DRAFT

Indian River Lagoon Basin

Central Indian River Lagoon Basin Management Action Plan

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

with participation from the
Central Indian River Lagoon Stakeholders

April 2025

2600 Blair Stone Road
Tallahassee, FL 32399-2400
https://floridadep.gov/

Acknowledgments

The *Central Indian River Lagoon 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) with participation from the Central Indian River Lagoon stakeholders identified below.

Florida Department of Environmental Protection
Alexis A. Lambert, Secretary

Table ES-1.Central Indian River Lagoon stakeholders

Type of Organization/Entity	Name
Responsible Stakeholders	Agriculture Brevard County Chaparral Community Development District City of Fellsmere City of Fort Pierce City of Melbourne City of Palm Bay City of Sebastian City of Vero Beach City of West Melbourne Emerald Lakes Community Development District Fellsmere Water Control District Fort Pierce Farms Water Control District Indian River County Indian River Farms Water Control District Mayfair Community Development District Melbourne Tillman Water Control District Palm Bay Road (PBR) Community Development District Sebastian River Improvement District St. Lucie County Town of Grant-Valkaria Town of Indialantic Town of Indian River Shores Town of Malabar Town of Melbourne Beach Town of Melbourne Village Town of Orchid Town of St. Lucie Village Vero Lakes Water Control District Viera East Community Development District
Responsible Agencies	County Health Departments Florida Department of Agriculture and Consumer Services (FDACS) DEP Florida Department of Transportation (FDOT) District 4 FDOT District 5 Florida Turnpike Enterprise Indian River Lagoon Estuary Program Patrick Space Force Base South Florida Water Management District (SFWMD)

Type of Organization/Entity	Name
	St. Johns River Water Management District (SJRWMD)
Other Interested Stakeholders	AECOM Algae Collection Technology, Inc. Applied Technology and Management BSE Consultants Cape Canaveral Scientific, Inc. Carroll and Associates Carter Associates, Inc. East Central Florida Regional Planning Council (ECFRPC) Eco Sense International England Thims and Miller Evans Properties Florida Institute of Technology Geosyntec Indian River Land Trust Indian Riverkeeper ISC Environmental Assurance Marine Resources Council Masteller and Moler, Inc, Pelican Island Audubon Society Residents/Homeowners SAIC SpecPro Stormwater Solutions, Inc. Treasure Coast Regional Planning Council (TCRPC)

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

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

Table of Contents

List of Figures

List of Tables

List of Acronyms and Abbreviations

ACE	Agricultural Cooperative Regional Elements
ALG	Agricultural Land Geodatabase
AWT	Advanced Wastewater Treatment
BAM	Biosorption Activated Media
BCWMA	Blue Cypress Water Management Area
BEBR	Bureau of Economic and Business Research
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
BRL	Banana River Lagoon
CAFO	Concentrated Animal Feeding Operation
CDD	Community Development District
CERP	Comprehensive Everglades Restoration Plan
CIRL	Central Indian River Lagoon
CR	County Road
CWA	Clean Water Act
DEP	Florida Department of Environmental Protection
DIW	Deep Injection Well
DO	Dissolved Oxygen
DOR	Florida Department of Revenue
DWM	Dispersed Water Management
EMC	Event Mean Concentration
EPA	U.S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
FJV	Fellsmere Joint Ventures
FLWMI	Florida Water Management Inventory
FPFWCD	Fort Pierce Farms Water Control District
F.S.	Florida Statutes
FSAID	Florida Statewide Agricultural Irrigation Demand (Geodatabase)
ft	Foot
FWRA	Florida Watershed Restoration Act
GIS	Geographic Information System
HAB	Harmful Algal Bloom
IMPLAN	Impact Analysis for Planning
HMGP	Hazard Mitigation Grant Program
IRFWCD	Indian River Farms Water Control District
IRL	Indian River Lagoon
IWR	Impaired Surface Waters Rule
L.O.F.	Laws of Florida

lbs	Pounds
LET	Load Estimation Tool
LPA	Load Per Acre
m	Meter
MAPS	Managed Aquatic Plant System
mgd	Million Gallons Per Day
mg/L	Milligrams Per Liter
MHP	Mobile Home Park
MS4	Municipal Separate Storm Sewer System
mt	Metric Tons
N/A	Not Applicable
MTWCD	Melbourne-Tillman Water Control District
N/A	Not Applicable
NELAC	National Environmental Laboratory Accreditation Council
NELAP	National Environmental Laboratory Accreditation Program
NEP	National Estuary Program
NGVD	National Geodetic Vertical Datum
NHD	National Hydrography Database
NIRL	North Indian River Lagoon
NMP	Nutrient Management Plan
NOI	Notice of Intent
NOx	Nitrate + Nitrite
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSLRWCD	North St. Lucie River Water Control District
OAWP	Office of Agricultural Water Policy
OSTDS	Onsite Sewage Treatment and Disposal System
PAR	Photosynthetically Active Radiation
PBR	Palm Bay Road
PLSM	Pollutant Load Screening Model
PSA	Public Service Announcement
QA/QC	Quality Assurance/Quality Control
RAP	Reasonable Assurance Plan
ROC	Runoff Coefficient
RRLA	Rapid Rate Land Application
RV	Recreational Vehicle
SFWMD	South Florida Water Management District
SJRWMD	St. Johns River Water Management District
SIRL	South Indian River Lagoon
SLC	St. Lucie County
SOP	Standard Operating Procedure
SR	State Road
SRID	Sebastian River Improvement District
STEP	Septic Tank Effluent Pumping

