DRAFT

Lake Harney, Lake Monroe, Middle St. Johns River, and Smith Canal Basin Management Action Plan

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

with participation from the
Lakes Harney and Monroe and Middle St. Johns River Basin Stakeholders

March 2025

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Tallahassee, FL 32399-2400
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Acknowledgments

The *Lake Harney, Lake Monroe, Middle St. Johns River (MSJR), and Smith Canal Basin Management Action Plan (BMAP)* was prepared as part of a statewide watershed management approach to restore and protect Florida's water quality. It was prepared by the Florida Department of Environmental Protection (DEP) in coordination with the Lakes Harney and Monroe and MSJR Basin stakeholders.

Florida Department of Environmental Protection
Alexis A. Lambert, Secretary

Table ES-1. Lakes Harney and Monroe and MSJR Basin stakeholders

Type of Organization/Entity	Name
Responsible Entities	Agriculture City of DeBary City of DeLand City of Deltona City of Lake Helen City of Lake Mary City of Orange City City of Sanford Seminole County Volusia County
Responsible Agencies	County Health Departments Florida Department of Agriculture and Consumer Services (FDACS) Florida Department of Environmental Protection (DEP) Florida Department of Transportation (FDOT), District 5 Florida Turnpike Enterprise St. Johns River Water Management District (SJRWMD)
Other Interested Stakeholders	Residents/Homeowners East Central Florida Regional Planning Council Florida Farm Bureau Florida Onsite Wastewater Association Septic System Contractors

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

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List of Acronyms and Abbreviations

AAWRF	Alexander Avenue Water Resources Facility
ACE	Agricultural Cooperative Regional Elements
ALG	Agricultural Land Geodatabase
AWT	Advanced Waste Treatment
BEBR	Bureau of Economic and Business Research
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CAFO	Confined Animal Feeding Operation
CASTNET	Clean Air Status and Trends Network
CMAQ	Community Multiscale Air Quality
CWA	Clean Water Act
DEP	Florida Department of Environmental Protection
DMR	Discharge Monthly Report
DO	Dissolved Oxygen
EFDC	Environmental Fluid Dynamics Code
EMC	Event Mean Concentration
EPA	Environmental Protection Agency
ESA	Environmental Science Associates
F.A.C.	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
FFS	Florida Forest Service
FLWMI	Florida Water Management Inventory
FNAI	Florida Natural Areas Inventory
F.S.	Florida Statutes
FSA	Florida Stormwater Association
FSAID	Florida Statewide Agricultural Irrigation Demand (geodatabase)
FWRA	Florida Watershed Restoration Act
FYN	Florida Yards and Neighborhoods
GIS	Geographic Information System
HAMO	Lakes Harney-Monroe
HSPF	Hydrologic Simulation Program – FORTRAN (model)
L.O.F.	Laws of Florida
lbs/yr	Pounds Per Year
MG	Million Gallons
mgd	Million Gallons per Day
mg/L	Milligrams Per Liter
MOU	Memorandum of Understanding
N	Nitrogen

MS4	Municipal Separate Storm Sewer System
MSJR	Middle St. Johns River
N/A	Not Applicable
NADP	National Atmospheric Deposition Program
NARF	Nutrient Application Record Form
NELAC	National Environmental Laboratory Accreditation Council
NELAP	National Environmental Laboratory Accreditation Program
NHD	National Hydrography Database
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NTN	National Trends Network
OAWP	Office of Agricultural Water Policy (FDACS)
OSTDS	Onsite Sewage Treatment and Disposal System
P	Phosphorus
PAR	Public Access Reuse
PFA	Priority Focus Area
PSA	Public Service Announcement
RAP	Reasonable Assurance Plan
RIB	Rapid Infiltration Basin
ROC	Runoff Concentration
SJRWMD	St. Johns River Water Management District
STAR	Statewide Annual Report
SWMP	Stormwater Management Program
TBD	To Be Determined
TDEP	Total Atmospheric Deposition Model
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
UF-IFAS	University of Florida – Institute of Food and Agricultural Sciences
USGS	U.S. Geological Survey
VAC	Vegetable and Agronomic Crop
WASP	Water Quality Analysis Simulation Program
WBID	Waterbody Identification (number)
WLA	Wasteload Allocation
WMD	Water Management District
WWTF	Wastewater Treatment Facility

Executive Summary

Background

The Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP (**Figure ES-1**) was initially adopted in 2012 to implement the adopted total maximum daily loads (TMDLs) for total phosphorus (TP) and total nitrogen (TN) in the watershed. This 2025 Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP provides updates to legislative requirements that are in effect for the BMAP area. This document should be used as a supplement to the 2012 BMAP.

The Lakes Harney and Monroe and MSJR basin includes the main stem segments of the MSJR located between the inlet of Lake Harney and the confluence of the St. Johns River with the Wekiva River. These river segments receive discharges from the Upper St. Johns River and from several major tributaries, including the Econlockhatchee River, Deep Creek, and Lake Jesup. These river segments are impaired for nutrients and two major lakes, Lake Monroe and Lake Harney, are also impaired segments of the MSJR main stem. The basin encompasses portions of Seminole County and Volusia County and areas within the cities of DeBary, DeLand, Deltona, Lake Helen, Lake Mary, Orange City, and Sanford.

The Smith Canal watershed is located in the southern portion of the Lakes Harney and Monroe and MSJR Basin and drains an area of about 10 square miles. Smith Canal is approximately 6 miles in length and flows northwest until it enters the St. Johns River approximately 1.4 miles upstream of the outlet to Lake Monroe. The Smith Canal watershed includes portions of Seminole County, Lake Mary, and Sanford.

DEP identified the Lakes Harney and Monroe and MSJR Basin to be impaired by nutrients and low dissolved oxygen (DO) and, in October 2009, adopted Rule 62-304.505 establishing TMDLs for TP and TN for the lakes and river segments (Gao, 2009). The TN and TP concentration targets are expressed in milligrams per liter (mg/L) while the loading targets are expressed in pounds per year (lbs/yr). The Smith Canal TMDL was adopted by DEP in October 2009 for TP (Rhew, 2009). A TMDL is the maximum amount of a specific pollutant that a waterbody can assimilate while maintaining its designated uses. **Table ES-2** lists the TMDLs and pollutant load allocations adopted by rule for each of the impaired waterbody identification (WBID) numbers in the Lakes Harney and Monroe and MSJR Basin.

Table ES-2. TMDLs in the Lakes Harney and Monroe and MSJR Basin

WBID Number	Parameter	TMDL (lbs/yr)	Target Concentration (mg/L)	WLA NDPES Wastewater (lbs/yr)	WLA NPDES Stormwater (%)	Load Allocation (lbs/yr)
2964A	TN	3,355,570	1.18	0	39%	3,355,570
2964A	TP	241,026	0.07	0	33%	241,026
2964 + 2893F	TN	3,741,990	1.18	0	37%	3,741,990

WBID Number	Parameter	TMDL (lbs/yr)	Target Concentration (mg/L)	WLA NDPES Wastewater (lbs/yr)	WLA NPDES Stormwater (%)	Load Allocation (lbs/yr)
2964 + 2893F	TP	276,141	0.07	0	32%	276,141
2893D + 2893E	TN	4,171,255	1.18	0	38%	4,171,255
2893D + 2893E	TP	315,512	0.07	0	31%	315,512
2893C	TN	4,202,340	1.18	19,342	37%	4,182,998
2893C	TP	318,236	0.07	2,345	31%	315,891
2962	TP	4,300	0.10	0	26%	26%

A BMAP is a framework for water quality restoration that contains a comprehensive set of solutions to achieve the pollutant reductions established by a TMDL. Examples include permit limits on regulated facilities, urban and agricultural best management practices (BMPs), wastewater and stormwater infrastructure, regional projects and conservation programs designed to achieve pollutant reductions established by a TMDL. A BMAP is developed with local stakeholders and relies on local input and commitment for successful implementation. BMAPs are adopted by Secretarial Order and are legally enforceable. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies, while simultaneously monitoring and conducting studies to better understand the water quality and hydrologic dynamics. Progress is tracked by assessing project implementation and water quality analyses.

The Florida Watershed Restoration Act (FWRA), section 403.067, F.S., establishes an adaptive management process for BMAPs that continues until the TMDLs are achieved and maintained. This approach allows for incrementally reducing nutrient loads through the implementation of projects and programs, while simultaneously monitoring and conducting studies to better understand water quality dynamics (sources and response variables) in each impaired waterbody.

The purpose of this BMAP is to implement TN and TP reductions for the Lakes Harney and Monroe and MSJR Basin to achieve the TMDLs. Since the Smith Canal watershed is located mostly within the Lakes Harney and Monroe and MSJR watershed, reductions made to achieve the Lakes Harney and Monroe and MSJR TMDLs should also address the Smith Canal TMDL.

An important consideration for the restoration of the Lakes Harney and Monroe and MSJR Basin waters is that the majority of the loading to the impaired waterbodies comes from sources outside the watershed. Approximately 96% of the TN loading and 95% of the TP loading enters the impaired waterbodies from the Upper St. Johns River, Econlockhatchee River, and Lake Jesup basins. Therefore, implementing projects in the watershed alone will not achieve the TMDLs; reductions from the upstream sources must occur before water quality standards can be met in the impaired WBIDs. Additional reductions will be needed in the Lake Jesup Basin, as well as the Upper St. Johns River and Econlockhatchee River basins to fully achieve the Lakes Harney and Monroe and MSJR Basin TMDLs.

Required Reductions and Options to Achieve Reductions

In the 2012 BMAP, a Hydrological Simulation Program - FORTRAN (HSPF) model was used to estimate loading to this basin. Currently, a multi-year effort is underway to model the entire St. Johns River Basin and provide updates to the existing watershed, hydrodynamic and water quality models, including those that have been developed by SJRWMD. The modeling framework will be comprised of different mechanistic models including HSPF, Environmental Fluid Dynamics Code (EFDC), and Water Quality Analysis Simulation Program (WASP).

DEP anticipates that this effort will be completed in 2028. This work will provide the necessary technical support for potential updates to allocations to meet the TMDLs and achieve the requirements of the BMAPs, including the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP. After model completion, DEP will reevaluate and, if necessary, adopt another iteration of the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP which may include updated pollutant loading information and potential updates to required reductions for the responsible stakeholders.

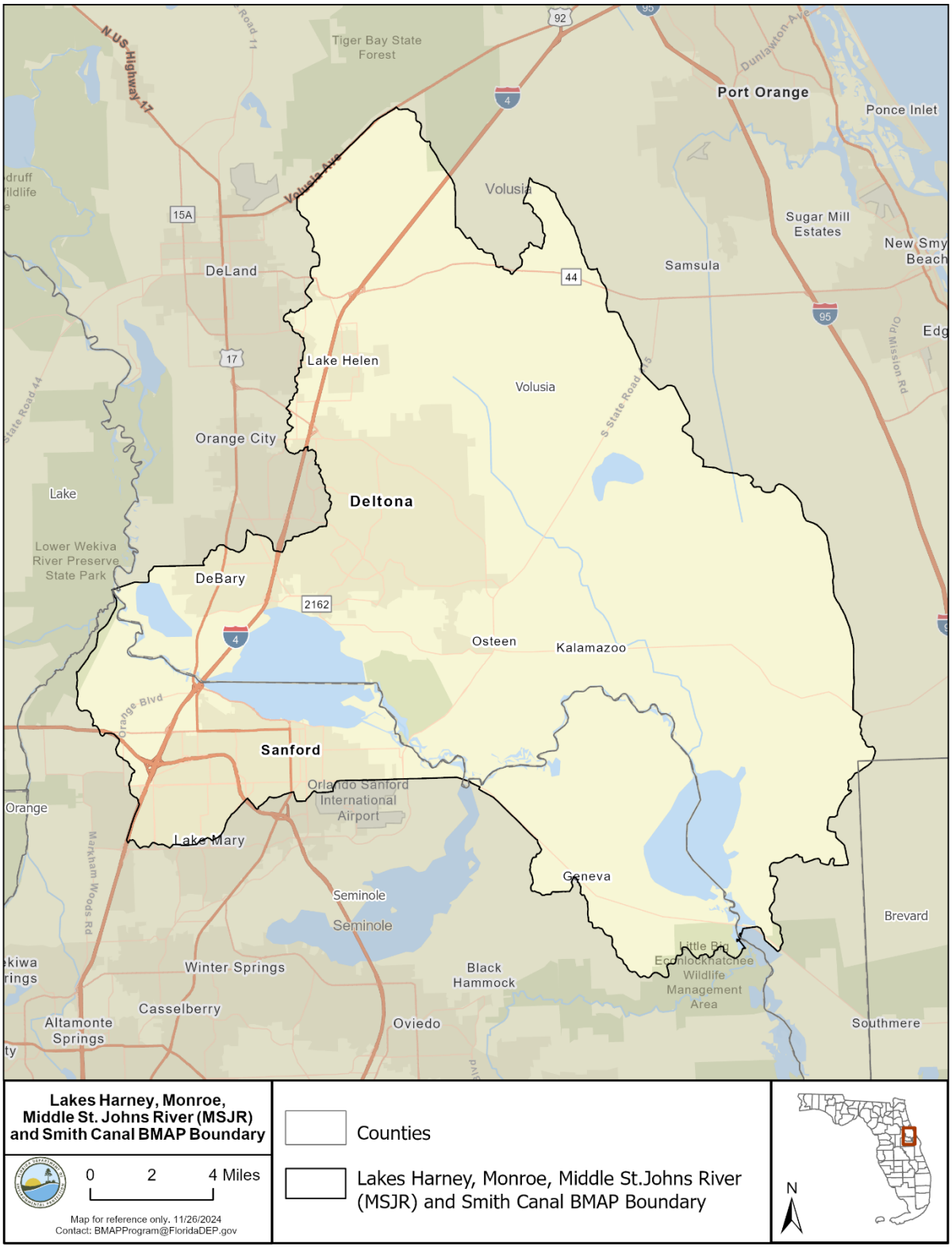

Figure ES-1. Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP boundary

Section 1. Context, Purpose, and Scope of the Plan

The Lakes Harney and Monroe and MSJR Basin includes the main stem segments of the MSJR located between the inlet of Lake Harney and the confluence of the St. Johns River with the Wekiva River (**Figure 1)**. The Smith Canal watershed is located in the southern portion of the Lakes Harney and Monroe and MSJR Basin and flows northwest until it enters the St. Johns River upstream of the outlet to Lake Monroe. The Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP was adopted in August 2012 to address the adopted TMDLs in the basin.

This 2025 Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP incorporates new legislative requirements that are now in effect. This document should be used as a supplement to the 2012 BMAP. In 2028, DEP anticipates the completion of a model revision to the Lakes Harney and Monroe and MSJR Basin because of a larger effort to model the entire St. Johns River Basin. This work will provide the necessary technical support for potential updates to allocations to meet the TMDLs and achieve the requirements of the BMAPs, including the Lakes Harney and Monroe, MSJR and Smith Canal BMAP. After model completion, DEP will reevaluate and, if necessary, adopt another iteration of the Lakes Harney and Monroe, MSJR and Smith Canal BMAP which may include updated pollutant loading information and updates to required reductions for the responsible stakeholders

The BMAP provides for phased implementation under subparagraph 403.067(7)(a)1., Florida Statutes (F.S.), and this adaptive management process will continue until the TMDLs are achieved and maintained. The phased BMAP approach allows for incrementally reducing nutrient loadings through the implementation of projects, while simultaneously monitoring and conducting studies to better understand water quality dynamics (sources and response variables) in each impaired waterbody.

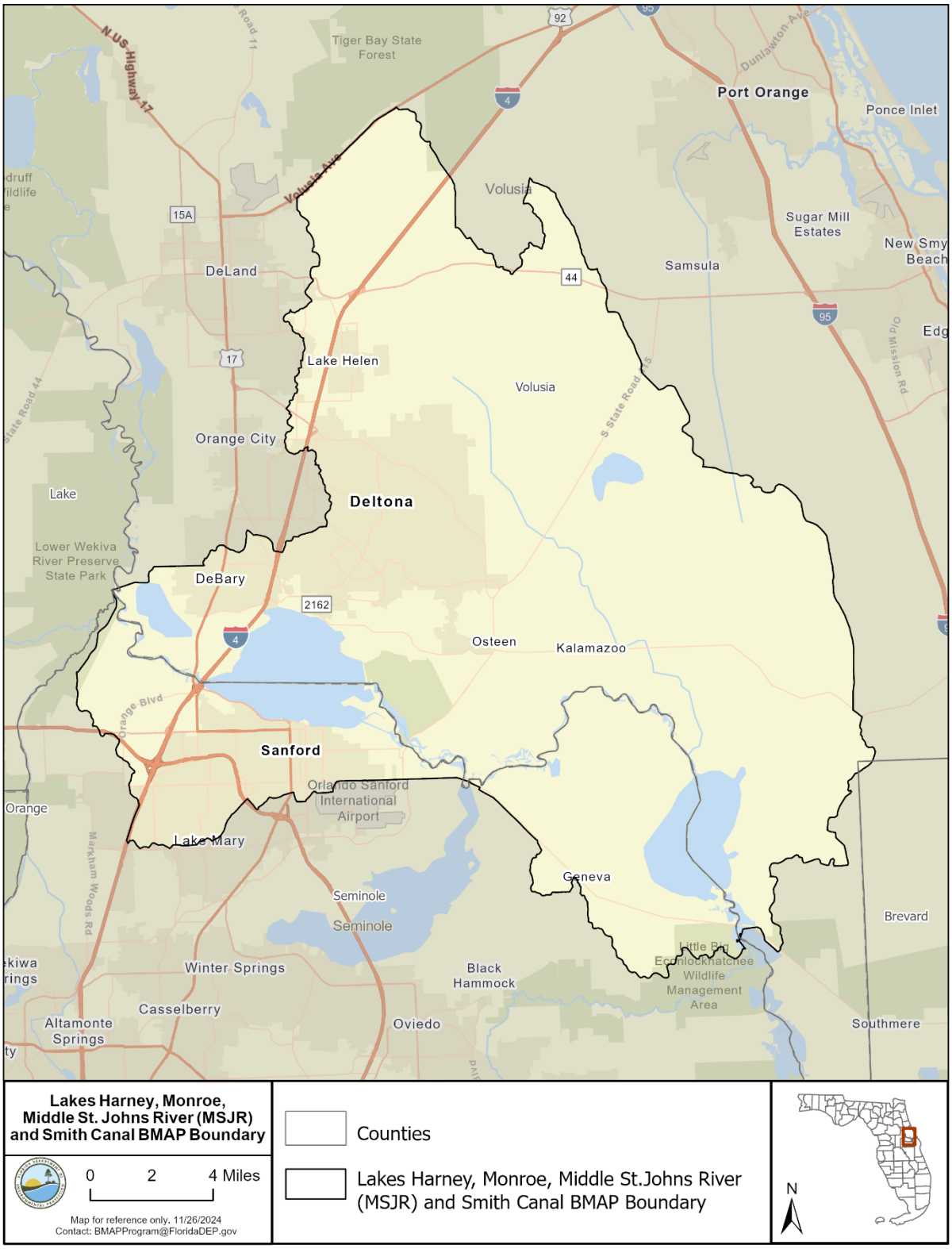

Figure 1. Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP boundary

1.1. Water Quality Standards and TMDLs

Florida's water quality standards are designed to ensure that surface waters can be used for their designated purposes, such as drinking water, recreation, and shellfish harvesting. Currently, most surface waters in Florida, including those in the MSJR Basin, are categorized as Class III waters, meaning they must be suitable for recreation and support fish consumption and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. **Table 1** lists all designated use classifications for Florida's surface waters.

