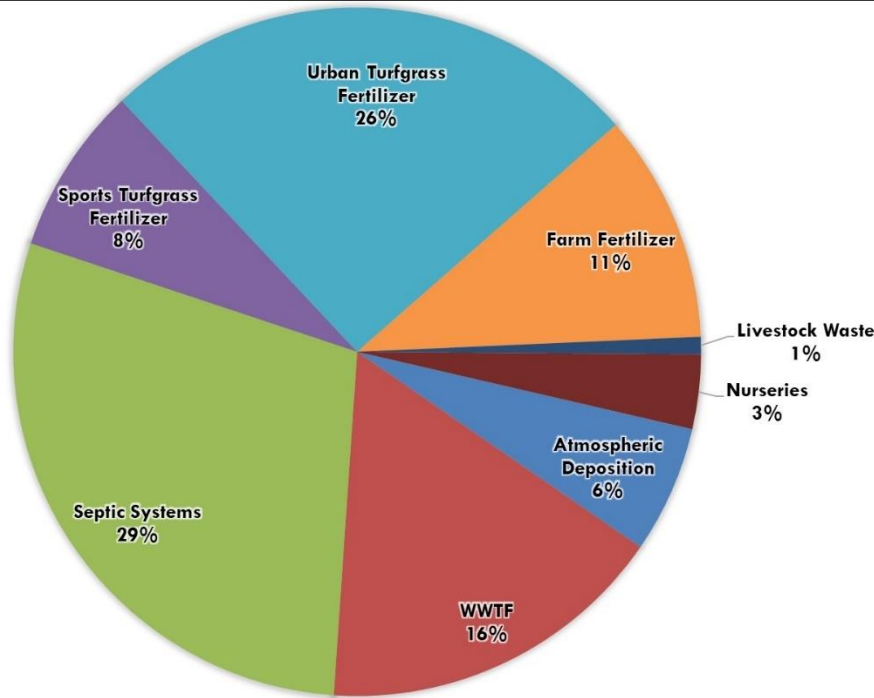


Figure 2. Loading to groundwater by source in the Wekiwa Spring and Rock Springs BMAP area

2.1.5 Loading Allocation

The nitrogen source reductions are based on the measured nitrate concentrations and flows at each spring vent, along with the TMDL target nitrate concentration. The nitrogen loads and the TMDL loads at the Wekiwa Spring and Rock Spring vents were summed to get the total spring load and TMDL load presented in **Table 4**. **Table 4** lists the sum of the measured nitrate (as nitrogen) loads at the spring vents compared with the sum of the TMDL loading based on a target nitrate concentration of 0.286 mg/L. The difference between the spring vent loading and the TMDL loading estimate is the required reduction to meet the TMDL. The total load that is required to be reduced in the basin is being allocated to the entire basin and actions defined by the BMAP to reduce loading to the aquifer are needed to implement this allocated load.

Table 4. Total reduction required to meet the TMDL

Description	Nitrogen Loads (lb-N/yr)	Notes Regarding Data Used
Total Load at Spring Vent	275,065	Upper 95 % confidence interval - nitrate data and flow data from years 2003 to 2017 (117

Description	Nitrogen Loads (lb-N/yr)	Notes Regarding Data Used
		cubic feet per second [cfs])
TMDL Load	65,637	TMDL target is 0.286 mg/L using the same flow data from years 2003 to 2017
Required Reduction	209,428	

2.1.6 Description of 5-, 10-, and 15-year Milestones/Reduction Schedule

The overall load reduction targets are 30 % of the total within 5 years, 80 % of the total within 10 years, and 100 % of the total within 15 years. DEP will evaluate progress towards these milestones and will report to the Governor and Florida Legislature. DEP will adjust management strategies that reduce loading to the aquifer to ensure the target concentrations are achieved. This may include expanding the area to which the OSTDS remediation policies apply; any such change, however, would be incorporated into an updated BMAP 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 5-year 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 the overall required load reductions. The monitoring of existing groundwater and springs sampling locations is essential. **Section 2.3** describes detailed source reduction strategies.

Table 5. Nitrogen reduction schedule (lb-N/yr)

5-Year Milestone (30 % of Total)	10-Year Milestone (50 % of Total)	15-Year Milestone (20 % of Total)	Total Nitrogen Reduction (100 %)
62,828	104,714	41,886	209,428

2.2 Prioritization of Management Strategies

The management strategies listed in **Appendix B** and **Appendix D** are ranked with a priority of high, medium, or low. In 2016, the Florida Legislature amended the Watershed Restoration Act (Section 403.067, F.S.), creating additional requirements for all new or revised BMAPs. BMAPs must now include planning-level details for each listed project, along with their priority ranking.

Project status was selected as the most appropriate indicator of a project's priority ranking based primarily on need for funding. Projects with a "completed" status were assigned a low priority. Projects classified as "underway" were assigned a 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" as well as certain "completed" projects that are ongoing each year (any project with one of these project types: "street sweeping", "catch basin inserts/inlet filter cleanout", "public education efforts",

"fertilizer cessation", "fertilizer reduction", or "aquatic vegetation harvesting"), and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

2.3 Load Reduction Strategy

A precise total load reduction to groundwater needed to meet the TMDL is unknown and dependent on a number of complex factors. Ultimately there must be a reduction at the spring vent of at least 209,428 lb-N/yr. Based on the totals of all the credits from BMAP actions and policies, the range of total reductions to groundwater is between 311,612 – 413,656 (see **Table 6**). However, due to the proximity of these reductions to the spring and the uncertainties of fate and transport in the karst geology, additional actions may be necessary to ensure that the loading at the vent is achieved within the timeline of the BMAP.

To achieve reductions outside the scope of the policies listed, additional project options are available to local entities but have not been planned. Other efforts could be pursued to further reduce the nitrogen load to groundwater in the Wekiwa Spring and Rock Springs Basin.

Table 6. Summary of potential credits for the Wekiwa Spring and Rock Springs BMAP to meet the TMDL

Note: No reductions are estimated for atmospheric deposition sources.

Nitrogen Source	Credits to Load to Groundwater (lb-N/yr)	Description
OSTDS	125,684 – 183,692	Credits are based on lots of less than one acre inside the PFA being remediated by either enhancing onsite system or connecting to sewer. An estimated 1,064 lb-N/yr have been provided as OSTDS remediation projects which may be on these lots, on lots one acre or greater in the PFA, or in the larger BMAP area. Any projects on lots one acre or greater in the PFA or outside the PFA would add additional reductions to the estimates listed.
UTF	17,897	DEP approved credits (6 %) for public education activities as well as credits identified for stakeholder stormwater projects.
STF	7,817	6 % BMP credit for sports fields and 10 % BMP credit for golf courses on STF load to groundwater, assuming 100 % BMP implementation on golf courses and sports fields.
FF	16,513	15 % BMP credit on FF load to groundwater, assuming 100 % owner-implemented and verified BMPs on all fertilized lands
LW	832	10 % BMP credit on load to groundwater, assuming 100 % owner-implemented and verified BMPs at all livestock facilities.
Nurseries	5,364	15% BMP credit on load to groundwater, assuming 100% owner-implemented and verified BMPs at all nursery facilities.
WWTF	126,497	Achieved by WWTF policy for the PFA and projects in metrics workbooks.
Total Credits from BMAP Policies and Submitted Projects	300,603 – 358,611	
Advanced Agricultural	11,009 – 55,045	Includes 10 % to 50 % reduction from 100 % of fertilized acres with a change in practice.

Nitrogen Source	Credits to Load to Groundwater (lb-N/yr)	Description
Practices and Procedures		
Total Credits	311,612 – 413,656	Load reduction to meet the TMDL at the spring vent is 209,428 lb-N/yr.

2.4 OSTDS Management Strategies

Overall, there are currently nearly 30,000 OSTDS on lots of less than one acre in the PFA, based on FDOH estimates. This BMAP lists six specific projects (**Appendix B**) that reduce nitrogen loading from existing OSTDS on variably sized parcels by a total of 1,064 lb-N/yr. **Figure 3** shows the locations of all OSTDS in the BMAP area.

In addition to the six listed projects, DEP assessed the overall OSTDS loading compared with other nitrogen sources in the PFA, as well as the relative loading in the wider BMAP area. Based on these assessments, DEP has determined that for the Wekiwa Spring and Rock Springs BMAP area, OSTDS contribute more than 20 % of nonpoint source nitrogen pollution to the OFS. Per the Wekiwa Spring and Rock Springs NSILT, septic systems contribute 29 % pollutant loading in the springshed. Cumulatively, nitrogen loading from OSTDS within this springshed result in the significant 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 prevent associated groundwater and surface water contamination so that the TMDL can ultimately be achieved and so that increases in nitrogen loads from future growth are limited. The OSTDS remediation plan is incorporated as **Appendix D**.

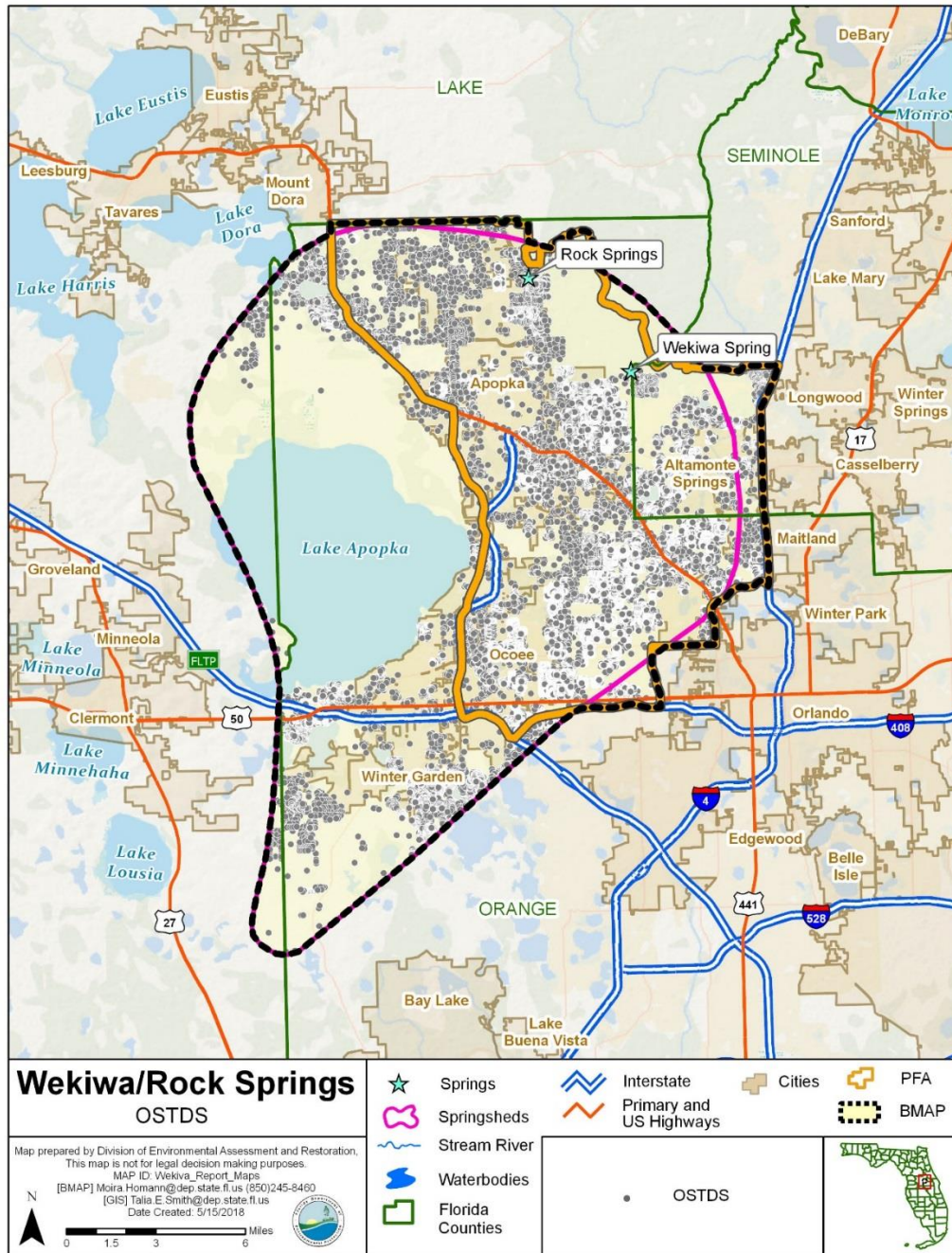


Figure 3. OSTDS locations in the Wekiwa Spring and Rock Springs BMAP area and PFA
 In addition to the actions outlined in the OSTDS remediation plan (incorporated into this BMAP as **Appendix D**), remedial efforts on existing conventional OSTDS could achieve nitrogen reductions. **Table 7** summarizes the nitrogen inputs, attenuation and recharge factors, and loads to groundwater for a conventional OSTDS. The conventional OSTDS nitrogen input is based on a per capita contribution of 9.012 lb-N/yr. This value is multiplied by the effective population, which is the estimated number of people per household with consideration to age distribution to

account for school or working age population who likely have access to sewer connected facilities during away from home hours (i.e., 2.08 average effective population in counties within the BMAP). Percent reductions for enhanced or replaced systems are applied to the conventional OSTDS nitrogen groundwater loads to evaluate possible improvements to groundwater. Enhanced OSTDS can achieve an estimated 65 % improvement in the load to groundwater compared to a conventional system. OSTDS replaced by sewer reduce the conventional nitrogen inputs by an estimated 95 %, assuming a sewer connection to a WWTF meeting AWT levels.

The results show an estimated nitrogen reduction (i.e., credit) of 4.7 in high recharge areas, 2.6 in medium recharge areas, and 0.5 in low recharge areas for each enhanced OSTDS and an estimated nitrogen reduction of 6.9 in high recharge areas, 3.8 in medium recharge areas, and 0.8 in low recharge areas for each replaced OSTDS. Estimated costs for retrofitting (onsite treatment improvements) or removing (sewering) OSTDS range from \$10,000 to \$20,000 per system, which would be anticipated to be offset somewhat by cost-share from state funds. These costs can be refined as projects are completed and detailed cost data are available.

Table 7. Estimated individual OSTDS improvements to groundwater

Recharge Category	Conventional OSTDS Load To Groundwater (lb-N/yr/OSTDS)	Credit Per System (lb-N/yr/OSTDS)	
		Enhanced OSTDS	Replaced OSTDS
Nitrogen Input	19	–	–
Attenuation (0.43)	8.1	–	–
Low Recharge (0.1)	0.8	0.5	0.8
Medium Recharge (0.5)	4.0	2.6	3.8
High Recharge (0.9)	7.3	4.7	6.9

2.5 UTF Management Strategies

UTF consists of fertilizers applied to the 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 it may be applied by contractors or maintenance staff.

2.5.1 Fertilizer Ordinance Adoption

As required by the Florida Legislature, as described in Subsection 373.807(2), F.S., local governments with jurisdictional boundaries that include an OFS or any part of a springshed or the delineated PFA of an OFS are required to develop, enact, and implement a fertilizer ordinance by July 1, 2017. The statutes require any ordinance to be based, at a minimum, on the DEP model ordinance for Florida-friendly fertilizer use on urban landscapes.

2.5.2 Prioritized Management Strategies and Milestones

Based on the fertilizer ordinances and public education activities in place at the time of BMAP adoption, the associated credits for UTF reductions to groundwater are 15,685 lb-N/yr (see **Table 8**). Additional environmental benefits could be credited if the counties and municipalities implement other public education efforts and source control ordinances, as described in **Section 2.5.3**. Local stormwater projects that treat urban runoff, including nitrogen from urban fertilizer, are also in place (see **Appendix B**), with the estimated reduction to groundwater of 2,204 lb-N/yr.

Table 8. Current project credits to reduce UTF loading to groundwater

Project Category	Project Credits (lb-N/yr) Based on Management Actions Listed in Appendix B
Fertilizer Ordinances and Public Education Activities	15,685
Stormwater Improvements	2,204
Total Project Credits	17,889

Since there is uncertainty about the data used in the NSILT estimates to calculate the UTF loading to groundwater, DEP will work toward collecting better data by documenting reductions with the stakeholders. Also, DEP will work with the stakeholders to develop additional measures to reduce fertilizer application.

2.5.3 Additional UTF Reduction Options

The anticipated reduction from UTF sources is currently limited to 6 % of the estimated load to groundwater. This reduction can be achieved through a 6 % total credit if each local government has an applicable fertilizer ordinance, landscape ordinance, irrigation ordinance, and pet waste ordinance; carries out public education activities; and implements the Florida Yards and Neighborhood (FYN) Program (see **Table 9**).

If all the local governments implement the full suite of public education measures, a 15,693 lb-N/yr reduction can be achieved. Currently, these credits total 15,685 lb-N/yr. Thus, an additional 8 lb-N/yr reduction could be achieved through public education and source control efforts.

Table 9. Maximum UTF load reductions based on existing public education credit policies

UTF Source Control Measures	Credit Based on Estimated Load to Groundwater (%)	Possible Nitrogen Credits (lb-N/yr)
Fertilizer Ordinance	0.5	1,308
Pet Waste Ordinance	0.5	1,308
Landscape Ordinance	0.5	1,308
Irrigation Ordinance	0.5	1,308
FYN Program	3.0	7,847
Public Education Program	1.0	2,616
Total Possible Credits	6.00	15,693

Appendix E contains technical support information that further explains the concepts presented in this section, including nitrogen loading by source category, reduction obligations, and management strategies.

2.6 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 12 golf courses covering 2,412 acres in the Wekiwa Spring and Rock Springs BMAP area. The majority of the golf course acreage is located in high recharge areas (1,660 acres) or medium areas (452 acres). The majority of the sporting facility acreage is located in high recharge areas (132 acres) or medium recharge areas (53 acres).

2.6.1 Prioritized Management Strategies and Milestones

DEP will work with sports field managers and golf course superintendents to ensure relevant BMP implementation and to estimate the reductions associated with these efforts. To improve the golf course loading estimate over a literature-based approach, DEP will also confer with golf course superintendents to identify the actual rate of fertilizer application to update the estimate of the golf course load to groundwater. Golf courses are expected to implement the BMPs described in DEP's BMP manual, *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses*, for an estimated 10 % reduction in loads to groundwater.

Managers of sports fields can assist by reducing fertilizer use, using products that reduce leaching, and more efficiently irrigating sports turf. The estimated credit for better management of non-golf sports turfgrass is 6 % of the starting load to groundwater. Based on these approaches, the initial reduction from STF sources is 7,817 lb-N/yr, as listed in **Table 10**.

Table 10. Maximum load reductions from STF improvements based on existing credit policies

STF Source Control Measures	Credit Based on Estimated Load to Groundwater (%)	Possible Nitrogen Credits (lb-N/yr)
Golf Course BMP Implementation	10	7,408
Sports Fields BMPs	6	409
Total Possible Credits		7,817

2.7 Agricultural Sources Management Strategies and Additional Reduction Options

Based on data including Florida Statewide Agricultural Irrigation Demand (FSAID) IV geodatabase land use, FDACS identified agricultural acreage within the BMAP. An estimated 12,637 acres of land in the springshed area are considered agricultural, of which 2,092 acres are livestock lands, 6,334 acres are identified as crop fertilizer lands, and 4,211 acres are identified as both fertilizer croplands and livestock lands.

2.7.1 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 110,089 lb-N/year, or 11 % of the total nitrogen load to groundwater in the BMAP area. FF includes commercial inorganic fertilizer applied to row crops, field crops, pasture, and hay fields.

2.7.2 Nursery Fertilizer Loading

The loading from nurseries was estimated separately from farm fertilizer because specific information regarding crop type was available allowing for more specific fertilizer application rates based on common plants cultivated within each nursery category. The NSILT estimated total nitrogen load to groundwater from nurseries is 35,760 lb-N/year, or 3 % of the total nitrogen load to groundwater in the BMAP area. Nursery fertilizer includes inorganic fertilizer applied to tree nurseries, container nurseries, greenhouses, and fern growers.

2.7.3 LW Loading

Agricultural practices specific to LW management were obtained through meetings with University of Florida Institute of Food and Agricultural Sciences (UF-IFAS) extension staff, FDACS field representatives, agricultural producers, and stakeholders. The NSILT estimated total nitrogen load to groundwater from LW is 8,318 lb-N/year, or 1 % of the total nitrogen load to groundwater in the BMAP area.

2.7.4 Prioritized Management Strategies and Milestones

Subsection 403.067, F.S., requires agricultural nonpoint sources in a BMAP area either to implement the applicable FDACS-adopted BMPs, which provides a presumption of compliance

with water quality standards, or conduct water quality monitoring prescribed by DEP or SJRWMD that demonstrates compliance with water quality standards. Further, based on the Florida Springs and Aquifer Protection Act, Subsection 373.811(5), F.S., prohibits any new agricultural operations within the priority focus areas that do not implement applicable FDACS BMPs, 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 (s. 403.067(7)(b), F.S.).

FDACS will work with applicable producers within the BMAP area to implement BMPs. As of December 31, 2017, Notices of Intent (NOIs) covered 5,451 acres in the Wekiwa Spring and Rock Springs BMAP area (5,451 of 12,637 agricultural acres). No producers are conducting water quality monitoring in lieu of implementing BMPs at this time. **Appendix B** lists project information. **Appendix F** provides detailed information on BMPs and agricultural practices in the BMAP area.

With crop-specific BMP enrollment or monitoring for FF areas, an estimated 16,513 lb-N/yr reduction to groundwater can be achieved, based on an average reduction of 15 % in the nitrogen load to groundwater. While DEP has listed larger percentage reductions in nitrogen from agricultural BMPs in estimating benefits to surface waters, the best data available indicate a 15 % reduction in the load to groundwater, where owner-implemented BMPs are in place. This number could increase as more data are collected on the impact of BMPs to groundwater.

For all nursery operations, owner-implemented BMPs are expected to achieve a reduction of 5,364 lb-N/yr, using an estimated 15 % reduction in the load to groundwater from owner-implemented BMPs.

For all livestock operations, owner-implemented BMPs are expected to achieve a reduction of 832 lb-N/yr, using an estimated 10 % reduction in the load to groundwater from owner-implemented BMPs at livestock operations.

Summarizing the reductions discussed above, the total reduction from BMP implementation of all agricultural sources is 22,709 lb-N/yr.

2.7.5 Additional Agricultural Reduction Options

Further reductions may be achieved through implementing additional agricultural projects or practices, including land acquisition and conservation easements. SJRWMD is implementing projects to encourage low input agriculture and water quality improvement technologies. Examples of these projects include providing incentives for producers to transition to less intensive cropping systems, changing land use to fallow or native landscape, or changing the type of cropping system. Other reductions associated with the implementation and modification of BMPs may be realized through ongoing studies and data collection. Basin-specific studies are underway to evaluate and demonstrate the effectiveness of BMPs on a site-specific basis.

Table 11 identifies possible projects and practices and the estimated acreages. FDACS used FSAID IV to identify crop types and acreages where projects and practices could potentially be implemented.

Table 11. Estimated acreages for additional agricultural projects or practices

Action	Acreage
Precision Irrigation	1,987
Soil Moisture Probes	3,488
Precision Fertilization	2,918
Controlled Release Fertilizer	2,144
Cover Crops	2,733

The projects and practices listed in **Table 11** are a component of the reductions to groundwater that could be achieved through changes in practices (**Table 12**). For example, a 75 % reduction of fertilizer loss to groundwater on 25 % of the fertilized lands would result in an estimated reduction of 20,642 lb-N/yr. Note that these estimates are averaged over the entire basin, and the recharge characteristics of a specific site and the fertilization practices for specific crops may change the estimated reduction for specific acres with a conservation easement or change in fertilization.

Table 12. Potential for additional load reductions to groundwater

% of Fertilized Acres with a Change in Practice	Amount of Fertilized Acres with a Change in Practice	100 % Reduction in Load to Groundwater (lb-N/yr reduced)	75 % Reduction in Load to Groundwater (lb-N/yr reduced)	50 % Reduction in Load to Groundwater (lb-N/yr reduced)	25 % Reduction in Load to Groundwater (lb-N/yr reduced)	10 % Reduction in Load to Groundwater (lb-N/yr reduced)
100	6,334	110,089	82,567	55,045	27,522	11,009
75	4,751	82,567	61,925	41,283	20,642	8,257
50	3,167	55,045	41,283	27,522	13,761	5,504
25	1,584	27,522	20,642	13,761	6,881	2,752
10	633	11,009	8,257	5,504	2,752	1,101

Beyond enrolling producers in the FDACS BMP Program and verifying implementation, FDACS will work with DEP to improve the data used to estimate agricultural land uses in the springshed. FDACS will also work with producers to identify a suite of agricultural projects and research agricultural technologies that could be implemented on properties where they are deemed technically feasible and if funding is made available. The acreages provided by FDACS are preliminary estimates of the maximum acreages and need to be evaluated and refined over time. As presented here, these projects are based on planning-level information. Actual implementation would require funding as well as more detailed designs based on specific information, such as actual applicable acreages and willing landowners.

2.8 WWTF Management Strategies

In the Wekiwa Spring and Rock Springs BMAP area, treated effluent containing nitrogen is discharged to sprayfields, RIBs, and absorption fields, and is reused for irrigation water. The nitrogen load from WWTFs is 168,770 lb-N/year. The discharge location (such as proximity to the spring, highly permeable soils, etc.) and level of wastewater treatment are important factors to consider when calculating loadings to groundwater. Additionally, addressing the nitrogen loading from OSTDS could increase the volume of effluent treated and disposed of by WWTFs.

2.8.1 Summary of Facilities

There are several WWTFs located in the Wekiwa Spring and Rock Springs BMAP area, including 8 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 area with discharges greater than 0.1 million gallons per day (mgd) and discharges less than 0.1 mgd.

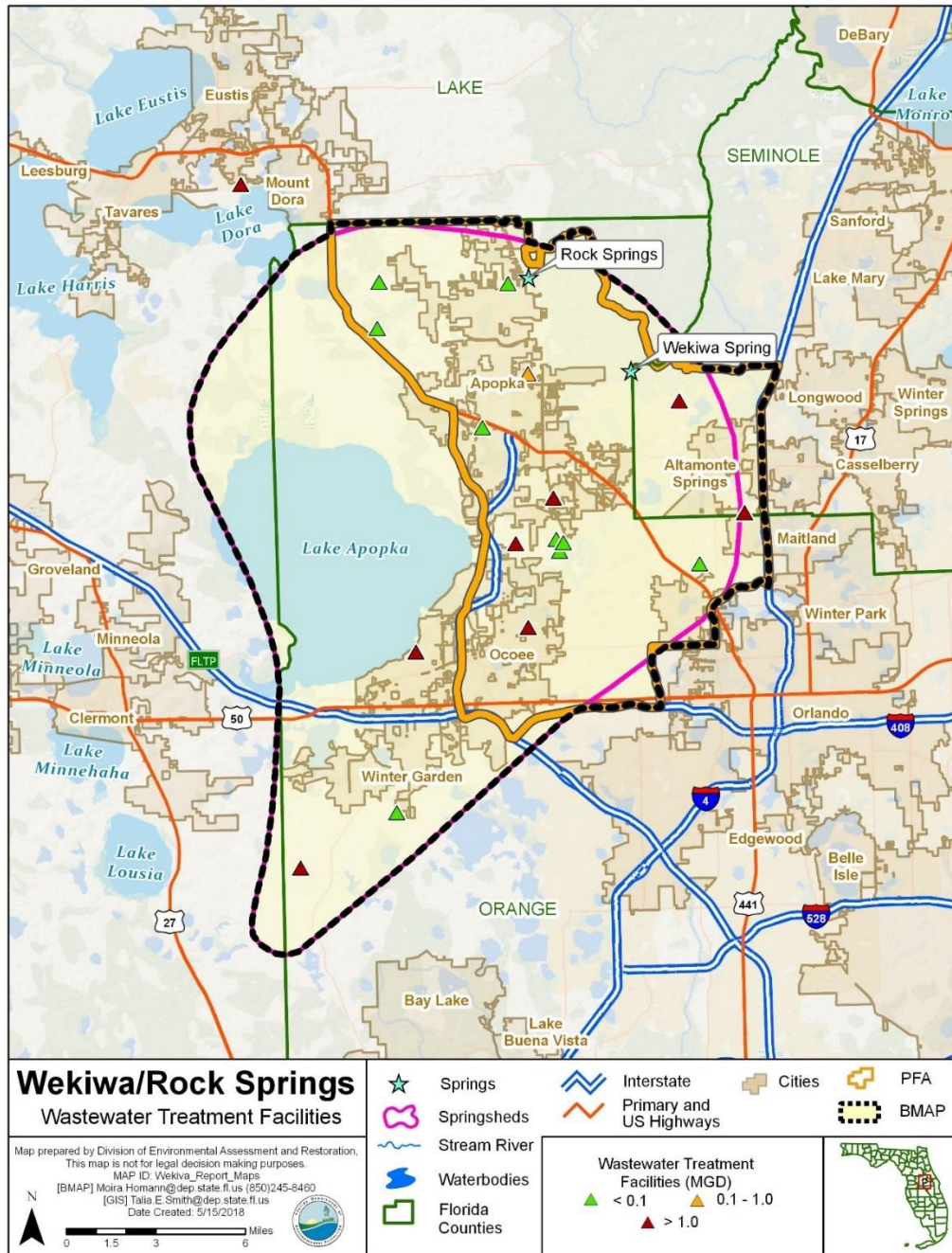


Figure 4. Locations of domestic WWTFs in the Wekiwa Spring and Rock Springs BMAP area

2.8.2 Wastewater Management Standards and Reuse Management

The Florida Springs and Aquifer Protection Act prohibits new domestic wastewater disposal facilities in the PFA, including RIBs, with permitted capacities of 100,000 gpd or more, except for those facilities that provide AWT that reduces total nitrogen in the effluent to 3 mg/L or lower, on an annual permitted basis.

DEP requires the nitrogen effluent limits listed below in any new or existing wastewater permit issued to a facility that discharges within the PFA, unless the utility/entity can demonstrate reasonable assurance that the reuse or land application of effluent would not cause or contribute to an exceedance of the nitrate concentrations established by the TMDL. To demonstrate reasonable assurance, the utility/entity shall provide relevant water quality data, physical circumstances, or other site-specific credible information needed to show their facility would not cause a nitrate concentration that would be greater than 0.286 mg/L at the spring vent. This demonstration may include factors such as dilution, site-specific geological conditions, research/studies, including dye tracer tests, and groundwater transport modeling. Should DEP concur with the reasonable assurance demonstration request, the TN effluent requirements established here may be modified for the applicant or waived.

The nitrogen effluent limits listed in **Table 13** will be applied as an annual average to all new and existing WWTFs with a DEP-permitted discharge or disposal area within the PFA. New effluent standards for existing facilities in the PFA will take effect on July 1, 2028 and will be written into the facility's permit at the next permit issuance or renewal following the effective date. Facilities must be compliant with the new standards no later than July 1, 2038.

Table 13. Wastewater effluent standards for the PFA

95% of the Permitted Capacity (gpd)	TN Concentration Limits for RIBs and Absorption Fields (mg/L)	TN Concentration Limits for All Other Land Disposal Methods (mg/L)
Greater than 100,000	3	3
20,000 to 100,000	3	6
Less than 20,000	6	6

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

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 limit future increases in loading from reuse because of higher treatment levels.

2.8.3 Prioritized Management Strategies and Milestones

Based on the current volumes of discharge and effluent concentrations, the reductions to be achieved through the implementation of these revised wastewater standards are 54,752 lb-N/yr. **Appendix B** contains detailed information on projects that have been completed, are underway, or are planned to reduce nitrogen loading from WWTFs.

2.9 Atmospheric Deposition Management Strategies

2.9.1 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 published 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 or "TDEP." Deposition data from several monitoring networks—including 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 2011 to 2013.

2.9.2 Description of Approach

Atmospheric sources of nitrogen are local, national, and international. Atmospheric sources are generally of low nitrogen concentration compared with other sources and are further diminished through additional biological and chemical processes before they reach groundwater. Atmospheric deposition sources and trends will be re-evaluated periodically.