STORET	STOrage and RETrieval (Database)
SWIL	Spatial Watershed Iterative Loading
SWMP	Stormwater Management Program
TCRPC	Treasure Coast Regional Planning Council
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
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
VLWCD	Vero Lake Water Control District
WBID	Waterbody Identification (number)
WCD	Water Control District
WIN	Watershed Information Network (Database)
WMA	Water Management Area
WMD	Water Management District
WRF	Water Reclamation Facility
WQMN	Water Quality Monitoring Network
WWTF	Wastewater Treatment Facility

Executive Summary

Background

The Indian River Lagoon (IRL) is a 156-mile-long estuary along Florida's east coast. The impaired portions of the IRL are directly adjacent to lands in only Volusia, Brevard, Indian River, and St. Lucie counties. The northern portion of the watershed extends to near the Ponce De Leon Inlet in Volusia County and the southern portion to near the Fort Pierce Inlet at the Indian River County–St. Lucie County boundary line. Because of the large geographical extent of the IRL Basin and the hydrological differences throughout the basin, the Florida Department of Environmental Protection (DEP) determined the best way to address the total maximum daily loads (TMDLs) and impairments for the IRL Basin was to divide the watershed into 3 subbasins: (1) Central IRL (CIRL), (2) North IRL (NIRL), and (3) Banana River Lagoon (BRL). Separate basin management action plans (BMAPs) were developed for each subbasin; this document focuses solely on the CIRL Subbasin. The main stem of the CIRL Subbasin extends from the Melbourne Causeway in Brevard County to Fort Pierce Inlet, and includes the areas drained by the Fort Pierce Farms Canal network and the C-25 Canal (**Figure ES-1**).

Intense and extensive algal blooms in the IRL began in 2011 and have returned periodically. Harmful algal blooms (HABs) cause shading that stresses seagrass in the IRL, adverse effects on wildlife, and in some cases, detrimental effects on human health. The St. Johns River Water Management District (SJRWMD) launched the Indian River Lagoon Protection Initiative in 2013, including a multiyear investigation that increased the understanding of these blooms. This and other research indicate it is important to continue implementing projects that decrease nutrient loads to the IRL, because that approach will limit the severity of HABs and their impact on the system.

In 2023, the Florida Legislature created Section 5 of section 373.469, Florida Statutes (F.S.) called the *Indian River Lagoon Protection Program (IRLPP)*, including the *Indian River Lagoon Watershed Research and Water Quality Monitoring Program*. The IRLPP enacted specific evaluation and protection measures for the three IRL BMAPs and Mosquito Lagoon Regional Assurance Plan (RAP) areas. The IRLPP included the following provisions:

- Evaluating and updating the IRL BMAPs every five years.
- Identifying any further load reductions necessary to comply with the TMDLs.
- Inclusion of a water quality monitoring component to evaluate progress over time.
- Identification and prioritization of strategies and projects that are included in the BMAPs and RAP.
- Prohibiting new onsite sewage treatment and disposal systems where central sewer is available, as defined in section 381.0062(2)(a), Florida Statutes (F.S.).

- Where central sewer is not available for new OSTDS, requiring enhanced nutrient-reducing systems of at least 65% nitrogen treatment.

- Requiring existing OSTDS to connect to central sewer or have enhanced nutrient-reducing systems by July 1, 2030.

The research and monitoring program directs DEP, in coordination with other public entities, to establish a comprehensive water quality monitoring network and to fund research related to water quality, ecosystem restoration, and seagrass impacts and restoration. DEP will use the results to prioritize projects and modify the BMAPs, as appropriate.

TMDLs

A TMDL is a water quality restoration goal establishing the maximum amount of a pollutant that a waterbody can assimilate without causing exceedances of water quality standards. The nutrient TMDLs for the main stem of the IRL were adopted by DEP in March 2009. The TMDLs focus on the water quality conditions necessary for seagrass regrowth at water depth limits where seagrass historically grew in the lagoon, based on a multiyear composite of seagrass coverage. The median depth limits of seagrass coverage in the IRL decreased over the years because of changes in water quality conditions resulting from anthropogenic influences. As polluted runoff reaches the lagoon, it contributes to conditions that prevent the seagrass from growing in deeper water.

Additionally, TMDLs were adopted in 2013 for certain tributaries to the CIRL, now addressed in this BMAP. For Crane Creek (waterbody identification [WBID] number 3085A), North Prong of the Sebastian River (WBID 3128), South Prong St. Sebastian River Estuary Segment (WBIDs 3129B1 and 3129B2), Sebastian River above Indian River (3129A), and the C-54 Canal (WBID 3135A), no further nutrient load reductions were requested beyond those already established for the main stem seagrass nutrient TMDLs. For Goat Creek (WBID 3107A), the targets were also set to control nutrient loads from the watershed of the creek to restore seagrass distribution in the IRL proper. No further nutrient reductions beyond those already being requested to protect the main stem seagrasses were included in the Goat Creek TMDLs.

CIRL BMAP

In addition to dividing the overall IRL Watershed into subbasins, the CIRL was further divided into "project zones." The project zone boundaries are based on the distinct hydrology in different areas of the basin and their corresponding annual residence times. These zones are important because the flushing times vary greatly among locations and consequently affect how nutrient reductions will impact these distinct areas of the basin. The project zones identify large areas where projects should be implemented to ensure that the load reductions achieve the desired response for each subbasin. The CIRL Subbasin was split into four project zones, as follows:

- **Central A** – Melbourne Causeway (U.S. 192) to the north tip of Grant Farm Island.

- **Central SEB** – Grant Farm Island to Wabasso Causeway (County Road 510).
- **Central B** – Wabasso Causeway to the boundary between Indian River County and St. Lucie County.
- **South IRL (SIRL)** – The St. Lucie/Indian River County line to the Fort Pierce Inlet.