Table 1. Designated use attainment categories for Florida surface waters

[1] Class I, I-Treated, and II waters additionally include all Class III uses.

Classification	Description
Class I[1]	Potable water supplies
Class I-Treated[1]	Treated potable water supplies
Class II[1]	**Shellfish propagation or harvesting**
Class III	**Fish consumption; recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife**
Class III-Limited	Fish consumption, recreation or limited recreation, and/or propagation and maintenance of a limited population of fish and wildlife
Class IV	Agricultural water supplies
Class V	Navigation, utility, and industrial use (*no current Class V designations*)

Section 303(d) of the federal Clean Water Act (CWA) requires that every two years each state must identify its "impaired" waters, including estuaries, lakes, rivers and streams, that do not meet their designated uses. DEP is responsible for assessing Florida's waters for inclusion on the Verified List of Impaired Waters (when a causative pollutant for the impairment has been identified) and Study List (when a causative pollutant for the impairment has not been identified and additional study is needed). These lists are then provided to the U.S. Environmental Protection Agency (EPA) as a biennial update to the state "303(d) list."

1.2. Lakes Harney and Monroe and MSJR Basin TMDLs

A TMDL is the maximum amount of a specific pollutant that a waterbody can assimilate while maintaining its designated uses. The TN and TP TMDLs for the Lakes Harney and Monroe and MSJR Basin were adopted by DEP in December 2009, and the TP TMDL for Smith Canal was adopted in September 2009 (Gao, 2009; Rhew, 2009).

Table 2 lists the TMDLs for WBIDs in the Lakes Harney and Monroe and MSJR Basin, in units of lbs/yr and the concentrations in mg/L. The TMDLs are adopted in rule, into subsection 62-304.505(1), Florida Administrative Code (F.A.C.), as a load. The purpose of the TMDLs is to achieve the target TP and TN concentrations listed in the table. The TMDLs assigned wasteload allocations for National Pollutant Discharge Elimination System (NPDES) permit holders as well as load allocations to additional nutrient sources.

Table 2. TMDLs for the Lakes Harney and Monroe and MSJR Basin

WLA = Wasteload allocation.

WBID Number	Parameter	TMDL (lbs/yr)	Target Concentration (mg/L)	WLA NDPES Wastewater (lbs/yr)	WLA NPDES Stormwater (%)	Load Allocation (lbs/yr)
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1.3. The Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP

A BMAP is a framework for water quality restoration that contains a comprehensive set of solutions to achieve the pollutant reductions established by a TMDL. Examples include permit limits on regulated facilities, urban and agricultural best management practices (BMPs), wastewater and stormwater infrastructure, regional projects and conservation programs designed to achieve pollutant reductions established by a TMDL. A BMAP is developed with local stakeholders and relies on local input and commitment for successful implementation. BMAPs are adopted by Secretarial Order and are legally enforceable. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies, while simultaneously monitoring and conducting studies to better understand the water quality and hydrologic dynamics. Progress is tracked by assessing project implementation and evaluating water quality analyses.

The Florida Watershed Restoration Act (FWRA), section 403.067, F.S., establishes an adaptive management process for BMAPs that continues until TMDLs are achieved and maintained. This approach allows for incrementally reducing nutrient loads through the implementation of projects and programs, while simultaneously monitoring and conducting studies to better understand water quality dynamics (sources and response variables) in each impaired waterbody. The Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP was first adopted in August 2012.

1.4. Stakeholder Involvement

Local stakeholders are a significant part of the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP process.

In the context of the BMAP, there are different organizations named in the plan.

- ***Responsible entities*** are those organizations who are assigned load reductions and must comply with the BMAP provisions; these organizations are sometimes referred to as "Lead Entities."

- ***Responsible agencies*** may be accountable for reducing loads from their own activities or have an important public sector role in BMAP implementation such as regulatory oversight, monitoring, research, or other related duties.

- ***Interested stakeholders*** are those organizations that have engaged with BMAP development and implementation with the intention to influence the implementation process and outcomes.

- ***Stakeholders*** is a more general term often used in the BMAP context to include all three of the previously mentioned organizations—responsible entities, responsible agencies, and interested stakeholders.

The BMAP process engages responsible entities, responsible agencies, and interested stakeholders and promotes coordination and collaboration to address the pollutant load reductions necessary to achieve the TMDL.

DEP held a series of individual meetings with responsible stakeholders to review their BMAP progress and ensure they are aware of the legislative changes that apply to the BMAP. A public meeting was held on March 26, 2025, to present and receive public comments on the 2025 BMAP update. The purpose of this meeting was to solicit comments from all interested parties, disseminate information, and allow for public discussion. Prior to adoption, all public meetings are formally noticed in the Florida Administrative Register, and at least one meeting is noticed in local newspapers.

Section 2. Modeling

2.1. 2012 BMAP

For the development of the 2012 BMAP, the Hydrologic Simulation Program- FORTRAN (HSPF) model, set up and calibrated by the SJRWMD for the TMDL, was used. The model includes the Lake Harney basin and Lake Monroe basin, and their respective subbasins. Loading estimates for the TMDL and BMAP were based on 2004 land use data.

As previously mentioned, this 2025 BMAP update will not include updated modeling information. Loading estimates and allocations of load reductions to the responsible stakeholders presented in the 2012 Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP remain in effect.

2.2. St. Johns River Basin Model Update

At the time of the 2025 Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP update, a multi-year effort is underway to model the entire St. Johns River Basin. DEP and SJRWMD have contracted with Environmental Science Associates (ESA), GHD, and Wildwood Consulting to provide a more comprehensive estimation of pollutant loading to the entire basin and provide updates to the existing watershed, hydrodynamic and water quality models, including those that have been developed by SJRWMD.

The modeling framework will be comprised of different mechanistic models including HSPF, EFDC, and WASP. Public meetings will be held to share progress and update information with interested stakeholders.

DEP anticipates that this effort will be completed in 2028. After the St. Johns River Basin model is complete, DEP will reevaluate and, if necessary, adopt another iteration of the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP, most likely before 2030. The next iteration may include updated required reductions, timelines and 5-year milestones.

Section 3. Calculating and Allocating Load Reductions

As noted in **Section 1.2**, the Lake Harney, Lake Monroe, and MSJR TMDLs are adopted in rule, with allowable TP and/or TN loads. The purpose of the allowable loadings is to achieve target concentrations. These concentrations are not a part of the rule are the expected concentrations after the TMDLs have been attained.

This section describes the process used to calculate the load reductions needed to achieve the TMDL loads and to allocate the load reduction requirements to the responsible stakeholders, as outlined in the 2012 BMAP.

3.1. Calculating Load Reductions

For this update, load reductions have not been re-evaluated. Refer to **Chapter 3** and **Chapter 4** of the 2012 BMAP for a complete description of the methodologies used to calculate and apportion the load reductions for the Lake Harney, Lake Monroe, MSJR, and Smith Canal Basin.

3.2. Allocations

For the development of the 2012 BMAP, the acreage and loading information for each stakeholder was calculated using output from the HSPF model. A geographic information system (GIS) base map was created to help determine allocations. The baseline loading was calculated by removing natural land use acres and loadings since the TMDL does not require load reductions for natural areas. Individual entities were then clipped as follows: (1) DOT roads and rights-of-way; (2) Turnpike Authority roads and rights-of-way; (3) areas with agricultural land uses; (4) municipalities each to its own jurisdictional boundary; and (5) each county using their jurisdictional boundaries. TN and TP starting loads by entity are shown in shown in **Table 3.**

Table 3. Starting Loads by entity

Entity	Area (acres)	TN Starting Load (lbs/yr)	TP Starting Load (lbs/yr)
Agriculture	20,250.3	130,168.2	29,970.4
City of DeBary	3,720.3	19,906.5	3,149.0
City of DeLand	37.5	192.0	14.8
City of Deltona	4,189.5	25,399.8	4,128.2
DOT District 5	1,762.3	10,112.0	1,325.3
City of Lake Helen	347.8	2,052.4	297.0
City of Lake Mary	1,639.2	6,572.0	948.9
City of Orange City	18.9	105.4	16.6
City of Sanford	4,764.6	41,398.4	6,490.8
Seminole County	6,027.2	34,105.1	5,132.7
Turnpike Authority	342.5	1,240.1	108.5
Volusia County	5,356.2	26,511.6	3,828.7

A TN and TP target load per acre was determined by dividing the TMDL target load for anthropogenic stormwater sources by the total anthropogenic acreage in the basin. The target loads per acre were then used to calculate the allocations for each entity based on their starting loads.

3.2.1 5-Year Milestones

Section 403.067, F.S., requires that BMAPs include 5-year milestones for the implementation of TMDLs. Any responsible entity within the BMAP that has an assigned pollutant load reduction requirement must identify projects or strategies to meet their upcoming 5-year milestone, even if the identified project or strategy will not be completed by the milestone. Each project must include a planning-level cost estimate and an estimated date of completion that is included in the BMAP and updated in the statewide annual reporting process.

Table 4 summarizes the required reduction milestones for TN and TP for each entity in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP. Consistent with the timeline outlined in the 2012 BMAP, this 2025 BMAP update includes two future milestones (2027 and 2032). Consistent with statute, entities must provide a list of projects and strategies to DEP that show how entities will meet their required reductions to achieve the next upcoming BMAP milestone. **Table 5** summarizes the current reductions made towards the final 2032 milestone for TN and TP by entity.

Responsible entities must submit a sufficient list of additional projects and management strategies to DEP no later than January 14, 2026, to be compliant with the upcoming BMAP milestone or be subject to further department enforcement.

If any lead entity's management strategies list falls short of meeting their next 5-year milestone reductions, additional projects and management strategies are required. To remain in compliance with the BMAP until January 14, 2026, responsible entities with project deficits must catalog their efforts to identify management strategies to meet their milestone reduction requirements. These planning efforts are ineligible for BMAP credit themselves but are necessary to demonstrate that additional eligible management actions will be forthcoming and BMAP compliance will be achieved. Examples of project identification efforts are included in **Appendix C**.

After the St. Johns River Basin model is complete, DEP will reevaluate and, if necessary, adopt another iteration of the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP, most likely before 2030. The next iteration may include updated required reductions, timelines, and 5-year milestones.

Table 4. Required reductions for 5-year milestones by entity

Entity	2027 Required Reduction (60% Milestone) TN (lbs/yr)	2027 Required Reduction (60% Milestone) TP (lbs/yr)	2032 Required Reduction (100% Milestone) TN (lbs/yr)	2032 Required Reduction (100% Milestone) TP (lbs/yr)
City of DeBary	1,880	86	3,760	173
City of DeLand	-	-	-	-
City of Deltona	3,609	388	7,217	777
City of Lake Helen	-	-	-	-
City of Lake Mary	-	-	-	-
City of Orange City	-	-	-	-
City of Sanford	10,360	1,340	20,720	2,679
FDACS	21,141	6,885	42,282	13,770
FDOT District 5	1,232	-	2,464	-
Seminole County	3,974	155	7,947	311
Turnpike Enterprise	-	-	-	-
Volusia County	1,633	-	3,266	-
Totals	**43,829**	**637**	**87,656**	**17,710**

3.2.2 Project Progress

Table 5 summarizes the total required reductions and the estimated reductions achieved for completed and ongoing projects for each entity. **Appendix B** includes the project details.

As part of the annual reporting process, stakeholders will be required to provide a detailed and quantified description of their ordinance enforcement and environmental education activities to receive credits for these activities. Based on progress towards meeting the TMDL and water quality monitoring results, reductions from ordinances and education efforts may be reevaluated in future BMAP updates, particularly with respect to enforcement of ordinances.

DEP continues to work with the appropriate agencies and other stakeholders to identify and prioritize needed projects and management strategies required to meet the reduction milestones.

Table 5. TN and TP load reductions

Entity	TN Full Required Reduction (lbs/yr)	TN Completed and Ongoing Project Reductions Achieved (lbs/yr)	% of TN Reductions Achieved	TP Full Required Reduction (lbs/yr)	TP Completed and Ongoing Project Reductions Achieved (lbs/yr)	% of TP Reductions Achieved
City of DeBary	3,760	14,135	376%	173	2,367	1370%
City of DeLand	-	9	-	-	1	-
City of Deltona	7,217	8,410	117%	777	1,371	177%
City of Lake Helen	-	31	-	-	4	-
City of Lake Mary	-	372	-	-	58	-
City of Orange City	-	13	-	-	4	-
City of Sanford	20,720	14,454	70%	2,679	5,339	199%
Agriculture	42,282	21,054	50%	13,770	3,869	28%
FDOT District 5	2,464	3,129	127%	-	632	-
Seminole County	7,947	7,812	98%	311	1,940	624%
Turnpike Enterprise	-	1	-	-	0	-
Volusia County	3,266	7,215	221%	-	3,032	-
Totals	**87,657**	**76,635**	**87%**	**17,710**	**18,617**	**105%**

Section 4. Management Actions

Management actions refer to the suite of structural and nonstructural activities that the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP entities will be conducting to achieve their required TP and TN reductions. The projects submitted by the entities to achieve at least their required upcoming 5-year milestone reductions are summarized in the tables in **Appendix B**. These projects were submitted to provide reasonable assurance to DEP that each entity has a plan on how it will meet its allocations. However, this list of projects is meant to be flexible and allow for changes over time, provided that the required reduction is still met within the specified timeframe. New projects that meet the required nutrient reductions may be substituted for those identified in **Appendix B** during the statewide annual report process.

4.1. Wastewater

Recent legislative updates have expanded the requirements for addressing onsite sewage treatment and disposal systems (OSTDS or septic systems) and wastewater treatment facility (WWTF) sources within BMAPs.

4.1.1 OSTDS

Beginning July 1, 2023, section 403.067, F.S., prohibits new conventional OSTDS serving lots of one acre or less where central sewer is available. Within all BMAP areas, if central sewer is unavailable, then the owner must install a DEP-approved enhanced nutrient-reducing OSTDS that achieves 65% nitrogen reduction, or other wastewater system that achieves 65% reduction.

4.1.1.1 BMAP OSTDS Remediation Plan

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

Subparagraph 403.067(7)(a)9., F.S., also requires local governments within a BMAP to develop an OSTDS remediation plan that is adopted as part of the BMAP no later than July 1, 2025, if DEP identifies OSTDS as contributors of at least 20% of point source or nonpoint source nutrient pollution or if DEP determines remediation is necessary to achieve the TMDL. When applicable, the OSTDS remediation plans must be developed by each local government in cooperation with DEP, water management districts (WMDs), and public and private domestic wastewater facilities. Each OSTDS remediation plan for this BMAP must contain the information outlined in DEP Final Order 23-0117. Based on data from the Florida Water Management Inventory (FLWMI) database, there are 20,804 known septic systems located throughout the BMAP area. Stakeholders submit projects describing how septic system loads are

addressed as part of BMAP reporting and estimate the load reductions associated with each project. The estimated reductions to the basin from addressing these septic systems will be based on several factors, including location, how they are addressed, and the amount of attenuation that occurs.

4.1.1.2 Local Government Ordinances

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

4.1.2 Wastewater Treatment

4.1.2.1 Facility Improvements and Effluent Limits

WWTFs located in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP are shown in **Figure 2**. The U.S. EPA authorizes DEP to issue permits for discharges to surface waters under the NPDES Program.

Permits for discharges to groundwater are issued by DEP based on Florida law and rules. Wastewater discharge permits establish specific limitations and requirements based on the location and type of facility or activity releasing industrial or domestic wastewater from a point source. In areas with an adopted, nutrient-related BMAP prior to July 1, 2023, section 403.086, F.S., requires any facility discharging to a waterbody to upgrade to advanced waste treatment (AWT) by January 1, 2033. Further, waterbodies determined not to be attaining nutrient or nutrient-related standards after July 1, 2023, or subject to a BMAP or reasonable assurance plan (RAP) after July 1, 2023, have 10 years to provide AWT after such determination or adoption.