2.10 Future Growth Management Strategies

New development primarily falls into two general source categories: new urban development and new agriculture. Nutrient impacts from new development are addressed through a variety of mechanisms outlined in this BMAP as well as other provisions of Florida law. For instance, wastewater from all new and existing urban development is treated through either domestic WWTFs or OSTDS. New WWTFs must meet the stringent nitrogen limitations set forth in this BMAP. Existing WWTFs also must be upgraded to meet these same BMAP requirements. Florida law requires new development to connect to WWTFs where sewer lines are available. Where sewer is not available within the PFA, this BMAP still prohibits the installation of new OSTDS on lots of less than one-acre unless the system includes enhanced treatment of nitrogen, as described in **Appendix D**. Likewise, all new agricultural operations must implement FDACS-adopted BMPs and potentially other additional measures (**Section 2.7**), or must conduct water quality monitoring that demonstrates compliance with water quality standards.

Other laws such as local land development regulations, comprehensive plans, ordinances, incentives, environmental resource permit requirements, and consumptive use permit requirements, all provide additional mechanisms for protecting water resources and reducing the impact of new development and other land use changes as they occur (see **Appendix G**). Through this array of laws and the requirements in this BMAP, new development must undertake nitrogen-reduction measures before the development is complete.

2.11 Protection of Surface Water and Groundwater Resources through Land Conservation

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 Wekiwa Spring and Rock Springs BMAP. **Table 14** identifies known land conservation purchase in the BMAP area.

Table 14. Stakeholder conservation land purchases in the BMAP area

Lead Entity	Name of Conservation Purchase	Description	Purchase Status	Cost	Acreage	Year
State of Florida	Wekiwa Springs State Park	Wekiwa Springs is a second magnitude spring located near the City of Apopka. Wekiwa Springs Run is joined within a half-mile by the smaller run from Rock Springs to form the headwaters of the Wekiwa River, a tributary of the St. Johns River. The springs, rivers, and runs are part of the Wekiwa River Basin, the first congressionally designated National Wild and Scenic River basin in Florida.	Completed	\$368,400	9,313	1969

Lead Entity	Name of Conservation Purchase	Description	Purchase Status	Cost	Acreage	Year
State of Florida	Rock Springs Run State Reserve	This reserve is located in Orange and Lake counties and is co-managed by the Florida Park Service and Florida Fish and Wildlife Conservation Commission (FWC). The springs, rivers, and runs are part of the Wekiva River Basin, the first congressionally designated National Wild and Scenic River basin in Florida.	Completed	\$7,378,500	14,165	1983
State of Florida, Orange County, Lake County, SJRWMD, Orlando-Orange County Expressway Authority	Neighborhood Lakes	The property has high recharge value for the Floridian Aquifer and is located in the Wekiva Springshed Protection Area and is adjacent to Rock Springs Run State Reserve.	Completed	\$74,000,000	1,550	2007

Lead Entity	Name of Conservation Purchase	Description	Purchase Status	Cost	Acreage	Year
SJRWMD	Lake Apopka Restoration Area	The Lake Apopka Restoration Area is located in east-central Lake County and west-central Orange County, comprising the entire northern shoreline of Lake Apopka. The area was previously comprised of muck farms which were acquired by the beginning in 1988 and concluding around 2000 in an effort to control pollution following major wildlife die-offs related to pollution.	Completed	\$100,000,000	20,009	1988
SJRWMD	Wekiwa River Buffer Conservation Area	The property is located in Seminole County, along the Little Wekiva and Wekiva Rivers. The conservation area provides protection for approximately 6.5 miles of the Little Wekiva and Wekiva River shorelines.	Completed	N/A	3,142	1988

Lead Entity	Name of Conservation Purchase	Description	Purchase Status	Cost	Acreeage	Year
Orange County	Lake Lucie Conservation Area	This property was purchased in 2005 through Orange County's Green PLACE Program. The parcel is 166 acres in size and the types of habitats found on the property include: Oak Hammock, improved pasture, and Freshwater Marsh. The property has high recharge value for the Floridian Aquifer.	Completed	\$513,800	166	2005
Orange County	Pine Plantation Property	The Pine Plantation property is located in northwest Orange County. The property has high recharge value for the Floridian Aquifer and is located in the Wekiva Springs Protection Area.	Completed	\$3,000,000	40	2009
City of Winter Garden	Tucker Ranch Heritage Park	The park sits along the eastern edge of John's Lake and provides conservation of 209 acres with recreational opportunities.	Completed	\$2,027,500	209	2011
City of Altamonte Springs	Lake Lotus Park	The park is located in Altamonte Springs and serves as a nature preserve.	Completed	Not Available	150	1972

2.12 Commitment to Implementation

Successful BMAP implementation requires commitment, dedicated state funding, and follow-up. 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

TMDLs must be achieved within 20 years, DEP, WMDs, FDOH, and FDACS will implement management strategies using the annual Legacy Florida appropriation from the legislature of at least \$50 million to reduce nitrogen in impaired OFS. DEP, working with the coordinating agencies, will continue to invest existing funds and explore other opportunities and potential funding sources for springs restoration efforts.

Section 3: Monitoring and Reporting

3.1 Methods for Evaluating Progress

DEP will work with stakeholders to track project implementation and organize 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, TMDLs, 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 descriptions of 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 to share information and expertise include tracking plan implementation, monitoring water quality and pollutant loads, and holding periodic meetings.

3.3 Water Quality and Biological 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 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, river, and/or groundwater at the beginning of the BMAP period and during implementation.
- Document nutrient trends in the Wekiwa Spring and Rock Springs.
- Focus BMP efforts by using water quality results combined with appropriate project information, and land use data in conjunction with statistical and spatial analysis tools.

Secondary objectives:

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

- Confirm and refine nutrient removal efficiencies of agricultural and/or urban BMPs.
- Identify and implement more effective nutrient reduction strategies.
- Use nitrogen isotope and tracer sampling for evaluating nitrogen contributions from organic and inorganic sources.

3.3.2 Water Quality Parameters, Frequency, and Network

To achieve the objectives listed above, the monitoring strategy focuses on two types of indicators to track improvements in water quality: core and supplemental (**Tables 15** and **16**, respectively). The core indicators are directly related to the parameters causing impairment in the river or associated springs. Spring monitoring stations, ambient groundwater monitoring stations and certain surface water monitoring stations are core (required) stations. Supplemental indicators are monitored primarily to support the interpretation of core water quality parameters. Certain surface water monitoring stations, biological monitoring stations, and flow monitoring stations are supplemental stations. The monitoring network is established for a variety of purposes.

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

It is anticipated that all core stations will be monitored for both core and supplemental parameters. At a minimum, the core parameters will be tracked for surface water monitoring stations to determine progress towards 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 15. Core water quality indicators

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

Table 16. Supplemental water quality indicators and field parameters

Supplemental Parameters
Specific Conductance
Dissolved Oxygen (DO)
pH
Temperature
Total Suspended Solids (TSS)
Total Dissolved Solids (TDS)
Turbidity
Chloride
Nitrogen and Oxygen Isotopes
Biochemical Oxygen Demand
Color

Initially, data from the ongoing sampling effort being conducted by DEP and the SJRWMD will be used to determine progress towards the primary objectives. 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 5 shows the water monitoring stations within the Wekiwa Spring and Rock Springs Basin. There are several categories of water monitoring stations, including core surface water monitoring, supplemental surface water monitoring, springs monitoring, ambient groundwater monitoring, and water quality and flow stations that have been identified in the Wekiwa Spring and Rock Springs BMAP area. **Table 17** through **Table 21** below provide details on the stations within each of the categories and list the sampling entity, station name or number, and a GIS map number. **Figure 6** through **Figure 10** provide a map of the stations in each category.

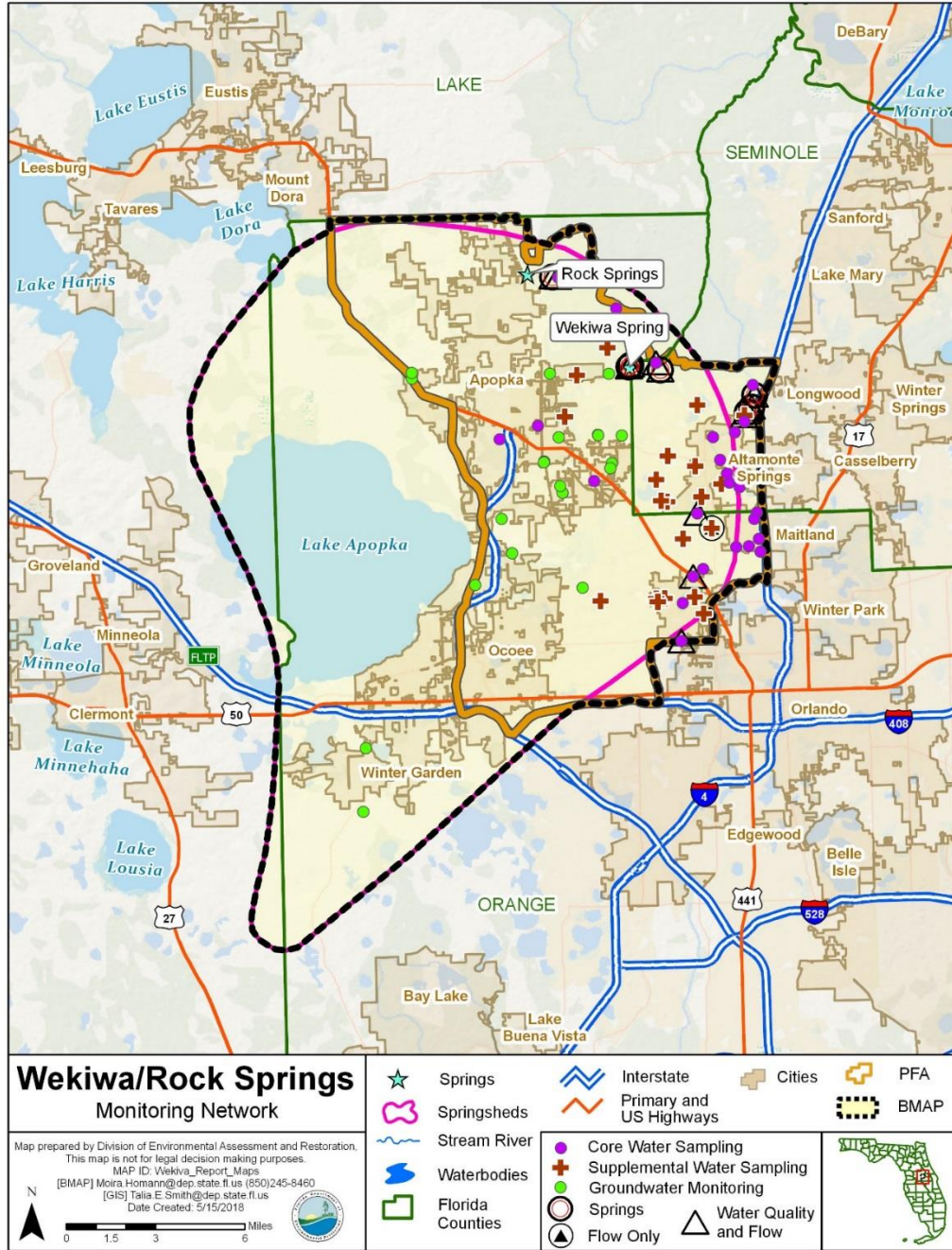


Figure 5. Wekiwa Spring and Rock Springs Water Quality Monitoring Network

Table 17 lists the core surface water monitoring stations in the BMAP monitoring network. **Figure 6** shows the location of the core surface water monitoring stations in the BMAP area. Each station was assigned a GIS map number which corresponds to the number label in **Figure 6**.

Table 17. Core Surface Water Monitoring Stations

GIS Map Number	Sampling Entity	Station Number or Name	Station Description	Subbasin
1	City of Altamonte Springs	N/A	Little Wekiwa River 119 Variety Tree Cir.	Little Wekiwa River
2	City of Altamonte Springs	N/A	Little Wekiwa River Merrill Park	Little Wekiwa River
3	City of Altamonte Springs	N/A	Little Wekiwa River Montgomery Rd. Bridge	Little Wekiwa River
4	City of Altamonte Springs	N/A	Little Wekiwa River Sanlando Office Park	Little Wekiwa River
5	City of Altamonte Springs	N/A	Little Wekiwa River Seminole Trail	Little Wekiwa River
6	City of Apopka	A25	Lake Marshall (west of State Road 429 and Lake Marshall Rd.)	Springshed
7	City of Apopka	A51	Dream Lake (downtown Apopka area – Park Ave. and Myrtle St.)	Rock Springs Run
8	City of Apopka	BW51	Lake Pleasant (Lake Pleasant Rd. and Apopka Blvd. south of 441)	Little Wekiwa Canal
9	City of Maitland	N/A	Lake Destiny (center)	Little Wekiwa River
10	City of Maitland	N/A	Lake Harvest (center)	Little Wekiwa River
11	City of Maitland	N/A	Lake Hungerford (center)	Little Wekiwa River
12	City of Maitland	N/A	Lake Loch Lomond (center)	Little Wekiwa River
13	City of Maitland	N/A	Lake Lucien (center)	Little Wekiwa River
14	City of Maitland	N/A	Lake Shadow (center)	Little Wekiwa River
15	City of Orlando	Orlando West	Lake Orlando (West) (aka Lake Wekiwa)	Little Wekiwa Canal
16	City of Orlando/OCEPD	1/LWO	Little Wekiwa River	Little Wekiwa River
17	OCEPD	BWB	Big Wekiwa B (Wekiva Marina dock on the main river)	Upper Wekiwa River
18	OCEPD	BWKP	Big Wekiwa KP (Kelly Park by the bathing beach)	Rock Springs Run
19	OCEPD	LWA	Little Wekiwa A (Silver Star Rd. north side of bridge)	Little Wekiwa River
20	OCEPD	LWB	Little Wekiwa B (North OBT north side of bridge just past All American Blvd.)	Little Wekiwa River
21	OCEPD	LWD	Little Wekiwa D (Oranole Rd., north side of bridge)	Little Wekiwa River
22	Seminole County	LAN	Little Wekiwa River – LAN (at Springs Landing Blvd.)	Little Wekiwa River
23	Seminole County	SPG	Spring Lake – SPR	Little Wekiwa River
24	Seminole County	WET	Little Wekiwa River – WET (off Weathersfield Ave.)	Little Wekiwa River
25	SJRWMD	RSR-SR	Rock Springs Run, campsite within Rock Springs Run State Reserve	Rock Springs Run

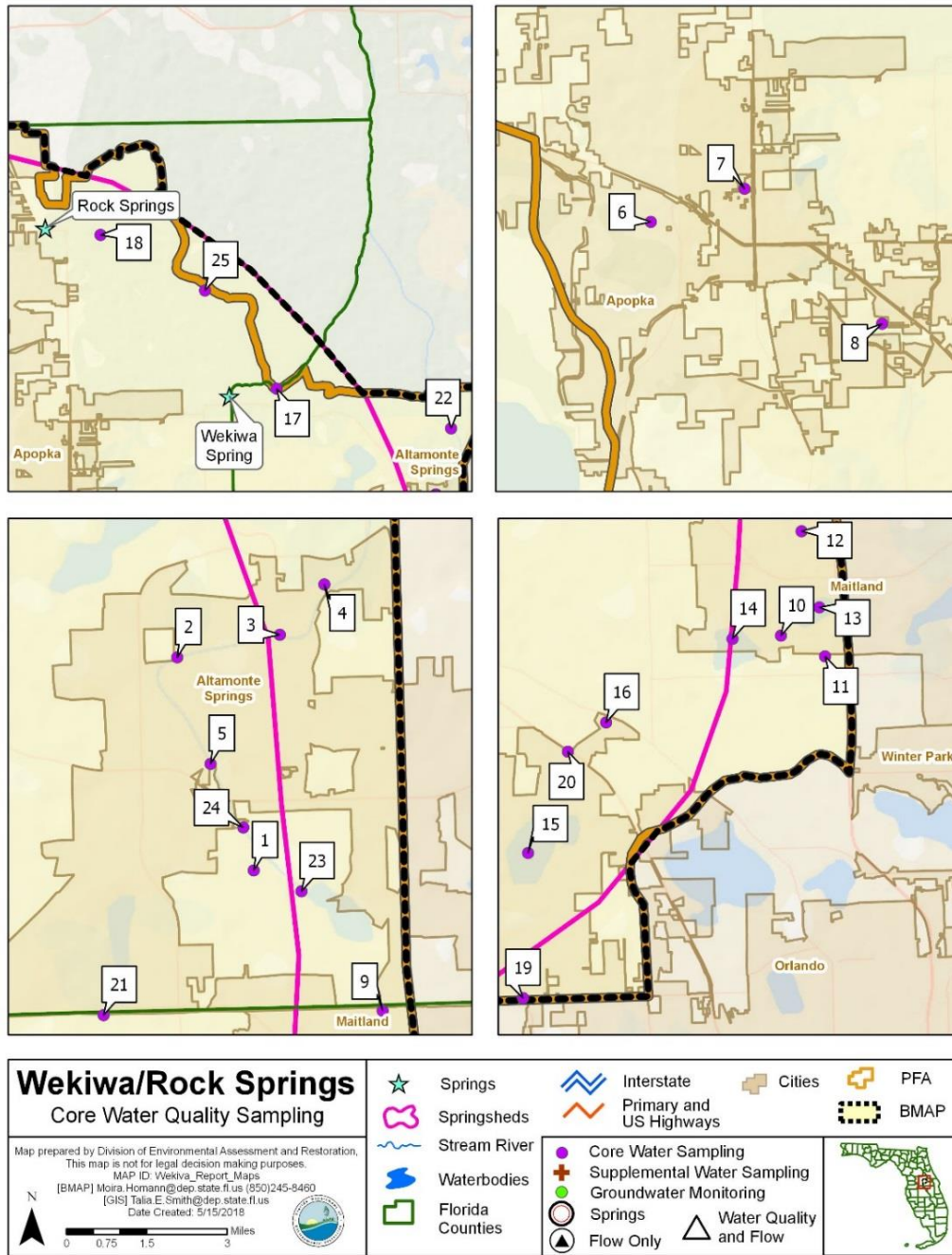


Figure 6. Core Surface Water Monitoring Stations

Table 18 lists the supplemental surface water monitoring stations in the BMAP monitoring network. **Figure 7** shows the location of the supplemental surface water monitoring stations in the BMAP area. Each station was assigned a GIS map number which corresponds to the number label in **Figure 7**.

Table 18. Supplemental Surface Water Monitoring Stations

Notes: Sort is by “sampling entity” and “station name.”
 - = Empty cell/no data
 N/A = Not applicable
 Latitude and longitude are shown in decimal form.

GIS Map Number	Sampling Entity	Station Number or Name	Station Description	Subbasin
1	City of Altamonte Springs	LOT_Ctr	Lake Lotus (center)	Little Wekiva Canal
2	City of Altamonte Springs	LWR_Northwestern Bridge	Little Wekiva River (at Northwestern Bridge)	Little Wekiva River
3	City of Altamonte Springs	PEA_Ctr	Lake Pearl (center)	Little Wekiva River
4	City of Orlando	Bay	Bay Lake (center)	Little Wekiva Canal
5	City of Orlando	Kasey	Kasey Lake (center)	Little Wekiva Canal
6	City of Orlando	Kelly	Kelly Lake (eastern portion of lake)	Little Wekiva Canal
7	City of Orlando	Kristy	Kristy Lake (southwest portion of lake)	Little Wekiva Canal
8	City of Orlando	Orlando East	Lake Orlando East (aka Lake Wekiva) (center of eastern lobe)	Little Wekiva Canal
9	OCEPD	BW41	Lake McCoy (center)	Rock Springs Run
10	OCEPD	LW7	Lake Gandy (center)	Little Wekiva Canal
11	OCEPD	XCONTRVRS1	Little Wekiva at Riverside	Little Wekiva River
12	Seminole County	BER	Bear Lake	Blackwater Creek
13	Seminole County	BRA	Lake Brantley	Upper Wekiva River
14	Seminole County	CUB	Cub Lake	Little Wekiva Canal
15	Seminole County	LBR	Little Bear Lake	Little Wekiva Canal
16	Seminole County	LWEK	Little Wekiva River at State Road 434	Little Wekiva River
17	Seminole County	MIR	Mirror Lake	Little Wekiva River

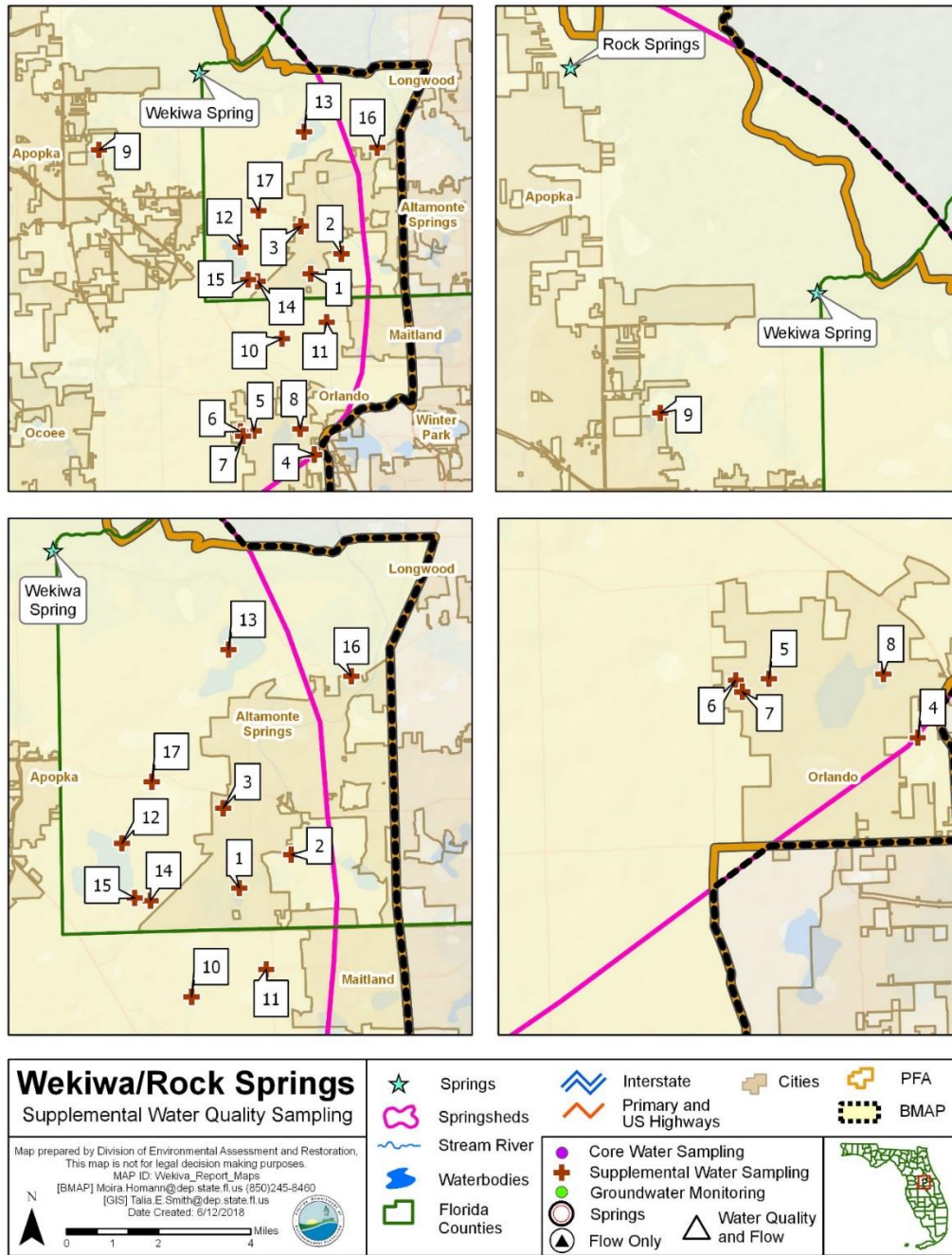


Figure 7. Supplemental Surface Water Monitoring Stations

Table 19 lists the springs monitoring stations in the BMAP monitoring network. **Figure 8** shows the location of the springs monitoring stations in the BMAP area. Each station was assigned a GIS map number which corresponds to the number label in **Figure 8**.

Table 19. Springs Monitoring Stations

Notes:

All stations are “core.”

Sort is by “sampling entity” and “station name.”

Latitude and longitude are shown in decimal form.

GIS MAP Number	Sampling Entity	Station Number or Name	Station Name	Subbasin
1	OCEPD	XWEKIVASW1	Wekiwa Springs (SW – WS)	Springshed
2	OCEPD	BWD (formerly BW82)	Wekiwa Springs (near boil)	Springshed
3	SJRWMD	Rock Spg	Rock Spring (at Apopka)	Springshed
4	SJRWMD	Wekiwa Spg	Wekiwa Spring (at Altamonte)	Springshed
5	SJRWMD	Miami Spg	Miami Spring (at Longwood)	Springshed
6	SJRWMD	Palm Spg	Palm Spring (at Longwood)	Springshed
7	SJRWMD	Sanlando Spg	Sanlando Spring (at Longwood)	Springshed
8	SJRWMD	Starbuck Spg	Starbuck Spring (at Longwood)	Springshed

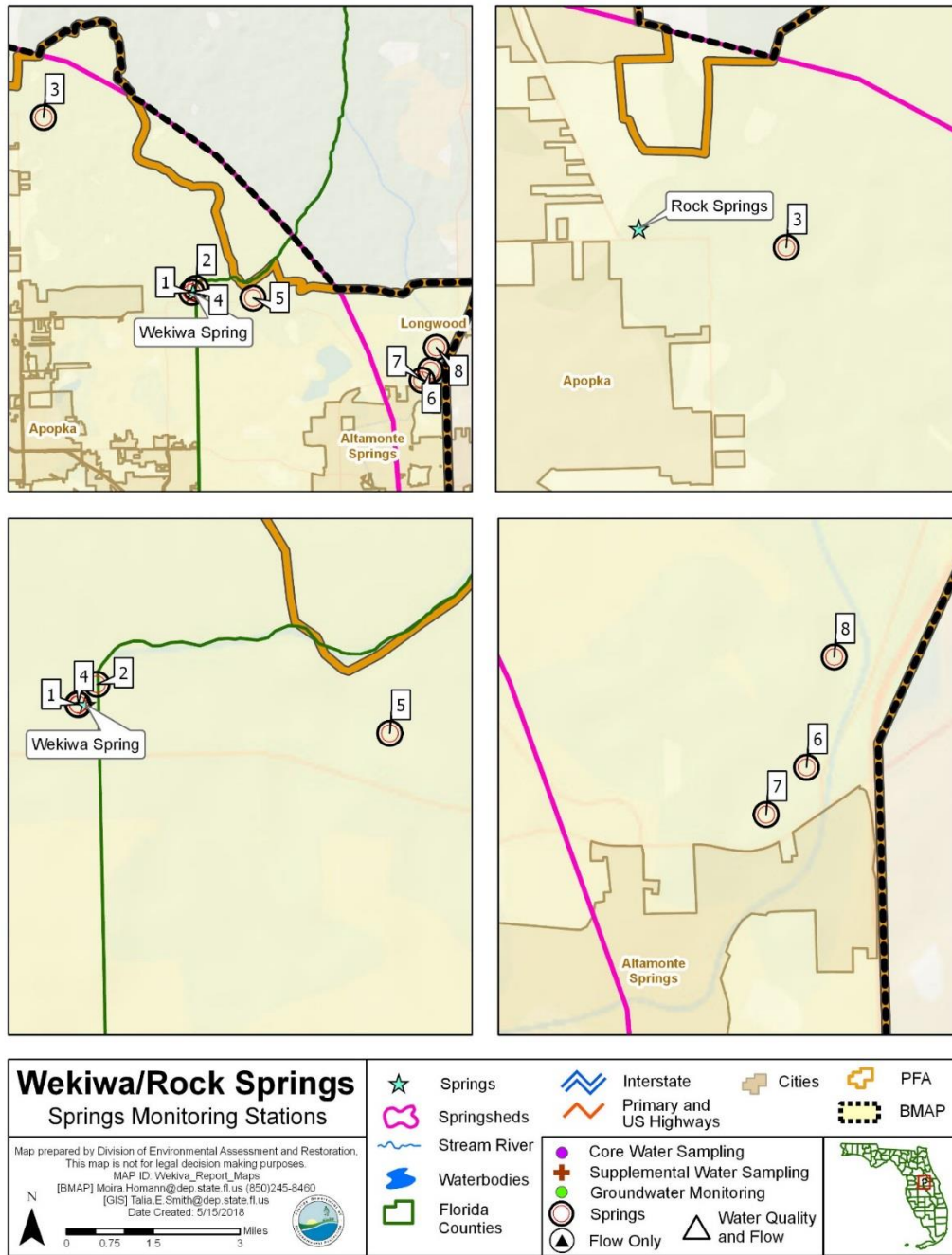


Figure 8. Springs Monitoring Stations

Table 20 lists the ambient groundwater monitoring stations in the BMAP monitoring network. **Figure 9** shows the location of the ambient groundwater monitoring stations in the BMAP area. Each station was assigned a GIS map number which corresponds to the number label in **Figure 9**.

Table 20. Ambient Groundwater Monitoring Stations

Notes:

All stations are “core.”

Sort is by “sampling entity” and “station name.”

Latitude and longitude are shown in decimal form.