TMDLs have not yet been developed for the SIRL; however, because of the connectivity of the SIRL to the other three project zones, the reduction of loads here is critical for achieving the TMDLs for the main stem of the IRL. The SIRL was therefore included in the CIRL BMAP adopted in 2013, and load reductions were developed for the SIRL project zone. Additionally, WBIDs 3163 and 3163B (C-25 canal) within the SIRL project zone are impaired for nutrients, as indicated by elevated phosphorus levels and the abundance of macrophytes.

DEP first adopted the CIRL BMAP in 2013 to implement total nitrogen (TN) and total phosphorus (TP) TMDLs in three of the four CIRL Project Zones. BMAPs are designed to be implemented in a phased approach. In 2018, DEP and several local stakeholders were developing several components of an updated BMAP, including the local completion and DEP review of a new water quality model, the Spatial Watershed Iterative Loading (SWIL) Model. The SWIL Model was developed through cooperative funding provided by Brevard County, all of its cities, and FDOT District 5, as well as support from the U.S. Space Force, in an effort to update the data being used to predict loading. An updated version of the SWIL model (Version 4.0) was used in the 2021 BMAP. In this 2025 BMAP update, the same version of the SWIL Model, Version 4.0, was used to estimate loading to the CIRL; the loading estimates have not been updated. Similarly to the 2021 BMAP, for this BMAP update, the percent reductions adopted in the original TMDL rules are applied as the water quality targets.

This 2025 update retains the changes made in the 2021 BMAP including the SWIL Model, Version 4.0, estimates, boundary adjustments, 2021 allocations and load reductions to the responsible stakeholders, and a revised monitoring plan to continue to track trends in water quality. This BMAP retains the deadline for achieving load reductions no later than 2035, which is 22 years after the initial BMAP adoption in 2013. This 2025 BMAP incorporates new legislative requirements that are now in effect and includes updates to the management actions to achieve nutrient reductions.

As part of the adaptive management process for this BMAP, DEP is well underway with refinements to the SWIL Model, creating Version 5.0, which will be used to revise BMAP allocations and adjust project credits. This extensive effort includes updates to some of the SWIL Model input layers (e.g., land use, soils, etc.), verification of watershed boundaries in some areas, revisions to the model period of record, and the validation of predicted flows in selected calibration basins. . DEP anticipates that this effort will be completed in 2025. After the SWIL model refinement is complete, DEP will reevaluate and, if necessary, adopt another iteration of the BRL and IRL BMAPs, most likely before 2030. The next iteration will include updated loading estimates and required reductions.

Summary of Load Reductions

DEP requested stakeholders to provide information on management actions, including projects, programs, and activities, that may reduce nutrient loads to the CIRL. Management actions are included in the BMAP to address nutrient loads to the lagoon and have to meet several criteria to be considered eligible for credit. The estimated reductions of activities completed to date are provided in **Table ES-2**. shows progress towards the TN and TP TMDL load reductions through October 2024. This date was chosen to allow adequate time to review project documentation and calculate reductions based on accepted methodologies and best management practice (BMP) efficiencies. Updated project information will be provided each year in the Statewide Annual Report and at an annual meeting.

To achieve the TMDLs, stakeholders must identify and submit additional local projects as well as determine the significant funding that will be necessary. Enhancements to programs addressing basinwide sources will also be required.

Table ES-2. Progress to date in the CIRL BMAP area by project zone

lbs/yr = Pounds per year.

Project Zone	TN Reduction (lbs/yr)	% Achieved towards TN Target	TP Reduction (lbs/yr)	% Achieved towards TP Target
A	118,924	46.3	18,326	45.9
SEB	83,446	32.6	32,457	71.5
B	103,619	35.5	15,737	41.9
SIRL	22,318	25.5	4,697	22.8
Total	**328,307**	**36.8**	**71,217**	**49.7**

Source Requirements

Florida law (Section 403.086, [F.S.], and Chapter 2020-150, Laws of Florida [L.O.F.]) beginning July 1, 2025, requires all domestic wastewater facilities directly discharging to surface waters of the state within or connected to the IRL to meet advanced wastewater treatment requirements. Additionally, this BMAP sets TN and TP effluent limits in the CIRL for individually permitted domestic wastewater facilities and their associated effluent disposal systems and reuse activities. Local governments must develop remediation plans to address loads from wastewater facilities and septic systems in the BMAP area.

In 2023, Executive Order 23-06 led the way for adoption of the IRLPP, section 373.469, F.S. The IRLPP prohibits new conventional onsite sewage treatment and disposal systems (OSTDS) by January 1, 2024, and transitioning all existing conventional systems to sewer or advanced treatment systems by July 1, 2030.

Subparagraph 403.067(7)(a)9., Florida Statutes (F.S.), specifies that local governments (county governments and municipalities) within a BMAP must develop a wastewater treatment plan and/or an onsite sewage treatment and disposal system (OSTDS) remediation plan containing information if DEP "identifies domestic wastewater treatment facilities or onsite sewage treatment and disposal systems as contributors of at least 20% of point source or nonpoint source

nutrient pollution or if the Department determines remediation is necessary to achieve the [TMDL]."

DEP determined that the domestic wastewater treatment facilities and/or OSTDS sources within the CIRL BMAP met the 20% contribution and/or remediation of these sources is necessary to achieve the TMDL. A final order (23-0115) was issued to prescribe timelines for local governments to submit these plans on June 12, 2023. Draft wastewater treatment and OSTDS remediation plans were submitted by February 1, 2024, and final plans were submitted by August 1, 2024. Projects outlined in the plans addressing domestic wastewater sources are incorporated into this BMAP update.