The nitrogen and phosphorus effluent limits set forth in **Table 6** and **Table 7** will be applied as an annual average, taken at end of pipe before any land disposal (or other authorized compliance point), to all new and existing WWTFs with a DEP-permitted discharge or disposal area within this BMAP.

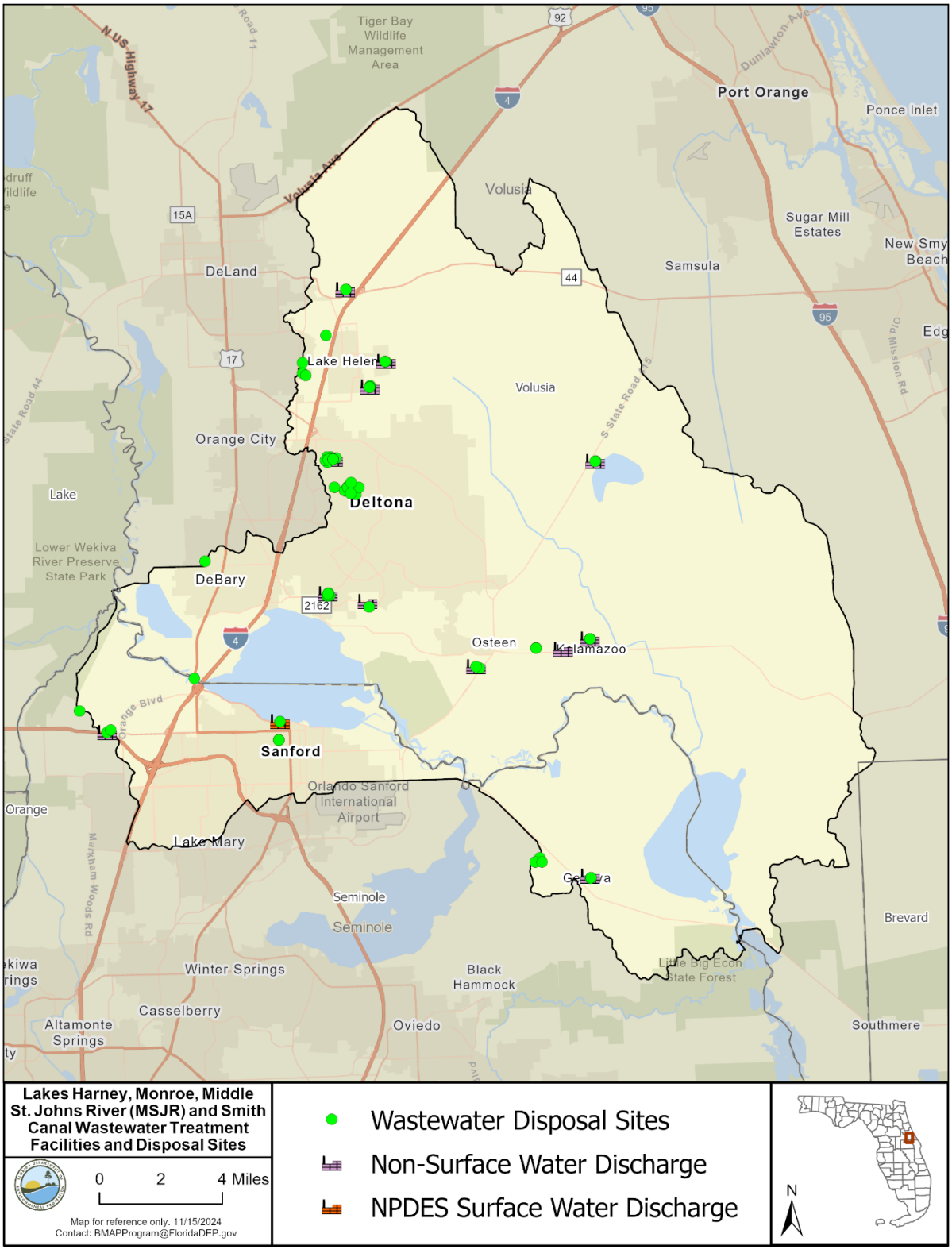

Figure 2. Wastewater treatment facilities in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP

Table 6. Nitrogen effluent limits for wastewater facilities

mgd = million gallons per day. mg/L = milligrams per liter. N/A = Not applicable.

Facility Capacity (mgd)	Surface Water Discharges (mg/L)	WWTFs Listed in Appendix D (mg/L)	WWTFs Not Listed in Appendix D – Rapid Rate Land Application Effluent Disposal System (mg/L)	WWTFs Not Listed in Appendix D – All Other Disposal Methods, Including Reuse (mg/L)
≥ 0.5	3	3	3	10
< 0.5, ≥ 0.1	3	3	6	10
< 0.1	3	N/A	10	10

Table 7. Phosphorus effluent limits wastewater facilities

Facility Capacity (mgd)	Surface Water Discharges (mg/L)	WWTFs Listed in Appendix D (mg/L)	WWTFs Not Listed in Appendix D – Rapid Rate Land Application Effluent Disposal System (mg/L)	WWTFs Not Listed in Appendix D – All Other Disposal Methods, Including Reuse (mg/L)
≥ 0.5	1	1	1	6
< 0.5, ≥ 0.1	1	1	3	6
< 0.1	1	N/A	6	6

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

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

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

4.1.2.2 Reclaimed Water Effluent Limits

In accordance with section 403.086. F.S., by July 1, 2034, any WWTF providing reclaimed water that will be used for commercial or residential irrigation or be otherwise land applied within a nutrient BMAP or reasonable assurance plan (RAP) area is required to meet AWT standards for TN and TP such that the reclaimed water product contains not more, on a permitted annual average basis, of 3 mg/L of TN and 1 mg/L of TP. These requirements do not apply to

reclaimed water that is land applied as part of a water quality restoration project or water resource development project approved by DEP to meet a TMDL or minimum flow or level and where the TN and TP will be at or below AWT standards prior to entering groundwater or surface water.

DEP has determined that certain WWTFs providing reclaimed water for the purpose of commercial or residential irrigation or that is otherwise being land applied within this BMAP area are causing or contributing to the nutrient impairments being addressed in this BMAP. Based on DEP's determination, these facilities are identified in **Appendix D** and are subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S. The facilities listed in **Appendix D** have 10 years from BMAP adoption to meet the applicable AWT standards. This requirement does not prevent the department from requiring an alternative treatment standard, if the department determines the alternative standard is necessary to achieve the TMDL(s) or applicable water quality criteria. For facilities that did not have adequate information to complete an evaluation or where a change occurs to the facility's application of reclaimed water after the initial evaluation (e.g., an increase in facility capacity or change in location of reclaimed water application), the department will evaluate the land application of reclaimed water as more information becomes available pursuant to section 403.086, F.S.

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

4.1.2.3 Wastewater Treatment Facility Plans

Subparagraph 403.067(7)(a)9., F.S., requires local governments within a BMAP to develop WWTF plans to be adopted as part of nutrient BMAPs no later than July 1, 2025, if DEP identifies domestic wastewater as contributors of at least 20% of point source or nonpoint source nutrient pollution or if DEP determines remediation is necessary to achieve the TMDL. The WWTF plans must be developed by each local government in cooperation with DEP, WMDs, and public and private domestic wastewater facilities within the jurisdiction of the local government. Each local government's wastewater treatment plan for this BMAP must contain the information outlined in Final Order 23-0117 for each existing or proposed domestic wastewater facility in the local government's jurisdiction.

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

4.1.2.4 Connection to Sewer

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

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

4.1.2.5 Biosolids and Septage Application Practices

To provide assurance that nitrogen and phosphorus losses to surface water and groundwater are minimized from the permitted application of biosolids and septage in the BMAP area, the requirements in Chapter 62-640 F.A.C. apply to newly permitted application sites and existing application sites upon permit renewal. Where biosolids materials mixed with yard waste or other organic materials are distributed as compost or soil amendments, DEP recommends the recipients of these materials be notified of their increased nutrient content, so that any fertilization practices on the site can be adjusted accordingly. FDACS and University of Florida Institute of Food and Agricultural Sciences (UF-IFAS) are coordinating efforts to ensure that the distribution process for these kinds of materials includes notification of the nutrient content to the site manager.

4.2. Stormwater

Urban stormwater is a considerable source of nutrient loading to Lake Harney, Lake Monroe, MSJR basin and many urban areas are already regulated under the Municipal Separate Storm Sewer System (MS4) NPDES Stormwater Program. An MS4 is a conveyance or system of conveyances, such as roads with stormwater systems, municipal streets, catch basins, curbs, gutters, ditches, constructed channels, or storm drains. If an MS4 permittee is identified as a contributor in the BMAP, the permitted MS4 must undertake projects specified in the BMAP. Refer to **Appendix A** for a link to a list of MS4 permittees.

Regulated MS4s are required to implement stormwater management programs (SWMP) to reduce pollutants to the maximum extent practicable and address applicable TMDL allocations. Both Phase I and Phase II MS4 permits include provisions for the modification of SWMP activities. Phase I medium and large MS4s are regulated under an individual permit, with

multiple permittees having coverage under the same permit as "co-permittees." Phase II small MS4s are regulated under a generic permit. Under the "NPDES Two-Step Generic Permit for Discharge of Stormwater from Phase II MS4s" (paragraph 62-621.300(7)(a), F.A.C.), regulated Phase II MS4s must develop a SWMP that includes BMPs with measurable goals and a schedule for implementation to meet six minimum control measures.

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

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

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

4.2.1 Urban BMPs and Eligibility

Management actions must reduce TN and/or TP loads and meet certain criteria to be considered eligible for credit in the BMAP. All projects, programs, and activities were required to address nutrient loads (TN, TP, or both) to receive credit, and must be located within the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP. Completed projects since January 1, 2003, were eligible for BMAP credit.

Public education and outreach efforts and nonstructural projects were eligible for BMAP credit. Estimates of TN and TP reductions from street sweeping and BMP clean out were made using a tool developed by the Florida Stormwater Association (FSA) in 2012, based on data collected by Sansalone et al. (2011) that uses the volume or weight of material removed to estimate the pounds of TN and TP removed.

4.2.2 Sports Turfgrass and Golf Courses

Sports turfgrass sources include golf courses and other sporting facilities. Sporting facilities are required to follow the *2025 Sports Turf BMP Manual* to protect water resources.

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

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

4.2.3 Agriculture

4.2.3.1 Agricultural BMPs

To address nutrient loading from agricultural operations effectively, a balanced approach is necessary—one that supports agricultural productivity while safeguarding water resources. This entails promoting farming practices that optimize nutrient and water use efficiency, minimize runoff, and enhance soil health. Section 403.067, F.S., requires agricultural producers in adopted BMAPs to either enroll and properly implement the applicable FDACS BMPs for their operation or to conduct water quality monitoring activities as required by Chapter 62-307, F.A.C. Agricultural BMPs include practices such as nutrient management, irrigation management and water resource protection, and can mitigate nutrient loading while promoting environmental stewardship among Florida's agricultural producers. In many BMAPs, however, the implementation of BMPs alone will not be sufficient to meet water quality restoration goals. BMP manuals adopted by FDACS are available at https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-Management-Practices. Agricultural landowners that do not enroll in BMPs are referred to DEP for water quality monitoring or enforcement under sections 403.121, 403.141, and 403.161, F.S.

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

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

For this 2025 BMAP update, FDACS used the parcel-level polygon Agricultural Land Geodatabase (ALG) data that is part of the Florida Statewide Agricultural Irrigation Demand (FSAID) Geodatabase to estimate agricultural acreages statewide. The percentage of agricultural land use within the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP was then determined by comparing the FSAID 11 ALG and total acreage of the BMAP boundary. Based on FSAID 11, the total agricultural land in the BMAP is 28,162 acres. To estimate the agricultural acres enrolled in the BMP program, FDACS Office of Agricultural Water Policy (OAWP) overlayed the FSAID ALG and BMP enrollment data within a GIS to calculate the acres of agricultural land in an enrolled parcel. **Table 8** summarizes agricultural lands within the BMAP based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

Table 8. Agricultural lands in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP

* Enrollment information current as of June 30, 2024.

Crediting Location	Agricultural Acres	Unenrolled - Unlikely Enrollable Acres	Agricultural Acres - Adjusted	Agricultural Acres Enrolled*
BMAP wide	28,162	5,033	23,129	13,004

FDACS will seek further enrollment of producers in the BMAP area. As of June 30, 2024, in the Lake Harney, Lake Monroe, MSJR, and Smith Canal Basin there are 13,004 agricultural acres enrolled in the BMP program. **Table 9** and **Figure 3** summarize the acres enrolled in the BMP

Program by commodity. Currently, no producers are conducting water quality monitoring in lieu of implementing BMPs.

Table 9. Agricultural lands enrolled in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP by BMP Program Commodity

Commodity	Agricultural Acres Enrolled
Citrus	147
Cow/Calf	12,525
Equine	8
Multiple Commodities	40
Nursery	282
Row/Field Crop	3
Total	**13,005 (56%)**

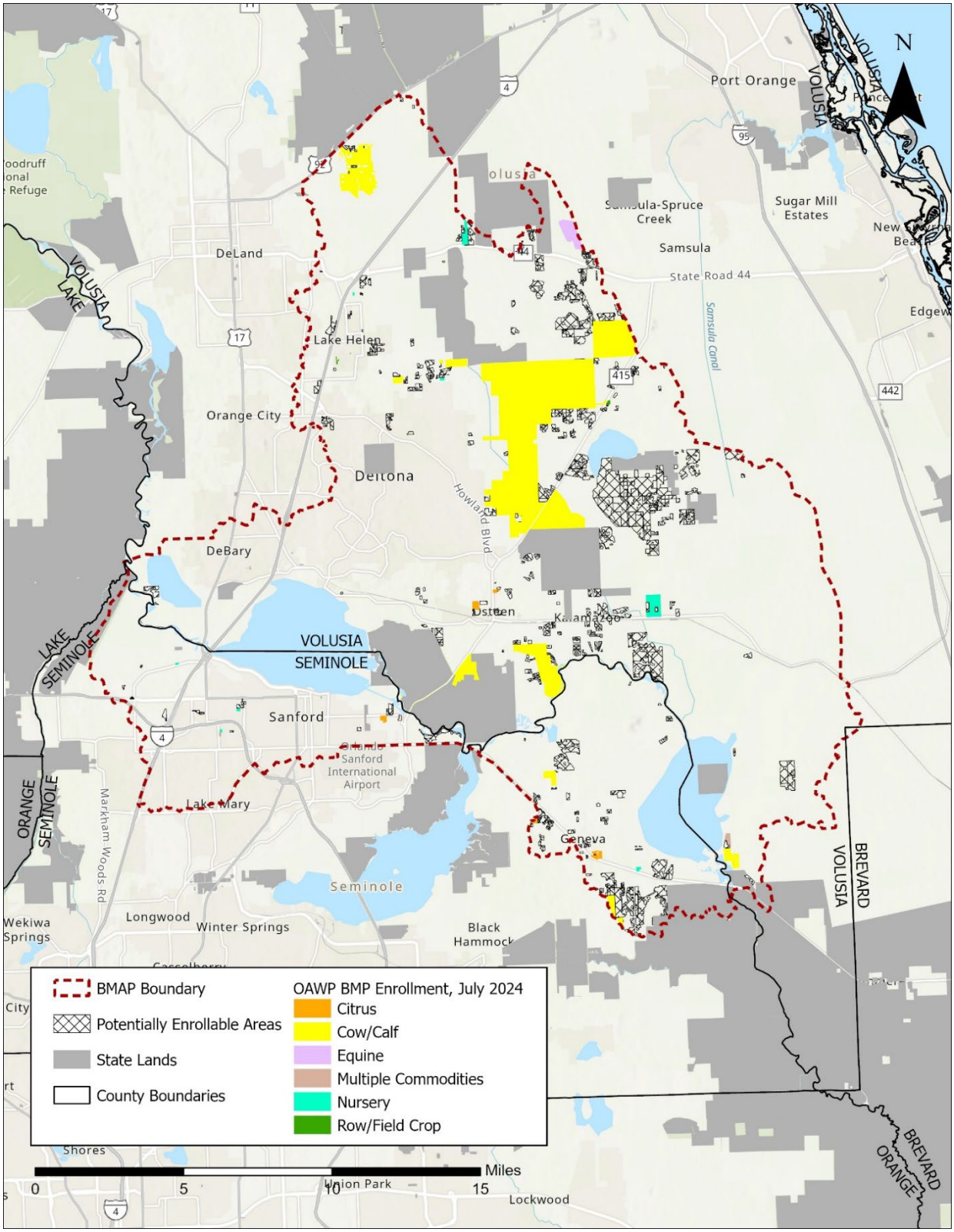

Figure 3. Agricultural BMP enrollment in the Lake Harney, Lake Monroe, MSJR, and Smith Canal Basin

4.2.3.2 Dairies and Other Confined Animal Feeding Operations (CAFOs)

CAFO dairies permitted under Chapter 62-670, F.A.C., located within a BMAP, may not cause or contribute to a violation of water quality standards and must implement nutrient management practices identified in the permits. To minimize infiltration of liquid manure, waste storage ponds must be lined using a concrete or geosynthetic liner. If a clay liner exists, then the operation will need to upgrade to a concrete or geosynthetic liner when funding is available, or it must demonstrate that the liner does not allow leaching that results in water quality exceedances.