GIS Map Number	Sampling Entity	Station Number	Station Name	Station Location Description	Depth of Monitoring Zone
1	City of Apopka	MWB-3	WAFR#5443/65630, GMS#3048A13435	Sprayfield – South Field Cleveland St. – Background Well	44
2	City of Apopka	MWB-6	WAFR#5438/5453 /65633, GMS#3048A13440	Sprayfield – East Field Cleveland St. – Background Well	43
3	City of Mt. Dora	MW-4	MW-4	City of Mt. Dora WWTF Sprayfield – Background Well	77.66
4	City of Mt. Dora	MW-13	MW-13	City of Mt. Dora WWTF Christian Home Irrigation – Background Well	149.35
5	City of Winter Garden	MWC-1	MWC-1	Background well associated with RIBs also referred to as MW-B	22
6	OCEPD	XWEKIV AMW1	MW-1	1750 Gulf Winds Ct.	10
7	OCEPD	XWEKIV AMW3	MW-3	2241 Park Village Pl.	15
8	OCEPD	XWEKIV AMW6	MW-6	1516 Sunset View Cir.	10
9	OCEPD	XWEKIV AMW7	MW-7	1525 Sunsetview Cir.	10
10	OCEPD	XWEKIV AMW10	MW-10	2421 Cimmaron Ash Way	15
11	OCEPD	XWEKIV AMW15	MW-15	996 Piedmont Oaks Dr.	15
12	OCEPD	XWEKIV AMW17	MW-17	60 N. Cervidae Dr.	10
13	OCEPD	XWEKIV AMW20	MW-20	2112 Wekiva Oaks Dr.	10
14	Orange County Utilities	5252	MWB-12	Northwest Water Reclamation Facility – Apopka, FL – Background	30
15	Orange County Utilities	57407	MWB-11	Northwest Water Reclamation Facility – Apopka, FL – Background	53
16	Orange County Utilities	6-06	6-06 / 5147	WCII RIB Site 6 – Background Well	40.21
17	SJRWMD	OR0106	Plymouth Twr	Plymouth Tower Deep	395

GIS Map Number	Sampling Entity	Station Number	Station Name	Station Location Description	Depth of Monitoring Zone
18	SJRWMD	OR0107	Plymouth Twr	Plymouth Tower Surficial	40
19	SJRWMD	OR0548	Wekiva Spg SP	Wekiva Springs State Park	155
20	SJRWMD	OR0546	Wekiva Spg SP	Wekiva Springs State Park	60
21	SJRWMD	OR0661	Crate Mill	Crate Mill at Apopka (surficial aquifer)	44
22	SJRWMD	OR0796	Crate Mill	Crate Mill at Apopka	270
23	SJRWMD	OR0893	Prevatt Lk	Prevatt Lake (Upper Floridan aquifer)	140
24	SJRWMD	OR0894	Prevatt Lk	Prevatt Lake	20
25	SJRWMD	OR1108	Lk Gem ES Wells	Lake Gem ES Wells	39
26	SJRWMD	OR1110	Lk Gem ES Wells	Lake Gem ES Wells	180
27	SJRWMD	OR1109	Lk Gem ES Wells	Lake Gem ES Wells	90
28	SJRWMD	OR1121	Johns LK E Wells	Johns Lake E Wells (surficial aquifer)	30
29	SJRWMD	OR1123	Johns LK E Wells	Johns Lake E Wells	170

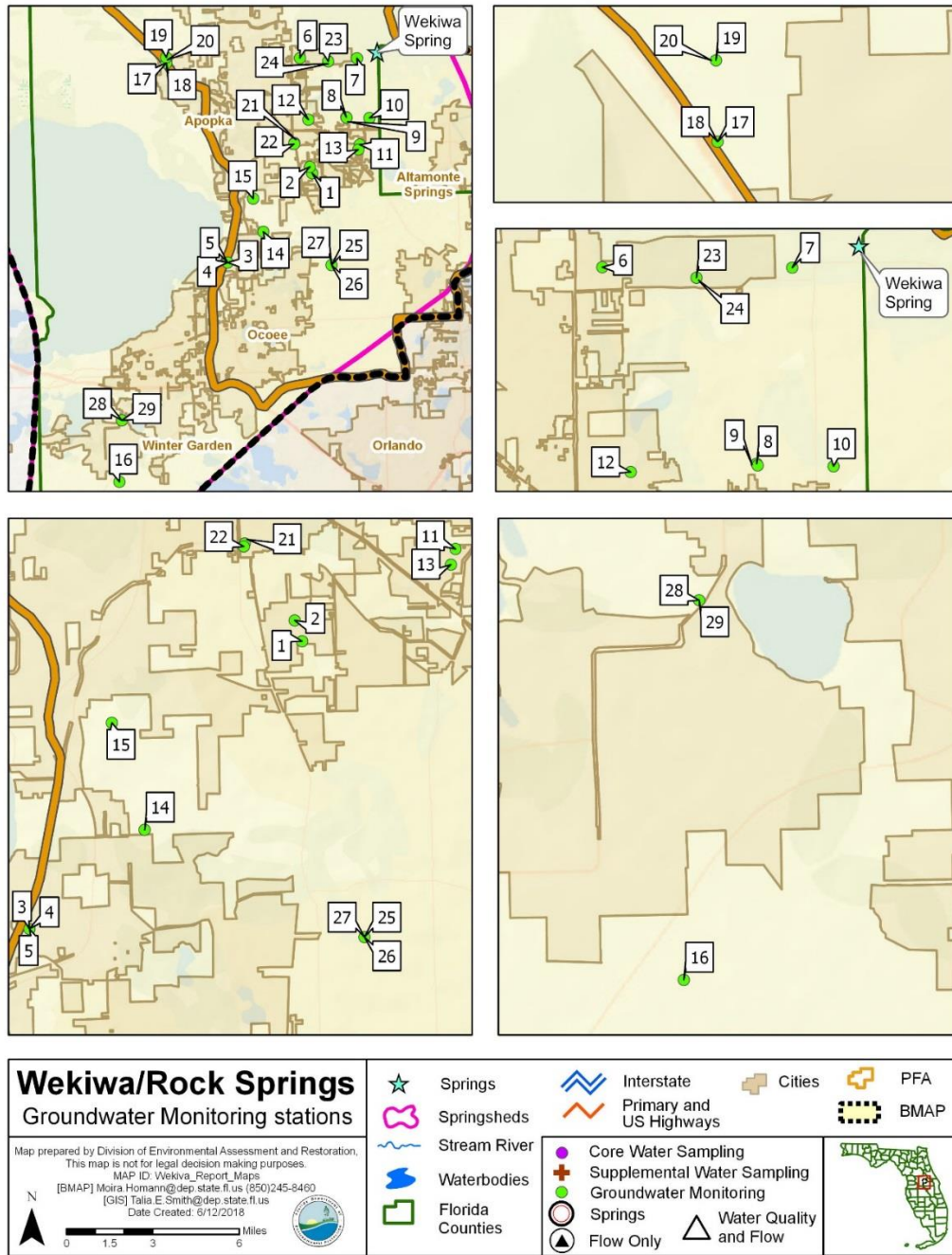


Figure 9. Ambient Groundwater Monitoring Stations

In addition to collecting water quality data, two monitoring partners also collect flow data at surface water stations. Flow data may be used as part of the periodic water quality trend analysis to assess loadings in the system and the relative contribution of the discharges from the springs to the Wekiwa River system. It may also be helpful during the reevaluation of the basin for future TMDL assessments. **Table 21** lists the water quality and flow monitoring stations in the BMAP monitoring network. **Figure 10** shows the location of the water quality and flow monitoring

stations in the BMAP area. Each station was assigned a GIS map number which corresponds to the number label in **Figure 10**.

Table 21. Water Quality and Flow Monitoring Stations

Notes:

- = Empty cell/no data

Latitude and longitude are shown in decimal form.

GIS Map Number	Sampling Entity	Station Number or Name	Station Name	Subbasin
1	OCEPD	BWB	Big Wekiva B (Wekiva Marina)	Upper Wekiva River
2	OCEPD	BWKP	Big Wekiva KP (Kelly Park)	Rock Springs Run
3	OCEPD	BWD	Wekiva Springs (formerly BW82)	-
4	OCEPD	LWA	Little Wekiva A (Silver Star Rd.)	Little Wekiva River
5	OCEPD	LWB	Little Wekiva B (North OBT)	Little Wekiva River
6	OCEPD	LWD	Little Wekiva D (Oranole Rd.)	Little Wekiva River
7	SJRWMD	Miami Spg	Miami Spring	-
8	SJRWMD	Palm Spg	Palm Spring	-
9	SJRWMD	Rock Spg	Rock Spring	-
10	SJRWMD	Sanlando Spg	Sanlando Spring	-
11	SJRWMD	Starbuck Spg	Starbuck Spring	-
12	SJRWMD	Wekiwa Spg	Wekiwa Spring	-
13	SJRWMD/U.S. Geological Survey (USGS)	08561939	Little Wekiva River (at Altamonte Springs)	Little Wekiva River
Flow Only Station 1	OCEPD	XCONTRVRS1	Little Wekiva at Riverside	Little Wekiva River

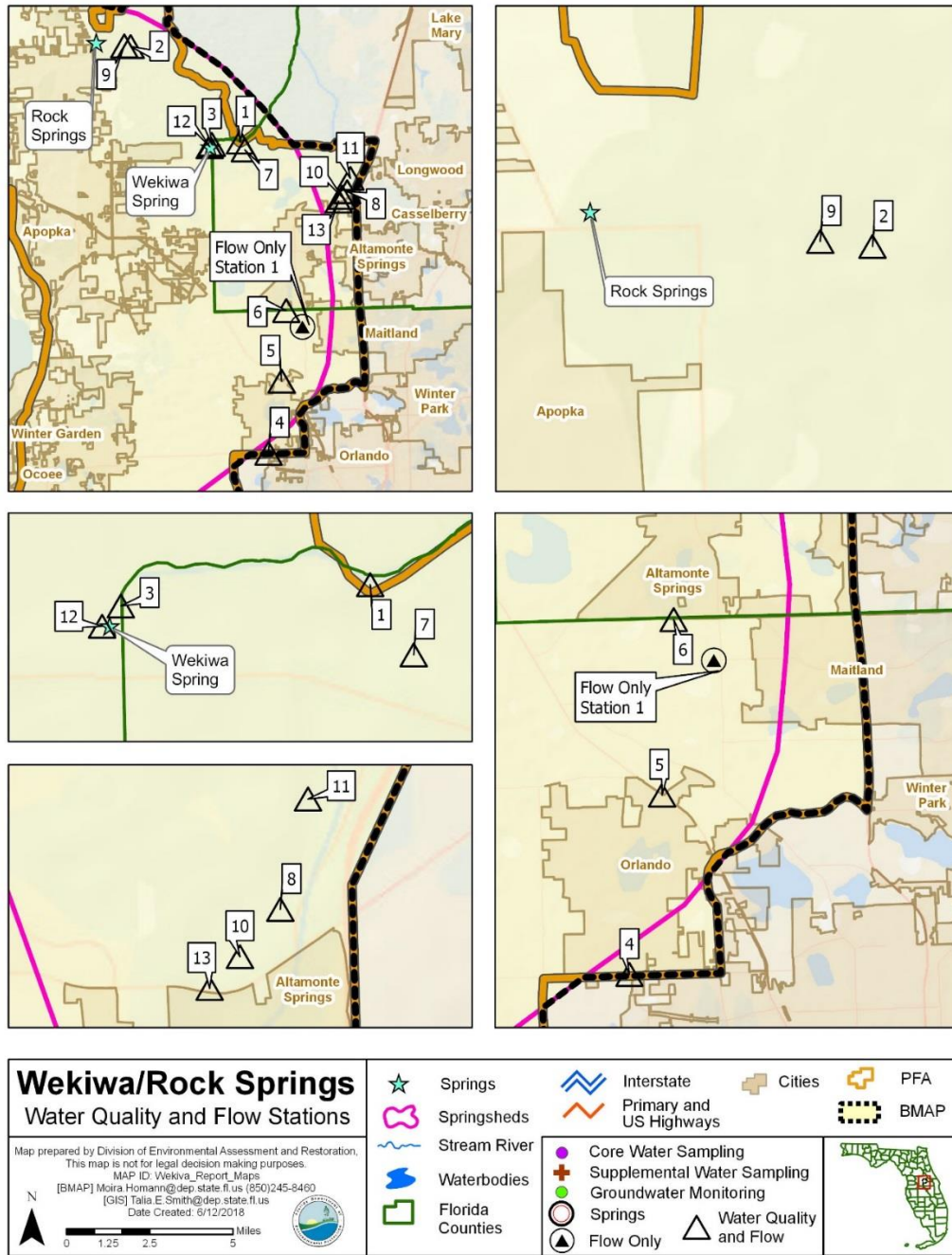


Figure 10. Water Quality and Flow Monitoring Stations

3.3.3 Biological Monitoring

Biological resource responses represent improvements in the overall ecological health of the Wekiwa Spring and Rock Springs Basin (see **Table 22**). Monitoring partners routinely conduct biological assessments to assess the health of the Wekiwa River, Wekiwa Spring, and Rock Springs.

Table 22. Biological response measures for spring runs

Biological Response Measures
Chlorophyll <i>a</i>
Stream Condition Index (SCI) score
Linear Vegetation Survey (LVS) score
Rapid Periphyton Survey (RPS) score
Key fish populations

An RPS will be conducted to assess the abundance and variety of algae. An LVS will be conducted to assess the types and density of vegetation present and to identify the native versus non-native species. An SCI will be conducted to measure the number of different organisms present in the river and/or springs. In addition, habitat assessments (HAs) will be conducted to assess the conditions and habitat present to support the SCI evaluation. Water quality samples will also be collected with the biological monitoring.

3.3.4 Data Management and Assessment

As of June 30, 2017, water quality data in Florida are entered by the entity collecting the data into the Florida Watershed Information Network (WIN) Database, which has replaced the Florida Storage and Retrieval System (STORET). DEP pulls water quality data directly from WIN and USGS databases for impaired waters evaluations and TMDL development. Data providers are required to upload their data regularly, so the information can be used as part of the water quality assessment process and for annual reporting. 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.

Biological data collected by DEP are stored in 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.

The 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 depends on the frequency, spatial distribution, and period of record available from existing data. Specific statistical analyses were not identified during BMAP development.

3.3.5 QA/QC

Stakeholders participating in the monitoring plan must collect water quality data in a manner consistent with Chapter 62-160, F.A.C., and the DEP standard operating procedures (SOPs) for QA/QC required by rule. The most current version of these procedures is available on the DEP website. For BMAP-related data analyses, entities should use National Environmental Laboratory Accreditation Conference (NELAC) National Environmental Laboratory

Accreditation Program (NELAP)–certified laboratories or other labs that meet the certification and other requirements outlined in the SOPs.

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 Website: <http://www.floridadep.gov>
- DEP Map Direct Webpage: <https://ca.dep.state.fl.us/mapdirect/>
- Searchable online version of PFA maps: <https://www.floridadep.gov/pfamap>
- Florida Statutes: <http://www.leg.state.fl.us/statutes>:
 - Florida Watershed Recovery Act (Section 403.067, F.S.)
 - Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.)
- DEP Model Ordinances: http://fyn.ifas.ufl.edu/fert_ordinances.html
- DEP Standard Operating Procedures for Water Quality Samples: <https://floridadep.gov/dear/quality-assurance/content/dep-sops>
- NELAC NELAP: <https://fldeploc.dep.state.fl.us/aams/index.asp>
- FDACS BMPs: <https://www.freshfromflorida.com/Business-Services/Best-Management-Practices-BMPs/Agricultural-Best-Management-Practices>
- FDACS BMP and Field Staff Contacts: <http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy>
- Florida Administrative Code (Florida Rules): <https://www.flrules.org/>
- SJRWMD 2002 Middle St. Johns River Surface Water Improvement Plan (SWIM) Plan: https://www.sjrwmd.com/static/plans/2002_MSJRB_SWIM_Plan.pdf
- SJRWMD 2018 Consolidated Annual Report: <https://www.sjrwmd.com/static/plans/2018-SJRWMD-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

Prioritization of Management Strategies

The management strategies in **Table B-1** are ranked with a priority of high, medium, or low. In 2016, the Florida Legislature amended the Watershed Restoration Act (Section 403.067, F.S.), creating additional requirements for all new or revised BMAPs. BMAPs must now include planning-level details for each listed project, along with their priority ranking.

Project status was selected as the most appropriate indicator of a project's priority ranking based primarily on need for funding. Projects with a "completed" status were assigned a low priority. Projects classified as "underway" were assigned a 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" as well as certain "completed" projects that are ongoing each year (any project with one of these project types: "street sweeping," "catch basin inserts/inlet filter cleanout," "public education efforts," "fertilizer cessation," "fertilizer reduction," or "aquatic vegetation harvesting"), and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

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 in a timely way and achieve the assigned load reduction estimates. 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, projects completed since January 1, 2009, count toward the overall nitrogen reduction goals.

Estimated nitrogen reductions are subject to refinement based on DEP verification and/or on adjustment to calculations based on loading to groundwater rather than surface water. Agriculture load reductions (FDACS-01 and FDACS-02) assume 100 % enrollment and verification. Projects with a designation of TBD (to be determined) denotes information is not currently available, but will be provided by the stakeholder when it is available. Projects with a designation of N/A (not applicable) indicates the information for that category is not relevant to that project. Projects with a designation of "Not Provided" denotes that information was requested by DEP but was not provided by the lead entity.

Table B-1. Stakeholder projects to reduce nitrogen sources

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Apopka	A-01	Lester Road Improvement	City paved and improved the stormwater collection system.	Stormwater System Rehabilitation	Completed	Not Provided	2014	UTF	Not Provided	\$30,288,140	Not Provided	Not Provided
City of Apopka	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%.	Online Retention BMP	Completed	Not Provided	2010	UTF	Not Provided	Not Provided	Not Provided	Not Provided
City of Apopka	A-03	Street Sweeping	The City's Streets department swept a total of ~1,700 miles in 2017 with total weight of 844,540 lbs. collected.	Street Sweeping	Completed	May-17	N/A	UTF	72	Not Provided	Stormwater Service Fees	Not Provided
City of Apopka	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.	WWTF Upgrade	Completed	Not Provided	1992	WWTF	22,224	Not Provided	Not Provided	Not Provided
City of Apopka	A-05	Individual Septic to Sewer Projects	Dr. Philip Trinh Dental Office (place existing septic on city's wastewater collection system); Honey Transport Inc. (abandon existing septic and place business on city collection system); United Pentecostal Church (work with church to abandon existing septic system during its expansion and connect to city collection system); Robinsons Restaurant (work with restaurant to transfer wastewater effluent treatment from septic system to city's collection system).	Septic Phase Out	Completed	Not Provided	2015	OSTDS	735	Not Provided	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Apopka	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 Orange County's Kelly Park recreation area to city's collection system and abandon septic.	Septic Phase Out	Completed	Not Provided	2010	OSTDS	282	Not Provided	Not Provided	Not Provided
City of Apopka	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.	Septic Phase Out	Completed	Not Provided	2009	OSTDS	Not Provided	Not Provided	Not Provided	Not Provided
City of Apopka	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	Not Provided	2007	WWTF	Not Provided	Not Provided	Not Provided	Not Provided
City of Apopka	A-09	Yothers Rd. and Zellwood Station	City installed 5,375 feet of 10-inch force main and lift station that allowed Zellwood Mobile Home Park to decommission its package WWTF and effluent percolation pond, reducing effluent load to basin.	WWTF Phase Out	Completed	Not Provided	2006	WWTF	13,424	Not Provided	Not Provided	Not Provided
City of Apopka	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.	Reclaimed Water	Completed	Not Provided	2007	WWTF	Not Provided	\$750,000	Not Provided	Not Provided

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Apopka	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.	Reclaimed Water	Completed	Not Provided	2016	WWTF	Not Provided	\$1,587,000	Not Provided	Not Provided
City of Apopka	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.	Reclaimed Water	Underway	Not Provided	2005	WWTF	Not Provided	\$1,380,000	Not Provided	Not Provided
City of Apopka	A-14	Altamonte Springs to Apopka	Altamonte is in construction stage of sending 3.5 MGD of reuse water to Apopka with potential to discharge to Little Wekiva River.	Reclaimed Water	Completed	Not Provided	2016	WWTF	Not Provided	Not Provided	Not Provided	Not Provided
City of Apopka	A-15	Orange County Reuse to City	City is in design stage for receiving 3 MGD of reclaimed water that is currently going to Orange County RIBs; this will also reduce ground water withdrawal from city.	Reclaimed Water	Completed	Not Provided	2013	WWTF	2,308	\$490,000	Not Provided	Not Provided
City of Apopka	A-16	Lift Station 9 and Ten Wet Wells	Rehabilitate lift station wet well due to hydrogen sulfide dissolving concrete walls.	Sanitary Sewer Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	2008	WWTF	Not Provided	\$41,945	Not Provided	Not Provided
City of Apopka	A-17	Manholes (Alabama and 8th St.; Little St. and 9th St.; Park Ave; Charleston Park Subdivision)	Refine manholes with supercoat spray to prevent leaking between bricks.	Sanitary Sewer Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	2011	WWTF	Not Provided	\$28,420	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Apopka	A-18	Victoria Plaza, Forest Ave., 3rd St., Park Ave.	Reline to correct leaking joints.	Sanitary Sewer Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	Prior to 2015	WWTF	Not Provided	\$200,591	Not Provided	Not Provided
City of Apopka	A-19	Wastewater Treatment Plant (WWTP) Expansion and Nutrient Removal	City is in the design stage of upgrading the existing treatment plant and expanding capacity to 8 MGD.	WWTF Nutrient Reduction	Underway	Not Provided	2019	WWTF	TBD	\$63,000,000	Not Provided	Not Provided
City of Apopka	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	Underway	Jul-17	2018	UTF	Not Provided	\$26,000	Stormwater Service Fees	\$26,000
City of Apopka	A-21	MS4 Lake Sampling	Six (6) lakes connected to major outfalls are being sampled monthly. This monthly sampling will set a baseline of yearly fluctuations in nutrients and parameters. Marshall Lake, monitored under TMDL program, is sampled quarterly to monitor nutrient loading and parameters.	Monitoring/Data Collection	Underway	Jan-17	2018	UTF	Not Provided	\$6,000	Stormwater Service Fees	\$6,000
City of Apopka	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	Completed	Jan-18	N/A	UTF	3,336	N/A	N/A	N/A

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Altamonte Springs	AS-01	Little Wekiwa River Erosion Management Projects (1, 2, and 3)	Install structural controls to provide riverbank stabilization.	Shoreline Stabilization	Completed	Prior to 2015	2000	UTF	25	\$350,000	Not Provided	350,000
City of Altamonte Springs	AS-02	Riverbend Apartments Shoreline Stabilization	Install structural controls to provide riverbank stabilization.	Shoreline Stabilization	Completed	Prior to 2015	2004	UTF	11	\$250,000	Not Provided	250,000
City of Altamonte Springs	AS-03	Stimmell Tract Land Preservation (Audubon Society)	Conservation project – purchase 268 acres of land for preservation.	Land Preservation	Completed	Prior to 2015	2004	UTF	N/A	\$398,444	N/A	\$398,444
City of Altamonte Springs	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 BMP	Completed	Prior to 2015	2010	UTF	0	N/A	Private Development - unknown	N/A
City of Altamonte Springs	AS-05	Brantley Terrace Condo	Phase 3 of Lake Lotus Club, multifamily condominium development.	Stormwater BMP	Completed	Prior to 2015	2002	UTF	1	N/A	Private Development - unknown	N/A
City of Altamonte Springs	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 BMPs	Completed	Prior to 2015	2006	UTF	6	N/A	Private Development - unknown	N/A
City of Altamonte Springs	AS-13	Spring Oaks, San Sebastian, and River Run Inlet Skimmer Baskets	Install 39 inlet skimmer baskets.	Catch Basin Inserts	Completed	Prior to 2015	2006	UTF	1	\$23,890	Stormwater Utility Fund	23,890

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Altamonte Springs	AS-14	West Altamonte Operations and Administration Center	Identified area does not contribute to Wekiwa River; however, closed basin was not removed from consideration in TMDL due to potential influence to the springshed.	Closed Basin	Completed	Prior to 2015	2008	UTF	26	\$8,000,000	Public Works Capital Project Fund	8,000,000
City of Altamonte Springs	AS-15	Street Sweeping	Street sweeping occurs daily; total miles swept = 5,000 miles per year - Split between springshed and surface.	Street Sweeping	Completed	Prior to 2015	N/A	UTF	518	\$480,000 (\$240,000/s weeper)	Stormwater Utility Fund	\$480,000 (\$240,000/s weeper)
City of Altamonte Springs	AS-16	Citywide Pollutant Loading Model/H&H Study	City is contracting with consultants to complete citywide pollutant model and H&H study.	Study	Planned	Prior to 2015	TBD	UTF	N/A	\$200,000	Stormwater Utility Fund	TBD
City of Altamonte Springs	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	Prior to 2015	2009	UTF	N/A	\$105,000	Stormwater Utility Fund	TBD
City of Altamonte Springs	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	2016	TBD	WWTF	N/A	\$80,000	Public Works Capital Project Fund	80,000
City of Altamonte Springs	AS-26	Fertilizer Ordinance	The city is included in Seminole County's education and ordinances.	Regulations, Ordinances, and Guidelines	Completed	Not Provided	N/A	UTF	397	N/A	N/A	N/A
FDACS	FDACS-01	Agricultural Farm Fertilizer BMP Implementation	Enrollment and verification of BMPs by agricultural producers.	Agricultural Farm Fertilizer BMP Implementation	Underway	N/A	2023	FF	16,513	TBD	TBD	TBD

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
FDACS	FDACS-02	Agricultural Livestock Waste BMP Implementation	Enrollment and verification of BMPs by agricultural producers.	Agricultural Livestock Waste BMP Implementation	Underway	N/A	2023	LW	832	TBD	TBD	TBD
FDACS	FDACS-03	Agricultural Nurseries Fertilizer BMP Implementation	Enrollment and verification of BMPs by agricultural producers.	Agricultural Nurseries Fertilizer BMP Implementation	Underway	N/A	2023	NF	5,364	TBD	TBD	TBD
FDOT District 5	FDOT-02	FM: 239289 (Two 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.	Wet Detention Pond	Completed	2002	2004	UTF	13	Not Provided	Florida Legislature	Not Provided
FDOT District 5	FDOT-02b	FM: 239289 (Two Treatment Projects)	State Road 438: Treatment Basin - Pond 2B.	Wet Detention Pond	Completed	2002	2004	UTF	N/A	Not Provided	Florida Legislature	Not Provided
FDOT District 5	FDOT-02c	FM: 239289 (Two Treatment Projects)	State Road 438: Treatment Basin - Pond 2C.	Dry Retention Pond	Completed	2002	2004	UTF	N/A	Not Provided	Florida Legislature	Not Provided
FDOT District 5	FDOT-02d	FM: 239289 (Two Treatment Projects)	State Road 438: Wet Detention Pond 4.	Wet Detention Pond	Completed	2002	2004	UTF	N/A	Not Provided	Florida Legislature	Not Provided
FDOT District 5	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 BMP Retrofit/Expansion	Completed	2009	2014	UTF	59	Not Provided	Florida Legislature	Not Provided

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
FDOT District 5	FDOT-07b	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 BMP Retrofit/Expansion	Completed	2009	2014	UTF	N/A	Not Provided	Florida Legislature	Not Provided
FDOT District 5	FDOT-07c	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 BMP Retrofit/Expansion	Completed	2009	2014	UTF	N/A	Not Provided	Florida Legislature	Not Provided
FDOT District 5	FDOT-07d	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 BMP Retrofit/Expansion	Completed	2009	2014	UTF	N/A	Not Provided	Florida Legislature	Not Provided
FDOT District 5	FDOT-07e	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 BMP Retrofit/Expansion	Completed	2009	2014	UTF	N/A	Not Provided	Florida Legislature	Not Provided
Golf Courses	GC-01	Golf Course Reduction Credits	10 % BMP credit on golf course load to groundwater, assuming 100 % BMP implementation by golf course owners.	Golf Course Reduction Credits	Planned	N/A	TBD	STF	7,817	TBD	TBD	TBD
Lake County	LC-13	Fertilizer Ordinance	Enhanced Fertilizer Ordinance (above requirements), landscape ordinance, irrigation ordinances, FYN, and public education.	Regulations, Ordinances, and Guidelines	Completed	Not Provided	N/A	UTF	87	Not Provided	Lake County	Not Provided

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Ocoee	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; sewer area.	Stormwater BMPs	Completed	Not Provided	2008	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	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; sewer area.	Online Retention BMP	Completed	Not Provided	2013	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	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.	Online Retention BMP	Completed	Not Provided	2002	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	O-04	Forest Trails Subdivision	Three dry retention ponds to serve 51.8-acre single-family residential development.	Online Retention BMP	Completed	Not Provided	2004	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	O-05	Hackney Prairie Park	4.26-acre project served by stormwater treatment retention system; sewer area.	Online Retention BMP	Completed	Not Provided	2015	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	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; sewer area.	Online Retention BMP	Completed	Not Provided	2007	UTF	0	Not Provided	Not Provided	Not Provided

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Ocoee	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 Wekiwa River Protection Basin; sewer area.	Stormwater BMPs	Completed	Not Provided	2017	UTF	1	Not Provided	Not Provided	Not Provided
City of Ocoee	O-08	Ocoee Carwash	1.79-acre car wash facility, Lake Lotta watershed; sewer area.	Septic Phase Out	Completed	Not Provided	2009	OSTDS	2	Not Provided	Not Provided	Not Provided
City of Ocoee	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 BMPs	Completed	Not Provided	2001	UTF	1	Not Provided	Not Provided	Not Provided
City of Ocoee	O-10	Orchard Park Phase III Subdivision	Orchard Park Phase III 30.7-acre subdivision is located west of Lake Addah, on south side of Clarcona-Ocoee Rd., in west Orange County; site is located in Wekiwa River Hydrologic Basin, south of State Road 436, within Most Effective Recharge Area, but does not contain any portions of Riparian Habitat Protection Zone (RHPZ); project consists of construction of 65-lot single-family residential subdivision and dry retention pond; applicant does not propose any development.	Online Retention BMP	Completed	Not Provided	2001	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	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; sewer area.	Online Retention BMP	Underway	Not Provided	2014	UTF	33	Not Provided	Not Provided	Not Provided

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Ocoee	O-12	Prairie Lake Reserve	Construct surface water management system to serve 42-acre residential subdivision (townhomes); 3 retention ponds permitted.	Online Retention BMP	Completed	Not Provided	2007	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	O-13	Remington Oaks Phase I and II Subdivision	140-lot single-family 49.5-acre subdivision with two dry retention ponds.	Online Retention BMP	Completed	Not Provided	1999	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	O-14	Sabinal Ct. and Geneva St. Drainage Improvements – Prima Vista Subdivision	City applied for government modification in accordance with Paragraph 40C-42.024(2)(c), F.A.C.; city requested permission to perform construction activities within existing channel system that connects to Lake Lotta within Wekiva Recharge Protection Basin, but does not lie within Lake Apopka Basin; construction activities include removing and replacing concrete stormwater junction box, removing segment of 30-inch reinforced concrete pipe (RCP), installing 18-inch RCP, installing 42-inch RCP to replace 30-inch RCP, installing 2nd-generation baffle box, pipe end treatments, repairing and regrading channel side slopes, and installing stabilization matting; proposed improvements will alleviate flooding, improve safety, and improve water quality in subdivision that has no permitted stormwater management treatment system.	Baffle Boxes - Second Generation	Completed	Not Provided	2011	UTF	6	\$76,500	City of Ocoee	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Ocoee	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; sewer area.	Wet Detention Pond	Completed	Not Provided	2011	UTF	1	Not Provided	Not Provided	Not Provided
City of Ocoee	O-16	Villages of West Oak Subdivision	Construct two dry retention ponds to serve 33-lot, single-family, 5.5-acre subdivision.	Online Retention BMP	Completed	Not Provided	2000	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	O-17	Wellington Place Subdivision	Construct surface water management system to serve 14-acre residential subdivision.	Stormwater BMPs	Completed	Not Provided	2003	UTF	0	Not Provided	Not Provided	Not Provided
City of Ocoee	O-18	West Colonial Property	Construct 6.95-acre commercial development; sewer area.	Stormwater BMPs	Underway	Not Provided	2015	UTF	1	Not Provided	Not Provided	Not Provided
City of Ocoee	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	Completed	Not Provided	N/A	UTF	87	Not Provided	City Stormwater Fund	Not Provided
City of Ocoee	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 Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	2015	WWTF	Not Provided	\$1,901,067	City of Ocoee	Not Provided
City of Ocoee	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 BMPs	Completed	Not Provided	2001	UTF	1	Not Provided	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Ocoee	O-22	Bluford Ave. and Orlando Ave, Stormwater Improvements Project	Project consists of retrofitting an area with no stormwater collection and treatment.	Stormwater BMPs	Completed	Not Provided	2016	UTF	5	\$1,425,549	City Stormwater Fund	Not Provided
City of Ocoee	O-23	Downtown Redevelopment Master Plan - Bluford Avenue Area	Project consists of revitalizing the downtown area of the city with retrofitting with a regional stormwater collection and treatment.	Regional Stormwater Treatment	Planned	Not Provided	TBD	UTF	Not Provided	\$50,000,000	City Funding and Bond	Not Provided
City of Ocoee	O-24	Public Works Complex Stormwater Management System	Retrofitting Public Works Complex with stormwater management system.	Wet Detention Pond	Completed	Not Provided	2016	UTF	1	\$147,041.00	City Stormwater Fund	Not Provided
City of Ocoee	O-25	White Road Stormwater Improvements	Retrofitting Road with exfiltration system design.	Exfiltration Trench	Completed	Not Provided	2017	UTF	1	\$405,960.00	City Stormwater Fund	Not Provided
City of Ocoee	O-26	Arden Park North Phase 2	310-acre site with construction of seven dry retention ponds (two of which are interconnected) for future construction. 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. The master system has been designed for a future build out condition of 595-single-family lots, roadways, storm sewer system, clubhouse, and school.	Online Retention BMP	Completed	Not Provided	2016	UTF	N/A	Not Provided	Not Provided	Not Provided

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Ocoee	O-27	McCormick Reserve	The project consists of 133 single-family lots, roadway, stormsewer system, extending a portion of Clark Road 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 the same as in the pre-development condition. The operation and maintenance for the portion of Clark Road to be constructed under this application will be City of Ocoee.	Online Retention BMP	Completed	Not Provided	2016	UTF	N/A	Not Provided	Not Provided	Not Provided
City of Ocoee	O-28	Forest Lake Estates	Major modification to the existing permit known as Whispering Pines Subdivision due to project name change, ownership change, product change, layout change and associated changes to drainage patters and infrastructure. Ocoee Pines is a proposed single family development that will consist of approximately 278 single-family homes and a community amenity center located in the City of Ocoee on both the east and west side of Clarcona-Ocoee Road. There will be an expansion to the existing pond previously permitted with Clarcona-Ocoee Road under Environmental Resource Permit (ERP) 40-095-70576-6.	Stormwater BMP Retrofit/Expansion	Completed	Not Provided	2016	UTF	N/A	Not Provided	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Ocoee	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 Wekiwa River Hydrologic Basin.	Online Retention BMP	Completed	Not Provided	2016	UTF	N/A	Not Provided	Not Provided	Not Provided
City of Ocoee	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	Underway	Feb-18	2018	UTF	29	\$340,000	City of Ocoee Stormwater Utility Fund	\$1.00
City of Ocoee	O-31	Fertilizer Ordinance - Orange County Ordinance No. 2017-14	Fertilizer ordinance, pet waste ordinance, landscape ordinance, irrigation ordinances, FYN, and public education. Covered by Orange County.	Regulations, Ordinances, and Guidelines	Completed	Not Provided	N/A	UTF	1,620	N/A	N/A	N/A
Town of Oakland	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.	Online Retention BMP	Completed	Not Provided	Prior to 2015	UTF	N/A	Not Provided	Not Provided	Not Provided
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	Not Provided	2017	UTF	N/A	\$30,000	Not Provided	Not Provided
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 BMPs	Completed	Not Provided	2016	UTF	Not Provided	\$15,000	Not Provided	Not Provided