Additionally, DEP has determined facilities that land apply reclaimed water identified in **Appendix G** are subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S. The facilities listed in **Appendix G** have 10 years from BMAP adoption to meet the applicable advanced wastewater treatment (AWT) standards. More information can be found in **Section 3.3.3.**

Agricultural nonpoint sources are a contributor of TN and TP loading to the CIRL. Attainment of the TMDLs is contingent upon addressing the agricultural loading to the lagoon and tributaries. The BMAP for CIRL was originally adopted in 2013, and many agricultural producers have been enrolled and are implementing BMPs. FDACS has focused efforts to improve enrollment efforts, resulting in 51% of the agricultural lands in the BMAP being enrolled in the BMP program as of July 2024. FDACS will continue to carry out its statutory authority and fulfill its statutory obligations by actively engaging agricultural nonpoint sources to enroll in BMPs and by adequately verifying BMP implementation.

FDACS is responsible for verifying that all eligible agricultural producers are enrolled in appropriate BMP programs. FDACS will perform onsite inspections of all agricultural operations enrolled in BMPs to ensure that these practices are being properly implemented every two years. FDACS will continue to collect nitrogen and phosphorus fertilization records during implementation verification visits from each agricultural producer enrolled in BMPs and is required to provide DEP the nutrient application records in accordance with subsection 403.067(7)(c)5., F.S.

Further reductions beyond the implementation of required agricultural owner–implemented BMPs will be necessary to achieve the TMDL. As such, pursuant to subsection 373.4595(3), F.S., where water quality problems are demonstrated, despite the appropriate implementation of adopted BMPs, a reevaluation of the BMPs shall be conducted pursuant to subsection 403.067(7), F.S. 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.

Further reductions can be achieved through the implementation of additional agricultural projects or activities. FDACS, DEP and other relevant stakeholders will work together to identify cost-share practices and other projects that can be undertaken to achieve these nutrient reductions and identify and implement additional projects and activities in priority areas. These additional

projects and activities are to be implemented in conjunction with the BMP Program, which needs to achieve full enrollment with verification to ensure that the BMAP goals are achieved.

Chapter 2023-169, Laws of Florida (L.O.F.), (403.067, F.S.) requires that BMAPs include milestones for implementation of total maximum daily loads. Any responsible entity within the BMAP that has an assigned pollutant load reduction requirement must identify projects or strategies that such entity will undertake to meet their upcoming 5-year milestone. Each project must include a planning-level cost estimate and an estimated date of completion in the Statewide Annual Report.

Within five years of the adoption of this BMAP, DEP will evaluate any entity located in the BMAP area that serves a minimum resident population of at least 1,000 individuals who are not currently covered by a municipal separate storm sewer system (MS4) permit and designate eligible entities as regulated MS4s, in accordance with Chapter 62-624, Florida Administrative Code (F.A.C.).

Water Quality Monitoring

The IRLPP also requires the BMAPs to focus on expanding water quality monitoring for tracking sources of nutrients and expanded coordination to achieve the TMDLs in the basin. The CIRL BMAP monitoring network consists of 45 stations sampled by SJRWMD, SFWMD, U.S. Geological Survey, Indian River Farms Water Control District, Sebastian River Improvement District, Fort Pierce Farms Water Control District, and North St. Lucie River Water Control District. The monitoring plan also includes research priorities to better understand the lagoon, nutrient sources, and the responses of seagrass to nutrient loading, both internal and external, to the lagoon.

BMAP Cost

The project costs provided for the BMAP may include capital costs as well as those associated with construction, routine operations and maintenance, and monitoring. Many BMAP projects were built to achieve multiple objectives, not just nutrient reductions. Funds for some projects have already been spent, others have been obligated to ongoing projects, and the remainder are yet to be appropriated.

The funding sources for the projects range from local public and private contributions to state and federal legislative appropriations. DEP will continue to work with stakeholders to explore new opportunities for funding assistance to ensure that the activities listed in this BMAP can be maintained at the necessary level of effort and that additional projects can be constructed by 2035.

Chapter 2023-169, L.O.F., expanded grant opportunities for local governments and eligible entities working to address a TMDL. Previously, grant funding was available for specific project types, including septic-to-sewer, advanced wastewater treatment expansion or upgrades, and OSTDS upgrades. Now, through the Water Quality Improvement Grant program, eligible entities can also apply for grant funding for stormwater, regional agricultural projects, and a broader suite of wastewater projects including collection systems and domestic wastewater reuse.

Projects are prioritized that have the maximum nutrient load per project, demonstrate project readiness, are cost-effective, have a cost-share by the applicant (except for Rural Areas of Opportunity), have previous state commitment and are in areas where reductions are most needed.

Chapter 2024-180, L.O.F., created a program to expeditiously review new and innovative enhanced nutrient-reducing OSTDS to reduce the nutrients entering Florida's waterways.