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

4.2.3.3 Livestock Operations Without CAFO Permits

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

4.2.3.4 Aquaculture

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

4.2.3.5 Silviculture

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

4.2.3.6 Agricultural Cooperative Regional Elements (ACE)

Section 403.067, F.S., requires FDACS, DEP, and agricultural producers to work together to establish ACE in BMAPs where agricultural nonpoint sources contribute at least 20% of nonpoint source nutrient discharges to impaired waterbodies, or where DEP determines this element is necessary to achieve the TMDLs. FDACS is responsible for providing DEP a list of

projects which, in combination with BMPs, state-sponsored regional projects and other management strategies, will achieve the needed pollutant load reductions established for agricultural nonpoint sources. The list of projects included in the ACE must include a planning-level cost estimate of each project along with the estimated amount of nutrient reduction that such project will achieve. Partner agencies and key stakeholders referred to in this process include FDACS, DEP and agricultural producers.

Addressing nutrient loading from agricultural sources in Florida's waterways requires collective action and partnership among the key stakeholders, and in consultation with the WMDs. By fostering cooperation and engagement, the ACE framework facilitates the exchange of knowledge, resources, and expertise, leading to innovative solutions and effective strategies for tackling water quality challenges. Engaging producers in the decision-making process ensures that projects are practical, feasible, and tailored to the needs and realities of agricultural operations. Partner agencies provide technical support, regulatory guidance, and funding opportunities that will enhance the implementation and success of regional water quality improvement initiatives. This cooperative effort is essential for implementing targeted actions that balance the economic and social benefits of agriculture with the obligation to address agricultural nonpoint source loading beyond BMP implementation and cost share.

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

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

FDACS and DEP will work together to track progress on agricultural water quality projects under the ACE framework through the development of performance metrics and evaluation of water quality monitoring data in the basin or, if necessary, at the project level. The default

performance measures will be the expected range of pollutant removal efficiencies associated with a project or strategy. Tools may be needed to determine the effectiveness of projects, such as modeling and where feasible onsite water quality monitoring.

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

Currently, agricultural nonpoint sources contribute 44% of the TN and 54% TP nutrient sources in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP. However, DEP, in collaboration with the SJRWMD, is updating the hydrodynamic, water quality, and watershed models for the St. Johns River basin, which includes the area in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP. This effort is expected to take at least two years to complete, at which point more current land use and pollutant load information will be available for a BMAP update. The department will then re-evaluate the need for ACE projects.

Most agricultural lands are engaged in row crop production. **Table 10** shows the dominant crop types within the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP.

Table 10. Dominant crop types in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP

Crop Type	Acres
Row Crops	14,440
Grazing Land	11,066
Livestock	506

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

FDACS will continue to work with key stakeholders in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP to identify additional options for addressing agricultural nonpoint source nutrient loading. For more information on the FDACS Regional Projects Program, see the links in **Appendix F**.

4.2.3.7 Description of BMPs Adopted by Rule

Appendix F provides detailed information on BMPs and agricultural practices in the BMAP area. **Table 11** identifies the adopted BMPs and BMP manuals relevant to this BMAP.

Table 11. BMPs and BMP manuals adopted by rule as of July 2025

Agency	F.A.C. Chapter	Chapter Title
FDACS OAWP	5M-1	Office of Agricultural Water Policy
FDACS OAWP	5M-06	Florida Nursery Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-08	Florida Vegetable and Agronomic Crop (VAC) Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-09	Florida Sod Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-11	Florida Cattle Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-12	Conservation Plans for Specified Agricultural Operations
FDACS OAWP	5M-13	Florida Specialty Fruit and Nut Crop Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-14	Florida Equine Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-16	Florida Citrus Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-17	Florida Dairy Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-18	Florida Agriculture Wildlife Best Management Practices
FDACS OAWP	5M-19	Florida Poultry Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS OAWP	5M-21	Florida Small Farms and Specialty Livestock Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices
FDACS Division of Agriculture Environmental Services	5E-1	Fertilizer
FDACS Division of Aquaculture	5L-3	Aquaculture Best Management Practices
FFS	5I-6	Best Management Practices for Silviculture
DEP	62-330	Environmental Resource Permitting

4.3. Atmospheric Deposition

4.3.1 Summary of Atmospheric Loading

The Lakes Harney and Monroe and MSJR Basin TMDL considered atmospheric deposition a background, uncontrollable source. Therefore, the TMDL did not require any reductions from this source.

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

Atmospheric deposition of phosphorus can also be a source to lakes via wet deposition through rainfall and dry deposition via gaseous and particulate wind-transported particles (Anderson & Downing, 2006; Zhai et al., 2009). The movement of phosphorus between land and water sources has been greatly accelerated by anthropogenic activities, particularly related to use of fertilizers that include phosphorus (Cordell et al., 2009; Boehme et al., No Date). However, the NADP National Analytical laboratory does not include phosphorus measurements as a primary objective; orthophosphate is measured, but only for quality assurance as an indicator of sample pollution (University of Wisconsin, 2024). Therefore, fewer data are available on the trends of atmospheric deposition of phosphorus in the basin.

4.3.2 Description of Approach

Atmospheric sources of nutrients are local, national, and international. Nitrogen atmospheric sources are generally of low concentration compared with other sources and are further diminished through additional biological and chemical processes before they reach groundwater. Recent data (Himes and Dawson, 2017) indicate that the deposition of nitrogen has been generally decreasing in Florida with an up to 55% decrease in atmospheric deposition by 2028, possibly related to power plant fuel source changes and air treatment upgrades as well as the increased use of electric vehicles, decreasing mobile sources (Himes and Dawson, 2017). This gradual decrease in atmospheric deposition of nitrogen will assist with creating the necessary reductions. Currently, since the scale of the national and international programs to address air deposition loads are difficult to integrate into the much smaller scale of this water quality plan, there are no specific nitrogen or phosphorus reductions assigned to this source category. Atmospheric deposition sources and trends will be re-evaluated periodically.

4.4. Future Growth

Nutrient impacts from new development are addressed through a variety of mechanisms outlined in this BMAP, as well as provisions of Florida law. While most of the restoration projects and management strategies listed in this BMAP address current nutrient loading, there is a need to plan and implement sound management strategies to address loading associated with population growth. DEP has included in this BMAP specific elements to address current and future WWTF effluent, OSTDS, and stormwater sources. Broader requirements—such as local land development regulations, comprehensive plans, ordinances, incentives, environmental resource permit requirements and consumptive use permit requirements—all provide additional mechanisms and avenues to protect water resources and reduce the impact of new development and other land use changes as they occur.

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

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

- The element must address coordinating the extension of, increase in the capacity of, or upgrade in treatment of facilities to meet future needs; prioritizing AWT while maximizing the use of existing facilities and discouraging urban sprawl; conserving potable water resources; and protecting the functions of natural groundwater recharge areas and natural drainage features.

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

4.4.1 Future Growth Analysis

An analysis was done to consider the impacts of future population growth and urban development on loading in the basin. Wastewater sources were evaluated using per-person estimations calculated for portions of the population estimated to be served by OSTDS and those connected to central sewer. Stormwater sources were evaluated using per-acre estimations calculated for portions of a jurisdictional area that may be developed.

First, population growth for each county was taken from the Bureau of Economic and Business Research (BEBR) 2040 Medium Growth Projections. Then, a spatial analysis was performed to determine the proportion of developable land area attributed to each entity within each county. Areas where there are permanent waterbodies, or which have been set aside for conservation are unlikely to see future development or increased population so the National Hydrography Database (NHD) for lake and ponds and the Florida Natural Areas Inventory (FNAI) conservation lands were used to remove lands from the analysis. The percentage of remaining land attributed to each entity was applied to the county projected population growth to determine the number of additional people anticipated to contribute to loading by 2040.

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

Per person loading calculations were used to estimate future loads from WWTFs and OSTDS under different planning scenarios, as described below. DEP's Domestic Wastewater Program estimates each person in Florida generates 100 gallons of wastewater per day. For OSTDS, DOH estimates each person in Florida generates 10 lbs TN/yr. US-IFAS estimates each person in Florida generates 10 grams TP/day. Phosphorus loading rates from OSTDS are not affected by new technologies or BMAP management strategies. An attenuation rate of 50% for wastewater effluent disposal was applied to loading calculations to derive the estimated future load to the basin.

Per acre loading calculations were used to estimate future loads from increased urban runoff as a result of development under different planning scenarios, described below. First, a number of developed acres were derived by applying percentages to the developable land areas from the initial GIS analysis for each entity. Then, the loadings were based on DEP's statewide EMCs and ROCs for low density residential, with a generalized rainfall for Central Florida from Harper 2007 Stormwater Evaluation. Finally, a generalized attenuation rate of 70% for urban runoff was applied to loading calculations to derive the estimated future load to the basin.

Scenario 1 represents a future planning scenario with the highest levels of treatment feasible. It assumes all local governments within the BMAP have a minimum of 90% of their population served by centralized sewer, and all domestic wastewater will be treated to AWT standards (3 mg/L TN or less and 1mg/L TP or less) by 2040 based on current Florida law and BMAP management strategies. This scenario also assumes that all future OSTDS will be enhanced nutrient-reducing systems or other wastewater systems with a nitrogen treatment efficiency of at least 65%. For urban development, this scenario represents a conservative growth future where 2% of developable land is converted to low density residential.

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

Scenario 3 represents a future planning scenario with the lowest levels of treatment feasible. It utilizes the current rates of sewer availability based on the FLWMI parcels to estimate the population served by central wastewater collection system and assumes that all domestic wastewater will be treated to 6 mg/L TN and 3 mg/L TP by 2040. This scenario also assumes that all future OSTDS will be conventional systems. For urban development, this scenario

represents an extreme growth future where 17% of developable land is converted to low density residential.

Future development will likely also result in an increase in loading from turfgrass. This change is difficult to model because much of it depends on the type and location of development, enforcement of local ordinances, future home values, and future social attitudes towards turfgrass lawns. There are also complex dynamics associated with new urban development in which loading from human activities is compounded by potential removal or conversion of forest lands or green spaces, which had previously provided natural remediation of atmospheric and soil nitrogen.

Based on the methodology above, using nitrogen loads as an example, **Table 12** shows the estimated future loads from wastewater and urban stormwater sources that may be assigned to local governments if growth continues as projected under the three planning scenarios. DEP encourages local governments to consider these additional nutrient loads when authorizing new development or changes in land uses, and when developing local plans for wastewater infrastructure expansion and maintenance, to ensure that the TMDL target is achieved and maintained.

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

Entity	2040 Additional Population	2040 Additional TN Loading (lbs/yr) Scenario 1	2040 Additional TN Loading (lbs/yr) Scenario 2	2040 Additional TN Loading (lbs/yr) Scenario 3
Seminole County	10,329	**6,572**	**10,743**	**20,323**
Lake Mary	955	**608**	**1,168**	**2,228**
Sanford	2980	**1,647**	**2,542**	**4,748**
Volusia County	16,190	**10,947**	**31,056**	**59,320**
DeBary	1588	**1,074**	**2,518**	**4,762**
DeLand	419	**283**	**691**	**1,310**
Deltona	5,182	**3,504**	**10,608**	**20,323**
Lake Helen	672	**455**	**1,394**	**2,672**
Orange City	111	**75**	**204**	**388**
Basin Totals	**38,426**	**25,165**	**60,924**	**116,074**

Scenario 1 resulted in an additional basin load of 25,165 lbs/yr TN. Scenario 3 resulted in an additional basin load of 116,074 lbs/yr TN.

While it is unlikely that additional nutrient loading from future populations can be entirely avoided, the results of this analysis provide local governments information on how they can

mitigate future nitrogen loading by pursuing planning scenarios which prioritize the expansion of centralized sewer services that meet or exceed AWT standards for wastewater effluent. Entities with minor or no changes in 2040 loading under Scenarios 1 and 2 already have a high rate of sewering in their jurisdiction.

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

Other mechanisms discussed in this section are available to local governments to further mitigate future nutrient loading from existing and future developed land. For example, strengthening and enforcing fertilizer ordinances, working with homeowners' associations or neighborhood groups to reduce fertilizer use on community landscaping, or incentivizing Florida Friendly development practices could reduce the overall impact of additional nutrient loading associated with urban fertilizer. Additionally, wastewater can be treated to higher standards than those built into this analysis through upgrades to WWTFs and use of enhanced nutrient-reducing OSTDS certified with higher nitrogen treatment efficiencies or other wastewater treatment systems with higher treatment levels. Local governments can use this information to incorporate water quality considerations when developing and implementing local ordinances, comprehensive plans, stormwater planning, and enhanced OSTDS incentive programs in areas of urban expansion.

4.4.2 Funding Opportunities

Chapter 2023-169, Laws of Florida (L.O.F.), expanded grant opportunities for local governments and eligible entities working to address TMDLs or impaired waters. Through the DEP Water Quality Improvement Grant program, eligible entities can apply for grant funding for wastewater, stormwater, and regional agricultural projects. Projects are prioritized that have the maximum nutrient load per project, demonstrate project readiness, are cost-effective, have cost-share by the applicant (except for *Rural Areas of Opportunity*), have previous state commitment, and are in areas where reductions are most needed. Multiple competitive funding resources are available under the Protecting Florida Together website.

Financial and technical assistance through FDACS and the SJRWMD are available to agricultural producers within the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP.

FDACS and conservation district technicians provide outreach and education on BMP implementation for enrolled agricultural operations, as well as work with interested producers to provide cost share funding for projects to improve on-farm nutrient and irrigation efficiencies that work in tandem with the applicable practices from the producer's BMP checklist. The SJRWMD cost share program also provides outreach and funding for projects that provide nutrient and irrigation management benefits. FDACS and the SJRWMD work closely to ensure their cost share programs complement each other to meet the needs of the producers while considering the specific characteristics of the region.

Section 5. Monitoring Strategy

5.1. Monitoring Objectives

The Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP monitoring plan is described in detail in **Section 6** of the 2012 BMAP. Primary objectives are used to evaluate progress in the BMAP. Secondary objectives contribute to this evaluation, can help interpret data collected, and provide information for potential future refinements of the BMAP.

Primary Objective

- To track inputs and trends in TN and TP loads in the major tributaries and Smith Canal.

Secondary Objective

- To identify areas within the watershed with high loadings of nutrients to better focus management efforts.

To achieve the objectives above, the monitoring strategy focuses on two types of indicators to track water quality trends: core and supplemental. The core indicators are directly related to the parameters causing impairment in Lake Harney, Lake Monroe, and MSJR basin. Supplemental indicators are monitored primarily to support the interpretation of core water quality parameters.

Table 1. Core and Supplemental Parameters for Tributaries and Lakes Monitoring

Core Water Quality Indicators	Tributaries	Lakes
Total phosphorus (as Phosphorus [P])	x	x
Orthophosphate as P	x	x
Nitrate/nitrite as Nitrogen (N)	x	x
Total Kjeldahl nitrogen (TKN)	x	x
DO	x	x
Temperature	x	x
Specific conductance	x	x
pH- field	x	x
pH- field	x	x
Chlorophyll-*a*		x
Supplemental Water Quality Indicators	**Tributaries**	**Lakes**
Total Suspended Solids (TSS)	x	x
Biochemical Oxygen Demand (BOD)	x	x
Chlorophyll-*a*	x	
Ammonium	x	
Color	x	

A network of stations supporting both the primary and secondary objectives of the BMAP was assembled from monitoring networks supported by City of Deltona, Seminole County, SJRWMD, Volusia County, and U.S. Geological Survey (USGS)(**Figure 4**). The following stations were removed from the BMAP monitoring network since the adoption of the 2012 BMAP:

- Volusia County station VC-047A St. Johns River, S. end of Lake Monroe for water quality.
- Volusia County station VC-DC04 DC4 Deep Creek for water quality.
- Volusia County station VC-COW Cow Creek for water quality.
- Volusia County station VC-083 Gemini Springs outfall for water quality.
- Seminole County station Smith Canal (SMI) for vegetation monitoring.