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Town of Oakland	OAK-04	Stormwater/Drainage Improvements - Mid Town - Phase 1	Construction of a 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 BMPs	Underway	Not Provided	2018	UTF	8	Design Cost Construction cost - Phase 1 - \$579,787.00	Not Provided	Not Provided
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	Not Provided	2017	UTF	N/A	TBD	Oakland	2017 - \$20,000.00 2018 - \$20,000.00
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	Not Provided	2016	OSTDS	N/A			
Town of Oakland	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	Not Provided	2017	OSTDS	N/A	\$700,000.00 +	DEP	\$250,000
Town of Oakland	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	Underway	Not Provided	2018	OSTDS	N/A	Design Cost - \$85,000.00 (est.) Construction cost - \$1,300,000.00 (est.)	DEP	\$1,000,000
Town of Oakland	OAK-09	Hull Island Development	Acquisition of approximately 35 acres of wetlands and approximately 2 acres of upland along the south shore of Lake Apopka.	Land Acquisition	Underway	Not Provided	2018	UTF	N/A	\$500,000	N/A	N/A

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Town of Oakland	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	Underway	Not Provided	2019	OSTDS	N/A	Design Cost - \$85,000.00 (est.) Construction cost - \$1,300,000.00 (est.)	DEP	\$1,000,000
Town of Oakland	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 approximately 200 residential units.	Wastewater Service Area Expansion	Underway	Not Provided	2018	OSTDS	N/A	Design Cost - \$40,000.00 Construction cost - \$5,450,000.00	Pulte Homes	\$5,000,000
Town of Oakland	OAK-12	Railroad Avenue sanitary sewer lift station	Construction of regional sewage lift station and associated gravity sewer to allow for future septic system abandonments.	Wastewater Service Area Expansion	Underway	Not Provided	2018	OSTDS	N/A	Design cost - \$35,000.00 Construction cost - \$400,000.00	Town of Oakland	\$430,000.00
Town of Oakland	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	Completed	Not Provided	N/A	UTF	100	Not Provided	Not Provided	Not Provided
Orange County	OC-01	Elba Way	Erosion protection of Little Wekiva River; install gabions, grade control structures, river reshaping.	Shoreline Stabilization	Completed	Not Provided	2009	UTF	24	\$1,000,000	Not Provided	Not Provided
Orange County	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	Not Provided	2010	UTF	5	\$132,000	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Orange County	OC-03	NRCS Riverside Acres	Erosion protection of Little Wekiva riverbank, install rip-rap, project length = 287 feet.	Shoreline Stabilization	Completed	Not Provided	2010	UTF	7	\$650,000	Not Provided	Not Provided
Orange County	OC-04	NRCS Riverside Park Ave.	Erosion protection of Little Wekiva riverbank, install rip-rap, project length 150 feet.	Shoreline Stabilization	Completed	Not Provided	2008	UTF	4	\$350,000	Not Provided	Not Provided
Orange County	OC-05	Riverside Acres Arch Pipe	Replace existing 1750 feet of pipe-arch pipe in Riverside Acres subdivision with open channel section and restore to reflect original river configuration.	Hydrologic Restoration	Completed	Not Provided	2005	UTF	Not Provided	\$5,000,000	Not Provided	Not Provided
Orange County	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	Not Provided	2010	UTF	25	\$600,000	Not Provided	Not Provided
Orange County	OC-07	Sherry Dr.	Erosion protection of Little Wekiva River bank; install gabion block and Reno mattress; project length = 400 feet.	Shoreline Stabilization	Completed	Not Provided	2007	UTF	10	\$600,000	Not Provided	Not Provided
Orange County	OC-08	Little Wekiva Slope Stabilization West/East Banks	Eliminate erosion of banks by using steel sheet pile.	Shoreline Stabilization	Completed	Not Provided	2000	UTF	32	\$700,000	Not Provided	Not Provided
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	Completed	Not Provided	2005	UTF	9	\$4,397,800	N/A	Inside Springshed

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Orange County	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	Not Provided	2007	UTF	N/A	\$7,000,000	Not Provided	Not Provided
Orange County	OC-11	Pine Plantation	Previous land use = agriculture; management focus = passive recreation, preservation; acreage = 40.	Land Use Change	Completed	Not Provided	2009	UTF	0	\$1,000,000	N/A	N/A
Orange County	OC-12	Sandhill Preserve	Previous land use = agriculture; management focus = water resource, sandhill; acreage = 83.03.	Land Use Change	Completed	Not Provided	2005	UTF	7	\$3,320,000	N/A	N/A
Orange County	OC-13	Stormwater Pond Inspection	Inspect private/public stormwater ponds for compliance with performance and permit conditions.	Stormwater BMP Inspections	Completed	Not Provided	1996	UTF	N/A	Not Provided	Not Provided	Not Provided
Orange County	OC-14	Tree Planting at Elba Way/Riverside Park	Project will reduce temperature of water and improve SCI.	Tree Planting	Completed	Not Provided	2009	UTF	N/A	\$55,000	Not Provided	Not Provided
Orange County	OC-15	11th and 12th St. Improvement	New stormwater treatment to serve 11th and 12th Streets; 8.8 acres.	Stormwater BMP	Completed	Not Provided	1999	UTF	12	Not Provided	Not Provided	Not Provided
Orange County	OC-16	Clarcona Ocoee East and West Segments	4-lane road improvement; existing two lanes do not have stormwater treatment; project length = 2.5 miles.	Stormwater BMP	Underway	Not Provided	TBD	UTF	8	Not Provided	Not Provided	Not Provided

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Orange County	OC-22	Rock Spring Road	4-lane road improvement; existing two lanes do not have stormwater treatment; project length = 2 miles.	Stormwater BMPs	Completed	Not Provided	Prior to 2015	UTF	7	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	2007	UTF	0	Not Provided	Not Provided	Not Provided
Orange County	OC-24	13th Ave.	Pave .5-acre dirt road treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	Not Provided	2007	UTF	1	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	2007	UTF	0	Not Provided	Not Provided	Not Provided
Orange County	OC-26	17th Ave.	Pave .6-acre dirt road treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	Not Provided	2007	UTF	1	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	2009	UTF	0	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	Prior to 2015	UTF	0	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	Prior to 2015	UTF	1	Not Provided	Not Provided	Not Provided

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Orange County	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	Not Provided	2009	UTF	1	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	Prior to 2015	UTF	2	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	Prior to 2015	UTF	140	Not Provided	Not Provided	Not Provided
Orange County	OC-33	Alternative Surface Program – Group IIIB Projects	Pave 61.53-acre dirt roads – treatment with open swales and ditch blocks.	Grass swales with swale blocks or raised culverts	Completed	Not Provided	Prior to 2015	UTF	87	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	Prior to 2015	UTF	1	Not Provided	Not Provided	Not Provided
Orange County	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	Not Provided	Prior to 2015	UTF	2	Not Provided	Not Provided	Not Provided
Orange County	OC-36	Street Sweeping	Streets are swept every six weeks; 481,128 pounds of material removed per year.	Street Sweeping	Completed	Not Provided	N/A	UTF	29	Not Provided	Not Provided	Not Provided
Orange County	OC-37	Lake Gandy Hydrologic and Nutrient Study	Study to evaluate hydrologic conditions and nutrient loadings to Lake Gandy.	Study	Completed	Not Provided	2012	UTF	N/A	Not Provided	Not Provided	Not Provided

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Orange County	OC-39	Force Main/Gravity Replacement	Install 1,200 feet of 4-inch force main; new force main expected to prevent wastewater leakage; All American Blvd. from Clarcona Ocoee to Kennedy; force main from Avalon Rd. to Hiwassee Rd. 7,600 linear feet 36-inch force main; 760 linear feet 30-inch force main; and 1,200 linear feet. 12-inch force main. Many parcels near 35-21-28-0000-00-150; install 4,500 feet of 12-inch force main. New force main expected to prevent wastewater leakage. Clarcona Ocoee Rd. from Ingram to Clarke; install 11,000 feet of force main from Indian Hill Rd. to PS #3411. New force main will prevent wastewater leakage. North Pine Hills Rd. at Indian Hill Rd. and Clarcona Ocoee Rd.; relocate 710 linear feet 4-inch force main 1,280 linear feet 16-inch force main; and 710 linear feet 8-inch gravity main Many parcels near 30-21-29-0521-00-010.	Sanitary Sewer Collection System Rehabilitation, Maintenance, or Replacement	Underway	May-17	TBD	WWTF	N/A	\$10,494,000	Not Provided	Not Provided
Orange County	OC-40	Pump Station Removal/Relocation (R/R)	Replace multiple pump stations.	Sanitary Sewer Collection System Rehabilitation, Maintenance, or Replacement	Completed	Jun-17	Prior to 2015	WWTF	N/A	\$13,263,500	Not Provided	Not Provided

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Orange County (Utilities)	OC-41	Force Main/Gravity Sewer Rehab	Combine cured in place pipe (CIPP) and point repairs to restore approximately 10,000 linear feet of 8-inch gravity sanitary sewer, including lining or coating 40 manholes. Near 20-22-29-4552-08-001; in addition to upsized storm pipes that go to Lake Robin, project includes replacing force e main, gravity line, and manhole; replacement of force main will reduce leakage of sewage. Near 24-22-28-7573-15-250; remove and relocate Pump Station #3045, plus remove existing force main and install 800 feet of gravity sewer, 29-21-29-4940-00-230.	Sanitary Sewer Collection System Rehabilitation, Maintenance, or Replacement	Underway	Not Provided	2016	WWTF	TBD	\$1,780,000	Not Provided	Not Provided
Orange County	OC-42	Little Wekiva STA	Stormwater treatment train.	BMP Treatment Train	Planned	Jun-17	2021	UTF	TBD	\$5,000,000	Orange County	Not Provided
Orange County	OC-43	Lake Gandy BMP	Stormwater treatment train.	BMP Treatment Train	Canceled	Not Provided	N/A	UTF	N/A	\$1,000,000	Orange County	Not Provided
Orange County	OC-44	Kathleen Dr.	Erosion control.	Erosion Control	Underway	Not Provided	2018	UTF	TBD	\$514,000	Orange County	Not Provided

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City of Orlando	ORL-01	Compliance Inspections of Private Stormwater Systems	Inspect annually all 233 commercial, single, and multifamily systems in basin for functionality; systems include, but are not limited to, retention and detention ponds, underdrains, exfiltration, and underground vaults; by maintaining ponds at design criteria, city is ensuring optimal level of pollutant removal efficiency is being achieved.	Stormwater BMP Inspections	Completed	Not Provided	1989	UTF	N/A	Not Provided	City of Orlando Streets and Stormwater Division	Not Provided
City of Orlando	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 BMP Inspections	Completed	Not Provided	1970	UTF	N/A	Not Provided	City of Orlando Streets and Stormwater Division	Not Provided
City of Orlando	ORL-03	Two Inlet Baskets Around Lake Daniel	Install (2006) 2 inlet baskets in Lake Daniel Basin. 1.89 cubic yards/year of material collected.	Catch Basin Inserts	Completed	Not Provided	N/A	UTF	0	\$1,500	City of Orlando Streets and Stormwater Division	Not Provided
City of Orlando	ORL-04	22 Inlet Baskets Around Lake Orlando	Install (2008) 22 inlet baskets in Lake Orlando Basin. 47.29 cubic yards/year of material collected.	Catch Basin Inserts	Completed	Not Provided	N/A	UTF	11	\$7,770	City of Orlando Streets and Stormwater Division	Not Provided
City of Orlando	ORL-12	Street Sweeping	Streets are swept every two weeks; 5023.2 cubic yards/year of material collected.	Street Sweeping	Completed	Not Provided	N/A	UTF	23	Not Provided	City of Orlando Streets and Stormwater Division	Not Provided

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City of Orlando	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	Not Provided	2008	UTF	N/A	\$49,900	City of Orlando Streets and Stormwater Division	Not Provided
City of Orlando	ORL-15	Fairview Shores – North Service Area	Improve sanitary sewer, drainage, and roadway; install new sanitary force main, lift station (#65), and gravity pipes in area with septic tanks to reduce nutrient seepage into ground water table; install 2 Stormceptors to capture gross pollutants before they reach lake.	Sanitary Sewer Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	2008	WWTF	Not Provided	\$4,522,401	City of Orlando Water Reclamation Division	Not Provided
City of Orlando	ORL-20	Lift Station #85 Variable Frequency Drives	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 Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	Prior to 2015	WWTF	Not Provided	N/A	City of Orlando Water Reclamation Division	Not Provided
City of Orlando	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 Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	2001	WWTF	Not Provided	\$767,632	City of Orlando Water Reclamation Division	Not Provided
City of Orlando	ORL-28	Water Conserv II Treatment Improvements	Updated WWTF infrastructure to achieve lower nutrient concentrations (Replaced aging blowers and diffusers. Added Internal Recycle and Big Bubble Mixing. Rebuilt Secondary Clarifiers with Spiral Scrapers and LA EDI).	WWTF Nutrient Reduction	Completed	Not Provided	2016	WWTF	69,436	12,500,000	DEP SRF	\$11,700,000

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City of Orlando	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	Underway	N/A	2018	OSTDS	N/A	112,000	City of Orlando/Water Reclamation Division	\$112,000
City of Orlando	ORL-31	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	Completed	Not Provided	N/A	UTF	353	Not Provided	Not Provided	Not Provided
Seminole County	SC-01	Sweetwater Cove Dredging and Drainage Improvements and Sweetwater Tributary Erosion Project	Increase water quality treatment residence 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 BMP Retrofit/Expansion	Completed	Not Provided	2010	UTF	396	\$2,700,000	Not Provided	Not Provided
Seminole County	SC-02	Grade Control Structures 6 and 7	Reduce sediment loads through bank stabilization and river grade control structures in Little Wekiva River; area served = >5,000 acres.	Shoreline Stabilization	Completed	Not Provided	2001	UTF	26	\$300,000	Not Provided	Not Provided
Seminole County	SC-03	Horse Lovers Lane Erosion Control Project	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	Not Provided	2004	UTF	17	\$700,000	Not Provided	Not Provided
Seminole County	SC-04	North Western Erosion Control Project	Reduce sediment loads through bank stabilization along Little Wekiva River; area served >5,000 acres.	Shoreline Stabilization	Completed	Not Provided	2004	UTF	5	\$950,000	Not Provided	Not Provided

Wekiwa Spring and Rock Springs Basin Management Action Plan, June 2018

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Seminole County	SC-05	Weathersfield Erosion Control Project	Reduce sediment loads through bank stabilization along Little Wekiva River; area served >5,000 acres.	Shoreline Stabilization	Completed	Not Provided	2001	UTF	4	\$750,000	Not Provided	Not Provided
Seminole County	SC-10	Mirror Lake	Exotics removal/revegetation with native species. Accomplished using in-house staff, residents, and volunteers.	Exotic Vegetation Removal	Completed	Not Provided	2010	UTF	Not Provided	\$75,000	Not Provided	Not Provided
Seminole County	SC-14	Bear Lake Rd. Reconstruction	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 BMPs	Completed	Not Provided	2008	UTF	14	\$2,200,000	Not Provided	Not Provided
Seminole County	SC-15	Bunell Rd. Widening	Provide treatment to untreated roadway through construction of new wet retention basin and exfiltration trench; designed to hold treatment volume plus 50%; area served = 7.5 acres.	Stormwater BMPs	Completed	Not Provided	2010	UTF	5	\$3,200,000	Not Provided	Not Provided
Seminole County	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 BMPs	Completed	Not Provided	2010	UTF	9	\$3,500,000	Not Provided	Not Provided
Seminole County	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	Not Provided	N/A	UTF	34	\$800,000	Not Provided	Not Provided
Seminole County	SC-20	Wekiva Springs Rd. at Wekiva Springs State Park	Construct two interconnected sedimentation ponds to provide additional water quality treatment for two square miles of residential development; area served = two square miles.	Online Retention BMP	Completed	Not Provided	2005	UTF	25	\$220,000	Not Provided	Not Provided

Wekiwa Spring and Rock Springs Basin Management Action Plan, June 2018

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Seminole County	SC-21	Wekiva Springs Rd. Hunt Club to Fox Valley	Provide water quality treatment to existing roadway through swales; area served = 7 acres.	Grass swales without swale blocks or raised culverts	Completed	Not Provided	2008	UTF	8	\$1,800,000	Not Provided	Not Provided
Seminole County	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	Underway	Not Provided	TBD	UTF	17	\$900,000	Not Provided	Not Provided
Seminole County	SC-24	Wekiva Springs Rd. – State Road 434 to Sabal Point	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	Not Provided	2008	UTF	2	\$6,900,000	Not Provided	Not Provided
Seminole County	SC-25	Street Sweeping	Street sweeping within the Big Wekiva and Little Wekiva drainage basins.	Street Sweeping	Completed	Not Provided	N/A	UTF	3	Not Provided	Not Provided	Not Provided
Seminole County	SC-26	Bear Lake Chain-of-Lakes Hydrology/Nutrient Budget and Water Quality Management Plan	Detailed nutrient and hydrologic study, identifying and quantifying all nutrient sources, including internal loading, ground water, surface water, precipitation, etc.; management plan includes potential structural and nonstructural improvements that can be made to protect and enhance water quality.	Study	Completed	Not Provided	Prior to 2015	UTF	N/A	Not Provided	Not Provided	Not Provided

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Seminole County	SC-27	Spring Lake/Spring Lake Watershed Hydrology/Nutrient Budget and Water Quality Management Plan	Detailed nutrient and hydrologic study, identifying and quantifying all nutrient sources, including internal loading, ground water, surface water, precipitation, etc.; management plan includes potential structural and nonstructural improvements that can be made to protect and enhance water quality.	Study	Completed	Not Provided	2018	UTF	N/A	Not Provided	Not Provided	Not Provided
Seminole County	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	Not Provided	TBD	UTF	N/A	Not Provided	Not Provided	Not Provided
Seminole County	SC-29	Seminole County Water Quality Master Plan	Countywide assessment of all water quality data, monitoring programs, regional ponds, capital improvement plan (CIP) projects, etc., to improve efficiency and effectiveness of existing programs and identify additional structural/nonstructural improvement projects.	Study	Underway	Not Provided	TBD	UTF	N/A	Not Provided	Not Provided	Not Provided
Seminole County	SC-31	Bridgewater Dr.	Manhole sealing.	Sanitary Sewer Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	Prior to 2015	WWTF	N/A	\$16,179	Not Provided	Not Provided
Seminole County	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 Collection System Rehabilitation, Maintenance, or Replacement	Completed	Spring 2017	Prior to 2015	WWTF	N/A	\$324,353	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Seminole County	SC-35	Bear Lake Drainage Improvements (Hamilton Pond)	Regional stormwater Facility for Bear lake, Little Bear.	Regional Stormwater Treatment	Underway	Jun-17	2018	UTF	Not Provided	\$1,150,000	Not Provided	Not Provided
Seminole County	SC-37	Alton Drive Stormwater Pond	Modify existing stormwater pond to increase treatment efficiency and reroute untreated stormwater into existing pond.	Wet Detention Pond	Underway	Jun-17	2019	UTF	Not Provided	Not Provided	Florida Legislature	Not Provided
Seminole County	SC-39	Lake Asher Restoration	Mechanical removal of vegetative material and associated organic matter. Shoreline planting with natives.	Aquatic Vegetation Harvesting	Completed	Not Provided	2017	UTF	Not Provided	\$285,000	Florida Legislature	Not Provided
Seminole County	SC-43	Sweetwater Cove Shoreline Restoration	Planted native aquatic vegetation along individual homeowner shorelines.	Creating/Enhancing Living Shoreline	Completed	Not Provided	2017	UTF	Not Provided	Not Provided	Not Provided	Not Provided
Seminole County	SC-44	Lake Brantley Shoreline Restoration	Planted native aquatic vegetation along individual homeowner shorelines.	Creating/Enhancing Living Shoreline	Completed	Not Provided	2017	UTF	Not Provided	Not Provided	Not Provided	Not Provided
Seminole County	SC-45	Mirror Lake Shoreline Restoration	Planted native aquatic vegetation along individual homeowner shorelines.	Creating/Enhancing Living Shoreline	Completed	Not Provided	2017	UTF	Not Provided	Not Provided	Not Provided	Not Provided
Seminole County	SC-46	Bear Lake Shoreline Restoration	Planted native aquatic vegetation along individual homeowner shorelines.	Creating/Enhancing Living Shoreline	Planned	Not Provided	TBD	UTF	Not Provided	Not Provided	Not Provided	Not Provided
Seminole County	SC-47	Sweetwater Cove Lyngbya Harvesting	Harvesting of lyngbya.	Macroalgal Harvesting	Completed	Not Provided	2017	UTF	Not Provided	Not Provided	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Seminole County	SC-48	Nutrient Filter Pilot Project	Not Provided	TBD	Planned	Not Provided	TBD	UTF	Not Provided	Not Provided	Not Provided	Not Provided
Seminole County	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 Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	2017	WWTF	Not Provided	\$57,000	Not Provided	Not Provided
Seminole County	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 Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	2017	WWTF	Not Provided	\$48,000	Not Provided	Not Provided
Seminole County	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	Completed	N/A	N/A	UTF	1,736	150,000	Ad valorem taxes & FFL cost shares	\$28,000 annual city cost share total/\$37,000 county portion

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Seminole County	SC-54a	Seminole County Ordinance and Education Credits	Additional credits from Seminole County Ordinance outside of standard 6%. Ordinance is more restrictive than State Model as follows: 15 foot setback from waterbodies; no N fertilizer during rainy season (6/1 - 9/30); at least 50%SRN outside the rainy season, increasing to 65%SRN after 3 years. Seminole County is working on quantifying reductions attributed to the ordinance through multipronged assessment of a Wekiwa Sub-basin, including educational outreach, behavioral surveys and nutrient studies. The estimated N reductions are based on leaching calculations.	Regulations, Ordinances, and Guidelines	Planned	10/1/2018	TBD	UTF	TBD	150,000	Ad valorem taxes & FFL cost shares	\$28,000 annual city cost share total/\$37,000 county portion
Seminole County	SC-55	Spring Lake Baffle Box	Retrofit an existing inlet as a pollutant removal structure.	Baffle Boxes - Second Generation	Planned	Not Provided	TBD	UTF	Not Provided	200,000	Not Provided	Not Provided
Seminole County	SC-56	Spring Lake Outfall Canal Excavation	Excavation and recontouring of the outfall canal to remove existing accumulations of organic muck and vegetation debris.	Muck Removal/ Restoration Dredging	Planned	Not Provided	TBD	UTF	Not Provided	580,000	Not Provided	Not Provided
Seminole County	SC-57	Spring Lake Hills Outfall Weir Rehab	Rehab the weir in the Spring lake Hills wetland to maximize retention time.	Control Structure	Underway	Not Provided	2018	UTF	Not Provided	15,000	Not Provided	Not Provided
Seminole County	SC-58	Hibiscus Lane Stormwater Pump Station	Small pumping station at Sunset Rd. and Balmy Beach Dr. to pump discharges through drainage system into existing treatment pond.	Other	Planned	Not Provided	TBD	UTF	Not Provided	400,000	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Utilities, Inc. of Florida	SUC-02	Wekiva WWTF Rehab	Improved treatment process that results in increased reliability and consistency in producing reuse quality effluent.	Reclaimed Water	Underway	5/15/2016	2018	WWTF	Not Provided	\$1,837,324	Utilities, Inc. of Florida	N/A
Utilities, Inc. of Florida	SUC-03	Wekiva Filter Media Replacement	Improved treatment process that results in increased reliability and consistency in producing reuse quality effluent.	Reclaimed Water	Completed	11/30/2016	2016	WWTF	Not Provided	\$85,747	Utilities, Inc. of Florida	N/A
Utilities, Inc. of Florida	SUC-04	Shadow Hills WWTF Diversion	Shadow Hills WWTF is in secondary zone of Wekiva Protection Area, uses per 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.	Reclaimed Water	Underway	4/30/2016	2018	WWTF	Not Provided	\$7,781,739	Utilities, Inc. of Florida	N/A
Turnpike Enterprise	TP-01	Widen Turnpike, Beulah to State Road 50	Roadway; three inches treated in dry retention; recovered in 72 hours.	Online Retention BMP	Completed	Not Provided	2016	UTF	62	\$82,632,000	Not Provided	Not Provided
Turnpike Enterprise	TP-02	Widen Turnpike, Gotha to Beulah	Roadway; 1.25 inches treated in dry retention, recovered in 72 hours.	Online Retention BMP	Completed	Not Provided	2016	UTF	158	\$55,248,000	Not Provided	Not Provided
Turnpike Enterprise	TP-04	Education Efforts	No fertilizer on right-of-ways, educational signage, illicit discharge training.	Fertilizer Cessation	Completed	Not Provided	N/A	UTF	Not Provided	N/A	N/A	N/A
Turnpike Enterprise	TP-05	Street Sweeping	Street Sweeping MP (265-274) 600 Lm per year.	Street Sweeping	Completed	Not Provided	N/A	UTF	TBD	Not Provided	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Winter Garden	WG-01	Tucker Ranch	City purchased approximately 208 acres of agricultural land to convert to primitive campground/park.	Land Use Change	Completed	Not Provided	2016	UTF	302	\$2,100,000	N/A	N/A
City of Winter Garden	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 BMP Retrofit/Expansion	Completed	Not Provided	2009	UTF	41	Not Provided	Not Provided	Not Provided
City of Winter Garden	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 BMP Retrofit/Expansion	Completed	Not Provided	2016	UTF	38	Not Provided	Not Provided	Not Provided
City of Winter Garden	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	Completed	Not Provided	N/A	UTF	202	Not Provided	Not Provided	Not Provided
City of Winter Garden	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 Collection System Rehabilitation, Maintenance, or Replacement	Completed	Not Provided	2012	WWTF	Not Provided	Not Provided	Not Provided	Not Provided
City of Winter Garden	WG-06	Stormwater Capture and Reuse and Recharge	The berming of 2dDirect discharge canals to Lake Apopka and treat the stormwater to reuse standards to be put into the distribution system.	Stormwater Reuse	Completed	Aug-17	2018	UTF	TBD	\$3,360,000	Winter Garden, DEP, SJRWMD	DEP- \$750,000 SJRWMD- \$750,00 W.G. - \$1,860,000

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Winter Garden	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	Completed	Not Provided	N/A	UTF	876	Not Provided	Not Provided	Not Provided
Wekiwa State Park	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	Not Provided	Prior to 2015	UTF	Not Provided	Not Provided	N/A	Inside Springshed
Wekiwa State Park	WSP-02	Remove Wekiwa State Park from Septic	Four-phase plan.	Septic Phase Out	Underway	Not Provided	TBD	OSTDS	Not Provided	\$1,616,775	Not Provided	Not Provided
Wastewater Utilities	WU-01	WWTF Policy Reductions	Achieved by WWTF policy if implemented BMAP-wide, achieving 3 or 6 mg/L.	WWTF Policy Reductions	Planned	N/A	TBD	WWTF	54,752	TBD	TBD	TBD

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Orange County (Utilities)	OC-45	Northwest Water Reclamation Facility (NWRf) Phase III Expansion	Project reduction was verified as 28,271 lb-N/yr, however this reduction was already accounted for in the NSILT, which used data with the reduced effluent concentration. The reduction has been zeroed out to avoid double counting, however it is recognized that these improvements were made within the project collection period and prior to the new effluent standards. The project consists of the design and construction of new physical, biological and chemical treatment facilities for raw sewage. The NWRf will be upgraded from 7.5 MGD to 11.25 MGD and nitrogen will be reduced to less than 3 mg/L. Pretreatment structure improvements/additional biological nutrient removal basins/modification of clarifier equipment/addition of cloth filtration/additional chlorine contact facilities.	WWTF Nutrient Reduction	Completed	Not Provided	2012	WWTF	0	\$31,000,000/ Capital Dollars	OCUD Capital Improvements Program Budget	Not Provided
City of Maitland	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	Completed	Not Provided	N/A	UTF	106	Not Provided	Not Provided	Not Provided
Orange County	OC-46	Little Wekiva CIBs	Install 180 CIBs around Little Wekiva Basin.	Catch Basin Inserts	Completed	Not Provided	2017	UTF	11	\$196,899	Orange County	Not Provided

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Orange County	OC-47	Trimble Park Office Septic	Septic upgrade to Passive nitrogen treatment.	Septic Enhancement	Completed	Jan-18	2018	OSTDS	NA	\$0	Vendor	Not Provided
Orange County	OC-48	Magnolia Park Sanitary Connection	Conversion of park facilities from septic to sanitary.	Septic Phase Out	Underway	Not Provided	2018	OSTDS	33	\$400,000	DEP	\$250,000
Orange County	OC-49	Camp Joy Sanitary Connection	Conversion of park facilities from septic to sanitary.	Septic Phase Out	Underway	Not Provided	2019	OSTDS	6.42	Not Provided	Orange County	Not Provided
Orange County	OC-50	North Orange Branch Sanitary Connection	Conversion of facilities from septic to sanitary.	Septic Phase Out	Underway	Not Provided	2018	OSTDS	5	\$105,832	OCLS	Not Provided
Orange County	OC-51	Lake Gandy BMP	Treatment Train Consisting of Activated Media beds, modular wetlands.	Other	Planned	Not Provided	2020	UTF	1	\$1,000,000	Orange County	Not Provided
Orange County	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	Completed	2017	N/A	UTF	7,076	N/A	N/A	N/A
Various	OSTDS-01	Enhancement of Existing OSTDS - Voluntary	Repair, upgrade, replacement, drainfield modification, addition of effective nitrogen reducing features, initial connection to a central sewerage system, or other action to reduce nutrient loading, voluntarily taken by the owner of an OSTDS within the BMAP.	OSTDS Enhancement	Underway	2018	N/A	OSTDS	TBD	TBD	DEP	TBD

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Various	OSTDS-02	Enhancement of Existing OSTDS - Required	Repair, upgrade, replacement, drainfield modification, addition of effective nitrogen reducing features, initial connection to a central sewerage system, or other action taken to comply with the OSTDS Remediation Plan for the group of systems identified for remediation (see Appendix D).	OSTDS Enhancement	Planned	TBD	TBD	OSTDS	TBD	TBD	DEP	TBD

Appendix C. PFA

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: <http://publicfiles.dep.state.fl.us/dear/PFAs>.

Appendix D. OSTDS Remediation Plan

The Florida Aquifer and Springs Protection Act specifies 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 shall include an OSTDS remediation plan. Based on the Wekiwa Spring and Rock Springs Basin NSILT estimates and GIS coverages, OSTDS contribute approximately 29 % loading to groundwater in the BMAP area. 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.

D.1 Plan Elements

D.1.1 Installation of New OSTDS

Per statute, new OSTDS on lots of less than one acre are prohibited within PFA, if the addition of the specific systems conflicts with an OSTDS remediation plan incorporated into an OFS BMAP (see Section 373.811(2), F.S.). This OSTDS remediation plan prohibits new conventional systems on lots of less than one acre within the PFA, unless the OSTDS includes enhanced treatment of nitrogen or unless the OSTDS permit applicant demonstrates that sewer connections will be available within 5 years. Local governments and utilities are expected to develop master wastewater treatment feasibility analyses to identify specific areas to be sewered within 20 years of BMAP adoption. To aid in implementation, the DEP Map Direct webpage includes a detailed downloadable springs PFA boundary shapefile. 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. FDOH permits the installation of new OSTDS pursuant to Chapter 64E-6, F.A.C., which 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. FDOH permitting requirements with respect to the definition of "new" or "less than one acre" will be followed for this remediation plan. To meet the enhanced treatment of nitrogen requirement, the system must include at least one of the following nitrogen reducing enhancements:

- Features allowed pursuant to FDOH rule, such as in-ground nitrogen-reducing biofilters (media layer systems).
- Features consistent with and identified in the FDOH Florida Onsite System Nitrogen Removal Strategy Studies report, such as in-tank nitrogen-reducing biofilters.
- Other FDOH-approved treatment systems capable of meeting or exceeding the NSF International (formerly National Sanitation Foundation [NSF]) Standard 245 nitrogen removal rate before disposing the wastewater in the drain field, such as aerobic treatment units (ATU) and performance-based treatment systems (PBTS). For FDOH-approved

treatment systems that meet NSF 245, but do not meet or exceed the minimum treatment level expected from the in-ground nitrogen-reducing biofilters, the drain fields, at minimum, shall be installed with a 24-inch separation between the bottom of the drain field and the seasonal high-water table.