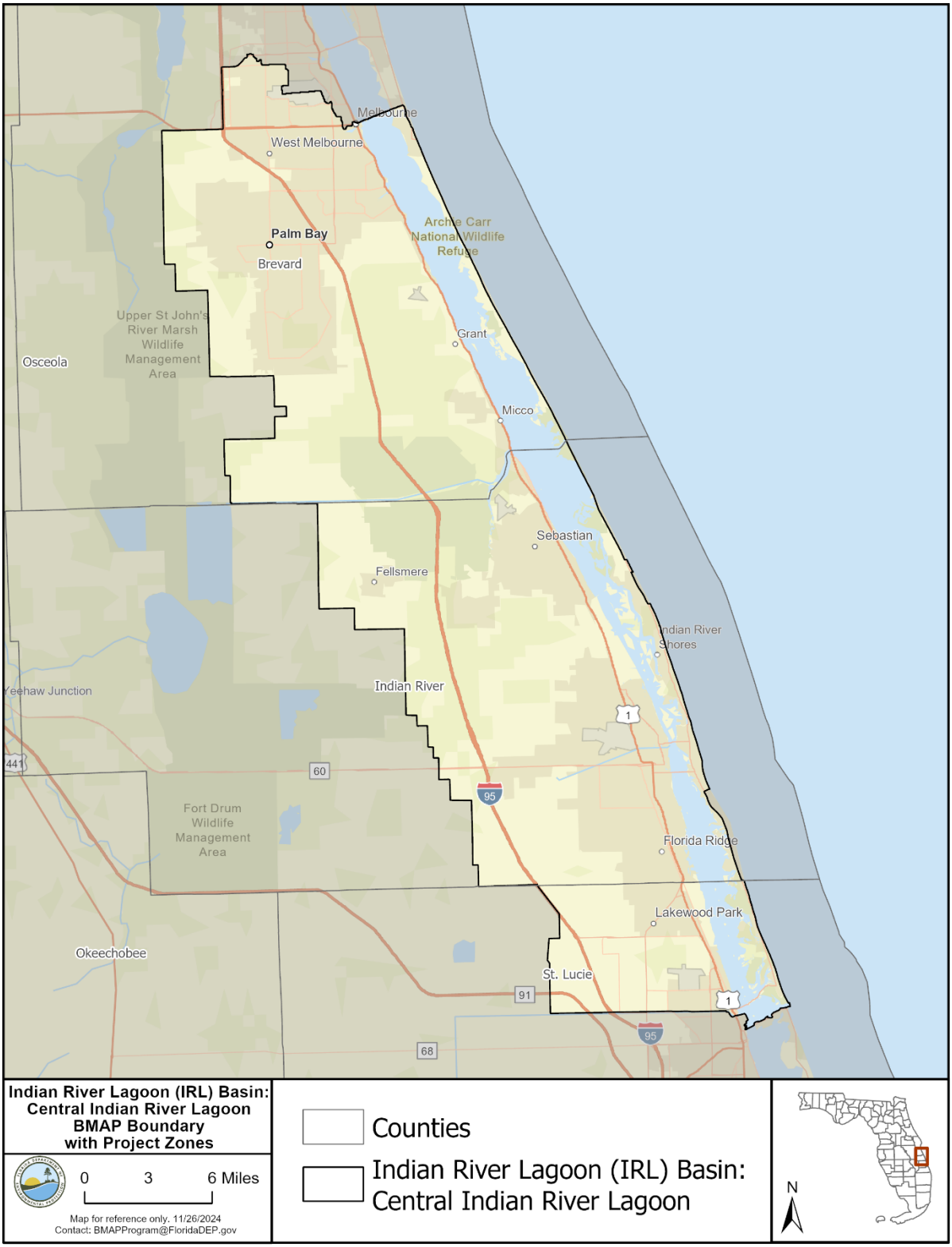

Figure ES-1. CIRL BMAP area

Section 1. Background Information

1.1 Water Quality Standards and TMDLs

Florida's water quality standards are designed to ensure that surface waters fully support their designated uses, such as drinking water, aquatic life, recreation, and agriculture. Currently, most surface waters in Florida, including many of those in the CIRL, are categorized as Class III waters, meaning they must be suitable for recreation and must support fish consumption and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. In addition, many waterbody segments (also known as WBIDs) are categorized as Class II waters, which have a designated use of shellfish propagation or harvesting. **Table 1** lists all designated use classifications for Florida 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. Yellow shading indicates classifications in the IRL waters.

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*)

Class II waters in the CIRL may be used for aquaculture. The WBIDs that are designated as Class II waters are listed in **Table 2.** If not listed, the remaining WBIDs are Class III waters.

Section 303(d) of the federal Clean Water Act (CWA) requires that each state must identify its impaired waters every two years, including estuaries, lakes, rivers, and streams, that do not meet their designated uses. DEP staff in the Division of Environmental Assessment and Restoration are 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 an update to the state's 303(d) list. In 2009, DEP adopted, by Secretarial Order, revisions to the Verified List of Impaired Waters for the CIRL that identified several estuarine segments as impaired for dissolved oxygen (DO) and nutrients. The DO impairment was based on low DO concentrations measured in milligrams per liter (mg/L), and the nutrient impairment was based on an imbalance in flora and fauna because of decreases in seagrass distribution.

Table 2. Class II waters in the CIRL

Classification	WBID Number	Waterbody Name
Class II	2963A1	Indian River above Sebastian Outlet
Class II	2963B1	Indian River above Melbourne Causeway
Class II	3107A	Goat Creek (marine segment)
Class II	3190	South Indian River (above Ft. Pierce Inlet)
Class II	5003B3	South Indian River (below SR 60)
Class II	5003C1	South Indian River (above SR 60)
Class II	5003D1	South Indian River (near St. Sebastian River)

1.1.1 CIRL TMDLs

TMDLs are water quality restoration goals establishing the maximum amount of a pollutant that a waterbody can assimilate without causing exceedances of water quality standards. The IRL TMDLs focus on the water quality conditions necessary for seagrass recruitment at water depth limits where seagrass historically grew in the lagoon, based on a multiyear composite of seagrass coverage. The median depth limits of seagrass coverage in the IRL decreased over the years (see **Section 4.3**) because of changes in water quality conditions resulting from anthropogenic influences.