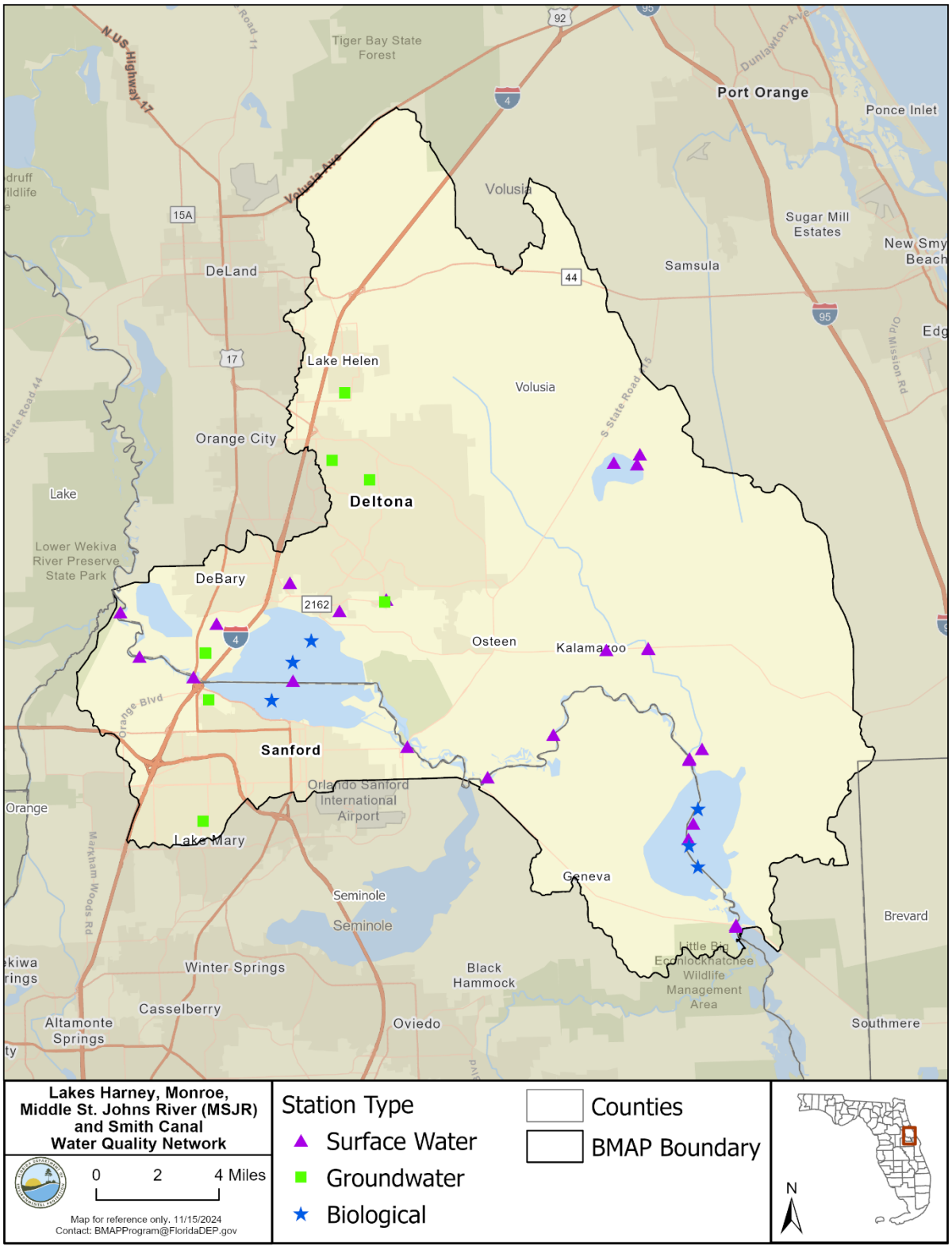

Figure 4. Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP water quality monitoring network

5.2. Hot Spot Analysis

To better prioritize and focus resources to achieve restoration most efficiently in the Lake Harney, Lake Monroe, MJSR, and Smith Canal BMAP, DEP developed the hot spot analysis approach. This approach uses measured data collected throughout the watershed to evaluate TN and TP concentrations. This process is not intended to be a management strategy under section 403.067, F.S. The benchmarks are not intended to measure progress towards restoration or compliance; they will only be used to assist with prioritizing resources.

The measured nutrient concentrations were compared with selected benchmarks to identify areas that should be the highest priority for restoration. Four statistics are calculated for the whole BMAP and are used to compare against each station average: TN or TP concentration average; TN or TP 90th percentile; TN or TP standard deviation; and TN or TP percent frequency of samples over the BMAP threshold. Stations are assigned a rank of 0, 1, or 2 for each category, as shown in **Figure 5**.

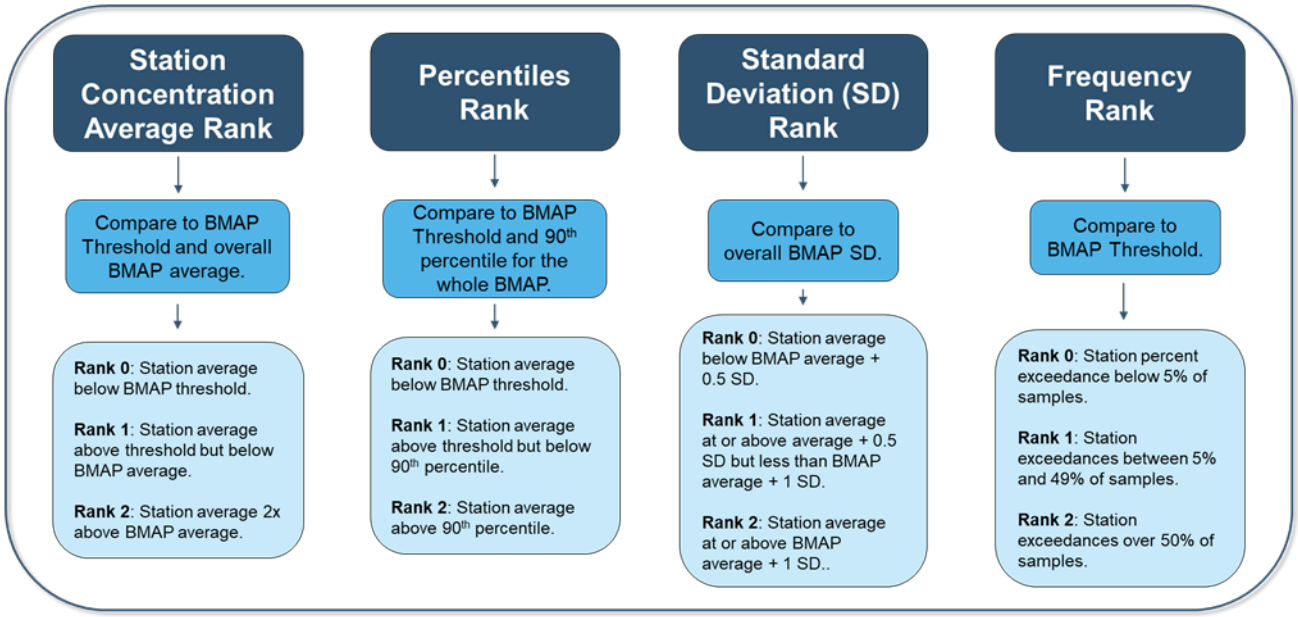

Figure 5. Summary of the hot spot analysis approach

The scores for the four categories are added for a total index rank. The total index rank ranges between 0 and 8, with high rank values (8, 7, and 6) being stations of high concern and low ranks (0, 1, and 2) of least concern. This analysis will be run as needed to identify areas of concern within the BMAP boundary.

Figure 6 and **Figure 7** summarize the most recent TN and TP hot spot analysis results. The period of record used was 2019 to 2023, using ambient monitoring sites with at least four samples per year and at least two years of data.

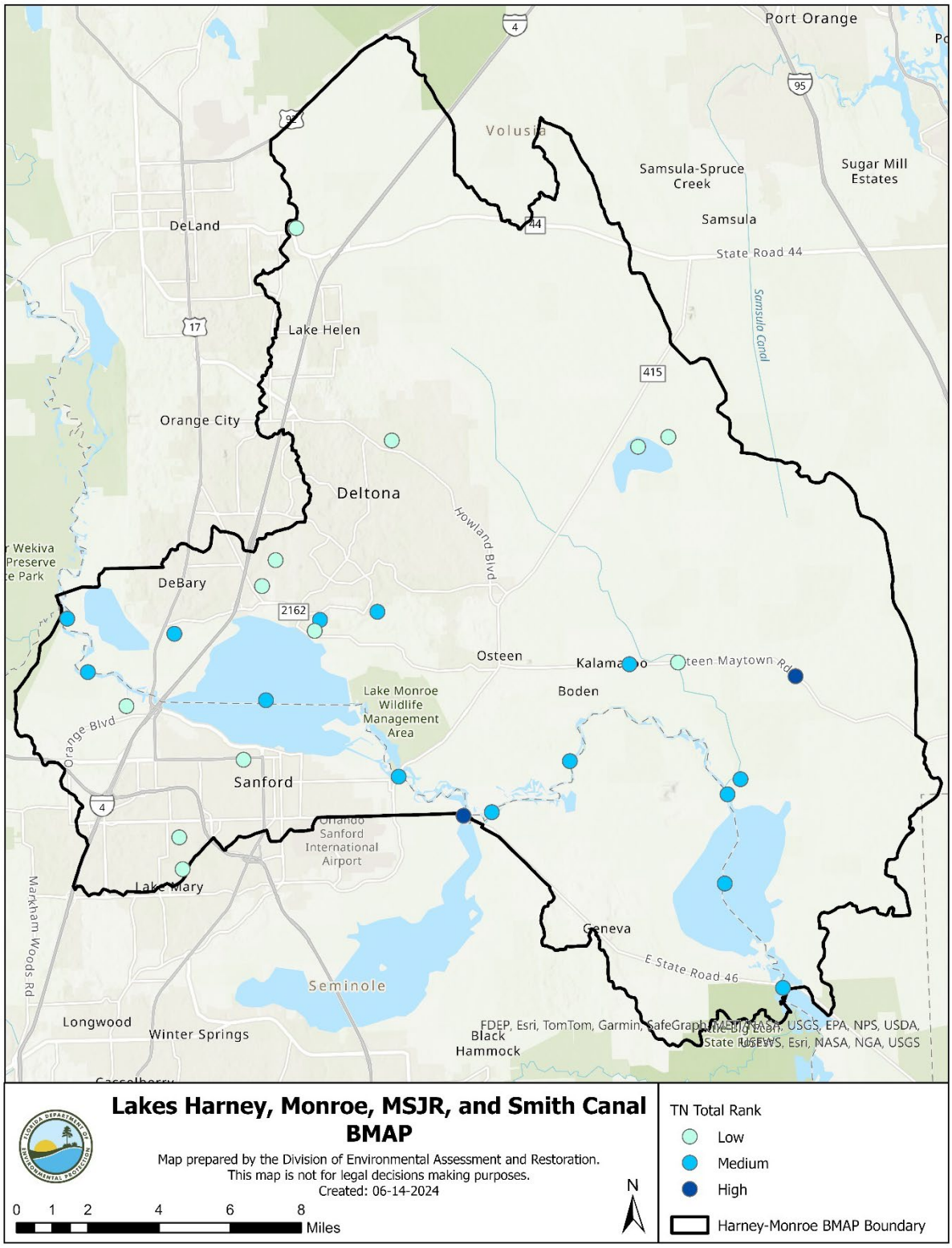

Figure 6. TN hot spot results

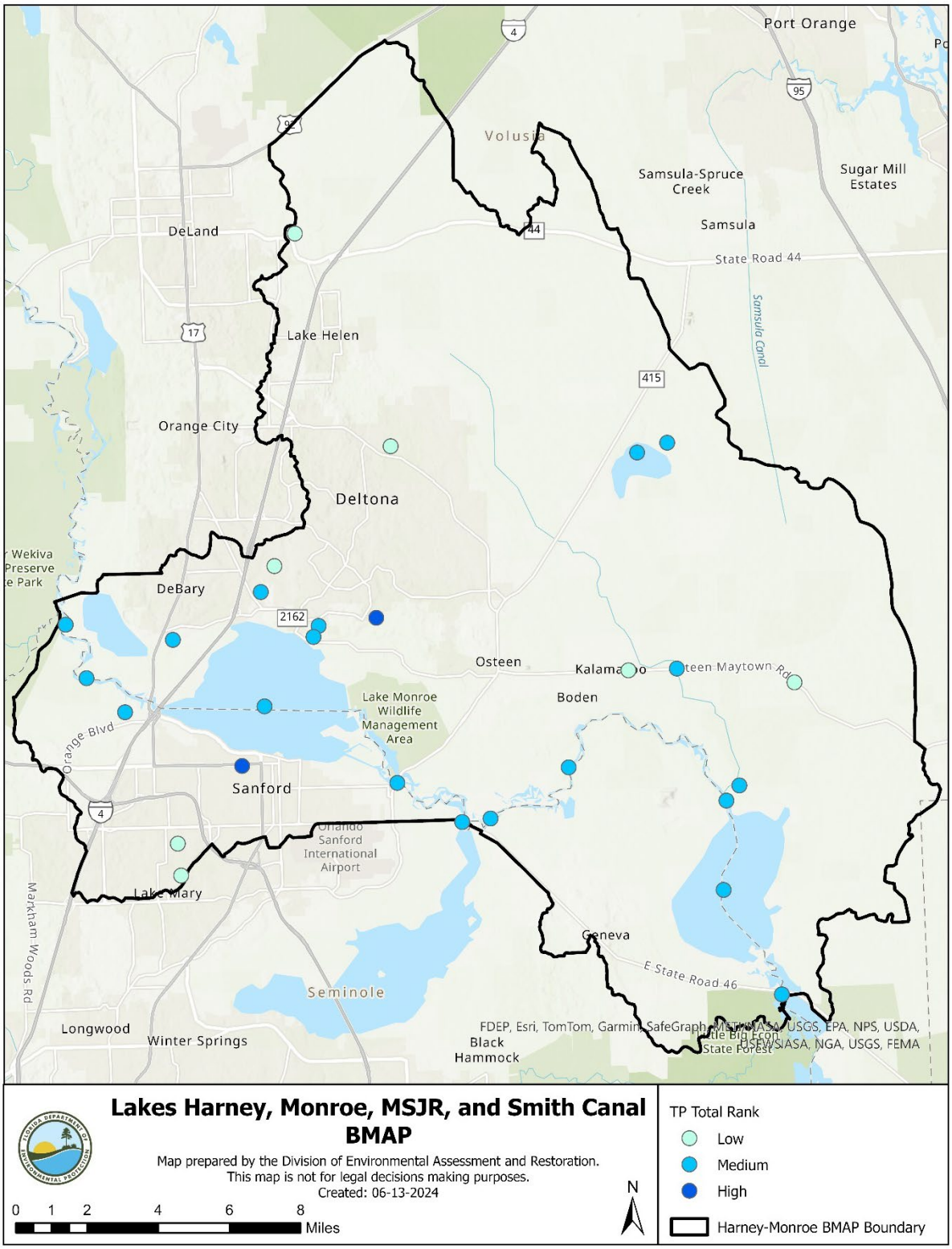

Figure 7. TP hot spot results

Section 6. Commitment to Pan Implementation

6.1. Adoption Process

The 2025 BMAP update is adopted by Secretarial Order and assigns TP and TN load reductions to the responsible stakeholders in the Lake Harney, Lake Monroe, MSJR, and Smith Canal basin.

6.2. Tracking Reductions

The required loading reductions are expected to be met by 2032. Each entity responsible for implementing management actions to meet their upcoming 5-year milestone as part of the BMAP will provide DEP, via the statewide annual report process, with an annual update of progress made in implementing load reductions. The update will track the implementation status of the management actions listed in the BMAP and document additional projects undertaken to further water quality improvements in the basin. FDACS will continue to report acreage enrolled in NOIs at least annually to DEP.

6.3. Revisions to the BMAP

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

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

DEP anticipates that the St. Johns River Basin model will be completed in 2028. After the St. Johns River Basin model is complete, DEP will reevaluate and, if necessary, adopt another iteration of the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP, most likely before 2032. The next iteration may include updated required reductions, timelines and 5-year milestones. Tracking implementation, monitoring water quality and pollutant loads, and holding

periodic meetings to share information and expertise are key components of adaptive management.

Section 7. References

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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/
- Florida Statutes: http://www.leg.state.fl.us/statutes:
    a. Florida Watershed Restoration Act (Section 403.067, 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
- FDACS BMPs: Best Management Practices (BMPs) / Agriculture Industry / Home - Florida Department of Agriculture & Consumer Services
- FDACS BMP and Field Staff Contacts: Agricultural Water Policy / Divisions & Offices / Home - Florida Department of Agriculture & Consumer Services
- FDACS Regional Projects Program: https://www.fdacs.gov/Divisions-offices/Agricultural-Water-Policy.
- Florida Administrative Code (Florida Rules): https://www.flrules.org/
- Florida Stormwater Rule: https://floridadep.gov/water/engineering-hydrology-geology/content/erp-stormwater-resource-center
- National Environmental Laboratory Accreditation Council (NELAC), National Environmental Laboratory Accreditation Program (NELAP): https://floridadep.gov/dear/florida-dep-laboratory/content/nelap-certified-laboratory-search
- SJRWMD 2002 Middle St. Johns River Surface Water Improvement and Management (SWIM) Plan: https://www.sjrwmd.com/static/plans/2002_MSJRB_SWIM_Plan.pdf
- UF–IFAS Research: http://research.ifas.ufl.edu/
- MS4 Permittee list: https://floridadep.gov/water/stormwater/content/stormwater-facilities-lists

Appendix B. Projects to Reduce Nutrient Sources

Table B-1. Stakeholder projects

TBD = To be determined.