D.1.2 Modification or Repair of Existing OSTDS

Per statute, the OSTDS remediation plan must provide loading reductions consistent with achieving the TMDL within 20 years of plan adoption (see Section 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.

- Where does the remediation policy for existing systems apply? It applies to all existing OSTDS within the PFA on lots of less than one acre.
- When is the remediation policy for existing systems effective? The remediation policy for existing systems does not go into effect upon BMAP adoption. The requirements begin following completion of the master wastewater treatment feasibility analyses, FDOH rulemaking, and funding program to help offset the costs to homeowners, but no later than five years after BMAP adoption.
- What will be required by the remediation policy for existing systems when it becomes effective? Upon the need for repair or replacement, an existing OSTDS must include at least one of the following nitrogen reducing enhancements, unless the OSTDS permit applicant demonstrates that sewer connections will be available within 5 years.
 - Enhanced treatment of nitrogen means inclusion of features allowed pursuant to FDOH rules, such as in-ground nitrogen-reducing biofilters (media layer systems); features consistent with and identified in the FDOH Florida Onsite System Nitrogen Removal Strategy Studies report, such as in-tank nitrogen-reducing biofilters; or other FDOH-approved treatment systems capable of meeting or exceeding the NSF Standard 245 nitrogen removal rate before disposing the wastewater in the drain field, such as ATUs and PBTs. For FDOH-approved treatment systems that meet NSF 245, but do not meet or exceed the minimum treatment level expected from the in-ground nitrogen-reducing biofilters, the drain fields, at minimum, shall be installed with a 24-inch separation between the bottom of the drain field and the seasonal high-water table.

- FDOH permitting requirements with respect to defining "modification," "repair," and lot size (i.e., acreage) will be followed for this remediation plan.
- In addition, a utility is required to provide written notice to OSTDS owners of the availability of sewer lines for connection, no later than 1 year prior to the date the utility's sewerage system will become available, which triggers an obligation for OSTDS owners to comply with the requirements of Section 381.00655, F.S.

D.1.3 Achieving Necessary Load Reductions

All conventional OSTDS in areas subject to the remediation policy for existing systems are required to adopt enhanced treatment of nitrogen or connect to central sewer no later than 20 years after BMAP adoption.

D.1.4 Other Plan Elements

Statutes also require that OSTDS remediation plans 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 D.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 D.3.**)
- A public education plan to provide area residents with reliable, understandable information about OSTDS and springs. (See **Section D.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.**)

The Florida Springs and Aquifer Protection Act 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.

D.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 estimation of nitrogen loading sources to groundwater based on the best available scientific data for a particular geographic area. The results were peer reviewed by SJRWMD, FDOH, and FDACS. Additional technical support information concerning the NSILT can be found in **Appendix E**.

Monitoring and research:

- Improve understanding of the ecological responses to nutrient enrichment and reductions (DEP/SJRWMD/universities).
- Maintain and expand water quality monitoring programs (SJRWMD/DEP).
- Report annual status and trends (SJRWMD).
- Evaluate new and emerging technologies (SJRWMD).
- Research and develop advanced septic systems (FDOH/DEP/UF-IFAS).

Completed projects:

- Florida Onsite Sewage Nitrogen Reduction Strategies Study (FDOH).
- Wekiva Basin Ground Water Tracer Study for Rock and Wekiwa Springs (DEP 2016).
- Wekiva-Area Septic Tank Study (DEP 2018).

Ongoing projects:

- Quarterly springs water quality monitoring (SJRWMD).
- Stream water quality monitoring (SJRWMD).
- UFA nutrient modeling (SJRWMD).
- Springs Initiative modeling (SJRWMD).
- Experimental Lined Drain Field Project - Apopka (DEP).
- Demonstration of a Passive On-Site Sewage Treatment System and Drain Field for Nitrogen Removal at Wekiva State Park (UCF/DEP).

Proposed projects:

- Groundwater quality monitoring for BMAP assessment (DEP/SJRWMD).

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

D.3 Remediation Options

The NSILT estimates that OSTDS contribute approximately 29 % of the pollutant loading to groundwater in the PFA. **Table D-1** lists the number of existing OSTDS in lots less than once acre in the PFA and the estimated nitrogen reductions associated with enhancement or connection to sewer. **Figure D-1** shows the areas where OSTDS are located.

Table D-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 less than one acre in size can be combined with the sewer credit associated with parcels one acre or greater in size.

Recharge Area	Total OSTDS in PFA	OSTDS Parcels Less Than One Acre in Size in PFA	Credit for Enhancement (lb-N/yr)	Credit for Sewer (lb-N/yr)
High	26,621	23,447	110,560	161,587
Medium	6,751	5,742	15,042	21,984
Low	177	158	83	121
Total	33,549	29,347	125,684	183,692

As required by statute, 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. Enhancement options consist of systems identified in either existing FDOH rules or existing and ongoing FDOH studies, or systems not otherwise prohibited by FDOH. Examples of enhancements include in-ground nitrogen-reducing biofilters (media layer systems); in-tank nitrogen-reducing biofilters; and ATU or PBTS capable of meeting or exceeding the NSF Standard 245 nitrogen removal rate before disposing wastewater in the drain field.

Nitrogen impacts from new development could also be reduced through prohibiting new conventional OSTDS on all lot sizes, throughout the BMAP area, or both.

DEP, FDOH, and local governments will 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 less than one acre).

To facilitate incorporation of nitrogen reducing features at the time of a permit to repair or modify an existing OSTDS, FDOH will pursue regulatory solutions to accomplish the following objectives:

- Update OSTDS rule language regarding permits, variances, and waivers to include consideration of DEP-adopted OSTDS remediation plans.
- Update OSTDS rules to allow installation of passive remediation systems, including but not limited to systems featuring liners, nitrogen reducing material, or both underneath the drain field.

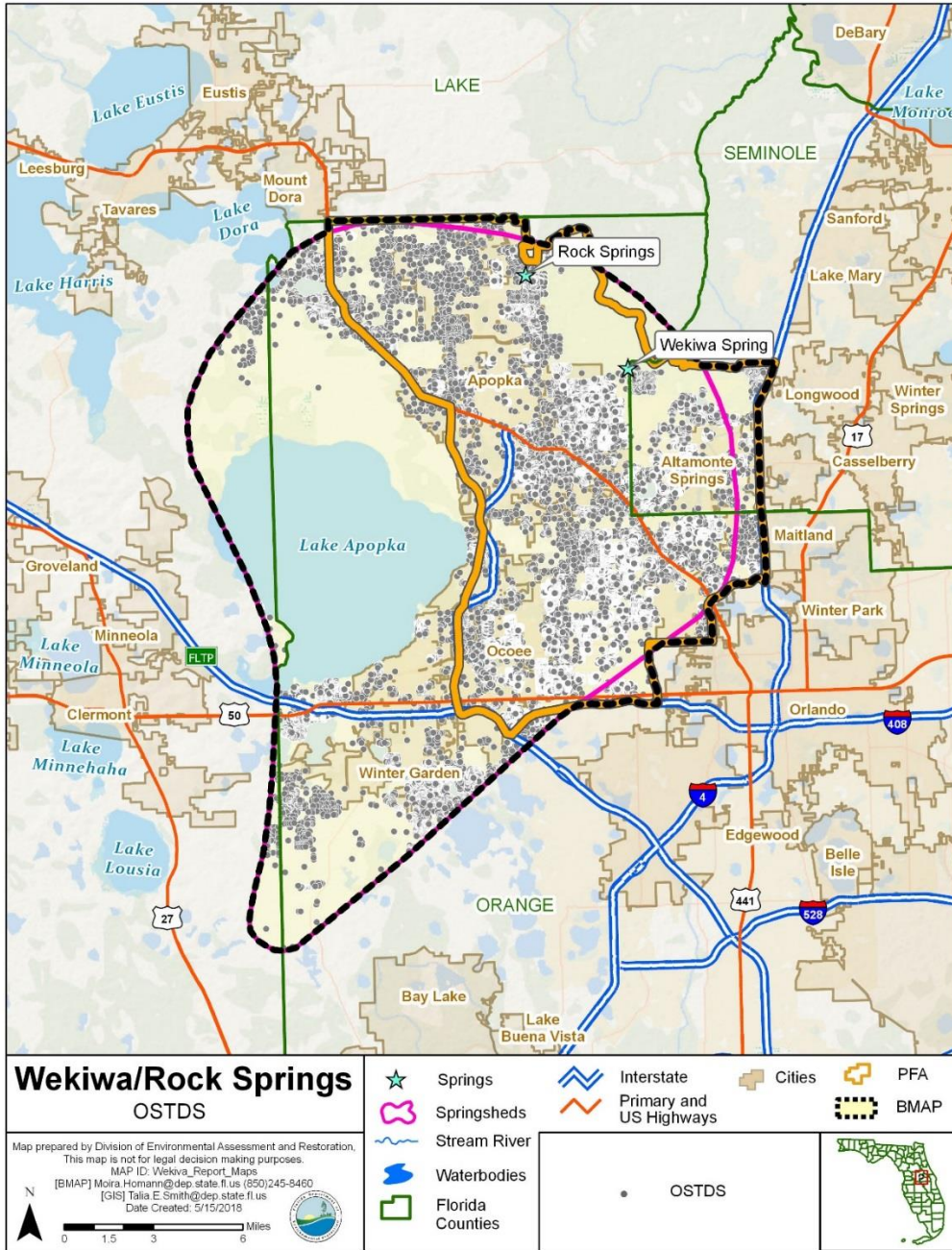


Figure D-1. OSTDS locations in the Wekiwa Spring and Rock Springs BMAP area and PFA

D.4 Public Education Plan

DEP and FDOH will develop and disseminate educational material focused on homeowners and guidance for builders and septic system contractors. The materials will identify the need for advanced, 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 hosted a brainstorming session on December 14, 2016, to gather local input on the primary facets of a public education plan, including key audiences, the identification of major themes for communication/education, and the identification of misconceptions about septic systems.

During the development of this BMAP, the following list of steps, target audiences, consideration of appropriate messaging, and preparation of materials/resources were identified.

- **Step 1** – Understand the data and issues associated with OSTDS.
- **Step 2** – Identify existing and short-term activities to address the issues.
- **Step 3** – Undertake a pilot project outreach and social marketing campaign.
- **Step 4** – Identify future actions for basin wide implementation.

Target Audiences

- Homeowners.
- OSTDS Industry.
- Builders.
- Real Estate Agents.
- Homeowners Associations.
- Elected Officials.

Messaging

- Environmental Benefit.
- Cost to Homeowners.
- Evidence/Studies.
- Actual Enhancement Cost.
- Comparables.
- Passive versus Active Systems.
- Simple Message.
- Maintenance Cost.
- Actual Sewer Cost.

Materials/Resources

- Homeowners Associations.
- Utility Inserts/Mailers.
- Florida Onsite Wastewater Association (FOWA) Public Service Announcements for Maintenance.
- Fairs and Events.
- Pamphlets for Homebuyers from Real Estate Binders.
- Florida Yards and Neighborhoods (FYN) Program.

The management strategies listed in **Table D-2** are ranked with a priority of high, medium, or low. In 2016, the Florida Legislature amended the Watershed Restoration Act (Section 403.067, F.S.), creating additional requirements for all new or revised BMAPs. BMAPs must now include planning-level details for each listed project, along with their priority ranking.

Project status was selected as the most appropriate indicator of a project's priority ranking based primarily on need for funding. Projects with a "completed" status were assigned a low priority. Projects classified as "underway" were assigned a 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" as well as certain "completed" projects that are ongoing each year (any project with one of these project types: "street sweeping," "catch basin inserts/inlet filter cleanout," "public education efforts," "fertilizer cessation," "fertilizer reduction," or "aquatic vegetation harvesting"), and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

Table D-2. Stakeholder education activities to implement the OSTDS remediation plan

Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Cost Estimate	Funding Source	Funding Amount
UF-IFAS	IFAS-E-01	OFS OSTDS Campaign, Phase 1	Implement social marketing campaign that links septic systems to springs	Public Education Efforts	Planned	2018	2020	OSTDS	\$30,000	Not Provided	Not Provided
UF-IFAS	IFAS-E-02	OFS OSTDS Campaign, Phase 2	Create online clearinghouse of fact sheets, videos, PSAs, etc.	Public Education Efforts	Planned	2018	2018	OSTDS	\$7,000	Not Provided	Not Provided
UF-IFAS	IFAS-E-03	OFS OSTDS Campaign, Phase 3	Presentations to realtors and distribution of information kits for home buyers	Public Education Efforts	Planned	2018	2018	OSTDS	\$10,000	Not Provided	Not Provided
UF-IFAS	IFAS-E-04	OFS OSTDS Campaign, Phase 4	Six to eight septic system workshops for elected officials	Public Education Efforts	Planned	2018	2019	OSTDS	\$5,000	Not Provided	Not Provided
UF-IFAS	IFAS-E-05	OFS OSTDS Campaign, Phase 5	Homeowner workshops with field demonstrations	Public Education Efforts	Planned	2018	2020	OSTDS	\$25,000	Not Provided	Not Provided
City of Orlando (Streets and Stormwater Division)	ORL-E-01	OSTDS Education	Provide information to audiences through: Annual mailer + Annual HOA Newsletters + Social Media + Fair and Events	Public Education Efforts	Planned	1-2 years	Not Provided	OSTDS	Not Provided	Not Provided	Not Provided
City of Orlando (Wastewater Division)	ORL-E-02	OSTDS Education	Provide information to audiences through: Social Media + Fair and Events	Public Education Efforts	Planned	1-2 years	Not Provided	OSTDS	Not Provided	Not Provided	Not Provided
City of Orlando (Streets and Stormwater Division)	ORL-E-03	OSTDS Education	Provide information to audiences through: Annual mailer + Annual HOA Newsletters + Social Media + Fair and Events	Public Education Efforts	Planned	3-5 years	Not Provided	OSTDS	Not Provided	Not Provided	Not Provided
City of Orlando (Wastewater Division)	ORL-E-04	OSTDS Education	Provide information to audiences through: Social Media + Fair and Events	Public Education Efforts	Planned	3-5 years	Not Provided	OSTDS	Not Provided	Not Provided	Not Provided

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Lead Entity	Project Number	Project Name	Project Description	Project Type	Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Cost Estimate	Funding Source	Funding Amount
City of Orlando (Streets and Stormwater Division)	ORL-E-05	OSTDS Education	Billboard ad	Public Education Efforts	Planned	3-5 years	Not Provided	OSTDS	Not Provided	Not Provided	Not Provided
City of Orlando (Streets and Stormwater Division)	ORL-E-06	OSTDS Education	Provide information to audiences through: Annual mailer + Annual HOA Newsletters + Social Media + Fair and Events	Public Education Efforts	Planned	6-10 years	Not Provided	OSTDS	Not Provided	Not Provided	Not Provided
City of Orlando (Wastewater Division)	ORL-E-07	OSTDS Education	Provide information to audiences through: Social Media + Fair and Events	Public Education Efforts	Planned	6-10 years	Not Provided	OSTDS	Not Provided	Not Provided	Not Provided
Seminole County Power and Water	SC-E-01	OSTDS Education	Develop + Implement OSTDS Education Program	Public Education Efforts	Planned	1-2 years	Not Provided	OSTDS	\$50,000-\$100,000	Not Provided	Not Provided

Appendix E. Technical Support Information

E.1 NSILT Data

An NSILT was completed on Wekiwa Spring and Rock Springs for the Wekiwa Spring and Rock Springs BMAP. This technical support information identifies the data sources relied upon during NSILT development and documents all the major assumptions used by DEP when applying the NSILT approach to the Wekiwa Spring and Rock Springs BMAP.

The general NSILT approach involves estimating the nitrogen load to the surface for various source categories based on land use. The NSILT subjects the surface loading to recharge and attenuation to derive the estimated load to groundwater at the top of the aquifer. The estimated load to groundwater determines the scope of reduction strategies needed in the BMAP for each source category. For additional information about the general NSILT approach, see any of the NSILT reports posted online at <http://publicfiles.dep.state.fl.us/DEAR/NSILT/>.

E.1.1 General Data Inputs

Hydrogeology and Aquifer Recharge

Aquifer recharge information is based on the SJRWMD Floridan Aquifer Recharge Map which was updated in 2015.

Land Use

Land use information is from SJRWMD based on the 2009 Florida Land Use Cover and Forms Classification System (FLUCCS) and local county property appraiser offices within the BMAP boundary.

E.1.2 Land Surface Nitrogen Inputs

Atmospheric Deposition

Atmospheric deposition information is derived from the TDEP hybrid model (Schwede and Lear 2014) that inputs wet and dry monitoring network data for the U.S. and calculates an estimated TN deposition load. The Wekiwa Spring dataset is comprised of data from 2011 to 2013.

WWTFs

The average annual input of nitrogen to the land surface was estimated for each effluent land application site in the BMAP area using TN concentration and discharge volume data available in the DEP Wastewater Facility Regulation (WAFR) database. Smaller WWTFs are not always required to monitor and report TN effluent concentrations, and therefore may not have data available in the WAFR database. For these, DEP estimated TN concentrations based on nitrate-N (NO₃-N) data (assuming the NO₃-N concentration was 38.5 % of the TN, based on a 2009 cooperative study with the Water Reuse Foundation of 40 domestic WWTFs across the state). The range of years for which data were available varied with the individual WWTFs; however, the majority of the data were collected between 2016 and 2017.

OSTDS

In 2014, FDOH began the Florida Water Management Inventory (FLWMI), a statewide project to develop geographic information system (GIS) mapping attributes for water use and wastewater treatment method for all parcels by county. The results of this inventory can be obtained from FDOH.

Results from the 2016 release of the FLWMI were used to estimate the total number of septic systems within the BMAP area boundary. ArcGIS files provided the locations of both known and estimated septic systems.

The population served by the OSTDS was estimated using the 2010 U.S. Census Bureau data for each county. The 2010 persons per household for Lake County, Orange County, and Seminole County were reported as 2.45, 2.72, and 2.57, respectively. Also used were 2010 U.S. Census Bureau data to look at population age distribution to account for school or working age population who likely have access to sewer connected facilities during away from home hours. The collection of data was used to estimate the effective population and OSTDS usage. This resulted in a per capita contribution of 9.012 lb-N/yr and 2.03, 2.15, and 2.05 effective persons per household in Lake County, Orange County, and Seminole County, respectively.

UTF

In this NSILT, urban fertilizers include fertilizer application estimates for residential purposes, business, parks, and similar properties. Golf course and sporting facility fertilizer use is estimated separately (see STF discussion below). Results from surveys and workshops pertaining to fertilizer application on turfgrass in nearby counties were used to estimate the nitrogen application rates for urban turfgrass in the Wekiwa Spring BMAP area. The results provided input data on percent of the population that fertilize, the applicator, and application rates.

For residential parcels such as single- and multi-family homes, the acreage receiving fertilizer applications is calculated in the same manner as nonresidential parcels. Prior to applying the fertilizer application rates to the pervious land area, two factors are taken into account: (1) the percentage of a property that a homeowner will fertilize, and (2) the probability that a homeowner will use fertilizer.

While homeowners may apply fertilizer to all the pervious area on their property (lawns and beds), this is less likely for those with larger lot sizes. For this analysis, it was assumed that the owners of properties with greater than one acre of pervious land area would regularly apply fertilizer to no more than one acre.

Property value may also be a factor when considering the likelihood of fertilizer application. Previous socioeconomic studies have shown that property value is a reliable indicator of the probability that a homeowner will apply fertilizer to a property (Kinzig et al. 2005; Law et al. 2004; Zhou et al. 2008; Cook et al. 2012). Properties with higher assessed values tend to be fertilized more than properties with lower assessed values. To account for this, the range of property values for single-family homes was evaluated for the contributing area and subdivided into three categories based on property value specific to the county: high, medium, and low.

In 2009, a survey in the Wekiva River Basin was conducted by the University of Central Florida (UCF) Stormwater Management Academy (Souto 2009). This survey provided information on residential fertilizer use habits in the BMAP area.

The type of property where fertilizer is applied is estimated for nonresidential and residential parcels. The acreage receiving fertilizer is estimated the same for both parcel types by using county property appraiser data and zoning data. Impervious and pervious land areas are determined for each parcel.

Nonresidential parcels are assumed to be fertilized by a commercial service provider. While application rates and frequencies are recommended in the *Green Industries BMP Manual* (DEP 2010), the UCF study indicated that commercial application rates in this region are slightly higher. The nonresidential parcel fertilization rates are estimated based on the UCF survey results.

Residential parcels are evaluated by estimating the survey information cited above, relying on information taken from the UCF study. According to this survey, some surveyed residents (16 %) did not fertilize their lawns, 51 % applied fertilizer to their own lawns 2.88 times a year, and 33 % had lawn service contractors apply fertilizer on average of 4.76 times a year (Souto et al. 2009). These rates, combined with the consideration of the likely area being fertilized and the likelihood of fertilizer use, were the basis of the estimates of residential fertilizer use.

STF

Sports turfgrass areas include golf courses and sporting facilities. The nitrogen input for golf courses are estimated using voluntary surveys completed by some of the golf course superintendents in the contributing area. For those golf courses that did not complete a survey, the statewide annual average application rate of 4.5 lb-N/1,000 square feet on 72 % of the golf course area (Sartain 2002; DEP 2007).

Sporting facilities were assessed based on property appraiser data. The parcel types likely to contain these facilities were identified and evaluated based on aerial imagery, including schools, parks, and recreational areas. The fertilizer application rate for turf grass at sports facilities of 32.67 lb-N/ac was used, based on the 2009 study data for lawn service company fertilization practices (Souto et al. 2009).

LW

Livestock waste practices specific to this area were identified through several steps. The nitrogen waste factor for each animal type is based on published literature values and subdivided into locations and recharge area (Goolsby et al. 1990; Chelette et al. 2002; Ruddy et al. 2006; Meyer 2012; Sprague and Gronberg 2013). Livestock populations were drawn from the 2012 Census of Agriculture (CoA) that provides the number of livestock by kind of animal per county. The number of livestock in the springshed are adjusted by estimating the land use percentages in the contributing area compared to the full county land uses to get a percentage of livestock-related land uses in the NSILT area. County-level land use information from the FSAID was used to estimate livestock populations within the springshed. For beef cattle, the 2016 U.S. Department of Agriculture Survey was used to cross-reference the beef cattle population numbers in the 2012 census.

FF

Agricultural fertilizer is applied at varying rates depending on crop type and farm practices. The amount of irrigated lands and crop types was based on the 2015 FSAID Irrigated Lands Geodatabase (ILG). Beyond the areas specified by the ILG, additional agricultural areas were identified based on the SJRWMD land use data and by county property appraiser data. Estimated application rates are based on UF-IFAS recommendations and producer feedback. These crop fertilizer application rates were applied to the applicable agricultural acres based on crop type.

Inputs from nursery operations were assessed separately from the rest of agricultural fertilizer. Nursery operations and crop types were identified from information provided by the Division of Plant Industry (DPI). Each nursery was further categorized into a type of nursery (tree nursery, ornamental, container nursery, ornamental-container, greenhouse nursery, greenhouse, field container, or fern). IFAS-recommended fertilizer rates for common plants cultivated within each nursery type were averaged to determine the fertilizer application rate assigned to each nursery type. Similar to the methodology used for fertilizer estimates on other kinds of crops, the estimated input to land surface from nursery operations is calculated by applying fertilizer application rates to applicable nursery acreage. Based on aerial imagery analysis, each nursery type was designated as either an inside or outside operation (i.e., greenhouse or field). Only 80 % of the acreage for outside operations was included to account for spacing between liners and rows, which limits the fertilizer application area. It is assumed that 70 % of the applied fertilizer stays with the plant and in the plant container, so only 30% of the applied fertilizer is included in the final, estimated input to land surface from nursery operations.

Estimated Nitrogen Inputs to Land Surface

The estimated input from each source category above is summed and a relative percent calculated.

E.1.3 Nitrogen Attenuation and Loading to Groundwater

The two types of attenuation that are evaluated are biochemical attenuation factors (BAFs) and hydrogeological attenuation (recharge).

BAFs and Uncertainty Factors

The BAFs used to account for the processes affecting the movement of nitrogen from each source category in the subsurface are based on literature review of studies in Florida and similar areas. Additionally, research scientists in Florida (UF-IFAS, universities, and U.S. Department of Agriculture (USDA) Agricultural Research Service), and local stakeholders provided additional guidance. The BAFs in **Table E-1** are the result of this evaluation. The BAF is used to estimate what percent of the surface input could infiltrate to groundwater. For example, if 70 % of urban fertilizer is biologically attenuated, then the remaining 30 % could infiltrate to the groundwater.

The environmental attenuation of nitrogen from specific sources within the categories can vary substantially, both spatially and with depth in the subsurface, and will affect the amount of nitrogen leaching to groundwater and the relative contribution of nitrogen from each source category. The range in nitrogen attenuation can result from variability in soil properties, crop types, agricultural practices, nitrogen storage, volatilization of ammonia to the atmosphere, uptake by vegetation, denitrification, and

other removal processes. The potential range in nitrogen attenuation for each source is shown in **Table E-1**.

Table E-1. Range of environmental attenuation of nitrogen from a detailed literature review

* STUMOD was used to determine attenuation factors in this analysis

** Each OSTDS unit was assigned an individual attenuation factor based on site specific information. There was not a sole attenuation value applied to this category

N Source Category	Low-Level Attenuation (%)	Attenuation Used for This Analysis (%)	High-Level Attenuation (%)
Atmospheric Deposition	85	90	95
WWTFs-RIBs	10	25	40
WWTFs-Sprayfield	50	60	75
WWTF-Reuse	50	75	85
Septic Tanks*	28	**	100
Livestock Operations	80	90	95
Farm Fertilizers	50	80	85
Urban Fertilizers	50	70	85
Nurseries - Indoor	80	95	99
Nurseries - Outdoor	20	60	70

Hydrogeological Attenuation (i.e., Recharge)

The recharge rate for the area where the surface input is calculated is based on the SJRWMD recharge map previously described. To account for variations in recharge rates to the UFA, non-attenuated nitrogen inputs in high rate recharge areas are multiplied by a weighting factor of 0.9, while nitrogen inputs are multiplied by a weighting factor of 0.5 for medium rate recharge areas and 0.1 for low. Groundwater discharge areas were not included in the calculations of nitrogen loads to the groundwater contributing area, as these areas do not contribute nitrogen to the aquifer.

Estimated Nitrogen Load to Groundwater

The surface inputs by source category are adjusted by applying the BAFs for the appropriate source category and location-based recharge factors to estimate the load to groundwater by source category. It is important to note that this load is estimated for the top of the aquifer. As the load interacts with the aquifer, additional factors likely modify it prior to discharge at the spring vents.

E.2 NSILT References

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Appendix F. FDACS Information on BMPs

F.1 Implementation of Agricultural BMPs

Agricultural nonpoint sources in a BMAP area are required by state law (Subsection 403.067[7], F.S.) either to implement FDACS-adopted BMPs, which provides a presumption of compliance with water quality standards, or to conduct water quality monitoring prescribed by DEP or SJRWMD. Failure either to implement BMPs or conduct monitoring may result in enforcement action by DEP.

Growers who implement BMPs may be eligible for cost-share funding from FDACS, SJRWMD, or others to defray partially the costs of implementation. Through OAWP, the Florida Forest Service, and the Division of Aquaculture, FDACS develops, adopts, and assists producers in implementing agricultural BMPs to improve water quality and water conservation.

FDACS identified potential land for enrollment in the FDACS BMP Program within the Wekiwa Spring and Rock Springs BMAP area using the FSAID IV geodatabase.

Table F-1 summarizes the land use data for agriculture in the Wekiwa Spring and Rock Springs BMAP. Based on the FSAID IV geodatabase, the total agricultural lands within the Wekiwa Spring and Rock Springs Basin is 12,637 acres. **Table F-2** summarizes the agricultural land by crop type that was estimated to be fertilized and the corresponding acreages. The primary agricultural fertilized land use in the Wekiwa Spring and Rock Springs BMAP is improved pasture which comprises 24 % of the fertilized land use in the springshed. **Table F-3** provides a summary of the agricultural lands with livestock. It is important to note that some of the agricultural lands include more than one agricultural practice.

Figure F-1 shows the approximate location of the agricultural lands based on the FSAID within the Wekiwa Spring and Rock Springs BMAP.

Table F-1. Agricultural land use within the Wekiwa Spring and Rock Springs BMAP

Agricultural Nitrogen Loading Category	Acres
Crop Fertilizer Lands only	6,334
Livestock Lands only	2,092
Crop Fertilizer and Livestock Lands	4,211
Total	12,637

Table F-2. Fertilized crop lands within the Wekiwa Spring and Rock Springs BMAP

Crop Type	Application Rate (lbs/acre)*	Acres*
Blueberries	50	154.72
Cabbage_Vegetables	325	30.40
Citrus	200	1,989.53
Container Nursery	940	438.20
Cucumbers	150	124.89
Fern	300	14.84
Field Corn	250	5.25
Field Crops	90	1,602.06
Grass/Pasture	110	233.84
Greenhouse	150	7.13
Greenhouse Nursery	1240	278.93
Hay	240	197.36
Horse Farms	80	664.08
Improved Pasture	100	3,035.25
Mixed Crops	151	32.09
Onions_Vegetables	270	8.03
Onions_Vegetables_Cabbage	295	70.79
Ornamental Container	1350	154.53
Ornamentals	225	36.15
Pasture	70	277.43
Row Crops	151	205.88
Sod	50	449.71
Sweet Corn	250	103.48
Tree Crops	230	50.33
Tree Nurseries	200	20.51
Vegetables	151	364.17
Watermelon_MixedVegetables_Cucumber	300	96.00
Watermelon_MixedVegetables_Watermelon	500	90.69
Total	-	7,387

*Nursery application rates assume leaching of 30%; only 25% of pasture lands assumed to be fertilized

Table F-3. Livestock lands within the Wekiwa Spring and Rock Springs BMAP

Livestock Category	Acres
Cattle Feeding Operations	7.19
Grass/Pasture	233.84
Horse Farms	664.08
Improved Pasture	3,035.26
Pasture	277.43
Poultry Feeding Operations	5.21
Unimproved Pastures	882.20
Woodland Pastures	1,197.89
Total	2,092

Agricultural land use data are critical for 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. The time of year when land use data are collected (through aerial photography) affects the accuracy of photo interpretation. Flights are often scheduled during the winter months due to weather conditions and reduced leaf canopies, and while these are favorable conditions for capturing aerial imagery, they make photo interpretation for determining agricultural land use more difficult (e.g., more agricultural lands are fallow in the winter months) and can result in inappropriate analysis of the photo imagery. There is also a significant variation in the frequency with which various sources of data are collected and compiled, and older data are less likely to capture the frequent changes that often typify agricultural land use. In addition, agricultural activity being conducted on the land is not always apparent. For example, acreage classified as improved pasture may be used for a cow-calf operation, consist of forage grass that is periodically harvested for hay, or simply be a fallow vegetable field awaiting planting. Finally, the classification method itself may be an issue. For example, property appraiser data assigns an agricultural land use designation to an entire parcel, although agricultural production may only be conducted on a portion of the parcel. Because of error in the collection and characterization of land use data and changes in land use over time, agricultural land use acreage estimates are subject to adjustment.