As polluted runoff reaches the lagoon, it contributes to conditions that prevent the seagrass from growing in deeper water because of elevated light attenuation. The full restoration depth-limit target for seagrass was established for each segment based on a deep edge boundary delineating the composite of seven years of historical seagrass data for the period from 1943 to 1999. The restoration targets were set at depths where the deep edge of the seagrass beds previously grew and created a maximum depth limit for seagrass distribution. The TMDL targets allowed for a 10% departure (shoreward) from the full restoration target seagrass depth. The 10% departure in target depths was selected to be consistent with the water quality criteria in Chapter 62-302, F.A.C., which allows for up to a 10% reduction in the photo compensation point.

To determine nutrient targets and reductions needed to improve lagoon water quality in each subbasin, regression relationships were used between 4 years of loading levels and the same years' seagrass depth limit (the percent departure from the full restoration). TN and TP targets were developed from the median concentrations observed where seagrass depth limits were within the 10% departure (shoreward) from their full restoration levels. These targets should result in nutrient reductions that allow seagrass to grow almost to the depths previously seen in the area. **Table 3** lists the TMDLs and pollutant load allocations adopted by rule for the CIRL.

Table 3. CIRL TMDLs

NPDES = National Pollutant Discharge Elimination System.

WBID	Waterbody	Parameter	NPDES Stormwater (% reduction)
5003D+2963A	South Indian River + Indian River Above Sebastian Inlet	TN	56
5003D+2963A	South Indian River + Indian River Above Sebastian Inlet	TP	48

WBID	Waterbody	Parameter	NPDES Stormwater (% reduction)
5003B+5003C	South Indian River	TN	56
5003B+5003C	South Indian River	TP	48

Additionally, this BMAP addresses adopted TMDLs for certain tributaries to the CIRL. For all the CIRL tributaries, there are biochemical oxygen demand (BOD) TMDLs in rule. Also, for these tributaries—Crane Creek (WBID 3085A), North Prong of the Sebastian River (WBID 3128), South Prong St. Sebastian River Estuary Segment (WBIDs 3129B1 and 3129B2), Sebastian River above Indian River (WBID 3129A), and C-54 Canal (WBID 3135A)—no further nutrient load reductions were requested beyond those already established for the main stem seagrass nutrient TMDLs. For Goat Creek (WBID 3107A), the targets were also set to control nutrient loads from the watershed of the creek to restore seagrass distribution in the IRL proper. No further nutrient reductions beyond those already being requested to protect the main stem seagrasses were included in the Goat Creek TMDLs. **Table 4** lists the tributary TMDLs in the CIRL.

Table 4. CIRL tributary TMDLs

WBID	Waterbody	Parameter	NPDES Stormwater (% Reduction)	Project Zone
3107A	Goat Creek	TN	36	A
3017A	Goat Greek	TP	0	A
3017A	Goat Greek	BOD	72.3	A
3085A	Crane Creek	TN	56	A
3085A	Crane Creek	TP	48	A
3085A	Crane Creek	BOD	80.1	A
3128	North Prong of the Sebastian River	TN	56	SEB
3128	North Prong of the Sebastian River	TP	48	SEB
3128	North Prong of the Sebastian River	BOD	69.7	SEB
3129B1	South Prong St. Sebastian River Estuary Segment	TN	56	SEB
3129B1	South Prong St. Sebastian River Estuary Segment	TP	48	SEB
3129B1	South Prong St. Sebastian River Estuary Segment	BOD	78.2	SEB
3129B2	South Prong St. Sebastian River Estuary Segment	TN	56	SEB
3129B2	South Prong St. Sebastian River Estuary Segment	TP	48	SEB
3129B2	South Prong St. Sebastian River Estuary Segment	BOD	78.2	SEB
3129A	Sebastian River above Indian River	TN	56	SEB
3129A	Sebastian River above Indian River	TP	48	SEB
3129A	Sebastian River above Indian River	BOD	74.2	SEB
3135A	C-54 Canal	TN	56	SEB
3135A	C-54 Canal	TP	48	SEB
3135A	C-54 Canal	BOD	72.3	SEB

1.2 CIRL Basin Management Action Plan (BMAP)

A BMAP is a framework for water quality restoration that contains local and state commitments to reduce pollutant loading through current and future projects and strategies. BMAPs contain a comprehensive set of solutions, such as permit limits on wastewater facilities, urban and agricultural BMPs, and conservation programs designed to achieve pollutant reductions established by a TMDL. These broad-based plans are developed with local stakeholders and rely on local input and commitment for development and successful implementation. BMAPs are adopted by DEP Secretarial Order and are legally enforceable.

The Florida Watershed Restoration Act (FWRA), Subparagraph 403.067(7)(a)1., F.S., establishes an adaptive management process for BMAPs that continues until the TMDLs are met. This approach allows for incrementally reducing loadings 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 CIRL BMAP was first adopted in February 2013. An adaptive management process that is statutorily required, such as the changes made in this updated BMAP, will continue until the TMDLs are achieved and maintained as new information becomes available or every five years under the IRLPP.

This document serves as an update to the 2021 BMAP. **Figure 1** shows the CIRL BMAP area with project zones.