Proj ID	Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	Estimated Nitrogen Load Reduction (lbs/yr)	Estimated Phosphorus Load Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
2153	City of DeBary	DB-01	Non-contributing Basin	Non-contributing Basin, not included in the TMDL model.	Non-contributing Basin	Completed	2012	6522	1037	$0.00	City of DeBary	City of DeBary - $0.00
2165	City of DeBary	DB-02	Non-contributing Basin	Non-contributing Basin, not included in the TMDL model.	Non-contributing Basin	Completed	2012	7039	1170	$0.00	City of DeBary	City of DeBary - $0.00
2164	City of DeBary	DB-03	Citywide Fertilizer Ordinance	Reduction of fertilizer application (Ordinance 04-09 and 04-17).	Regulations, Ordinances, and Guidelines	Ongoing	NA	32	5	$0.00	City of DeBary	City of DeBary - $0.00
2163	City of DeBary	DB-04	Public Education and Ordinances	FYN; Irrigation Ordinance; PSAs, website, brochures, and inspection program for illicit discharges.	Education Efforts	Ongoing	NA	317	47	$5,000.00	City of DeBary	City of DeBary - $5,000.00
5244	City of DeBary	DB-05	Citywide Lake Monitoring Program	Quarterly lake monitoring sampling.	Monitoring/Data Collection	Ongoing	NA	0	0	$51,204.00	City of DeBary Stormwater Assessment Fee	City of DeBary Stormwater Assessment Fee - $51,204.00
5245	City of DeBary	DB-06	BMP Clean Out	Clean out of BMPs, an average of 150 cubic yards of material per year collected in the contributing watershed.	BMP Cleanout	Ongoing	NA	225	108	$5,000.00	City of DeBary	City of DeBary - $5,000.00
2179	City of DeLand	DL-01	Education Efforts	FYN Program, irrigation ordinance, fertilizer ordinance, pamphlets, website, illicit discharge program.	Education Efforts	Ongoing	NA	9	1	$0.00	Not provided	Not provided - $0.00
2162	City of Deltona	DEL-01	McGarity Kirkhill Regional	Retrofit project to treat surface water runoff	Wet Detention Pond	Completed	2012	345	92	$1,757,115.00	City of Deltona; DEP	City of Deltona - $679,362.00;

Proj ID	Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	Estimated Nitrogen Load Reduction (lbs/yr)	Estimated Phosphorus Load Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
			Treatment Facility	from a residential area in the city.								DEP - $1,077,753.00
2161	City of Deltona	DEL-02	DRA GC-5	Water quality treatment for a residential area.	On-line Retention BMPs	Completed	2012	26	4	$120,000.00	Community Development Block Grant (CDBG)	Community Development Block Grant (CDBG) - $120,000.00
2160	City of Deltona	DEL-03	Swales	Swales throughout the city.	Bioswales	Completed	2021	4820	729	$2,000,000.00	City of Deltona	City of Deltona - $2,000,000.00
2159	City of Deltona	DEL-04	Lake Gleason Control Structure	Proposed control structure to increase storage in Lake Gleason.	Wet Detention Pond	Completed	2013	672	188	$378,348.00	City of Deltona	City of Deltona - $378,348.00
2184	City of Deltona	DEL-05	Education Efforts	FYN, irrigation ordinance, pet waste ordinance, PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Ongoing	NA	1270	206	$23,000.00	City of Deltona	City of Deltona - $23,000.00
2183	City of Deltona	DEL-06	Catch Basin Maintenance	Catch basin cleanout throughout the city.	Catch Basin Inserts/Inlet Filter Cleanout	Ongoing	NA	19	10	$170,000.00	City of Deltona	City of Deltona - $170,000.00
2182	City of Deltona	DEL-07	Leland Stormwater Lift Station	Stormwater is pumped into Alexander Avenue Water Resources Facility (AAWRF) for treatment. The AAWRF treats up to 4MGD of surface water and stormwater used to augment the Public Access Reuse (PAR) systems for Deltona and Volusia County.	Stormwater Reuse	Completed	2019	441	29	$951,443.00	City of Deltona	City of Deltona - $951,443.00

Proj ID	Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	Estimated Nitrogen Load Reduction (lbs/yr)	Estimated Phosphorus Load Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
2181	City of Deltona	DEL-08	Tivoli/Wheeling Stormwater Lift Station	Stormwater is pumped into Alexander Avenue Water Resources Facility (AAWRF) for treatment. The AAWRF treats up to 4MGD of surface water and stormwater used to augment the Public Access Reuse (PAR) systems for Deltona and Volusia County.	Stormwater Reuse	Completed	2019	631	40	$1,352,028.00	City of Deltona	City of Deltona - $1,352,028.00
2167	City of Deltona	DEL-09	Brickell Stormwater Management System	Treatment of stormwater flow from a major outfall, prior to discharge to Lake Monroe. The existing flow will be diverted through a natural wetland, for filtering, and pond to a set elevation before flowing over a weir to existing outfall.	BMP Treatment Train	Completed	2018	186	73	$629,807.00	City of Deltona; DEP	City of Deltona - $299,388.00; DEP - $330,419.00
5246	City of Deltona	DEL-10	Alexander Avenue Water Resource Facility (AAWRF) Improvements	Stormwater is pumped into Alexander Avenue Water Resources Facility (AAWRF) for treatment. The AAWRF treats up to 4MGD of surface water and stormwater used to augment the Public Access Reuse (PAR) systems for Deltona and Volusia County.	Stormwater Reuse	Completed	2018	TBD	TBD	$10,601,494.00	SJRWMD; DEP (SRF)	DEP (SRF) - $5,722,494.00; SJRWMD - $4,879,000.00

Proj ID	Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	Estimated Nitrogen Load Reduction (lbs/yr)	Estimated Phosphorus Load Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
5247	City of Deltona	DEL-11	DRA GC4	Water quality treatment for a residential basin within the BMAP area.	On-line Retention BMPs	Planned	2027	79.2	11	$400,000.00	City of Deltona	City of Deltona - $400,000.00
5248	City of Deltona	DEL-12	DRA GC7	Water quality treatment for a residential basin within the BMAP area.	On-line Retention BMPs	Planned	2027	13.2	4.4	$450,000.00	City of Deltona	City of Deltona - $450,000.00
5249	City of Deltona	DEL-13	Norwood Stormwater Lift Station (Future)	Stormwater is pumped into Alexander Avenue Water Resources Facility (AAWRF) for treatment. The AAWRF treats up to 4MGD of surface water and stormwater used to augment the Public Access Reuse (PAR) systems for Deltona and Volusia County.	Stormwater Reuse	Planned	2028	TBD	TBD	$350,000.00	City of Deltona	City of Deltona - $350,000.00
2198	City of Lake Helen	LH-01	Education Efforts	Irrigation ordinance, pet waste ordinance, pamphlets, website.	Education Efforts	Ongoing	NA	31	4	$0.00	Not provided	Not provided - $0.00
4383	City of Lake Helen	LH-02	Main Street Exfiltration	Retrofit project to treat runoff from the Main Street drainage basin prior to discharging to Lake Helen.	Exfiltration Trench	Completed	Prior to 2018	TBD	TBD	$0.00	Not provided	Not provided - $0.00
4384	City of Lake Helen	LH-03	Connecticut Avenue Exfiltration	Retrofit project to treat runoff from the Connecticut Avenue drainage basin prior to discharging to Lake Helen.	Exfiltration Trench	Completed	Prior to 2018	TBD	TBD	$0.00	Not provided	Not provided - $0.00
4385	City of Lake Helen	LH-04	Tangerine Avenue Bioswale	Retrofit project to treat runoff from the Tangerine drainage basin prior to	Bioswales	Completed	2020	TBD	TBD	$40,000.00	City of Lake Helen	City of Lake Helen - $0.00

Proj ID	Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	Estimated Nitrogen Load Reduction (lbs/yr)	Estimated Phosphorus Load Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
				discharging to Lake Helen.								
2199	City of Lake Mary	LM-01	Education Efforts	FYN, landscape ordinance, irrigation ordinance, pet waste ordinance, PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Ongoing	NA	362	52	$0.00	City of Lake Mary Stormwater Fund	City of Lake Mary Stormwater Fund - $5,500.00
2200	City of Lake Mary	LM-02	Street Sweeping	Sweeping of 53.58 curb miles per year.	Street Sweeping	Ongoing	NA	10	6	$0.00	City of Lake Mary Stormwater Fund	City of Lake Mary Stormwater Fund - $13,000.00
7308	City of Lake Mary	LM-03	Old Lake Mary Rd Septic-to-Sewer	Septic-to-sewer.	OSTDS Phase Out	Planned	TBD	928.06	0	$0.00	NA	NA - $0.00
7310	City of Lake Mary	LM-04	N. Country Club Rd Septic-to-Sewer	Septic-to-sewer.	OSTDS Phase Out	Planned	TBD	957.99	0	$0.00	NA	NA - $0.00
7311	City of Lake Mary	LM-05	Crystal Ridge Rd Septic-to-Sewer	Septic-to-sewer.	OSTDS Phase Out	Planned	TBD	838.24	0	$0.00	NA	NA - $0.00
2201	City of Orange City	OC-01	Education Efforts	Irrigation ordinance, pamphlets, website, illicit discharge program, kiosk, Orange City newsletter, FYN.	Education Efforts	Ongoing	NA	6	1	$0.00	Orange City	Orange City - $0.00
5252	City of Orange City	OC-02	Stormwater Inlet Cleaning and Maintenance	Municipal operation pollution prevention and good housekeeping which occurs annually.	BMP Cleanout	Ongoing	NA	7	3	$20,000.00	Orange City	Orange City - $18,286.00
2202	City of Sanford	S-01	Cloud Branch Phase I	Drainage/water quality improvements.	Wet Detention Pond	Completed	2007	647	174	$3,491,375.00	City; Stormwater Utility; DEP SRF	City - $0.00; Stormwater Utility - $0.00; DEP SRF - $0.00

Proj ID	Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	Estimated Nitrogen Load Reduction (lbs/yr)	Estimated Phosphorus Load Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
2217	City of Sanford	S-02	Cloud Branch Phase II	Drainage/water quality improvements.	Wet Detention Pond	Completed	2007	1390	406	$3,072,693.00	City; Stormwater Utility; DEP SRF	City - $0.00; Stormwater Utility - $0.00; DEP SRF - $0.00
2204	City of Sanford	S-03	Street Sweeping	Street sweeping throughout the city.	Street Sweeping	Ongoing	NA	8866	3993	$0.00	City; Stormwater Utility	City - $0.00; Stormwater Utility - $0.00
2192	City of Sanford	S-04	Education Efforts	FYN, landscaping ordinance, irrigation ordinance, PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Ongoing	NA	2070	324	$0.00	City; Stormwater Utility	City - $0.00; Stormwater Utility - $0.00
2206	City of Sanford	S-05	Sanford Avenue Baffle Box	2nd generation baffle box.	Baffle Boxes-Second Generation	Completed	2015	6	1	$2,400,000.00	City; Storwmater Utility; Community Redevelopment Agency (CRA)	City - $0.00; Storwmater Utility - $0.00; Community Redevelopment Agency (CRA) - $0.00
2207	City of Sanford	S-06	Mill Creek Wet Detention Pond	Wet detention pond.	Wet Detention Pond	Completed	2004	1466	434	$2,085,959.00	City; Stormwater Utility; DEP SRF	City - $0.00; Stormwater Utility - $0.00; DEP SRF - $0.00
2208	City of Sanford	S-07	Baffle Boxes on 2nd St.	1st generation baffle boxes. BMP Missing from Model.	BMP Missing from Model	Completed	Prior to 2012	9	7	$1,891,082.00	City; Stormwater Utility; DEP SRF; Community Development Block Grant (CDBG)	City - $0.00; Stormwater Utility - $0.00; DEP SRF - $0.00; Community Development Block Grant (CDBG) - $0.00

Proj ID	Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	Estimated Nitrogen Load Reduction (lbs/yr)	Estimated Phosphorus Load Reduction (lbs/yr)	Cost Estimate	Funding Source	Funding Amount
2209	City of Sanford	S-08	WWTP Reclaimed Water Nutrient Reduction	Upgrade to WWTP treatment process that will reduce the concentration of TN from 20mg/L to 4 mg/L and TP from 4mg/L to 1 mg/L in the reclaimed water; 0.376 MGD to Lake Monroe directly. DEP Agreement Numbers WG590131 and WG101.	WWTF Nutrient Reduction	Underway	2028	TBD	TBD	$24,395,032.00	City; DEP SRF	City - $0.00; DEP SRF - $0.00
2177	FDACS	FDACS-02	Reductions Area	Reductions from non-contributing area.	Non-contributing Basin	Completed	2012	1417	241	$0.00	NA	NA - $0.00
2191	FDACS	FDACS-01	Credit for Changes in Land Use	Credit for changes in land use.	Land Use Change	Completed	2012	15043	2953	$0.00	NA	NA - $0.00
4834	FDACS	FDACS-03e	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Acres treated based on FDACS June 2024 Enrollment and FSAID XI. Reductions based on FDACS June 2024 Enrollment and HSPF model.	Agricultural BMPs	Ongoing	NA	4762	1096	$0.00	FDACS	FDACS - $0.00
TBD	FDACS	FDACS-04a	Cost-Share BMP Projects	Cost-share projects paid for by FDACS. Project treatment areas and reductions based on FDACS June 2024 Enrollment and HAMO model provided by DEP.	Agricultural BMPs	Ongoing	NA	113	17	$0.00	FDACS	FDACS - $0.00

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2172	FDOT District 5	FDOT-01	79070-3547-02 (Pond pond 2)	Wet detention pond.	Wet Detention Pond	Completed	2007	20	2	$0.00	Florida Legislature	Florida Legislature - $0.00
2171	FDOT District 5	FDOT-02	79070-3547-03 (Pond pond 3)	Wet detention pond.	Wet Detention Pond	Completed	2007	12	1	$0.00	Florida Legislature	Florida Legislature - $0.00
2170	FDOT District 5	FDOT-03	79070-3547-04 (Pond pond 4)	Wet detention pond.	Wet Detention Pond	Completed	2007	16	1	$0.00	Florida Legislature	Florida Legislature - $0.00
2169	FDOT District 5	FDOT-04	79070-3547-06 (Pond pond 6)	Wet detention pond.	Wet Detention Pond	Completed	2007	14	1	$0.00	Florida Legislature	Florida Legislature - $0.00
2168	FDOT District 5	FDOT-05	79070-3546-03 (Pond pond 9)	Wet detention pond.	Wet Detention Pond	Completed	2007	13	9	$0.00	Florida Legislature	Florida Legislature - $0.00
2185	FDOT District 5	FDOT-06	79070-3546-02 (Pond pond 8)	Wet detention pond.	Wet Detention Pond	Completed	2007	25	6	$0.00	Florida Legislature	Florida Legislature - $0.00
2186	FDOT District 5	FDOT-07	79070-3547-05 (Pond pond 5)	Wet detention pond.	Wet Detention Pond	Completed	2007	25	3	$0.00	Florida Legislature	Florida Legislature - $0.00
2187	FDOT District 5	FDOT-08	79070-3546-01 (Pond pond 7)	Wet detention pond.	Wet Detention Pond	Completed	2007	20	1	$0.00	Florida Legislature	Florida Legislature - $0.00
2188	FDOT District 5	FDOT-09	79070-3546-04 (Pond pond 10)	Wet detention pond.	Wet Detention Pond	Completed	2007	4	3	$0.00	Florida Legislature	Florida Legislature - $0.00
2189	FDOT District 5	FDOT-10	79110-xxx3-08 (Pond 4)	FM 408463-1 wet detention pond.	Wet Detention Pond	Completed	2008	8	2	$0.00	Florida Legislature	Florida Legislature - $0.00
2155	FDOT District 5	FDOT-11	79110-xxx (Pond 5)	Wet detention pond.	Wet Detention Pond	Completed	2008	27	6	$0.00	Florida Legislature	Florida Legislature - $0.00
2180	FDOT District 5	FDOT-12	79110-xxx (Pond 6)	Wet detention pond.	Wet Detention Pond	Completed	2008	14	3	$0.00	Florida Legislature	Florida Legislature - $0.00

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2178	FDOT District 5	FDOT-13	79110-xxx (Pond 7)	Wet detention pond.	Wet Detention Pond	Completed	2008	38	8	$0.00	Florida Legislature	Florida Legislature - $0.00
2144	FDOT District 5	FDOT-14	79110-xxx4-01 (Pond 1 and 1A)	Wet detention pond 1 and 1A.	Wet Detention Pond	Completed	2012	54	11	$0.00	Florida Legislature	Florida Legislature - $0.00
2145	FDOT District 5	FDOT-14b	79110-xxx4-02 (Pond 1A)	Wet detention pond. Credits included in FDOT-14.	Wet Detention Pond	Completed	2012	0	0	$0.00	Florida Legislature	Florida Legislature - $0.00
2146	FDOT District 5	FDOT-15	79110-xxx4-03 (Pond 2 and 2A)	Wet detention pond 2 and 2A.	Wet Detention Pond	Completed	2012	65	13	$0.00	Florida Legislature	Florida Legislature - $0.00
2147	FDOT District 5	FDOT-15b	79110-xxx4-04 (Pond 2A)	Dry detention pond. Credits included in FDOT-15.	Dry Detention Pond	Completed	2012	0	0	$0.00	Florida Legislature	Florida Legislature - $0.00
2148	FDOT District 5	FDOT-16	79110-xxx4-05 (Pond 14)	Wet detention pond.	Wet Detention Pond	Completed	2012	44	8	$0.00	Florida Legislature	Florida Legislature - $0.00
2149	FDOT District 5	FDOT-17	SR 415 - Missing from Model	Grass swales without swale blocks or raised culverts.	BMP Missing from Model	Completed	2012	90	28	$0.00	Florida Legislature	Florida Legislature - $0.00
2150	FDOT District 5	FDOT-18	SR 44 - Missing from Model	Grass swales without swale blocks or raised culverts.	BMP Missing from Model	Completed	2012	34	10	$0.00	Florida Legislature	Florida Legislature - $0.00
2151	FDOT District 5	FDOT-19	SR 46 - Missing from Model	Grass swales without swale blocks or raised culverts.	BMP Missing from Model	Completed	2012	33	7	$0.00	Florida Legislature	Florida Legislature - $0.00
2152	FDOT District 5	FDOT-20	77160-3404-02 (Pond 1-NW)	On-line retention BMPs.	On-line Retention BMPs	Completed	2004	94	13	$0.00	Florida Legislature	Florida Legislature - $0.00
2166	FDOT District 5	FDOT-21	77160-3404-06 (Pond pond 4-11)	Wet detention pond.	Wet Detention Pond	Completed	2004	102	24	$0.00	Florida Legislature	Florida Legislature - $0.00
2154	FDOT District 5	FDOT-22	77160-3404-05 (Pond pond 4-1)	Wet detention pond.	Wet Detention Pond	Completed	2004	45	12	$0.00	Florida Legislature	Florida Legislature - $0.00