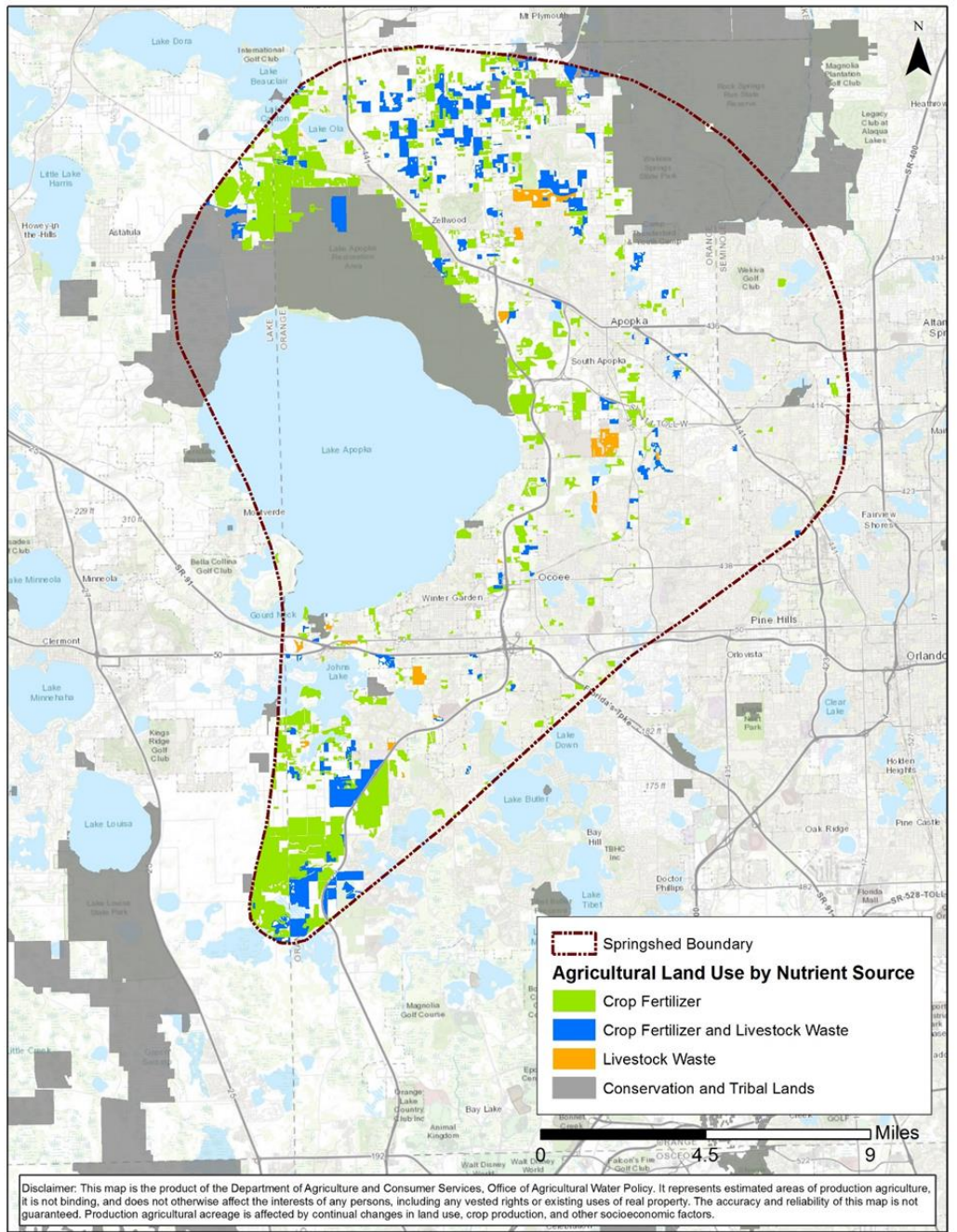


Figure F-1. Composite of agricultural lands in the Wekiwa Spring and Rock Springs BMAP area

F.2 Agricultural BMPs

Through the Office of Agricultural Water Policy, the Florida Forest Service, and the Division of Aquaculture, FDACS develops, adopts, and assists producers in implementing agricultural BMPs to improve water quality and water conservation. Adopted BMPs are initially verified by the FDEP as reducing nutrient loss (e.g., total nitrogen and total phosphorus) to the environment. OAWP BMPs are

published in commodity-specific manuals that cover key aspects of water quality and water conservation. The BMP categories include:

- Nutrient Management practices that help determine appropriate source, rate, timing, placement of nutrients (including both organic and inorganic sources) to minimize impacts to water resources.
- Irrigation and Water Table Management practices that address methods for irrigating to reduce water and nutrient losses to the environment and to maximize the efficient use and distribution of water.
- Water Resource Protection practices such as buffers, setbacks, and swales to reduce or prevent the transport of nutrients and sediments from production areas to water resources.

The Notice of Intent to Implement (NOI) and BMP checklist are incorporated into each manual.

Information on the BMP manuals and field staff contact information can be obtained here:

<http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy>. Printed BMP manuals can be obtained by contacting OAWP field staff.

OAWP outreach to solicit enrollment extends to all types of agricultural operations, but is more intensive in BMAP areas because of the relationship of BMPs to the presumption of compliance with water quality standards in a BMAP area. FDACS field staff works with producers to enroll in the FDACS BMP program by signing a Notice of Intent to Implement BMPs, and enrollment is based on the expectation that producers recognize and address the water quality and conservation issues associated with their operations. Upon completion of all information in the BMP checklist, an NOI must be signed by the landowner or the landowner's authorized agent (who may be the producer if the producer is not the landowner).

F.3 BMP Enrollment

Figure F-2 shows the acres enrolled in the FDACS BMP Program in the Wekiwa Spring and Rock Springs Basin as of December 31, 2017. **Table F-4** list the acres enrolled in the FDACS BMP Program by manual and the number of NOIs associated with those acres. Given that the enrolled acres where BMPs are implemented can contain nonproduction acres (such as buildings, parking lots, and fallow acres), only the enrollment for the land classified as agriculture based on the FSAID is included in the tables.

As of December 31, 2017, NOIs cover 5,451 agricultural acres in the Wekiwa Spring and Rock Springs Basin. No producers are conducting water quality monitoring in lieu of implementing BMPs at this time.

Table F-4. Agricultural acreage and BMP enrollment in the Wekiwa Spring and Rock Springs BMAP area as of December 31, 2017

Related FDACS BMP Programs	NOI Acreage Enrolled	Agricultural Land Use Acres within NOIs
Citrus	1,380.71	1,011.76
Cow/Calf	75.11	50.0
Equine	30.29	16.71
Multiple Commodities	30.83	26.22
Nursery	2,338.84	1,581.04
Row/Field Crops	947.40	797.21
Specialty Fruit/Nut	264.04	201.86
Sod	384.38	304.13
Total	5,451.59	3,988.94

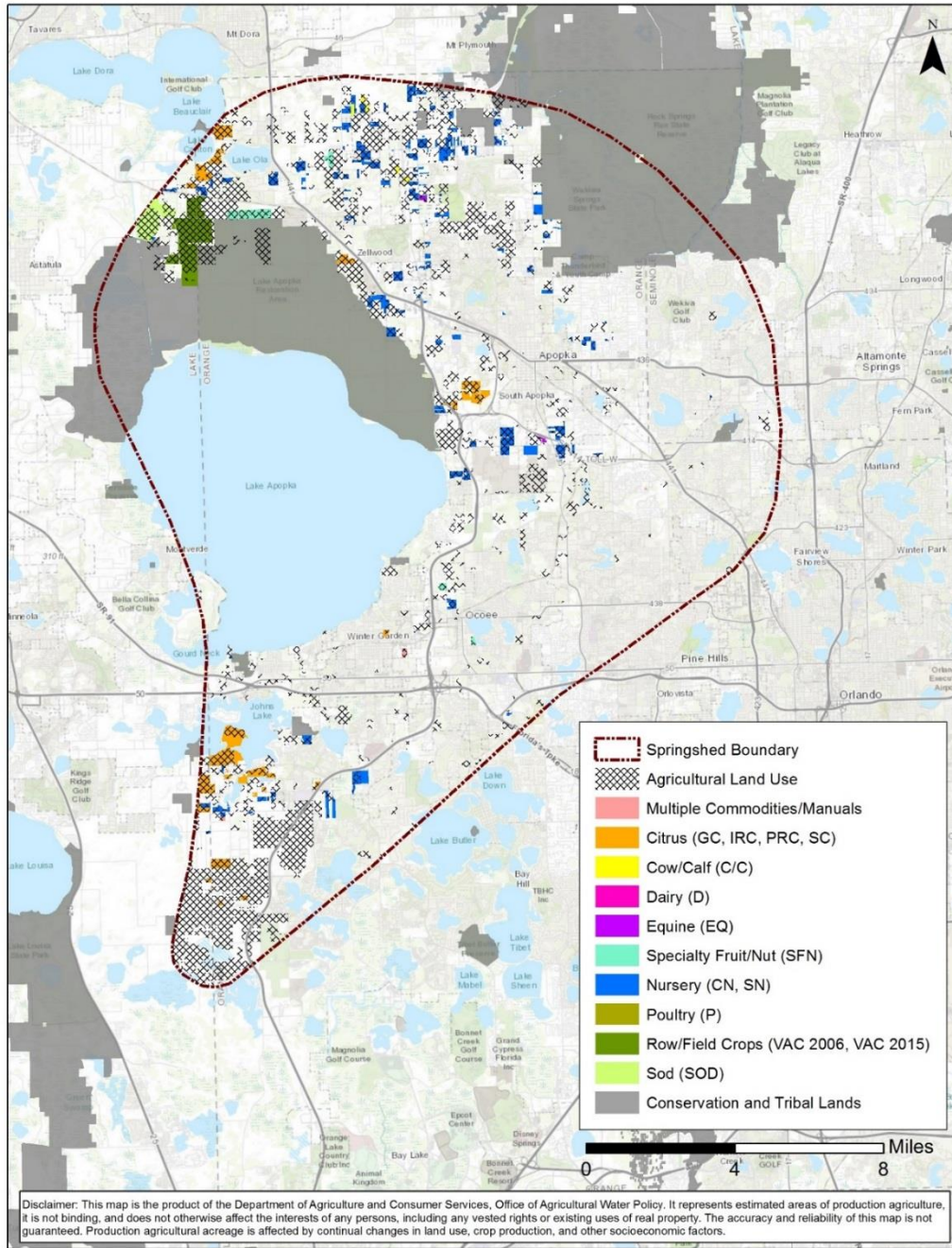


Figure F-2. BMP enrollment in the Wekiwa Spring and Rock Springs BMAP area as of December 2017

F.4 FDACS OAWP Role in BMP Implementation and Follow-Up

OAWP works with producers to submit NOIs to implement the BMPs applicable to their operations, provides technical assistance to growers, and distributes cost-share funding, as available, to eligible producers for selected practices. OAWP follows up with growers through site visits to evaluate the level

of BMP implementation and record keeping, identify areas for improvement, if any, and discuss cost-share opportunities.

When DEP adopts a BMAP that includes agriculture, it is the agricultural producer's responsibility to implement BMPs adopted by FDACS to help achieve load reductions. If land use acreage corrections and BMP implementation do not fully account for the current agricultural load reduction allocation, it may be necessary to develop and implement additional projects and practices that reduce nutrients from agricultural nonpoint sources. In that case, FDACS will work with DEP and SJRWMD to identify appropriate options for achieving further agricultural load reductions.

Section 403.067, F.S., requires that, where water quality problems are demonstrated despite the proper implementation of adopted agricultural BMPs, FDACS must reevaluate the practices, in consultation with DEP, and modify them if necessary. Continuing water quality problems will be detected through the BMAP monitoring component and other DEP and SJRWMD activities. If a reevaluation of the BMPs is needed, FDACS will also include SJRWMD and other partners in the process.

F.5 OAWP Implementation Verification Program

OAWP established an Implementation Assurance (IA) Program in 2005 in the Suwannee River Basin as part of the multi-agency/local stakeholder Suwannee River Partnership. In early 2014, OAWP began to streamline the IA Program to ensure consistency statewide and across commodities and BMP manuals. The IA Program was based on interactions with producers during site visits by OAWP staff and technicians as workload allowed. For the visits, field staff and technicians used a standard form (not BMP specific) developed in 2014, that focused on nutrient management, irrigation management, and water resource protection BMPs common to all of the BMPs that were adopted by rule. Once completed, these paper forms were submitted to OAWP staff and compiled into a spreadsheet, and the data were reported annually.

On November 1, 2017, the OAWP's Implementation Verification rule (Chapter 5M-1, F.A.C.) became effective. The Implementation Verification (IV) program provides the basis for assessing the status of BMP implementation and for identifying enrolled producers who require assistance with BMP implementation. The components of the IV program are 1) site visits; 2) implementation status reporting on common practices that apply across all BMP manuals; 3) technical assistance; and 4) external reporting. Implementation verification is confirmed by field staff through site visits and by producers through annual common practices status reports.

Site visits to agricultural operations by OAWP field staff and contract technicians are the most effective means to determine the status of BMP implementation. These visits also provide an opportunity to identify needs for assistance with implementation and explore potential improvements. Resource limitations prevent site visits from occurring on all enrolled operations every year, and for that reason, site visits are prioritized. The program objective is for field staff to conduct site visits for 5-10% of active NOIs each year, with approximately 10% of the site visit locations selected randomly.

Per the implementation verification rule, each year, producers participating in the BMP program will be requested to participate in reporting on the status of implementation of common practices only for their operations. Lack of response from enrollees with parcels in a BMAP area raises the priority of the operation for a site visit from field staff. Where a need is identified, the OAWP may facilitate technical assistance for the producer from UF/IFAS or other resources, including third-party vendors. In some cases, cost share support may be available. Data from producers and site visits will be used to complete the annual reports on the status of BMP implementation as required by s. 403.0675(2), F.S., beginning July 1, 2018.

F.6 Beyond BMPs

Beyond enrolling producers in the FDACS BMP Program and verifying implementation, FDACS will work with DEP to improve the data used to estimate agricultural land uses in the springshed. FDACS will also work with producers to identify a suite of agricultural projects and research agricultural technologies that could be implemented on properties where they are deemed technically feasible and if funding is made available. Acreages provided by FDACS are preliminary estimates that are the maximum acreages and will need to be evaluated and refined over time.

As presented here, these projects are based on planning-level information. Actual implementation would require funding as well as more detailed design based on specific information, such as actual applicable acreages and willing landowners. **Table F-5** summarizes potential practices that could be implemented in this BMAP area. It is important to note that the research projects listed in the table are being conducted in the Suwannee River Basin. At some future point, the findings of these studies may be applicable to the Wekiwa Spring and Rock Springs Springshed. Actual implementation would require funding as well as more detailed design based on specific information, such as actual applicable acreages and willing landowners.

Table F-5. Beyond BMP implementation

Category	Name	Description
Practices	Precision Irrigation	Deployment of equipment, procedures, and training to improve location, volume, and timing of irrigation to match crop needs more precisely.
Practices	Soil Moisture Probes	Deployment, training, technical support, and use of soil moisture probes to manage irrigation systems.
Practices	Cover Crops	Planting of cover crops between production cycles to increase soil organic content, improve nutrient retention, and reduce erosion.
Research	Bioreactors	Bioreactors/denitrification walls and onsite capture and reuse of high-N water.
Research	Rotational Production	Conversion of conventional production operations to planned rotational production incorporating grass and cover crops. May include cattle.
Research	Soil Moisture Sensor Deployment and Calibration	Installation, training, monitoring, and research on use of electronic soil moisture sensors, including correlations to nutrient movement through the root zone.

Category	Name	Description
Research	Controlled Release Fertilizer (CRF)	Application of new and developing fertilizer products that become available to crops via dissolution over longer periods in the growing season.
Research	Reuse of High Nutrient Value Water Sources	Study of potential sources of high nutrient value water, potential beneficial reuse sites, legal and regulatory obstacles, and costs.

Appendix G. Future Growth Strategies of Local Jurisdictions

Table G-1. Future growth strategies of local jurisdictions

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Altamonte Springs	Ordinance No. 1015-89	The City does hereby establish a stormwater management utility and declare its intention to acquire, own, construct, equip, operate and maintain open drainage ways, underground storm drains, treatment facilities, equipment and appurtenances necessary, useful or convenient for a complete stormwater management system, and also including maintenance, extension and construction of the present stormwater management system of the city; to minimize by suitable means such system's adverse effect on the water quality of lakes, ponds and basins within the city; and to seek and to maintain the levels of lakes, ponds and basins within the city and to facilitate the maintenance of retention areas.	Ordinance	Completed
City of Altamonte Springs	Ordinance No. 1346-99	It shall be unlawful for any person to drain, deposit, place or otherwise discharge pollutants into any stormwater system within the city, or to cause or permit to be drained, deposited, placed or otherwise discharged into such stormwater systems any organic or inorganic matter which causes pollution, pursuant to the water quality standards established by all applicable regulatory agencies.	Ordinance	Completed
City of Altamonte Springs	Ordinance No. 1719-17	As a result of impairment to surface waters caused by excessive nutrients, and as a result of increasing levels of nitrogen in the surface and groundwater within the aquifers and springs, the City Commission hereby determines that the use of fertilizers creates a risk to contributing to adverse effects on surface and groundwater. Accordingly, the City Commission hereby finds that management measures contained in the most recent edition of the Florida-Friendly Best Management Practices for Protection of Water Resources, by the Green Industries are required.	Ordinance	Completed
City of Altamonte Springs	Future Land Use (FLU) Policy 1-1.8.3	The City shall coordinate land use planning activities, urban sprawl issues, and other comprehensive planning issues with Seminole County and adjacent municipalities through the Seminole County Joint Planning Technical Advisory Committee (PTAC).	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Altamonte Springs	FLU Objective 1-1.14	The City will ensure that natural resources are protected through the policies of this plan upon adoption and enforcement by the City of requirements in the Land Development Code (LDC), especially in the review of all new development and redevelopment proposals and through code enforcement procedures. The City will coordinate future land uses with the appropriate topography, soil conditions and other environmental features, including those lands in the City and within the Wekiva Study Area (WSA), as defined in section 369.316 Florida Statutes, and shown on Figure I-1.12, "Wekiva Study Area", during the review process of proposed development, the comprehensive plan amendment process (maximum twice a year) and the seven-year comprehensive plan update process.	Comprehensive Plan	Completed
City of Altamonte Springs	FLU Policy 1-1.14.2	The City will promote the use of reclaimed water and use of drought resistant or native vegetation when needed as a part of median landscaping, park expansion and natural open space areas throughout the city.	Comprehensive Plan	Completed
City of Altamonte Springs	FLU Policy 1-1.14.12	New development within the WSA shall adhere to any development standards adopted to implement the Wekiva Parkway and Protection Act. Such standards may include, but are not limited to: additional stormwater treatment and retention (maintenance of water quality and recharge); enhanced wastewater treatment; limitations of certain allowed uses within the most vulnerable portions of the WSA; subdivision standards; open space requirements; "smart growth design"; roadway design standards; parking lot design standards; upland habitat protection, and other such measures as may be adopted in order to protect ground and surface water in the WSA.	Comprehensive Plan	Completed
City of Altamonte Springs	Infrastructure Policy 4-1.1.2	The City will prohibit package wastewater treatment plants and septic tanks by requiring all new development to connect to the central wastewater system prior to issuance of a certificate of occupancy.	Comprehensive Plan	Completed
City of Altamonte Springs	Infrastructure Policy 4-1.1.3	The City shall evaluate solutions and programs for the elimination of existing septic tanks by requiring connection to the City's wastewater system. The City will not issue building permits for any new development, or redevelopment, using septic tanks within the City limits, except on an interim basis as approved by the City Engineer.	Comprehensive Plan	Completed
City of Altamonte Springs	Infrastructure Policy 4-1.1.5	The City will continue to require all new development to connect to Project APRICOT (the reclaimed water system).	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Altamonte Springs	Infrastructure Objective 4-4.1	The City shall continue to identify and correct existing stormwater deficiencies on an annual basis and meet long-term needs. Priorities will be placed on basins where water bodies have an established Total Maximum Daily Load (TMDL) and areas where flooding poses a threat to public safety.	Comprehensive Plan	Completed
City of Altamonte Springs	Infrastructure Policy 4-4.1.2	The City will prioritize any capital improvements and deficiencies which affect stormwater management in the WSA as identified in the Wekiva Parkway and Protection Act Master Storm Water Management Plan. Within the WSA, the City shall prioritize those projects that meet the conditions outlined in Objective 4-4.1.	Comprehensive Plan	Completed
City of Altamonte Springs	Infrastructure Policy 4-4.1.10	The City shall require that all development, except non-substantial redevelopment projects, utilize best management practices (BMPs) in combinations to protect water quality and minimize flooding. BMPs shall be used in the design of stormwater management systems. The following stormwater BMPs shall be instituted to reduce the nutrient loading within the WSA...	Comprehensive Plan	Completed
City of Altamonte Springs	Infrastructure Policy 4-4.3.4	All runoff recharging the Floridan aquifer shall be pre-treated to remove nutrients and other contaminants so post-development water quality equals predevelopment recharge water quality to the greatest extent possible.	Comprehensive Plan	Completed
City of Altamonte Springs	Infrastructure Policy 4-5.1.8	No septic tanks will be permitted in the recharge areas where sewer is available within 100 feet of the property line of the parcel to be developed.	Comprehensive Plan	Completed
City of Altamonte Springs	Conservation Objective 5-1.1	It is the intent of the City to improve the quality of surface water within the City. The City will construct stormwater facilities to improve water quality conditions in the City based on revenues that are bonded from the stormwater utility fees.	Comprehensive Plan	Completed
City of Altamonte Springs	Conservation Policy 5-1.1.3	The City will continue to implement economically feasible recommendations as proposed in the Little Wekiva River Watershed Management Plan as budgeted funds permit.	Comprehensive Plan	Completed
City of Altamonte Springs	Conservation Policy 5-1.1.7	In order to reduce the pollutant loading on the Little Wekiva River, the City will continue to operate Project APRICOT in lieu of discharging effluent into the Little Wekiva River. To further reduce pollutant loading on the Little Wekiva River, the City will pursue other forms of effluent discharge during those periods where the lack of demand on Project APRICOT results in discharge to the Little Wekiva River.	Comprehensive Plan	Completed
City of Altamonte Springs	Conservation Policy 5-1.1.11	Actively participate in the development of TMDL reports and BMAPs for waterbodies designated as impaired by DEP.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Altamonte Springs	Conservation Objective 5-1.3	The City shall continue to control erosion along the Little Wekiva River, along the shoreline of several lakes within the corporate limits, and reduce siltation of lakes and wetlands through the implementation of the following policies...	Comprehensive Plan	Completed
City of Altamonte Springs	Conservation Policy 5-1.4.9	A combination of the following requirements governs the City's efforts to prohibit septic tanks: (a) The City will continue to prohibit the placement of septic tanks in flood prone areas; on-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding, (b) The City will prohibit package wastewater treatment plants and septic tanks, requiring all new development to connect to the City's central wastewater system prior to issuance of a certificate of capacity, (c) The City will not issue building permits for any new development, or redevelopment, using septic tanks within the City limits, except on an interim basis until the City's central wastewater system becomes available to the development, as approved by the City Engineer.	Comprehensive Plan	Completed
City of Altamonte Springs	Conservation Goal 6-2	Protect springs and springhed areas including surface water and groundwater resources of the WSA as fragile resources necessary for sustaining the community's quality of life, drinking water, and health of the Wekiva River System.	Comprehensive Plan	Completed
City of Altamonte Springs	Conservation Policy 6-2.1.2	Where avoidance of impacts through the limitation of land use activities is not feasible, implement BMPs and development standards such as buffering, setbacks and open space standards that will minimize the impact of land use and development within the Wekiva Study Area, consistent with objectives and supporting policies applicable to the WSA.	Comprehensive Plan	Completed
City of Altamonte Springs	Conservation Policy 6-2.2.9	The following landscaping BMPs shall be instituted to reduce nitrate loading: a. Planted turf grass and landscaping within residential lots shall be restricted wherever feasible to minimize the use of fertilization and water for irrigation; b. Drought tolerant and native landscaping shall be required wherever feasible; and c. All development shall require best management practices as dictated by the principles and practices of the Florida Yards and Neighborhood Program.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Apopka	Sewer Connection (Ordinance No. 1175)	Every owner, tenant or occupant of a lot or parcel of land within the city which abuts upon a street or other public way or easement containing a sanitary sewer line or conduit within one-half mile measured from the nearest lot line, and upon which lot or parcel a building or structure has been constructed for residential, commercial or industrial use, shall be required to connect such building or structure with the sanitary sewer system and cease to use any other method for the disposal of wastewater.	Ordinance	Completed
City of Apopka	Sewer Connection (Ordinance No. 1175)	Any existing single-family home within the city limits at the time of construction of new sewer lines or at the time of annexation is exempted from the above requirements if they have a fully functional septic system. However, if the septic system should fail and require replacement, the owner, tenant, or occupant of the lot or parcel of land would lose this exemption and then be required to connect to the city system.	Ordinance	Completed
City of Apopka	Reclaimed Water Connection (Ordinance No. 1983)	Where available, the owner of every lot or parcel of land within the city utility service area developed for residential, public, commercial office, industrial, warehousing or multifamily use shall connect the premises or cause the premises to be connected with the reclaimed water distribution system.	Ordinance	Completed
City of Apopka	Creation of Stormwater Management Utility (Ordinance No. 1983)	...the City does hereby establish a stormwater management utility and declares its intention to acquire, own, construct, equip, operate and maintain open drainage ways, underground storm drains, treatment facilities, equipment and appurtenances necessary, useful or convenient for a complete stormwater management system, and also including maintenance, extension and construction of the present stormwater management system of the city; to minimize by suitable means such system's contribution to flooding; to minimize by suitable means such system's adverse effect on the water quality of lakes, ponds and basins within the city and to maintain the levels of lakes, ponds and basins within the city; and to facilitate the maintenance of retention areas.	Ordinance	Completed
City of Apopka	Prohibit Pollutant Discharge (Ordinance No. 1155)	It shall be unlawful for any person to knowingly drain, deposit, place or otherwise, directly discharge into any natural waters, receiving waters, outlets or stormwater management systems within the city, or to cause or permit to be drained, deposited, placed or otherwise discharged into such natural waters, receiving waters, outlets or stormwater management systems any organic or inorganic matter which causes pollution.	Ordinance	Completed
City of Apopka	Ordinance No. 2069	Fertilizer Ordinance		