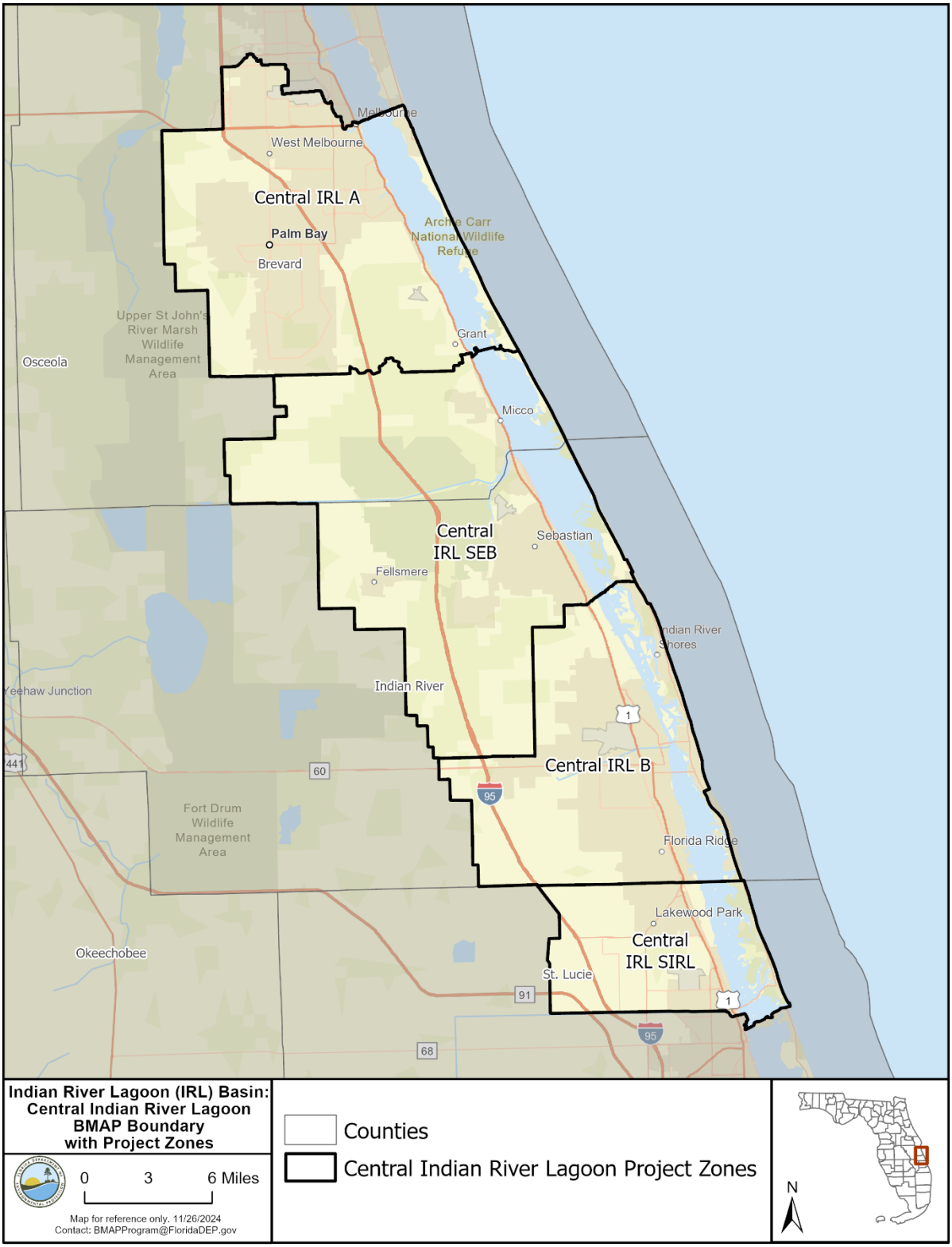

Figure 1. CIRL BMAP area with project zones

1.2.1 Milestones and Tracking Progress

The projects and activities in the BMAP are key to the overall goal of recovering seagrass in the lagoon. The estimated benefits of these implemented activities are tracked to show stakeholder efforts by determining a percentage towards the total required reductions to be achieved at each milestone. Chapter 2023-169, L.O.F., (section 403.067, F.S.) requires that BMAPs include milestones for implementation of TMDLs. This statute requires any responsible entity within a BMAP that has an assigned pollutant load reduction requirement to identify projects or strategies to meet the upcoming 5-year milestone, even if the identified project or strategy will not be completed by the milestone. Stakeholders must provide DEP with reasonable assurance that they have enough project credits to achieve their required reductions within the period established by the BMAP (**Section 4)**. Each project must include a planning-level cost estimate and an estimated date of completion in the Statewide Annual Report.

Subparagraph 403.067(7)(a)6., F.S., indicates that an assessment of progress towards the BMAP milestones shall be conducted every five years, and plan revisions made as appropriate. To meet these requirements, DEP has established milestones for the years 2025, 2030, and 2035. The percent reductions in the milestones apply to all stakeholder required reductions, so that as various entities implement their projects, the overall milestones are also being met.

The following percent reduction goals are proposed for each milestone and may be adjusted as the BMAP is adaptively managed through future phases:

- 5-year milestone in 2025: 35% or 320,614 pounds per year (lbs/yr) of TN and 35% or 51,631 lbs/yr of TP. Based on forthcoming model revisions, reset the 10-year and 15-year milestones, as needed.
- 10-year milestone in 2030: 70% or 641,228 lbs/yr of TN and 70% or 103,261 lbs/yr of TP.
- 15-year milestone in 2035: 100% or 916,040 lbs/yr of TN and 100% or 147,516 lbs/yr of TP.

By the next milestone in 2030, at least 70% of the TN and TP required reductions must be met. The deadline established by this BMAP for achieving the full load reductions is 2035, which is 22 years after the initial adoption of the 2013 BMAP.