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2143	FDOT District 5	FDOT-23	77160-3404-07 (Pond 5)	Wet detention pond.	Wet Detention Pond	Completed	2004	47	9	$0.00	Florida Legislature	Florida Legislature - $0.00
2215	FDOT District 5	FDOT-24	77160 3436 (pond A, A-1)	Wet detention pond.	Wet Detention Pond	Completed	2012	148	20	$0.00	Florida Legislature	Florida Legislature - $0.00
2156	FDOT District 5	FDOT-25	77160-3439-01 (Pond 1)	Wet detention pond.	Wet Detention Pond	Completed	2010	7	1	$0.00	Florida Legislature	Florida Legislature - $0.00
2190	FDOT District 5	FDOT-26	FM 242702 79110-3403-04 & 05 (Pond QQ3 & QQ-5)	Wet detention pond.	Wet Detention Pond	Completed	2004	56	12	$0.00	Florida Legislature	Florida Legislature - $0.00
2157	FDOT District 5	FDOT-26b	FM 242702 79110-3403-04 & 05 (Pond QQ3 & QQ-5)	Wet detention pond. Credits included in FDOT-26.	Wet Detention Pond	Completed	2004	0	0	$0.00	Florida Legislature	Florida Legislature - $0.00
2158	FDOT District 5	FDOT-27	FM 242702 79110-3403-06 (RR-3)	Wet detention pond.	Wet Detention Pond	Completed	2004	68	17	$0.00	Florida Legislature	Florida Legislature - $0.00
2220	FDOT District 5	FDOT-28	FM 242702 79110-3403-07 (Pond SS-2)	Wet detention pond.	Wet Detention Pond	Completed	2006	92	26	$0.00	Florida Legislature	Florida Legislature - $0.00
2230	FDOT District 5	FDOT-29	FM 242702 Roadside Swale	Grass swales without swale blocks or raised culverts.	Grass swales without swale blocks or raised culverts	Completed	2004	94	14	$0.00	Florida Legislature	Florida Legislature - $0.00
2222	FDOT District 5	FDOT-30	FM 242702 Roadside Swale	Grass swales without swale blocks or raised culverts.	Grass swales without swale blocks or raised culverts	Completed	2006	40	6	$0.00	Florida Legislature	Florida Legislature - $0.00
2218	FDOT District 5	FDOT-31	SR 415 - Missing from Model	Grass swales without swale blocks or raised culverts.	BMP Missing from Model	Completed	2012	39	8	$0.00	Florida Legislature	Florida Legislature - $0.00
2233	FDOT District 5	FDOT-32	Education Efforts	Education efforts.	Education Efforts	Ongoing	NA	101	13	$0.00	Florida Legislature	Florida Legislature - $0.00

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2237	FDOT District 5	FDOT-33	Street Sweeping	Street sweeping.	Street Sweeping	Ongoing	NA	410	263	$0.00	Florida Legislature	Florida Legislature - $0.00
2223	FDOT District 5	FDOT-34	Noncontributing Area in DeBary	Noncontributing area in DeBary.	Non-contributing Basin	Completed	2012	195	28	$0.00	Florida Legislature	Florida Legislature - $0.00
2219	FDOT District 5	FDOT-35	Noncontributing Area in Volusia County	Noncontributing area in Volusia County.	Non-contributing Basin	Completed	2012	118	19	$0.00	Florida Legislature	Florida Legislature - $0.00
2193	FDOT District 5	FDOT-36	SR 415 - Pond A (built under 407355-1)	Wet detention pond.	Wet Detention Pond	Completed	2016	7	2	$0.00	Florida Legislature	Florida Legislature - $0.00
2142	FDOT District 5	FDOT-37	FM: 407355-3 SR 415 - Pond B	Wet detention pond.	Wet Detention Pond	Completed	2016	8	1	$0.00	Florida Legislature	Florida Legislature - $0.00
2194	FDOT District 5	FDOT-38	SR 415 - Exfiltration Trench	Exfiltration trench.	On-line Retention BMPs	Completed	2016	12	0	$0.00	Florida Legislature	Florida Legislature - $0.00
2195	FDOT District 5	FDOT-39	FM: 407355-3 SR 415 - Pond H (in database as Pond 1)	Wet detention pond.	Wet Detention Pond	Completed	2016	10	2	$0.00	Florida Legislature	Florida Legislature - $0.00
2205	FDOT District 5	FDOT-40	FM: 240216-2 SR 46 - Pond 1 (possibly modified and built by others)	Wet detention pond.	Wet Detention Pond	Completed	2019	26	6	$0.00	Florida Legislature	Florida Legislature - $0.00
2196	FDOT District 5	FDOT-41	Fertilizer Cessation	Elimination of fertilizer use along state highway system. Removal of TN & TP loading.	Fertilizer Cessation	Completed	2016	712	0	$0.00	Florida Legislature	Florida Legislature - $0.00
2221	FDOT District 5	FDOT-42	FM: 408464 SR 400 Widening (from SR 44 to East of I-95)	Basin B Pond B.	Wet Detention Pond	Completed	2016	52	1	$0.00	Florida Legislature	Florida Legislature - $0.00

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2197	FDOT District 5	FDOT-43	FM: 408464 SR 400 Widening (from SR 44 to East of I-95)	Basin E Pond E.	Wet Detention Pond	Completed	2016	59	1	$0.00	Florida Legislature	Florida Legislature - $0.00
5251	FDOT District 5	FDOT-44	FM: 240200-3-52-01	SR 46 (Wekiva Parkway) from Orange Blvd. to N. Oregon St./Wayside Dr.	Wet Detention Pond	Completed	2022	18	7	$0.00	Florida Legislature	Florida Legislature - $0.00
5702	FDOT District 5	FDOT-45	FM: 240200-3-52-01	Wet Detention Pond 6.	Wet Detention Pond	Completed	2022	13	4	$0.00	Florida Legislature	Florida Legislature - $0.00
2203	Seminole County	SC-01	Club II RSF	RSF to collect and treat stormwater runoff.	Wet Detention Pond	Completed	2007	1333	396	$2,334,682.00	DEP	DEP - $1,072,586.00
2210	Seminole County	SC-02	Midway/IFAS RSF	RSF to collect and treat stormwater runoff.	Wet Detention Pond	Completed	2009	408	118	$3,790,800.00	FDOT; SJRWMD	FDOT - $1,966,472.00; SJRWMD - $1,781,970.00
2216	Seminole County	SC-03	Elder RSF	RSF to collect and treat stormwater runoff.	Wet Detention Pond	Completed	2007	519	134	$3,884,496.00	NA	NA - $0.00
2214	Seminole County	SC-04	Lockhart RSF	RSF to collect and treat stormwater runoff.	Wet Detention Pond	Completed	2007	3201	840	$3,618,749.00	DEP	DEP - $2,738,755.00
2213	Seminole County	SC-05	Street Sweeping	Street sweeping throughout the county.	Street Sweeping	Ongoing	NA	300	135	$0.00	NA	NA - $0.00
2212	Seminole County	SC-06	Education Efforts	FYN, landscaping ordinance, irrigation ordinance, pet waste ordinance, PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Ongoing	NA	1876	282	$0.00	City Partners	City Partners - $28,000.00
2211	Seminole County	SC-07	Seminole County Fertilizer Ordinance	Reduction of Nitrogen and Phosphorus sources, through public education and restrictions on usage.	Regulations, Ordinances, and Guidelines	Ongoing	NA	TBD	TBD	$150,000.00	County; City; DEP	County - $37,000.00; City - $28,000.00; DEP - $100,000.00

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2232	Seminole County	SC-08	Midway Phase II, Ditch Diversion	Addition of a ditch bottom inlet and regrading to route untreated runoff into Pond 4 of the existing RSF.	Wet Detention Pond	Completed	2016	175	35	$59,300.00	NA	NA - $0.00
5703	Seminole County	SC-09	Seminole County Fertilizer Ordinance - Commercial Education Campaign	Reduction of nitrogen and phosphorus sources education campaign focused on commercial retailers.	Regulations, Ordinances, and Guidelines	Completed	2023	TBD	TBD	$150,000.00	DEP	DEP - $90,000.00
5704	Seminole County	SC-10	Pine Lake Diversion Box	Diversion box installed at Lakeview Dr. at Pine Lake.	Hydrodynamic Separators	Completed	2021	0	0	$115,000.00	TBD	TBD - $0.00
6714	Seminole County	SC-11	Lockhart Smith Canal Stabilization	Stream bank stabilization efforts along sections of Lockhart Smith Canal.	Shoreline Stabilization	Underway	2024	TBD	TBD	$900,000.00	TBD	TBD - $0.00
7024	Seminole County	SC-12	Midway Drainage Improvements	Drainage improvement project consisting of grading of swales and ditches, construction of storm drainage and stormwater management facilities. Expansion of existing wet detention pond.	Stormwater System Upgrade	Planned	2026	TBD	TBD	$10,766,965.00	Resilient Florida; American Rescue Plan Act Local Fiscal Recovery Funds	Resilient Florida - $0.00; American Rescue Plan Act Local Fiscal Recovery Funds - $0.00
2229	Turnpike Enterprise	T-01	Street Sweeping	SR 417 MM 51-55; 16 CM Mainline per cycle; 6 CM Ramps per cycle; 24 Total Curb Miles per month or 288 Curb Miles per year. Approximately 93,312	Street Sweeping	Ongoing	NA	1	0	$0.00	NA	NA - $0.00

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				lbs or 42,325.61 Kg of dry material.								
2234	Turnpike Enterprise	TP-02	Education Efforts	No fertilizer on right-of-ways, illicit discharge training.	Education Efforts	Ongoing	NA	TBD	TBD	$0.00	NA	NA - $0.00
2235	Volusia County	VC-01	Education and Outreach	Education efforts.	Education Efforts	Ongoing	NA	1392	201	$0.00	Not provided	Not provided - $0.00
2236	Volusia County	VC-02	Street Sweeping	Street sweeping.	Street Sweeping	Ongoing	NA	3130	2007	$0.00	Not provided	Not provided - $0.00
2231	Volusia County	VC-03	Lemon Bluff Road	Grass swales without swale blocks or raised culverts.	Grass swales without swale blocks or raised culverts	Completed	2011	7	1	$145,000.00	Not provided	Not provided - $0.00
2228	Volusia County	VC-04	Lemon Bluff Road Ramp	Grass swales without swale blocks or raised culverts.	Grass swales without swale blocks or raised culverts	Completed	2011	1	0	$55,550.00	Not provided	Not provided - $0.00
2227	Volusia County	VC-05	DeBary Avenue Expansion	DeBary Avenue - Doyle Road expansion.	Wet Detention Pond	Completed	2012	41	10	$0.00	Not provided	Not provided - $0.00
2226	Volusia County	VC-06	Lake Winnemissett Non-contributing Basin	Non-contributing Basin, not included in the TMDL model.	Non-contributing Basin	Completed	Prior to 2012	658	94	$0.00	NA	NA - $0.00
2225	Volusia County	VC-07	Roadside Ditch Cleaning	Ongoing roadside ditch cleaning throughout county.	BMP Cleanout	Ongoing	NA	905	556	$0.00	Not provided	Not provided - $0.00
2224	Volusia County	VC-08	Gemini Springs Baffle Boxes	Installation of two baffle boxes.	Baffle Boxes-Second Generation	Completed	2018	850	135	$381,900.00	DEP; SJRWMD	DEP - $95,000.00; SJRWMD - $95,000.00
5253	Volusia County	VC-09	Fertilizer Ordinance	Fertilizer restrictions including summer ban on nitrogen and phosphorus.	Regulations, Ordinances, and Guidelines	Ongoing	NA	TBD	0	$0.00	Volusia County General Fund	Volusia County General Fund - $0.00

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5254	Volusia County	VC-10	Thornby Park Improvement Project	Installation of baffle boxes and upflow filtration system.	Baffle Boxes-Second Generation	Completed	2020	TBD	TBD	$476,354.00	VC; SJRWMD	VC - $0.00; SJRWMD - $0.00
5705	Volusia County	VC-11	Gemini Springs Baffle Boxes	Installation of two baffle boxes.	Baffle Boxes-Second Generation	Completed	2018	231	28	$381,900.00	DEP; SJRWMD	DEP - $95,000.00; SJRWMD - $95,000.00
5706	Volusia County	VC-12	Lake Sidney/Diane	Outfall water quality improvements.	Regional Stormwater Treatment	Planned	TBD	TBD	TBD	$0.00	VC Stormwater Utility	VC Stormwater Utility - $0.00
7131	Volusia County	VC-13	Advanced Wastewater Treatment Expansion for the Protection of Lakes Harney, Monroe, and MSJR	To accommodate OSTDS remediation within Volusia Blue, Gemini Springs, Lakes Harney, Monroe, and MSJR. This project is currently in design to (1) expand treatment capacity from 2.7 to 4.5 MGD, and (2) increase reclaimed storage capacity from 4.5 to 9.5 MG.	WWTF Upgrade	Underway	2026	0	0	$77,244,996.00	SJRWMD; Volusia County; DEP	SJRWMD - $1,749,596.00; Volusia County - $34,670,400.00; DEP - $40,825,000.00
7133	Volusia County	VC-14	Lakes Harney, Monroe, and Middle St. Johns River Septic to Sewer Master Plan and Phase 1 Design	Master plan for three OSTDS retrofit project areas and design for the first retrofit project area. The master plan to address approximately 2,300 OSTDS phase-out and design for first retrofit of appx 750 OSTDS within Gemini Springs PFA.	OSTDS Phase Out	Underway	2026	TBD	TBD	$2,800,000.00	Volusia County; DEP	Volusia County - $1,400,000.00; DEP - $1,400,000.00

Appendix C. Planning for Additional Management Strategies

If any lead entity's management strategies list falls short of meeting their next 5-year milestone reductions, additional projects and management strategies are required. These entities must submit a sufficient list of projects and management strategies to DEP by January 14, 2026, to be compliant with the upcoming BMAP milestone or be subject to further DEP enforcement.

To remain in compliance with the BMAP until January 14, 2026, responsible entities with project deficits must catalog their efforts to identify management strategies to meet their milestone reduction requirements. These planning efforts are ineligible for BMAP credit themselves but are necessary to demonstrate that additional eligible management actions will be forthcoming and BMAP compliance will be achieved. Examples of project identification efforts include:

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

Appendix D: Wastewater Facilities

DEP has determined that certain WWTFs providing reclaimed water for the purpose of commercial or residential irrigation or that is otherwise being land applied within this BMAP area are causing or contributing to the nutrient impairments being addressed in this BMAP. Based on DEP's determination, the facilities listed below are subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S.

These facilities have 10 years from BMAP adoption to meet the applicable AWT standards. This requirement does not prevent the department from requiring an alternative treatment standard, if the department determines the alternative standard is necessary to achieve the TMDL(s) or applicable water quality criteria.

For facilities that did not have adequate information to complete an evaluation or where a change occurs to the facility's application of reclaimed water after the initial evaluation (e.g., an increase in facility capacity or change in location of reclaimed water application), the department will evaluate the land application of reclaimed water as more information becomes available pursuant to section 403.086, F.S.

Table D-1. Wastewater facilities subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S.

Facility Name	Permit Number
FL0020141	City of Sanford - North WWTF
FLA042625	Seminole County - Yankee Lake WWTF
FLA111724	Deltona Lakes
FLA709883	Deltona Eastern
FLA011121	VC/Southwest WWTF-2

Appendix E: Golf Course NMPs

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

1. **Golf Course BMP Certification, Implementation, and Reporting.**
   a. In areas with an adopted BMAP, all golf courses must implement the BMPs described in DEP's golf course BMP manual, *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses* (DEP, 2021).
   b. At minimum, the superintendent for each golf course must obtain and maintain certification through the UF-IFAS Florida Golf Courses Best Management Practices Program. It is highly recommended that course managers and landscape maintenance staff also participate in the certification program to ensure proper BMP implementation and understanding of nutrient-related water quality issues and the role of golf courses in water quality restoration and protection. By no later than January 14, 2026, the golf course superintendents must confirm to DEP whether they have completed the certification. Certification must be completed by December 31, 2026. This certification must be renewed every four years.
   c. Beginning in 2026 a nutrient application record (fertilizer, reuse, etc.) must be submitted each year during the BMAP statewide annual reporting process.
   d. Fertilizer rates should be no greater than the UF/IFAS recommendations to help prevent leaching. This includes nutrients from reuse or any other source applied. If a facility uses fertilizer rates greater than those in the BMP manual they are required to conduct water quality monitoring prescribed by DEP or WMD that demonstrates compliance with water quality standards (**Table E-1**).
   e. Example golf course BMPs applicable to protecting water quality are listed below.
      - Use slow release fertilizer to prevent volatilization.
      - Use of lined media in stormwater features.
      - Use of denitrification walls.
      - Use of rain gardens.
      - Use of tree boxes.
      - Use of bioswales.

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

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

Nutrient	Bermudagrass (%)	St. Augustinegrass (%)	Seashore Paspalum (%)	Centipedegrass (%)	Zoysia (%)
N	1.95 - 4.63	1.53 - 2.41	2.80 -3.50	1.5 - 2.9	2.04 - 2.36

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

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

   This should be a paragraph that describes the goals of your NMP. Talk about how you are managing for high quality turf and water quality. Remember your goal is to protect water quality while maintaining the golf course in premium condition.

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

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

   Include a GIS shapefile identifying all of these areas.

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

Turf Details

Turf Type	Turf Species	Acreage
Tees		
Greens		
Fairways		
Roughs		
Totals		

Fertilizer Applications

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

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

Amount of Reuse/Reclaimed Water Applied

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

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

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

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

1. Nitrogen
2. Phosphorus

Describe existing soil sampling here. Describe what your planned soil sampling schedule looks like. Have you been soil testing for years already? Please describe. If you are just getting started with soil testing the course, you can discuss that. What parts of the course are priority?