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Apopka	FLU Policy 4.7	The City shall utilize public lands for appropriate multiple uses, such as parks, stormwater management systems and preservation of natural habitats.	Comprehensive Plan	Completed
City of Apopka	FLU Policy 4.15	The City recognizes the need to protect specific rare natural communities within the WSA...	Comprehensive Plan	Completed
City of Apopka	FLU Objective 10	All new development within the Wekiva River Protection Area shall be very low suburban residential density of two units per acre or less in nature, unless a proposed development would have less impact on natural resources.	Comprehensive Plan	Completed
City of Apopka	FLU Objective 14	In an effort to manage development in the WSA in a way that ensures that the sensitive environmental resources are protected, the City shall utilize the best available data for land use amendments and development review from SJRWMD, FWC, DEP, and other agencies.	Comprehensive Plan	Completed
City of Apopka	FLU Objective 15	Site plans, subdivisions or their functional equivalent, such as planned unit developments, within the WSA shall meet the design standards as set forth in the following policies...	Comprehensive Plan	Completed
City of Apopka	FLU Objective 16	In order to minimize the contribution of nitrates to groundwater and to foster long-term stewardship of the springs, special design and BMPs shall be instituted for all development within the WSA.	Comprehensive Plan	Planned
City of Apopka	FLU Objective 17	Proposed amendments to the Future Land Use Map (FLUM) within the WSA shall meet the criteria in the following policies...	Comprehensive Plan	Completed
City of Apopka	Infrastructure Objective 1.4	The City shall assign the highest priority to cost-effective, beneficial uses of reclaimed water when developing future effluent disposal plans.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Objective 1.5	In order to discourage urban sprawl, expansion of the City's wastewater collection, treatment and reclamation facilities will only be allowed within the Utilities Service Area, as defined in the Interlocal Agreement with Orange County, and in accordance with the Capital Improvements Element to serve projected new development or redevelopment with levels of service that meet those adopted by the City.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Apopka	Infrastructure Policy 1.5.5	The permanent use of septic tanks shall only occur for residential developments and neighborhood commercial uses if the following conditions apply: a) the septic tanks serve a lot of one acre or larger in size; b) a residential development within the City that is located more than one mile from the City's wastewater collection system. The one-mile distance shall be measured from the nearest lot line where the facilities are located; and c) it can be demonstrated through soil analysis, subdivision layout, or the use of enhanced technology that comparable groundwater protection can be achieved with small lots. Exceptions to this policy may be granted by the City for infill projects. For the purposes of this exception provision, infill development shall be considered the development of vacant or underutilized parcels within the City's urbanized areas which are already largely developed.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 1.5.8	The City has adopted a Wekiwa Parkway and Protection Act Master Stormwater Management Plan Support Final Report in cooperation with SJRWMD. The City shall follow the intent of this report.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 1.5.9	The use of septic tanks for new developments may be undertaken on an interim basis, not to exceed five years, in cases where central sewer improvements necessary to serve the proposed development are scheduled for construction in the adopted Capital Improvements Program within that five-year timeframe. The approval for and conditions of the use of septic tanks on an interim basis shall be at the sole discretion of the City.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 1.5.10	Package plants shall not be permitted for any development within the City.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 1.5.11	Where onsite disposal systems (OSDS or septic tanks) are permitted, protection of the environment shall be ensured through OSDS size requirements and the incorporation of a stringent level of wastewater treatment to reduce nitrate levels.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 2.5.5	The City shall implement Ordinance Number 2069, adopted on May 21, 2008, which requires water-wise irrigation practices and the application of Florida Friendly landscape practices.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Objective 3.2	Restrict development within the 100-year flood plain to those uses that will not adversely affect the capacity of the flood plain to stormwater.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Objective 3.9	To educate the citizens of Apopka on the environmental effects of stormwater runoff, the stormwater management needs of the community and ways in which the public can help in managing stormwater runoff.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Apopka	Infrastructure Objective 3.10	To recognize that drainage and stormwater management issues transcend corporate and jurisdictional boundaries and that cooperation with other local government may be necessary for the City to provide the required level of service.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 4.1.5	The City shall use BMPs and performance standards to maximize open space, limit impervious surfaces and turf grass areas, promote protection of natural vegetation, promote the use of pervious parking areas, and treat stormwater to protect water quality.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Objective 4.2	The City shall coordinate with other governmental entities regarding groundwater pollution through the establishment or continuation of programs and technical assistance.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 4.2.3	The use of septic tanks shall not be permissible within the corporate limits of Apopka for other than residential uses when both of the following conditions apply: the septic tanks serves a lot of one acre or larger in size, and wastewater collection facilities are further than one mile, to be measured from the nearest lot line where the facilities are located.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 4.2.4	The use of septic tanks within environmentally sensitive lands shall be prohibited.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 4.2.7	In order to protect groundwater resources, all new development shall be required to demonstrate that pre-and post-development recharge shall be equal.	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 4.4.3	BMPs shall be used in combination as part of a BMP treatment train to protect water quality and minimize flooding. BMPs shall be used in the design of stormwater management facilities and systems. The BMPs include...	Comprehensive Plan	Completed
City of Apopka	Infrastructure Policy 4.4.4	For sub-basins in the WSA identified with predicted percent increases in pollutant loads between existing and future conditions the City shall evaluate the use of controls in addition to what is already required for stormwater treatment by City regulations and permitting agencies, where most beneficial and where feasible, by May 2010. The types of controls to be evaluated will utilize the BMPs include the following, at a minimum...	Comprehensive Plan	Completed
City of Apopka	Conservation Objective 3	The City shall protect its natural resources including wetlands as defined by rules 40C-4 and 62-302, F.A.C., floodplain storage, and identified threatened and endangered species and species of special concern as defined in the Future Land Use Element.	Comprehensive Plan	Completed
City of Apopka	Conservation Policy 3.13	The City shall continue to seek out innovative partnerships and opportunities to preserve and conserve its natural resources in a balanced approach that ensures multiple and compatible uses of those lands while providing just compensation to the landowner.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Apopka	Conservation Policy 3.16	The City will prohibit stormwater discharge from development from discharging into wetlands, sinkholes, bays or rivers without sufficient prior treatment that will protect existing water quality.	Comprehensive Plan	Completed
City of Apopka	Conservation Objective 10	The City shall maintain the Wekiva River Hydrologic Basin standards and design criteria as adopted in Rule 40C-4.091, F.A.C. within the Wekiva River Protection Area.	Comprehensive Plan	Completed
City of Apopka	Conservation Policy 10.9	Septic tanks shall be prohibited within the Wekiva River Protection Area.	Comprehensive Plan	Completed
City of Apopka	Conservation Objective 12	The City shall protect the most sensitive resources within high recharge areas including the principal areas of ground water contribution and recharge, sinkholes, depressions and stream-to-sink features, and the area immediately adjacent to the spring and the spring run.	Comprehensive Plan	Completed
City of Apopka	Conservation Policy 12.4	The use of landscaping best management practices as described in <i>Guidelines for Model Ordinance Language for Protection of Water Quality and Quality Using Florida Friendly Lawns and Landscapes</i> (DEP, September 2, 2003) shall be required for all new developments.	Comprehensive Plan	Completed
City of Apopka	Conservation Policy 12.6	All new golf courses siting, design, construction, and management shall implement the prevention, management, and monitoring practices, detailed in the golf course siting, design, and management chapter of the <i>Protecting Florida's Springs Manual - Land Use Planning Strategies and BMPs</i> (November 2002.) These practices are derived from the Audubon International Signature program.	Comprehensive Plan	Completed
City of Apopka	Conservation Policy 12.7	The City shall coordinate with SJRWMD, Orange County and other appropriate agencies to develop and maintain programs to educate and encourage homeowners and private land owners to use best management practices to protect natural habitat and to protect water quality, especially on land within the mapped recharge areas of first magnitude springs.	Comprehensive Plan	Completed
City of Maitland	Ordinance Nos. 647 and 995	The owner of a properly functioning on-site sewage treatment and disposal system (OSTDS) must connect the system or the building's plumbing to the city's sewerage system within 365 days after written notification by the City that the system is available for connection. The City must notify the owner of the availability of the central sewerage system. Not less than one (1) year prior to the date the sewerage system will become available, the City shall notify the affected owner of the anticipated availability of the sewerage system and shall also notify the owner that the owner will be required to connect to the sewerage system within one (1) year of the actual availability...	Ordinance	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Maitland	Ordinance Nos. 935 and 1093	It shall be unlawful for any person to knowingly, directly or indirectly, drain, deposit, place or otherwise discharge into any natural waters, receiving waters, outlets, streets or stormwater management systems within the city, or to cause or permit to be drained, deposited, placed or otherwise discharged into such natural waters, receiving waters, outlets, streets, or stormwater management systems any organic or inorganic matter which causes pollution. Nothing herein shall preclude the drainage of irrigation water, swimming pools and/or spas, for maintenance purposes.	Ordinance	Completed
City of Maitland	Ordinance No. 1168	The City does hereby establish a stormwater environmental utility and charges it with responsibility for the planning, administration, construction, operation and maintenance of the City's stormwater system, for lake water quality management, for implementation of the Maitland Stormwater Lakes Management Plan, for the education of citizens on these activities, and for lake interconnects water quality management.	Ordinance	Completed
City of Maitland	FLU Standard 3.22.6	In order to minimize use of fertilizers on lakefront lots and areas with features indicative of most effective recharge and karst features the City shall require incorporation of native plant species through the development or redevelopment processes	Comprehensive Plan	Completed
City of Maitland	Infrastructure Policy Sanitary Sewer 2.1	The City shall require that all residents and owners of developed property connect to the sanitary sewer system when capacity becomes available for the respective area.	Comprehensive Plan	Completed
City of Maitland	Infrastructure Policy Sanitary Sewer 2.2	The City shall give priority for sewer system expansion to neighborhoods currently serviced by septic tanks.	Comprehensive Plan	Completed
City of Maitland	Infrastructure Standard Sanitary Sewer 2.2.2	Improvements to eliminate septic tank use for the portion of the City's Western Service Area, west of Interstate-4, and within the WSA are to be included in a capital improvements program as appropriate.	Comprehensive Plan	Completed
City of Maitland	Infrastructure Policy Sanitary Sewer 2.3	The City shall permit septic tanks only in areas where such installation would not be harmful or potentially harmful to lakes, canals or groundwater, and where sewer connection is not possible.	Comprehensive Plan	Completed
City of Maitland	Infrastructure Policy Sanitary Sewer 2.4	No package plants will be allowed in the city.	Comprehensive Plan	Completed
City of Maitland	Infrastructure Policy Sanitary Sewer 4.3	The City shall research the feasibility to develop methods for reuse of treated wastewater.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Maitland	Infrastructure Policy Sanitary Sewer 4.4	If feasible, the City shall begin implementation of reuse program.	Comprehensive Plan	Completed
City of Maitland	Infrastructure Standard Stormwater 1.1.1	Stormwater/Lake Management Plan, 2006 (SLMP 2006) shall be updated by the City every ten years and used to review the entire stormwater drainage system including the effectiveness of BMPs installed and new technologies available and will make revisions as necessary. This includes pollution abatement.	Comprehensive Plan	Completed
City of Maitland	Infrastructure Objective Stormwater 2	Stormwater management for the WSA located within the City of Maitland shall protect the quantity and quality of surface waters, groundwater recharge areas, springs and springsheds.	Comprehensive Plan	Completed
City of Maitland	Infrastructure Policy Stormwater 2.9	The City shall continue to coordinate with SJRWMD, DEP, and other public and private utilities to investigate, develop and implement use of stormwater and water reuse as alternatives to the use of groundwater for irrigation purposes.	Comprehensive Plan	Completed
City of Maitland	Conservation Policy 3.1	The City shall maintain regulations which require and enforce BMPs as defined by SJRWMD, DEP, University of Florida Cooperative Extension Service, and FDACS, to be followed during development activities for all sites.	Comprehensive Plan	Completed
City of Maitland	Conservation Policy 3.2	The City shall maintain a shoreline protection ordinance.	Comprehensive Plan	Completed
City of Maitland	Conservation Objective 5	The lakes in the area are of important recreational and aesthetic value to the City's residents and are integral parts of the City's residential neighborhoods. It is the City's objective to maintain a program which provides definitive water quality data and measures to protect and improve water quality.	Comprehensive Plan	Completed
City of Maitland	Conservation Standard 5.1.1	Maintain a monitoring system for water quality in the City.	Comprehensive Plan	Completed
City of Maitland	Conservation Policy 5.2	Through constant review of water quality data, the City shall implement additional methods as required to reduce sources of water pollution causing water quality parameters to go below DEP standards.	Comprehensive Plan	Completed
City of Maitland	Conservation Objective 6	The City shall maintain a program and implement improvements to upgrade stormwater system and ensure water quality.	Comprehensive Plan	Completed
City of Maitland	Conservation Policy 6.4	The City shall regulate use of fertilizers on upland and lakefront properties	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Maitland	Conservation Standard 6.4.1	Provide educational programs that educate citizens on eco-friendly practices that protect our water supply and water quality and that are designed to focus on specific types of impacts including lakefront lots, stormwater basins, and watersheds. At a minimum, these programs will cover the following issues: • Proper use of fertilizers and pesticides, including herbicides and insecticides to create eco-friendly backyards that minimize these chemicals; • Use of native and drought tolerant plants; • Exotic species control; and • Groundwater protection.	Comprehensive Plan	Completed
City of Maitland	Conservation Standard 6.4.2	Research alternatives to the use of fertilizers which contribute to lake pollution	Comprehensive Plan	Completed
City of Maitland	Conservation Objective 11	In order to provide immediate measures to protect groundwater resources, the City shall incorporate protection measures into the land development regulations, to be adopted by the statutory deadline.	Comprehensive Plan	Completed
City of Maitland	Economic Policy 2.5	In coordination with Conservation Element policies, the City shall give preference to protecting the environment over economic considerations where there is a conflict.	Comprehensive Plan	Completed
City of Ocoee	Ordinance Nos. 91-20, 96-03, and 2006-002	Stormwater Management Utility System	Ordinance	Completed
City of Ocoee	Ordinance No. 99-36	It shall be unlawful for any person to knowingly drain, deposit, place or otherwise directly discharge into any natural waters, receiving waters, outlets or stormwater management systems within the City or to cause or permit to be drained, deposited, placed or otherwise discharged into such natural waters, receiving waters, outlets or stormwater management systems any organic or inorganic matter which causes or tends to cause pollution	Ordinance	Completed
City of Ocoee	Ordinance No. 2001-29	Reclaimed Water Use Program	Ordinance	Completed
City of Ocoee	Ordinance No. 2017-14	Fertilizer Ordinance	Ordinance	Completed
City of Ocoee	FLU Objective 1	...Additionally, the City recognizes the WSA and shall create policies to protect the most effective recharge areas, karst features, and sensitive natural habitats as depicted on the following maps as adopted in the Future Land Use Map Series. Within the WSA, properties with development entitlements shall be exempt.	Comprehensive Plan	Completed
City of Ocoee	FLU Policy 1.2.1	For areas within the WSA, the City shall require applicants for all land development activities to provide the following additional analyses by a qualified professional...	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Ocoee	FLU Policy 1.3.1	For areas within the WSA, the City shall limit new land development activities that have the potential to adversely impact groundwater and surface water quality including but not limited to mining, landfills, sprayfields, heavy industrial, intense animal operations, and high density residential using onsite septic systems for wastewater treatment.	Comprehensive Plan	Completed
City of Ocoee	FLU Policy 1.3.2	For those areas within the WSA where limitation of development is not feasible, the City shall mitigate impacts by using BMPs and development standards such as buffering, setbacks and open space standards that optimize open space and protect most effective recharge areas, karst features and sensitive natural habitats.	Comprehensive Plan	Completed
City of Ocoee	FLU Policy 5.4	The City shall promote the use of upland and wetland corridors and buffer zones as natural reservations, as identified in the Recreation and Open Space Element.	Comprehensive Plan	Completed
City of Ocoee	Drainage Objective 1	The City shall protect the water quality of surface waters, groundwater recharge areas, springs, and springsheds through the implementation of the following policies...	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 1.6	New development will, at a minimum, maintain surface and groundwater flow rates and volumes at pre-development levels, or enhance recharge so that the natural function of groundwater recharge areas is maintained, or improved. New development projects or expansion of existing development within the WSA shall be required to follow BMPs for stormwater design and treatment as described in <i>Protecting Florida Springs Manual – Land Use Planning Strategies and Best Management Practices</i> (DCA and DEP, November 2002).	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 1.8	All new development, except non-substantial redevelopment projects, shall utilize BMPs in combination as part of a BMP treatment train to protect water quality and minimize flooding. BMPs shall be used in the design of stormwater management facilities and systems. The following stormwater BMPs shall be instituted to reduce nitrate loading within the Wekiva Springs Overlay Protection District...	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Ocoee	Drainage Policy 3.4	All capital improvements recommended from the completed drainage basin studies have been included and prioritized within the City's Capital Improvement Program and in the Wekiva Parkway and Protection Act Master Stormwater Management Plan Support, dated November 2005. The priorities are based on: 1) Flood Protection; 2) Water Quality; 3) Localized Flooding; and 4) Aquifer Recharge and Protection. The City shall continue to define drainage and storm water capital projects based on this prioritization hierarchy, as well as evaluating regional stormwater projects to benefit the water quality of Lake Apopka and other impaired waterbodies.	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 3.7	The maintenance and flooding projects identified in the Wekiva Parkway and Protection Act Regional Master Stormwater Management Plan from the City's basin studies shall serve as the basis of construction for an annual budgetary allocation as a regular component of the City's stormwater management system and Capital Improvements Program.	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 3.9.C	The City shall use the stormwater utility fee as the primary funding source for the continued implementation of those projects identified in the Wekiva Parkway and Protection Act Regional Master Stormwater Management Plan that are specific to the City of Ocoee and included in the City's Capital Improvements Element. The City shall also continue to focus on the water quality projects identified in the Plan within its efforts to comply with the regulations of the National Pollution Discharge and Elimination System (NPDES), the Lake Apopka Basin Rule, and the TMDL program, as well as the Wekiva Parkway and Protection Act.	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 5.6	Provide proactive illicit discharge inspections of the City's storm sewer system.	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 6.1	For sub-basins in the WSA identified with predicted percent increases in pollutant loads between existing and future conditions, the City shall evaluate the use of controls in addition to what is already required for stormwater treatment by City regulations and permitting agencies, where most beneficial and where feasible, by May 2010. The types of controls to be evaluated will utilize the BMPs, to include the following, at a minimum...	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Ocoee	Drainage Policy 6.3	The City shall continue to monitor its master stormwater management plan to a minimum address the requirements of the Wekiva Parkway and Protection Act and include the following components: data collection, identification of problem areas, hydraulic/hydrologic analysis of the primary stormwater management system, water quality, recommendations and estimated costs for capital improvements.	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 6.11	The City shall continue a dedicated funding source, such as the stormwater utility fee, that can be used for planning, implementation and operations and maintenance of regional projects within the WSA. The City shall continue to fund regional stormwater projects for the benefit to Lake Apopka, and then fund the stormwater maintenance projects, as identified in the Wekiva Parkway and Protection Act Master Stormwater Management Plan Support, dated November 2005, over a twenty-year period, beginning in 2010.	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 6.12	The City shall continue to coordinate with Orange County and/or other local governments in the WSA, the planning and implementation of regional (stormwater) projects for the WSA.	Comprehensive Plan	Completed
City of Ocoee	Drainage Objective 7	The City shall implement, in order to minimize the contribution of nitrates to groundwater and to foster long-term stewardship of the springs, special design and BMPs shall be instituted for all development within the WSA.	Comprehensive Plan	Completed
City of Ocoee	Drainage Policy 7.8	By January 2010, develop an educational program, incentive program, and appropriate regulations to protect groundwater supply and enhance the functions of water recharge areas in the City of Ocoee WSA.	Comprehensive Plan	Completed
City of Ocoee	Aquifer Recharge Objective 2	The City shall coordinate with other government entities regarding development of protection standard for groundwater basins.	Comprehensive Plan	Completed
City of Ocoee	Aquifer Recharge Policy 4.7	All new development, except non-substantial redevelopment projects, shall utilize BMPs in combination as part of a BMP treatment train to protect water quality and minimize flooding. BMPs shall be used in the design of stormwater management facilities and systems. The following stormwater BMPs shall be instituted to reduce nitrate loading within the Wekiva Springs Overlay Protection District...	Comprehensive Plan	Completed
City of Ocoee	Potable Water Policy 2.1.10	The City shall continue to promote the reuse of treated effluent in the City as irrigation for residential and commercial customers and parks and landscaped areas to reduce the demand on existing potable water supplies, and continue to expand its water reclaim and reuse system.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Ocoee	Sanitary Sewer Policy 1.1.3	Should there be a large number of septic tank drain field failures, the City will consider initiating a program to bring them into the sanitary sewer service area when cost-effective to do so.	Comprehensive Plan	Completed
City of Ocoee	Sanitary Sewer Policy 1.3.1	The shift to new technologies and operational procedures shall occur as they become economically feasible; e.g., artificial recharge systems and continued reclamation of wastewater.	Comprehensive Plan	Completed
City of Ocoee	Sanitary Sewer Policy 1.3.2	The City shall actively participate in the development of innovative wastewater programs, which protect and conserve the City's water resources.	Comprehensive Plan	Completed
City of Ocoee	Sanitary Sewer Policy 2.1.2	The City shall limit the use of elevated septic tanks and drain field systems to lots of a half-acre minimum in order to provide a more balanced ecological and aesthetic approach to new development.	Comprehensive Plan	Completed
City of Ocoee	Sanitary Sewer Policy 2.1.4	The City shall allow the use of septic tanks for development only in areas of suitable soils and when central wastewater services are not available. Where there are marginal soils, the City may allow the use of septic tanks based on detailed soil and site analysis so that ground or surface waters will not be polluted.	Comprehensive Plan	Completed
City of Ocoee	Sanitary Sewer Policy 2.1.6	New development in the Urban Service Area shall be connected to central wastewater systems. The waiver of this requirement to permit the use of septic tanks should only be considered pursuant to Policy 2.1.4.	Comprehensive Plan	Completed
City of Ocoee	Sanitary Sewer Policy 2.1.7	In areas of unsuitable soils, existing septic tanks shall be required to connect to the City wastewater system within one (1) year from the date of notification that these services are available.	Comprehensive Plan	Completed
City of Ocoee	Conservation Objective 2	The City shall protect the quality of all surface water bodies and groundwater quality by implementing the following policies...	Comprehensive Plan	Completed
City of Ocoee	Conservation Policy 2.4	The use of septic tanks in developments and redevelopments shall be permitted in accordance with Chapter 10-D-6 FAC to prohibit septic tanks in flood plains, wetlands, areas adjacent to lakes and in areas designated with soils unsuitable for septic tanks.	Comprehensive Plan	Completed
City of Orlando	Ordinance Nos. 6-12-2000 and 5-6-2002	General Sewer Use Requirements	Ordinance	Completed
City of Orlando	Ordinance Nos. 6-12-2000, 5-6-2002, 10-20-2008	Pretreatment of Wastewater	Ordinance	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Orlando	Ordinance Nos. 6-12-2000 5-6-2002	Septic System Abandonment Credit	Ordinance	Completed
City of Orlando	Ordinance Nos. 3-24-1980 6-26-1989	Stormwater Utility Code	Ordinance	Completed
City of Orlando	Ordinance No. 5-6-2002	Reclaimed Water	Ordinance	Completed
City of Orlando	Ordinance No. 9-16-1991	Environmental Protection (stormwater management, surface water bodies and wetlands, groundwater recharge, floodplains)	Ordinance	Completed
City of Orlando	FLU Policy 1.2.2	Growth shall be directed away from natural areas unsuitable for urban development, and such areas shall be protected from urban development through the City's land development regulations in accordance with the policies of the Conservation Element of this Plan.	Comprehensive Plan	Completed
City of Orlando	FLU Objective 1.5	Throughout the planning period, the City shall provide policy and program mechanisms which further the principles of sustainability and Smart Growth, including: the protection and restoration of key ecosystems; achieving a healthier and cleaner environment; protecting wildlife and environmentally sensitive natural areas; advancing the efficient use of land and other resources, particularly potable water and energy; creating an excellent education system; creating a variety of housing and transportation choices; encouraging walkable neighborhoods with a mix of uses; fostering a strong sense of place; directing development toward existing communities and infill opportunities; and creating an environment conducive to building quality communities, promoting sustainable economic development, and the creation of jobs.	Comprehensive Plan	Completed
City of Orlando	FLU Policy 2.3.4	The Resource Protection Overlay Land Use Designation shall be used to identify the locations of all potential environmentally sensitive areas, including the most effective recharge areas, karst features and sensitive natural habitats located within the WSA...	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Orlando	FLU Policy 2.3.6	The Wekiva Overlay Future Land Use Designation shall be used to identify and regulate property within the WSA, as defined in the Wekiva Parkway and Protection Act. Development within this overlay shall be subject to the requirements of Conservation Policies 1.4.1, 1.7.8 and 1.7.10, together with Stormwater and Aquifer Recharge Objective 1.11 and associated policies, and all other applicable Growth Management Plan (GMP) objectives and policies.	Comprehensive Plan	Completed
City of Orlando	Urban Design Objective 6.1	The City shall adopt and maintain xeriscape principles in the LDC throughout the planning period.	Comprehensive Plan	Completed
City of Orlando	Urban Design Objective 6.5	By January 1, 2012, land development regulations shall include incentives to promote the use of stormwater retention/detention areas as visual amenities, and encourage alternative stormwater management systems, such as green roofs, water gardens and rainwater collection systems to reduce the impact of stormwater retention in developments.	Comprehensive Plan	Completed
City of Orlando	Urban Design Objective 6.10	By 2012, the City shall establish sustainable urban design practices that emphasize conservation of natural resources, focus on environmental consciousness, and promote healthy lifestyles within the City.	Comprehensive Plan	Completed
City of Orlando	Conservation Objective 1.2	The City shall maintain a systematic program for identifying and evaluating water quality problems related to the area's surface and groundwater. Existing and potential sources of water quality degradation shall be identified throughout the planning period.	Comprehensive Plan	Completed
City of Orlando	Conservation Policy 1.2.2	The City shall continue to monitor lakes and other surface water bodies within its jurisdiction. Because lakes are important for their recreational and aesthetic value, all lakes within the City shall be maintained and restored to meet water quality standards that equal or exceed state and federal standards.	Comprehensive Plan	Completed
City of Orlando	Conservation Policy 1.2.4	The City shall continue to work with adjacent residents and the relevant environmental protection agencies to create a plan for improving water quality where problems arise.	Comprehensive Plan	Completed
City of Orlando	Conservation Objective 1.3	The City shall continue to identify and eliminate all known sources of water pollution throughout the planning period. This shall include, but not be limited to, water bodies, drainage wells, and septic tanks. Water bodies shall be monitored and maintained to meet the minimum criteria of Chapter 62-303, F.A.C. (Impaired Water Rule). Drainage wells shall be periodically monitored to determine potential impact to the aquifer. A continuing review of the City's wastewater system shall be conducted to identify and eliminate inoperative septic tanks.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Orlando	Conservation Policy 1.3.7	The City shall analyze and estimate the seasonal pollutant load and the event mean concentration of a representative storm for each major outfall located within the City's stormwater system, as required by the federal Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) permit. This analysis shall identify deficiencies within the City's stormwater system and enable the City to effectively prioritize capital improvement projects. The City shall coordinate with the water management districts to identify and eliminate point and non-point sources of water quality degradation in locations that shall be prioritized consistent with water management district initiatives.	Comprehensive Plan	Completed
City of Orlando	Conservation Policy 1.3.8	If a lake located within the City's jurisdiction fails to meet the minimum criteria of Chapter 62-303, F.A.C. (Impaired Water Rule), the City shall take the following actions...	Comprehensive Plan	Completed
City of Orlando	Conservation Objective 1.7	The City shall maintain, throughout the planning period, the most appropriate means of protecting environmentally sensitive lands. Alternative methods shall include acquisition, regulation, and maintenance of City-owned lands, or any combination of the above.	Comprehensive Plan	Completed
City of Orlando	Conservation Policy 1.7.5	The City shall protect all of its environmentally sensitive areas, which includes floodways, surface water bodies, areas where upland strands are interspersed with protected wetlands and where there is a high likelihood of occurrence for semi-aquatic and wetland dependent state listed species or habitat of said species, and wetlands, by utilizing the Resource Protection Overlay Future Land Use Designation, implemented by the Resource Protection Overlay Zoning District; the Conservation Future Land Use Designation, implemented by the -C- (Conservation) Zoning District; the Wekiwa Overlay Future Land Use Designation, implemented by the W (Wekiwa) Overlay Zoning District, and the Transitional Wildlife Habitat Overlay Future Land Use Designation.	Comprehensive Plan	Completed
City of Orlando	Conservation Policy 1.7.8	The Wekiwa Overlay Future Land Use Designation shall apply to all property located within the boundary depicted on Conservation Figure C-3. This overlay is intended to identify and regulate property within the WSA, as defined in the Wekiwa Parkway and Protection Act. All development within this overlay shall optimize open space and protect the most effective recharge areas, karst features and sensitive natural habitats through upland and wetland preservation, density transfer and cluster development.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Orlando	Stormwater Policy 1.1.4	The City shall upgrade and retrofit stormwater facilities with roadway reconstruction wherever feasible.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 1.3.3	The LDC shall incorporate and use BMPs, nonstructural stormwater management strategies, and xeriscaping to manage stormwater and its environmental impacts.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 1.5.1	The City shall require that all private stormwater management facilities be maintained such that the effectiveness for stormwater abatement and water quality improvement are maximized.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 1.5.2	The City shall continue to provide incentives to multi-family, commercial, industrial and other business property owners to upgrade their stormwater management facilities such as those provided for in the Stormwater Utility Program.	Comprehensive Plan	Completed
City of Orlando	Stormwater Objective 1.6	Throughout the planning period, the City shall continue to enhance the stormwater education program to educate the public on aspects of stormwater management.	Comprehensive Plan	Completed
City of Orlando	Stormwater Objective 1.7	The City shall continue to propose interlocal agreements with Orange County and other appropriate agencies relating to flood control of primary conveyance facilities, water quality of lakes and regional stormwater projects within the WSA.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 1.8.3	The City shall protect the groundwater supplies both upgradient and downgradient of Orlando through intergovernmental cooperation.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 1.8.5	The City shall consider prime recharge areas as having high priority in the retrofitting of stormwater facilities to protect groundwater resources.	Comprehensive Plan	Completed
City of Orlando	Stormwater Objective 1.9	Throughout the planning period, all City departments shall explore and implement procedures to reduce their use of pesticides, herbicides and artificial fertilizers.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 1.9.3	The City shall utilize organic fertilizers and biological controls for pest and weed control wherever possible.	Comprehensive Plan	Completed
City of Orlando	Stormwater Objective 1.10	Throughout the planning period, the City shall maintain a continuous program for identifying high risk drainage wells and taking corrective action to upgrade these drainage wells. The installation of pollution and control devices, rerouting of stormwater runoff and, in some cases, creating alternative methods of discharge and closing wells, are examples of the type of remedial measures which would be undertaken	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Orlando	Stormwater Objective 1.11	Throughout the planning period, the City shall, where required, update and maintain its master stormwater management plan to, at a minimum, address the requirements of the Wekiva Parkway and Protection Act Master Stormwater Management Plan (MSMP) Support Document dated November 2005, together with the Little Wekiva River Watershed Management Plan, dated November 2005 and include the following: data collection, identification of problem areas, hydraulic/hydrologic analysis of the primary stormwater management system, water quality, recommendations and estimated costs for capital improvements.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 1.11.1	The City shall identify sub-basins within the WSA where future pollutant loads are predicted to exceed existing conditions, on a percentage basis. The City shall then evaluate the need for additional pollutant controls beyond the typical requirements of the Engineering Standards Manual, consistent with the BMPs identified in the MSMP.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 1.11.4	For those areas outside the City's reclaimed water service area, and inside the WSA, the City shall identify large potential users such as golf courses, parks, and recreation areas, as part of the Technical Review Committee approval process. Such users shall be required to implement stormwater irrigation practices unless demonstrated that such practices are impracticable and/or financially infeasible.	Comprehensive Plan	Completed
City of Orlando	Stormwater Objective 2.1	The City shall continue to fully implement a water quality monitoring plan as a basis for determining water quality and prioritization of lake and drain well retrofit and/or upgrading.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 2.1.1	The City will participate in the development of BMAPs, along with DEP and other stakeholders, for any city lake which fails to meet the minimum criteria of Chapter 62-303, F.A.C. (Impaired Water Rule). The City will then implement projects and/or programs identified in the BMAP to reduce the City's allocation of pollutant loading which exceeds the established TMDL.	Comprehensive Plan	Completed
City of Orlando	Stormwater Policy 2.1.2	The City shall provide incentives to property owners to implement BMPs or retrofit individual stormwater management facilities to reduce nutrient loads which will impact water quality of receiving bodies. Stormwater utility fees should be reduced for significant reductions in runoff or improvement to water quality from the site.	Comprehensive Plan	Completed
City of Orlando	Potable Water Policy 1.4.1	The City shall develop the reuse of wastewater and/or reclaimed water wherever it is economically and environmentally feasible.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Orlando	Potable Water Policy 1.4.4	Within the Wekiva Overlay, as identified in Figure WW-28, the City shall require new development proposals that meet the thresholds for designation as a Development of Regional Impact to evaluate the feasibility of extending reclaimed water lines to serve the property.	Comprehensive Plan	Completed
City of Orlando	Wastewater Policy 1.2.2	The City shall continue to reduce the discharge of high strength waste into the wastewater system through the existing surcharge program.	Comprehensive Plan	Completed
City of Orlando	Wastewater Policy 1.3.3	The City shall promote the regional concept of wastewater treatment by encouraging elimination of existing package treatment plants and disallowing the development of new package treatment plants.	Comprehensive Plan	Completed
City of Orlando	Wastewater Goal 2	To reduce the environmental impacts of the City's wastewater system upon land and water resources.	Comprehensive Plan	Completed
City of Orlando	Wastewater Policy 2.1.3	For property located within the City portion of the Wekiva Overlay District, the City shall require connection to the central wastewater system and phase out of on-site septic systems when City wastewater service is available, as defined by Section 381.0065(2)(a), F.S.	Comprehensive Plan	Completed
City of Orlando	Wastewater Objective 2.2	The City shall continue to expand the existing water reuse program where economically viable. As part of this program, the City shall review industries and other land uses within the Orlando Urban Area to determine the possibility of reclaimed water use opportunities.	Comprehensive Plan	Completed
City of Orlando	Wastewater Policy 2.2.2	The City shall consider adopting an ordinance encouraging or requiring the use of reclaimed water in place of potable water wherever feasible. The City recognizes that in providing wastewater services certain critical natural resources are utilized. Therefore, it is the City's policy to encourage the conservation of water resources and to promote the reuse rather than the disposal of these resources.	Comprehensive Plan	Completed
City of Orlando	Wastewater Objective 2.3	The City shall engage in an educational program to increase public awareness of importance of wastewater treatment and proper effluent utilization in the community.	Comprehensive Plan	Completed
City of Winter Garden	Ordinance Nos. 01-83 and 11-02	Except as provided in subsection (e) [annexation], the owner of each and every lot, parcel, or plot of land developed within the corporate limits of the city for residential, commercial or industrial uses shall be required to connect to the City's water and sanitary sewer systems at the landowner's expense, regardless of the distance of the lot, parcel or plot of land to the service.	Ordinance	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Winter Garden	Ordinance No. 11-02	Septic tanks may be installed and used within the city limits in areas where the City does not furnish sewer facilities, upon the approval of the public services department, until such time as such service becomes available. The rules and regulations of the state shall apply as to the type and manner of installation of all septic tanks.	Ordinance	Completed
City of Winter Garden	Ordinance (Code 1988, § 25-21)	Stormwater Management Utility	Ordinance	Completed
City of Winter Garden	Ordinance (Code 1988, § 25-1)	Stormwater Management Ordinance of the City of Winter Garden	Ordinance	Completed
City of Winter Garden	Ordinance Nos. 01-52 and 11-02	Reclaimed Water	Ordinance	Completed
City of Winter Garden	FLU Policy 1-2.2.2	Existing development shall be required to connect to City water, reclaimed water, and sewer service when such service becomes available.	Comprehensive Plan	Completed
City of Winter Garden	FLU Policy 1-2.5.1	The City shall maintain its low density residential zoning along Lake Apopka and will utilize drainage controls and building setbacks to prevent further degradation of the Lake. These controls shall require the preservation of natural vegetation; prohibit direct runoff into the Lake; and require a 30- foot minimum building setback.	Comprehensive Plan	Completed
City of Winter Garden	FLU Policy 1-2.5.2	The City will work with other governmental agencies to implement the cleanup of Lake Apopka. These agencies shall include Orange County, DEP, SJRWMD, and those involved in the Lake Apopka SWIM Program.	Comprehensive Plan	Completed
City of Winter Garden	FLU Policy 1-2.7.5	No final development permits shall be issued unless evidence is provided that assures adequate access and maintenance will be provided for stormwater drainage and storage facilities in perpetuity.	Comprehensive Plan	Completed
City of Winter Garden	FLU Goal 1-3	Support and implement the recommendations of the Wekiva River Basin Committee to protect the surface water and ground water resources of the WSA, as fragile resources necessary for sustaining the community quality of life, drinking water, and health of the Wekiva River System.	Comprehensive Plan	Completed
City of Winter Garden	FLU Objective 1-3.1	Winter Garden shall protect the most effective recharge areas (Figure 1.5), karsts features (Figure 1.6) and sensitive natural habitat including Longleaf Pine, Sand Hill, Sand Pine, and Xeric Oak Scrub (Figure 1.7), within the WSA through the delineation and adoption of the WSA Resource Protection Overlay (Figure 1.8).	Comprehensive Plan	Completed
City of Winter Garden	FLU Policy 1-3.1.5	Implement BMPs and development standards such as increased buffers, setbacks, and open space to minimize the adverse impacts of development on the Resource Protection Overlay.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Winter Garden	Sanitary Sewer Policy 4-2.1.5	The City shall continue to require connection of developed properties when service is within 200 feet of the sanitary sewer system.	Comprehensive Plan	Completed
City of Winter Garden	Sanitary Sewer Policy 4-2.1.11	The City shall continue to reduce the infiltration problems in the collection system by implementing the repair and replacement program of wastewater lines identified in the City's Water and Wastewater Master Plan.	Comprehensive Plan	Completed
City of Winter Garden	Sanitary Sewer Policy 4-2.1.16	All new development and redevelopment shall connect to central wastewater systems.	Comprehensive Plan	Completed
City of Winter Garden	Sanitary Sewer Policy 4-2.1.17	The City shall require the installation of dual-lined distribution systems and individually metered connections for all new developments. All new development and redevelopment shall connect to reuse systems. City will identify potential users from existing developed properties and will implement reuse where practicable and financially feasible.	Comprehensive Plan	Completed
City of Winter Garden	Stormwater Policy 4-4.1.9	Through the annual budget process, the City shall identify and prioritize the deficiencies and future stormwater improvement needs and shall prioritize any improvements into the Capital Improvements Program.	Comprehensive Plan	Completed
City of Winter Garden	Potable Water Policy 4-5.2.4	By December 2011, the City shall revise the water conservation ordinance and the landscape ordinance to require the use of Florida Friendly design standards to promote the efficient use of water for all new developments and redevelopment.	Comprehensive Plan	Completed
City of Winter Garden	Conservation Policy 5-1.2.2	The City shall continue to implement the land development regulations and require all development and redevelopment provide for drainage and stormwater management, water quality enhancement and stormwater attenuation.	Comprehensive Plan	Completed
City of Winter Garden	Conservation Policy 5-1.2.3	Winter Garden shall continue to improve design standards, monitoring, construction and maintenance requirements for stormwater retention/detention systems, and shall ensure compliance of these requirements to prevent degradation of the receiving surface water bodies. These requirements shall be included in the LDC.	Comprehensive Plan	Completed
City of Winter Garden	Conservation Policy 5-1.2.9	Winter Garden shall continue to enforce water quality standards by identifying all point and significant non-point sources of water pollution, and expand programs to reduce the harmful impacts of these pollutants on the natural environment.	Comprehensive Plan	Completed
City of Winter Garden	Conservation Policy 5-1.3.5	The City shall continue to maximize protection and recharging of aquifer through implementation of Wekiwa Parkway and Protection Act requirements.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
City of Winter Garden	Conservation Policy 5-1.4.7	The City shall continue to seek out innovative partnerships and opportunities to preserve and conserve its natural resources in a balanced approach that ensures multiple and compatible uses of those lands while providing just compensation to the land owner including acquisition, conservation easements, and transfer of development rights.	Comprehensive Plan	Completed
Orange County	Ordinance No. 2013-09	Orange County Water Quality Management Ordinance	Ordinance	Completed
Orange County	Ordinance No. 83-25	Orange County Lakeshore Protection Regulations	Ordinance	Completed
Orange County	Ordinance No. 96-20	Stormwater Management	Ordinance	Completed
Orange County	Ordinance No. 91-29	Wekiwa River Protection Ordinance	Ordinance	Completed
Orange County	Ordinance No. 2017-14	Fertilizer Management Ordinance	Ordinance	Completed
Orange County	Ordinance No. 2010-04	Environmental Land Stewardship Program Ordinance	Ordinance	Completed
Orange County	Ordinance Nos. 2012-08 and 2017-16	Orange County Water, Wastewater and Reclaimed Water Service Rules	Ordinance	Completed
Orange County	Ordinance No. 92-16	Orange County Individual On-Site Sewage Disposal System (OSDS) Ordinance	Ordinance	Completed
Orange County	Ordinance No. 2002-20	Sewer Use Ordinance	Ordinance	Completed
Orange County	Ordinance Nos. 2002-20, 2009-19, and 2012-08	Pretreatment of Wastewater (limitations and prohibitions on the quantity and quality of sewage or wastewater which may be lawfully discharged into the county WWF or any of its publicly-owned treatment works).	Ordinance	Completed
Orange County	FLU Goal 6	The County will manage land uses within the Rural Service Area, including agricultural lands, environmental land including the Wekiwa Area, historic resources and Rural Settlements, so as to conserve these assets and their values.	Comprehensive Plan	Completed
Orange County	FLU Objective 6.4	Orange County shall continue to implement programs and codes that conserve, protect and enhance the County's natural resources and environmental assets.	Comprehensive Plan	Completed
Orange County	FLU Policy 6.4.2	Orange County shall promote, through land development regulations and/or acquisition, the protection of rare upland vegetative communities and high recharge areas. Such regulations may include, but shall not be limited to, cluster developments, transfer of development rights, buffering sensitive areas, the identification and designation of wildlife corridors to discourage fragmentation and the implementation of the Wekiwa Protection Act.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	FLU Policy 6.4.13	Orange County shall maintain the quality of lakes, including the Butler Chain of Lakes that are designated as Outstanding Florida Waters.	Comprehensive Plan	Completed
Orange County	FLU Policy 6.4.20	The Orange County Individual OSDS Ordinance shall specify general and heavy commercial and industrial land use must be served by central sewer to avoid potential contamination of groundwater by possible malfunction or improper maintenance of OSDS.	Comprehensive Plan	Completed
Orange County	FLU Objective 6.6	By January 1, 2007, the land development code shall establish specific requirements for development within the WSA that may be necessary to protect ground water and surface water resources and to help attain target water quality standards. The requirements shall address, but not be limited to, allowed uses, stormwater management, open space, habitat protection, and public facilities.	Comprehensive Plan	Completed
Orange County	FLU Policy 6.6.3	The County shall adopt policies to reduce nitrate-nitrogen in the ground and surface waters feeding the Wekiva River, its springs, spring run creeks, and tributaries, as well as protect ground and surface waters from other contaminants. The following policies, using a three-tiered strategy based first and foremost on the avoidance of impacts, then on the minimization of impacts, and finally, only as a last recourse, on the mitigation of impacts, support achievement of the goal.	Comprehensive Plan	Completed
Orange County	FLU Policy 6.6.4	Orange County shall protect the WSA and the underlying aquifers...The County shall use the <i>Protecting Florida's Springs: Land Use Planning Strategies and Best Management Practices</i> , November 2002, as a guide to developing regulations within the WSA and shall incorporate the appropriate strategies and practices described therein in the LDC by January 1, 2007.	Comprehensive Plan	Completed
Orange County	FLU Policy 6.6.5	To minimize impacts in developed or developing springshed areas, site design and management issues shall be addressed carefully in the manner outlined below. These criteria are summarized from The Center for Watershed Protection's <i>Better Site Design: A Handbook for Changing Development Rules in Your Community</i> , August 1998 and <i>Consensus Agreement on Model Development Principles To Protect Our Streams, Lakes, and Wetlands</i> , April 1998. These documents shall be used, as appropriate and pertinent, for designing land development regulations for the WSA. The following existing and new concepts shall be incorporated, as appropriate and feasible, into projects within the WSA...	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	FLU Policy 6.6.6	The County shall protect the WSA through the establishment of three protection zones based upon the aquifer vulnerability data provided in the Florida Geological Survey Report of Investigation 104: Wekiva Aquifer Vulnerability Assessment (WAVA)...	Comprehensive Plan	Completed
Orange County	FLU Policy 6.6.9	By January 1, 2007, the County shall establish land use strategies that optimize open space and promote a pattern of development that protects the most effective recharge areas, karst features, and sensitive natural habitats, including Longleaf Pine, Sand Hill, Sand Pine, and Xeric Oak Scrub (Figures WSA-3 and WSA-4)...	Comprehensive Plan	Completed
Orange County	FLU Policy 6.6.11	By July 1, 2007, the County will evaluate implementing enhanced landscaping and irrigation standards within environmentally sensitive areas in the WSA. These may include, but are not limited to, requiring native plant species appropriate to on-site soils to reduce the use of fertilizers and irrigation, and the maximum feasible retention of existing on-site natural vegetation...	Comprehensive Plan	Completed
Orange County	FLU Policy 6.6.12	New development and redevelopment within the WSA shall minimize directly connected impervious areas (DCIA), direct runoff to vegetated areas for pollutant uptake, recharge, and storage. The County recognizes that under certain circumstances a developed property's runoff may contain high levels of contaminants whereby it may be more efficient to direct all stormwater to a single water quality treatment area. Enhanced development standards and stormwater BMPs shall be adopted as needed into the land development code by July 1, 2007 to minimize DCIA and provide high levels of stormwater treatment.	Comprehensive Plan	Completed
Orange County	FLU Policy 6.6.13	By January 1, 2008, the County will evaluate adopting development standards for new and substantially redesigned golf courses within the WSA. Such standards may incorporate the strategies and practices outlined in the publication: <i>Protecting Florida's Springs: Land Use Planning Strategies and Best Management Practices</i> , November 2002.	Comprehensive Plan	Completed
Orange County	FLU Objective 6.7	Orange County establishes the Wekiva Interchange Land Use Plan Overlay, which is intended to be a tool for compatible and consistent future development, transition of densities and preservation of environmentally sensitive areas within the Overlay and the WSA. Creation of this Overlay does not create development entitlements on any parcel of land or amend any previously-approved entitlements.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	FLU Objective 8.9	Orange County shall promote sustainable practices and green building objectives through use of the land development code and by minimizing adverse impacts on the built and natural environment from development. This objective shall be measurable by implementing the following policies.	Comprehensive Plan	Completed
Orange County	FLU Policy 8.9.2	Orange County will develop low impact development (LID) strategies in conjunction with the water management districts to reduce impacts to water quality and manage water quantity concerns...	Comprehensive Plan	Completed
Orange County	Urban Design Policy 1.1.4	Encourage project design that incorporates aesthetically-integrated storm water capture and management solutions.	Comprehensive Plan	Completed
Orange County	Urban Design Policy 7.1.1	The County shall seek opportunities to encourage LID techniques to maintain and enhance the pre-development hydrologic regime of urbanized and developing watersheds.	Comprehensive Plan	Completed
Orange County	Urban Design Objective 7.3	Promote and facilitate innovative, visually appealing and sustainable stormwater management design solutions.	Comprehensive Plan	Completed
Orange County	Conservation Objective C1.2	Orange County shall continue to identify important sources of surface water pollution in Orange County and coordinate the development and implementation of pollution abatement devices, methods and programs with local governments, state, and federal agencies.	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.2.2	Orange County shall continue to enforce water quality standards by identifying all point and significant non-point sources of water pollution, and expand programs to reduce the harmful impacts of these pollutants on the natural environment. Orange County shall implement projects to reduce pollutant loads as required by BMAPs through the DEP TMDL Program.	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.2.4	Orange County shall protect lakes and streams and continue to maintain a surface water monitoring program and follow the water quality guidelines of DEP and Orange County Ordinances.	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.2.6	Orange County shall continue to improve design standards, monitoring, construction and maintenance requirements for stormwater retention/detention systems, and shall ensure compliance of these requirements to prevent degradation of the receiving surface water bodies. These requirements shall be included in the land development code and shall apply to all new projects.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	Conservation Policy C1.2.7	Orange County shall continue to implement the approved Wekiva River Protection Ordinance, the Econ River Protection Ordinance, and the requirements of the Wekiva Parkway and Protection Act by continuing to adopt regulations in the LDC and through the acquisition of environmentally sensitive lands within these basins to protect these river resources and other Outstanding Florida Waters and Outstanding National Resource Waters. These regulations and acquisitions shall ensure protection and maintenance of water quality, water quantity, aesthetics, open space, historical/archaeological resources, rare upland habitat, wildlife habitat, and floodplains and recreational values.	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.2.9	Orange County shall on an ongoing basis identify and prioritize lakes that are in need of restoration, through the analysis of specific water quality parameters and following the water quality guidelines of DEP and Orange County Ordinances.	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.2.11	Orange County shall prohibit the direct or indirect discharge of hazardous, toxic, chemical, petroleum, nuclear waste, heated water discharges or liquid sludge pollutants into surface waters or wetlands systems.	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.2.14	Orange County will reduce pollutants to the “maximum extent practicable” through implementation of pollution control measures, including compliance inspections of private and public facilities, for point and non-point discharges in accordance with County Code Chapter 15 Article II, Section 15-39; NPDES MS4 Permit FLS000011; FAC 62-624; 40 CFR 122.26; and Section 402(p)(3)(b) of the Federal Clean Water Act.	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.2.15	Orange County shall identify areas within the county that are susceptible to impacts associated with nutrient loadings from specific activities including lawn and turf fertilizer application and reclaimed water irrigation. These susceptible areas shall include but are not limited to: TMDL impaired waterbodies, Outstanding Florida Waters, Outstanding National Resource Waters, and waterbodies with declining water quality associated with nutrient loads and areas adjacent to surface water conveyance system that drains to a waterbody of special interest. The County will make efforts to reduce the potential impacts from these specific activities. The identified areas will also be used for planning and future use considerations.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	Conservation Policy C1.2.16	Orange County shall develop a street sweeping plan that addresses the routine collection and disposal of nutrient laden leaf litter, sediment, trash and other debris within Orange County. When applicable the street sweeping plan shall take into account any TMDL, BMAP, or NPDES requirements.	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.5.4	Orange County shall incorporate regulations into the land development code concerning soils and their suitability for future development. These regulations shall include restricting development in areas with hydric soils, preservation of groundwater recharge areas, and controlling the location of individual OSDS.	Comprehensive Plan	Completed
Orange County	Conservation Objective C1.11	Orange County shall protect and conserve groundwater quantity and quality by implementing the following policies...	Comprehensive Plan	Completed
Orange County	Conservation Policy C1.11.7	Orange County shall identify and take action to combat sources of pollution that could threaten groundwater quality such as malfunctioning drain wells, improperly installed septic tanks, and improper disposal of hazardous waste areas. For areas inside the urban service area, with failing septic tanks Orange County shall investigate and prioritize the provision of wastewater and water utilities to these areas...	Comprehensive Plan	Completed
Orange County	Conservation Objective C2.1	All new development within the Wekiwa Protection Area shall be residential at very low densities, agricultural or low intensity recreational in character.	Comprehensive Plan	Completed
Orange County	Conservation Objective C2.2	The natural resources of the Wekiwa River shall be protected. This objective shall be made measurable by implementing the following policies...	Comprehensive Plan	Completed
Orange County	Conservation Objective C2.4	Orange County shall help restore, protect and preserve the surface populations and habitat, aesthetics, open space, historical and archaeological resources, floodplains, wetland areas, native upland areas and recreation lands of the Lake Apopka River Basin by implementing the following policies...	Comprehensive Plan	Completed
Orange County	Open Space Objective 1.2	Orange County shall maintain the Environmentally Sensitive Lands Program as a funding mechanism for acquisition and maintenance of environmentally sensitive lands throughout the planning horizon.	Comprehensive Plan	Completed
Orange County	Open Space Objective 1.3	Orange County shall protect the Wekiwa Springshed and its natural resources by maximizing preserved open space within the WSA.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 1.3.2	The County shall actively participate in the development of innovative wastewater programs which protect and conserve the County's water resources.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	Wastewater Policy 1.3.4	Orange County shall continue to monitor and reduce the influence, collection, and treatment of unwanted water entering the wastewater system from infiltration and inflow, combined sewer overflow, stormwater and unaccounted wastewater and remediate system deficiencies.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 1.6.3	Orange County shall cooperate with other wastewater service providers to jointly address ground and surface water nutrient loading issues within the WSA. Such efforts shall address water quality throughout the entire basin comprehensively, not only on a site-specific basis, and shall aim to leverage limited resources and take advantage of economies of scale. These efforts are contained in the Wekiva Protection Act Facilities Plan, which is hereby adopted by reference and incorporated in the Comprehensive Plan.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 2.1.3	Land development code regulations limit the use of elevated septic tanks and drain field systems to lots of a 1/2 acre minimum in order to provide a more balanced ecological and aesthetic approach to new development.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 2.1.5	Orange County, as referenced in the LDC, allows the use of septic tanks for development only in areas of suitable soils and when central wastewater services are not available. Where there are moderate soils, the County may allow the use of septic tanks based on detailed soil and site analysis so that ground or surface waters will not be polluted. Specific septic tank criteria shall be governed by the Orange County Subdivision Regulations or supplemental guidelines adopted under the proposed LDC, as well as the requirements established in Chapter 10D-6 of the Florida Administrative Code.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 2.1.7	As stipulated in the LDC, new development in the Urban Service Area shall be connected to central wastewater systems. The waiver of this requirement to permit the use of septic tanks should only be considered pursuant to Wastewater Policy 2.1.5.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 2.1.8	As stipulated in the LDC, interim septic tank system(s) approved by the Board of County Commissioners following Wastewater Policy 2.1.7 are required to connect to central sewer systems at the property owner's expense within one (1) year from the date of notification that such central sewer facilities are available within the stipulated distances approved by the Board of County Commissioners at the time the interim septic tank system(s) was permitted.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 2.3.1	Orange County shall continue to investigate, coordinate and promote all feasible techniques and applications for the beneficial use of reclaimed water.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	Wastewater Policy 3.2.2	Orange County will maximize the use of existing reclaimed water facilities through the implementation of management techniques that can enhance a source of supply, sustain water resources and related natural systems, and optimize water supply yield. Available techniques may include, but are not limited to conservation, reclaimed water reuse and storage, reclaimed water rate increases, system interconnects, and aquifer recharge.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 3.3.2	Orange County will integrate growth management, land use and water resources planning to ensure the availability of water for Orange County residents and regional water management purposes.	Comprehensive Plan	Completed
Orange County	Wastewater Objective 4.1	The County shall minimize nitrates and other pollutants that originate from wastewater effluent within the Wekiva River and its tributaries and the springs and spring run creeks in the WSA.	Comprehensive Plan	Completed
Orange County	Wastewater Policy 4.1.1	In order to help remove nutrients from the Wekiva Springshed, the County will require the central sewerage of existing developed areas through connection to a central system where central sewer is available consistent with the definition in Section 381.0065(a)a, Florida Statutes.	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.2.3	Orange County shall require BMPs to minimize contributions of poor quality stormwater run-off to both groundwater and surface water bodies as part of both construction and operational phases of a project...	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.2.7	Orange County shall continue to actively participate with other involved agencies and municipalities to develop and implement BMAPs for those water bodies determined to be in greatest need through the TMDL process as implemented by DEP. If stormwater is determined to be a major water quality problem for a lake, planning and design shall be undertaken for corrective measures as part of the master stormwater planning process. The DEP TMDL BMAPs set the pollution reduction allocations to be accomplished by local, regional and state entities.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	Stormwater Policy 1.2.8	Specific care shall be given to follow the DEP TMDL Program. This shall include an intra divisional review of the ongoing DEP activities for listing water bodies. Those listed water bodies shall be targeted for retrofit projects and special stormwater quality enhancement projects. The watersheds of listed water bodies shall receive special stormwater and groundwater protection and enhancement consideration for all development and redevelopment. This shall include strict adherence to existing, environmentally sound land use requirements, as well as an implementation of alternative, proven, and more protective land use requirements, as they become available.	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.2.9	Within the WSA, new development and substantial redevelopment shall use BMPs. At a minimum, use of these BMPs shall maintain surface and groundwater flow rates and volumes at pre-development levels, as defined in the updated DEP Stormwater Rule. Water quality treatment shall reduce nutrients and other contaminants in discharges to historical background levels. Post-development peak rate of discharge must not exceed the predevelopment peak rate of discharge. The natural forms and functions of wetlands, surface water features, floodplains and other conveyance systems, as well as groundwater recharge areas shall be maintained.	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.4.2	Orange County shall adopt a stormwater utility ordinance and shall identify other alternative funding sources for drainage improvements and master stormwater planning to enhance current funding levels on an ongoing basis. These new funding sources shall be used to meet additional drainage demands such as implementing master drainage planning or mitigating threatening drainage wells.	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.4.11	Orange County shall cooperate and consult with SJRWMD, DEP, and adjoining local governments and municipalities for the development and implementation of the WSA regional master stormwater management plan. This may include establishment of a regional stormwater environmental utility to fund needed improvements and projects. The Wekiva Parkway and Protection Act Master Stormwater Management Plan Support Final Report, November 2005, is herein adopted by reference.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	Stormwater Policy 1.5.11	Orange County shall continue to establish and strengthen interlocal agreements with other government agencies that are involved in stormwater management practices that affect Orange County or where the parties are jointly involved in a TMDL BMAP. Data sharing and exchange of drainage information shall continue to be emphasized in the interlocal agreements...	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.5.12	Within the WSA, no stormwater structure or facility shall be located within the specific distances of a karst feature shown below unless it is determined by a certified professional geologist or professional engineer experienced in geohydrology that the area is safe and that there is no subsurface connection that may cause contamination or damage to the groundwater. No stormwater runoff shall be allowed to drain directly through any sinkhole or other karst feature. All runoff recharging the Floridan aquifer shall be pre-treated to remove nutrients and other contaminants so that post development water quality equals predevelopment recharge water quality to the greatest extent feasible, or as required in a TMDL BMAP...	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.5.13	Within the WSA, all stormwater management and drainage systems proposed to be constructed in karst sensitive areas, areas with known sinkholes, and areas with shallow depth to limestone bedrock, shall be evaluated for the presence of sinkholes through appropriate geotechnical testing. All proposed Drainage Retention Areas (DRAs) shall be tested for the presence of cavities and voids beneath them. No DRAs or other stormwater facilities, excluding conveyance facilities, shall be located over unfilled voids...	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.6.2	Orange County shall actively participate in the development of innovative stormwater management programs that protect and conserve the County's water resources. This shall include, but not be limited to, the use of LID technology such as swales and porous pavement in parking lots to increase infiltration and minimize the sizing of stormwater ponds or decrease the pollutant load associated with the project to comply with a TMDL BMAP.	Comprehensive Plan	Completed
Orange County	Stormwater Policy 1.6.4	Orange County shall investigate innovative measures to reuse stormwater and for stormwater retention and detention.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Orange County	Stormwater Policy 1.6.5	The County will require BMPs for all stormwater management systems located in the WSA. Systems in areas of high recharge, in Primary and Secondary WAVA Zones, and karst sensitive areas shall be designed to address maintenance of water quality. Such BMPs may include lining of stormwater ponds, use of biological treatment trains for nutrient and contaminant removal, incorporation of stormwater management systems into landscaping and irrigation, and minimizing directly connected impervious surface areas.	Comprehensive Plan	Completed
Seminole County	Ordinance No. 71-7	Pollution Control	Ordinance	Completed
Seminole County	Ordinance Nos. 74-7, 99-30, and 2013-12	Rules and Regulations Governing Public Water, Wastewater, and Reclaimed Water Systems	Ordinance	Completed
Seminole County	Ordinance No. 2017-6	Proper Use of Fertilizers	Ordinance	Completed
Seminole County	FLU Policy 1.6	The County shall continue to coordinate with the state of Florida, SJRWMD, The Nature Conservancy, the Trust for Public Lands, the Congress of Regional Leaders of myregion.org, and all other agencies involved in preservation of environmental assets to create a countywide linked open space and Greenways/Trails/Blueways system that assists in permanent preservation of county and regional environmental assets.	Comprehensive Plan	Completed
Seminole County	FLU Policy 1.8	The County will continue to enact and enforce performance standards intended to preserve and enhance the natural features of the Wekiva River Protection Area, the WSA, and the Econ Protection Area...	Comprehensive Plan	Completed
Seminole County	FLU Policy 1.9	The County shall continue to regulate development of land along the Wekiva River and the Econ River, and their associated wetlands and tributaries... The County shall enforce all clearing and building setbacks or protection/buffer zones and areas along the Wekiva River, and Econ River... As additional protection to groundwater and surface water, development activity within the Wekiva Protection Area, including the placing or depositing of fill within wetlands and the 100-year floodplain as identified by Federal Emergency Management Agency, shall be prohibited, except in cases of overriding public interest.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Seminole County	FLU Policy 5.17(E)2	Developments shall make efficient use of existing public facilities, such as potable water and sanitary sewer, with no need for expanded treatment plant capacity. Florida-friendly landscaping shall be used to minimize demand for irrigation water and reuse water shall be used for necessary irrigation. OSDS shall not be permitted. All stormwater management facilities shall comply with any federal requirements to limit TMDLs.	Comprehensive Plan	Completed
Seminole County	FLU Objective 12	The County shall continue to enforce and, if necessary, strengthen existing plan objectives, goals and policies and land development regulations to preserve and reinforce the goals of the Wekiva River Protection Act. These objectives, goals and policies and LDRs shall ensure the maintenance of the rural density and character in the aggregate, protect natural resources and ensure the long-term viability of the Wekiva River Protection Area.	Comprehensive Plan	Completed
Seminole County	FLU Policy 12.5	The County shall maintain consistent and meaningful coordination with governmental agencies of every level of government, environmental groups and interested citizens, to seek out locally and regionally significant natural areas and environmentally sensitive lands within the Wekiva River Protection Area for preservation through land acquisition or other innovative strategies which are designed to reduce or eliminate development intensities or densities within the Wekiva River Protection Area.	Comprehensive Plan	Completed
Seminole County	FLU Policy 12.9	Wekiva River Protection Area Environmental Design Standards	Comprehensive Plan	Completed
Seminole County	FLU Policy 13.2	In order to protect open space, most effective recharge areas, karst features, and sensitive natural habitat (i.e., longleaf pine, sand hill, sand pine, and xeric oak scrub) within the WSA, as required by the Wekiva Parkway and Protection Act, the County shall apply, but not be limited to, the following land use strategies and mechanisms...	Comprehensive Plan	Completed
Seminole County	Conservation Objective 1	The County shall continue to make use of new and existing studies as the basis for establishing programs to that protect both the quantity and quality of groundwater resources and recharge areas.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 1.4	The County shall continue to evaluate the use of septic systems and effluent reuse systems within most effective recharge areas and determine any long-term negative impacts on groundwater quality and, if appropriate, adopt and develop additional regulations governing these systems.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Seminole County	Conservation Policy 2.1	The County shall, through its ongoing water quality monitoring program, identify areas of need for more intense sampling and shall partner with the appropriate agencies to accomplish these investigations. The County shall, with each Evaluation and Appraisal Report, evaluate the need for more intense sampling to address the continuous nature of surface water quality programs and processes.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.2	The County shall continue to implement, as part of the federal and state mandated TMDL policies, a program to identify and improve surface water quality associated with stormwater runoff within receiving waters, which are below established standards.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.3	The County shall evaluate every five years, after coordination with the Agricultural Extension Agency, Natural Resources Conservation Service and other appropriate agencies, its Water Conservation and Sensitive Lands Plan and BMPs to minimize agricultural, horticultural and silvicultural impacts to both surface water quantity and quality, wetland and floodplain areas. This evaluation shall include a review and incorporation of any applicable new BMPs established by the Division of Forestry, DEP, SJRWMD, FDACS, and other agencies.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.5	The County shall continue to manage and regulate development along the Wekiva River to ensure its continued designation as an Outstanding Florida Water Body and Wild and Scenic River, and shall continue to ensure that all development maintains consistency with the Wekiva River Protection Act and Wekiva Parkway and Protection Act.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.6	The County shall continue to evaluate and, if appropriate, enact, alternative development (design, construction and maintenance) standards which enhance water quality...	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.7	The County shall continue to coordinate and pursue joint programs with and seek funding, where available, from SJRWMD, DEP, and other agencies for surface water management studies and improvements programs. Specific programs that require further coordination include, but are not limited to, Surface Water Improvement Program, joint projects toward the restoration of Lake Jesup, TMDL Program, and the protection of the Econ and Wekiva River Basins.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Seminole County	Conservation Policy 2.8	The County shall develop and distribute to homeowner's associations, civic groups, schools and other organizations, educational brochures addressing surface water and lake improvement practices and related matters such as Florida-friendly landscaping for properties within the WSA and all other impaired watersheds identified by the DEP TMDL Program.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.9	The County shall continue to support and expand existing environmental programs (Natural Lands Education, Watershed Action Volunteers, Lakewatch, Florida Yards and Neighborhoods, and Parks Education) and pursue alternatives to expand the public's knowledge of environmental programs through education, the media and other available avenues of communication. The County shall continue to provide public access to environmental data by expanding the Countywide Watershed Atlas and the Natural Lands Program web sites.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.10	The County shall work cooperatively with DEP to develop a proactive approach to the TMDL process through the County's monitoring program, NPDES program, Lake Management program, and County's Watershed Atlas project...	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.11	The County shall amend the land development code by 2010 to incorporate LID practices to stormwater management that conserve and protect natural resource systems, reduce infrastructure costs, and mitigate potential environmental impacts.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 2.12	The County shall adopt the recommendations of the Florida Consumer Fertilizer Task Force, established by the Florida Legislature, and shall adopt BMPs into the land development code by January 1, 2010, to reduce and eliminate pollution to county waterways from improper use of consumer fertilizers.	Comprehensive Plan	Completed
Seminole County	Conservation Policy 4.1	The County shall continue to rely on the Florida Department of Health (FDOH) to develop and implement guidelines and standards to regulate the location and use of septic systems on soils with low or very low potential.	Comprehensive Plan	Completed
Seminole County	Drainage Objective 1	The County will continue to implement a program to systematically identify and correct existing surface water quality and stormwater management deficiencies and meet future needs. Emphasis should be placed on maximizing use of existing facilities and discouraging urban sprawl.	Comprehensive Plan	Completed
Seminole County	Drainage Policy 2.4	The County shall continue to require the dedication of conservation easements as a means of protecting the functions of floodways and water quality.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Seminole County	Drainage Policy 2.8	The County shall enforce, and as appropriate, strengthen existing LDC regulations to implement the master stormwater management plan and land development regulations provisions of the Wekiva Parkway and Protection Act.	Comprehensive Plan	Completed
Seminole County	Drainage Policy 3.4	The County shall continue to rely on the land development code and encourage nonstructural techniques such as LID to ensure stormwater runoff be treated to reduce the pollutant loads discharged into receiving waters. Waters that have been identified as “impaired” and assigned TMDLs, may require additional or more stringent treatment.	Comprehensive Plan	Completed
Seminole County	Drainage Policy 4.5	Wekiva Study Area Capital Improvements	Comprehensive Plan	Completed
Seminole County	Drainage Policy 5.5	The County shall consider establishing a TMDL Program for all surface water bodies once such programs have been established for impaired bodies of water.	Comprehensive Plan	Completed
Seminole County	Drainage Policy 6.3	The County shall address the master stormwater management plan provision of the Wekiva Parkway and Protection Act, to assist in alleviating problems related to surface water conveyance and quality, and in improving the quality and quantity of groundwater discharging into the springs within the WSA, by application of, but not limited to, the following strategies...	Comprehensive Plan	Completed
Seminole County	Potable Water Policy 1.7	The County shall continue to require all development to enter into reclaimed customer agreements as a condition of service. Actual implementation of such agreements shall be based on, but not limited to, the following considerations: availability of effluent supply, distance from existing facilities, the nature of the soils and the nature of the development.	Comprehensive Plan	Completed
Seminole County	Sanitary Sewer Policy 1.1	The County shall continue to require the use of central sewer for all new subdivisions within the statutory Wekiva River Protection Area. Connection to central sewer service is required where available as defined by Chapter 64E-6, F.A.C., or when a County capital project is scheduled and authorized to begin construction in the County’s then current adopted annual budget or construction is committed to begin within one (1) year in an enforceable schedule contained within a binding developer’s agreement.	Comprehensive Plan	Completed
Seminole County	Sanitary Sewer Policy 1.4	The County shall continue to monitor proposed amendments by the FDOH to Rule 64E-6.0162, Florida Administrative Code, Specific Standards for the WSA, regarding standards for onsite sewage treatment and disposal systems within the WSA.	Comprehensive Plan	Completed

Lead Entity	Strategy Name	Description	Strategy Type	Status
Seminole County	Sanitary Sewer Policy 1.5	The County shall continue to monitor efforts by FDOH and DEP to establish wastewater treatment standards to achieve nitrogen reduction to groundwater and surface water within the WSA from sources such as, but not limited to, onsite sewage treatment and disposal systems and fertilizers.	Comprehensive Plan	Completed
Seminole County	Sanitary Sewer Policy 4.2	Existing package plants (i.e., for schools, mobile home parks) shall be requested by the County to connect to the County system when it becomes available.	Comprehensive Plan	Completed
Seminole County	Sanitary Sewer Policy 4.4	The County shall continue to require new development to connect to the County's wastewater system or other municipal or private utility systems where possible.	Comprehensive Plan	Completed
Seminole County	Sanitary Sewer Policy 4.5	Outside the adopted Urban Service Area, the County shall: (A) Continue to rely primarily upon individual septic tanks as the method of providing sewer service to the residents and other occupants outside the urban services area. (B) Encourage private central systems that exist as of the adoption date of this Plan to continue to provide an adequate level of service to users in their respective service areas, although the County shall discourage them from expanding their service areas. (C) New development outside adopted central sewer service areas shall not be designed nor constructed with central water and/or sewer systems. (D) Public and private central systems may be permitted in the future if it is clearly and convincingly demonstrated by the proponents of the system expansion that a health problem exists in a built but unserved area for which there is no other feasible solution. In such cases, the service area expansion plans will be updated concurrent with an area-wide administrative land use update.	Comprehensive Plan	Completed