If soil samples from areas of similar soil, fertilizer use and management are combined, then describe that process and justify why you feel they are similar enough to combine into a "representative" sample. That's fine, just describe why.

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

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

1. Nitrogen
2. Phosphorus.

Describe your existing water quality sampling here. Describe what your planned water quality sampling schedule looks like. Have you been sampling for years already? If you are just getting started with soil testing the course, you can discuss that. What parts of the course are priority?

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

e. ***Tissue sampling methods and results. Tissue samples shall be collected and analyzed according to UF-IFAS/DEP recommendations or standard industry practice.***
Describe existing tissue sampling plan here. Keep all test results (or copies of them) in this file as part of your nutrient management plan. Please do not send them in to DEP

individually. If you've been testing for years, remember to add copies of all those past results to your NMP file.

f. ***Soil, tissue and water quality sample results shall be maintained for a minimum of 5 years. Please provide records.***

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

Appendix F: Agricultural Enrollment and Reductions

FDACS provides the information for this appendix for each BMAP. The information in this appendix does not represent DEP's position.

Agricultural Landowner Requirements

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

FDACS OAWP BMP Program

BMPs Definition

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

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

Enrolling in a FDACS BMP Program

To initially enroll in the FDACS BMP Program, agricultural landowners and producers must meet with an FDACS representative on site to determine the appropriate practices that are

applicable to their operation(s) and to document the BMPs on the Notice of Intent (NOI) and BMP Checklist. FDACS representatives consider site-specific factors when determining the applicability of BMPs including commodity type, topography, geology, location of production, soil type, field size, and type and sensitivity of the ecological resources in the surrounding areas. Producers collaborate with the FDACS representative to complete an NOI to implement the BMPs and the BMP Checklist from the applicable BMP manual.

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

Enrollment Prioritization

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

Implementation Verification

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

Nutrient Application Records

Enrolled landowners and producers are required to keep records on the total pounds of nitrogen (N) and phosphorus (P) fertilizer from all sources that are applied to their operations to comply with BMP program requirements, including AA bio-solids. Nutrient records from Class A or B biosolids applied in accordance with Chapter 62-640, F.A.C. are collected through the DEP

permitting process as described in 5M-1.008(5). FDACS will collect information pertaining to these records for a two-year period identified when an IV site visit is scheduled. OAWP adopted a Nutrient Application Record Form (NARF) (FDACS-04005, rev. 06/24, incorporated in 5M-1.008(4), F.A.C.), to help simplify the record keeping requirement. The form is available under Program Resources at https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-Management-Practices. As these records relate to processes or methods of production, costs of production, profits, other financial information, fertilizer application information collected during an IV site visit is considered confidential and may be exempt from public records under chapters 812 and 815, Florida Statutes (F.S.), and Section 403.067, F.S. In accordance with subsection 403.067(7)(c)5., F.S., FDACS is required to provide DEP the nutrient application records.

Compliance Enforcement

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

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

Equivalent Programs

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

Other FDACS BMP Programs

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

Aquaculture

The FDACS Division of Aquaculture develops and enforces regulations governing the commercial aquaculture industry in Florida. Chapter 597, F.S., Florida Aquaculture Policy Act, requires Floridians who engage in commercial aquaculture to annually acquire an Aquaculture Certificate of Registration and implement all applicable Aquaculture Best Management Practices listed in Rule Chapter 5L-3.004, F.A.C. Facilities with certain production and discharge rates also require an NPDES permit from DEP. The Aquaculture BMPs were last updated by rule in November 2023.

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

Within the Lakes Harney, Monroe, Middle St. Johns River (MSJR) and Smith Canal BMAP, there are 5 aquaculture facilities under certification with the FDACS Division of Aquaculture as of November 2024. As with agricultural land use in Florida, aquaculture facilities are frequently in and out of production. The facilities being provided may no longer be in operation and/or there may be new companies in different parts of the basin by the next BMAP iteration.

Forestry

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

The FFS Silviculture BMP implementation monitoring program was initiated in 1981 and follows the criteria which have been established for state forest agencies in the southeastern

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

Agricultural Land Use

Agricultural Land Use in BMAPs

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

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

FDACS uses the parcel-level polygon agricultural lands (ALG) data that is part of the Florida Statewide Agricultural Irrigation Demand (FSAID) Geodatabase to estimate agricultural acreages statewide. FSAID provides acreages and specific crop types of irrigated and non-irrigated agricultural lands statewide. FSAID is updated annually based on WMD land use data, county property appraiser data, OAWP BMP enrollment data, U.S. Department of Agriculture data for agriculture, such as the Cropland Data Layer and Census of Agriculture, FDACS Division of Plant Industry citrus data, as well as field verification performed by the U.S. Geological Survey, WMDs, and OAWP. As the FSAID is detailed and updated on an annual basis, it provides a reliable characterization of agricultural land uses that accounts for the fast-

growing population and resultant land use changes taking place statewide. The FSAID also provides FDACS a clearer picture of agriculture's impact on the landscape and consistent method to better track, direct, and assess BMP implementation, cost share projects, and regional projects.

Table F-1 shows a comparison of the agricultural acres within the BMAP boundary compared to the total acreage. **Figure F-1** shows the percentage of agricultural land use within the Lakes Harney, Monroe, MSJR, and Smith Canal BMAP, determined by comparing the FSAID 11 ALG and total acreage of the BMAP boundary. Understanding what proportion of a BMAP is comprised of agriculture provides insight as to the potential contribution of agricultural nonpoint sources.

Table F-1. Agricultural versus non-agricultural acreages

Acreage Type	Acres
Non-agricultural acres	231,260
Agricultural acres	23,129

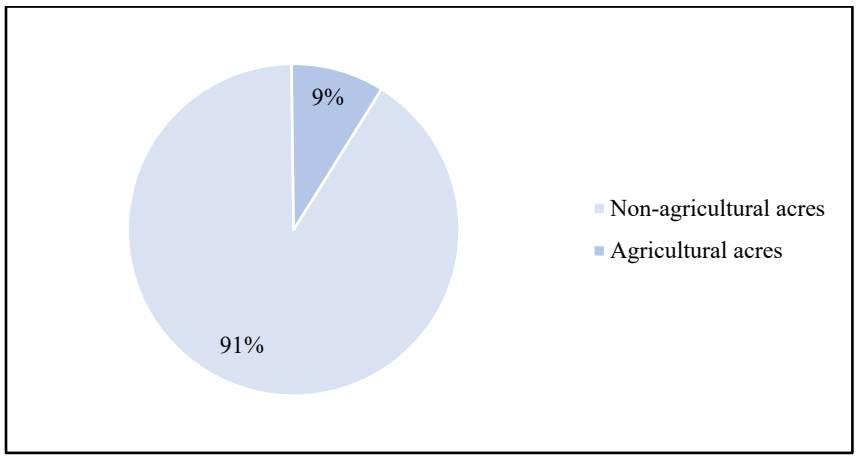

Figure F-1. Relative agricultural land uses in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP

FDACS BMP Program Metrics

Enrollment Delineation and BMAP Metrics

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

identified as agriculture. To estimate the agricultural acres enrolled in the BMP program, OAWP overlays the FSAID ALG and BMP enrollment data within GIS to calculate the acres of agricultural land in an enrolled parcel.

Summary Tables

Table F-2. Agricultural lands enrolled in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP by BMP program commodity

Commodity	Agricultural Acres Enrolled
Citrus	147
Cow/Calf	12,525
Equine	8
Multiple Commodities	40
Nursery	282
Row/Field Crop	3
Total	**13,005 (56%)**

As of July 2024, 56% of the agricultural acres in the MSJR, and Smith Canal BMAP area are enrolled in FDACS' BMP program. **Table F-2** shows the acreages enrolled in the BMP Program by commodity. **Figure F-2** shows a map of the enrolled acres in the basin. It is important to note that producers often undertake the production of multiple commodities on their operations, resulting in the requirement to implement the applicable BMPs from more than one BMP manual. When this occurs, the acres enrolled under more than one BMP manual are classified as “multiple commodity” and not included in the individual commodity totals to prevent duplication.

Enrollment Map

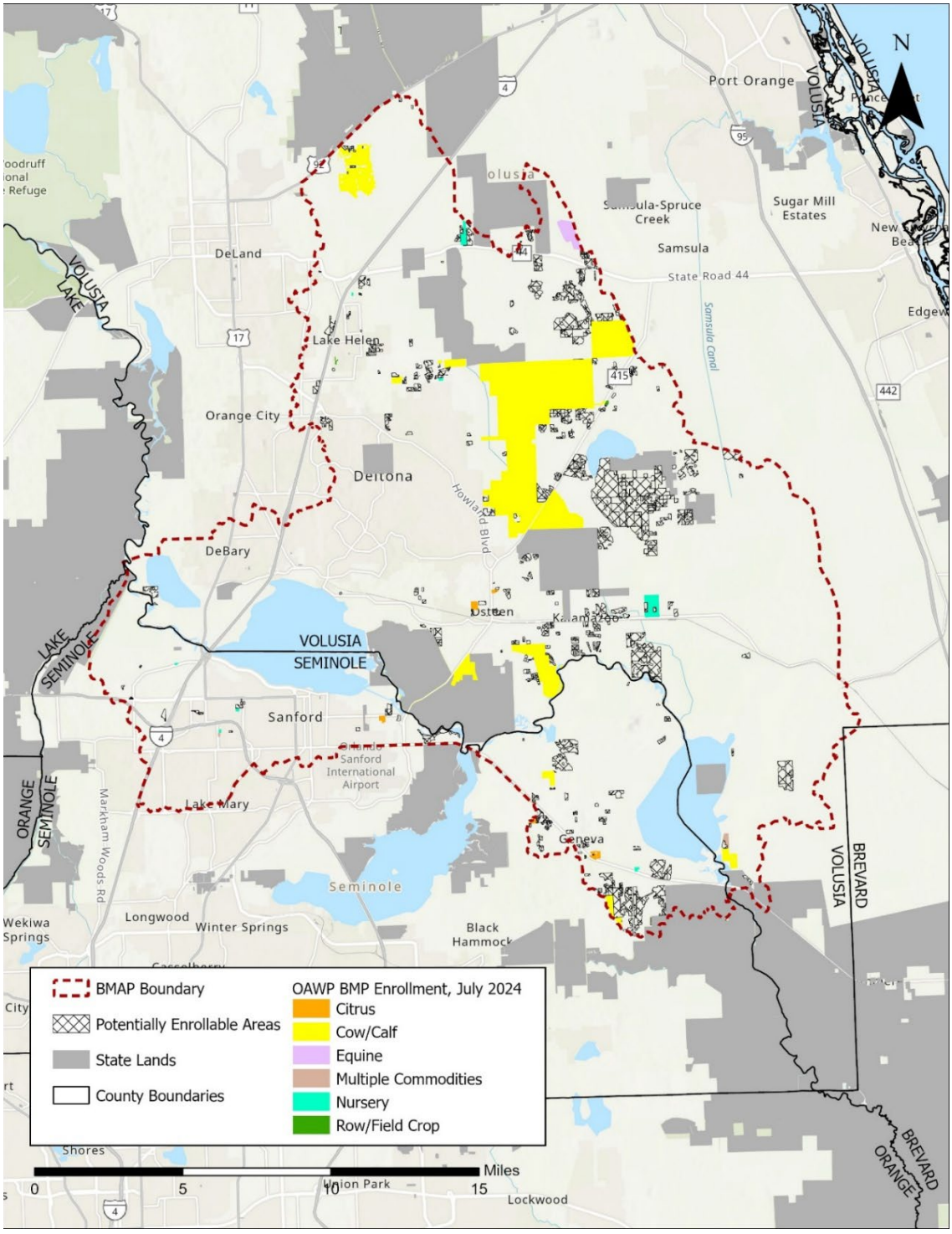

Figure F-2. Agricultural enrollment in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP

Unenrolled Agricultural Lands

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

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

Table F-3 shows the breakdown of agricultural lands within the Lakes Harney, Monroe, MSJR, and Smith Canal BMAP based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

Table F-3. Agricultural lands in the Lake Harney, Lake Monroe, MSJR, and Smith Canal BMAP

* Enrollment information current as of June 30, 2024.

Crediting Location	Agricultural Acres	Unenrolled - Unlikely Enrollable Acres	Agricultural Acres - Adjusted	Agricultural Acres Enrolled*
BMAP wide	28,162	5,033	23,129	13,004

Potentially Enrollable Lands

There are 10,125 acres of potentially enrollable lands within the Lakes Harney, Monroe, MSJR, and Smith Canal BMAP based on the assessment of unenrolled agricultural lands performed by FDACS. **Table F-4** shows the potentially enrollable acreages by crop type. **Figure F-3** shows the count of potentially enrollable parcels based on size classifications used by FDACS.

Table F-4. Potentially enrollable acres by crop type

Crop Type	Acres
Cropland and/or Pastureland	5
Crops	64
Fallow	805
Fruit (Non-citrus)	3
Grazing Land	8,142
Hay	339
Livestock	349
Nursery	205
Open Lands	77
Sod	136
Total	**10,125**

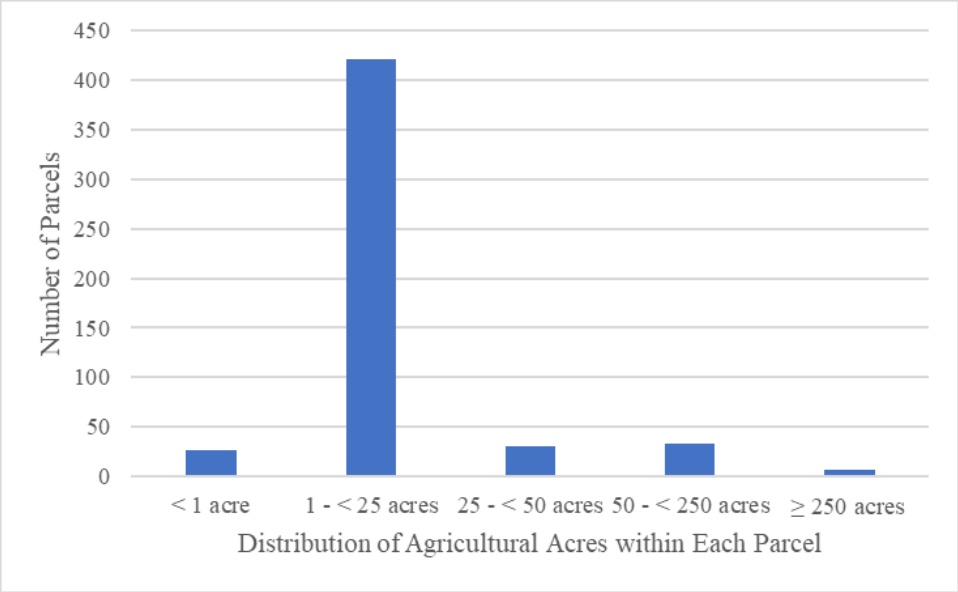

Figure F-3. Count of potentially enrollable parcels by size class

FDACS Cost Share

Enrollment in and proper implementation of BMPs makes a producer eligible for cost share for certain BMPs, other practices, and projects. The availability of cost share funds depends on annual appropriations by the Florida Legislature, and therefore, the amount available can vary each year. Cost share applications may be submitted once a producer has enrolled in the BMP Program and has been assigned an NOI number. Cost share practices are categorized as nutrient

management, irrigation management, or water resource protection. BMPs, other practices, and projects eligible for cost share funding may include precision agriculture technologies, variable rate irrigation methods, water control structures, and tailwater recovery systems. OAWP seeks to leverage its cost share funding with other cost share programs offered by FDACS and other state and federal agencies. The United States Department of Agriculture NRCS offers funding through its Environmental Quality Incentives Program, and certain WMDs have agricultural cost share programs. Applicants are encouraged to use OAWP cost share in conjunction with other available conservation programs although funding cannot be duplicative.

Table F-5 identifies the number of agricultural technologies that received cost-share assistance in the Lakes Harney, Monroe, MSJR, and Smith Canal BMAP area and the associated nutrient reductions. The nutrient reductions were used to develop a methodology to estimate nutrient reductions for NOIs that have received cost-share funding. The NOI boundary, based on property appraiser parcel data, was considered the area treated by the cost-shared agricultural technology or project. For parcels with more than one cost-share project, OAWP identified the order of treatment to determine the reductions for the multiple projects based on each cost-shared agricultural technology. Estimated nutrient reductions from FDACS cost share are shown in **Table F-6**.

Table F-5. Cost Share Project Counts and Estimated Nutrient Reduction Efficiencies

Project Types	TN Reduction	TP Reduction	Project Count
Fence	10%	10%	0
Irrigation improvements, automation	20%	20%	1
Weather station	20%	5%	0
Chemigation/fertigation	20%	20%	1
Precision ag technology	30%	10%	0
Drainage improvements, mole drain, ditch cleaning	10%	15%	0
Well, pipeline, trough, pond, heavy use protection	50%	50%	0
Retention, detention, tailwater recovery, berms (Cow/Calf)	25%	18%	0
Retention, detention, tailwater recovery, berms (VAC, Citrus)	64%	70%	0
Culvert	17%	29%	0
Structure for water control	17%	29%	1
Composting and/or storage project	---	---	0
Crop implements	---	---	0
Dairy work	50%	50%	0
Engineering, surveying, planning, modeling	---	---	0

Table F-6. Estimated Nutrient Reductions from FDACS Cost Share

Project Location	Total Reductions (TN)	Total Reductions (TP)
Lake Harney	113	17

Future Efforts

Outreach

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

Legacy Loads

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

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

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