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 is unable to submit a sufficient list of eligible management strategies to meet their next 5-year milestone reductions, specific project identification efforts are required to be submitted by January 14, 2026. Any such project identification efforts must define the purpose of and a timeline to identify sufficient projects to meet the upcoming milestone. The project

description and estimated completion date for any such project identification effort must be provided and reflect the urgency of defining, funding, and implementing projects to meet the upcoming and future BMAP milestones. These planning efforts are ineligible for BMAP credit themselves but are necessary to demonstrate that additional eligible management actions will be forthcoming and BMAP compliance will be achieved. Only those entities that provide sufficient project identification efforts will be deemed as possessing a defined compliance schedule. Those entities without an adequate project list nor a defined compliance schedule to meet their upcoming 5-year milestone may be subject to enforcement actions. Examples of project identification efforts are included in **Appendix E**.

1.2.2 Assumptions

The water quality impacts of BMAP implementation are based on several fundamental assumptions about the pollutants targeted by the TMDLs, modeling approaches, waterbody response, and natural processes. The following assumptions were used during the BMAP process:

- Certain BMPs were assigned provisional nutrient reduction benefits for load reductions in this BMAP iteration while additional monitoring and research are conducted to quantify their effectiveness. These estimated reductions may change in future BMAP iterations as additional information becomes available.

- The nutrient reduction benefits of the stakeholders' projects were calculated using the best available methodologies. Project-specific monitoring, where available, will be used to verify calculations, and reduction benefits may be adjusted as necessary.

- The TMDLs require TN and TP reductions from the watershed to improve water quality in the CIRL to allow seagrass to grow at greater water depths. High watershed nutrient loadings result in high chlorophyll *a* concentrations in the lagoon, which may indicate algal growth and a reduction in light availability to the seagrass, thus limiting the depth at which seagrass can grow. Therefore, reducing nutrient loading to the CIRL is an important factor in improving seagrass depth limits.

- The allocations do not require load reductions from areas identified as natural land use areas in the modeled land use/land cover information. These loads are considered uncontrollable, background sources, and the stakeholders are not required to make reductions on natural lands. The BMAP allocations focus on urban and agricultural stormwater sources as well as septic and sewage treatment systems in the watershed.

- Water is exchanged between the NIRL and other nearby waterbodies (the CIRL, BRL, and St. Lucie River and Estuary), and water quality conditions in

the CIRL may be influenced by conditions in nearby waters. To help address these nearby conditions, separate BMAPs have been adopted for these watersheds.

1.2.3 Considerations

This BMAP requires stakeholders to implement their projects to achieve reductions within the specified 5-year milestone period. However, the full implementation of this BMAP will be a long-term, adaptively managed process. While some of the BMAP projects and activities were recently completed or are currently ongoing, several projects require more time to design, secure funding, and construct. Regular follow-up and continued coordination and communication by the stakeholders will be essential to ensure the implementation of management strategies and assessment of incremental effects.

During the BMAP process, a number of items were identified that should be addressed in future watershed management cycles to ensure that future BMAPs use the most accurate information:

- **HABs** – HABs cause shading that stresses seagrass in the IRL, adverse effects on wildlife, and in some cases, detrimental effects on human health. Intense and extensive algal blooms in the IRL began in 2011 and have returned periodically, with clear impacts on the extent, density, and depth where seagrasses grow; some fish kills; and, fortunately, little direct impact on human health. Compared with earlier blooms (1996 to 2010), the recent blooms (2011 to 2020) have been dominated by smaller types of algae called nanoplankton and picoplankton. SJRWMD launched the Indian River Lagoon Protection Initiative in 2013, including a multiyear investigation that increased the understanding of the blooms. This and other research indicate it is important to persevere with projects that decrease TN and TP loads to the IRL, because that approach will limit the severity of HABs and their impacts on the system.

- **Land Uses** – The loading estimates in the BMAP are based on land uses at a point in time, allowing the model to be calibrated. The loading estimates for this BMAP iteration were based on land use/land cover data from approximately 2015 from the water management districts as well as property appraiser data. Land uses in the model will be updated during future model revisions based on the most recent and accurate data available; this may result in changes to loading estimates. Agricultural land use data are updated annually in the FSAID. The land use data used for modeling loads in this BMAP may not match information published by FDACS.

- **Basin Boundaries** – In the 2021 BMAP update there were 1,214 acres added to the BMAP area and 122,538 acres removed, resulting in a net reduction of 121,144 acres. When the 2013 basin boundary was developed, there was

uncertainty about whether some areas drained to the IRL, to the Upper St. Johns River, or to other adjacent waterbodies. The boundaries were adjusted based on the best information available about the hydrology of the IRL, but future adjustments may be made because of flow diversions or updated information. There were no additional changes to the BMAP boundary for this update.

- **Jurisdictional Boundaries** – Entities may experience shifts in their jurisdictional boundaries over time that require allocation adjustments. Changes to the boundaries and/or allocations for these stakeholders may be made as necessary and reflected in future BMAP iterations.

- **SWIL Model** – The SWIL Model was initially developed through cooperative funding provided by Brevard County, all of its cities, and FDOT District 5, as well as support from the U.S. Space Force, for purposes other than the BMAPs. In 2021, DEP began development of the SWIL Model, Version 5.0, making refinements that will improve the SWIL Model for use in the IRL BMAPs in the near future. This BMAP continues use of the SWIL Model, Version 4.0, loading estimates used in the 2021 BMAP. These loading estimates are described further in **Section 3**.

- **Community Development District (CDD) Responsibilities** –DEP has had several communications with the CDDs located in the CIRL. CDDs are assigned allocations only if three criteria were met: (1) there is development—i.e., roads and infrastructure—in the CDD area; (2) the CDD does not discharge to an MS4; and (3) the CDD pays a stormwater fee and receives a refund of this fee. CDDs that did not receive an allocation in this BMAP iteration may receive allocations in future BMAP iterations.

- **Special Districts** – Water control districts (WCDs) and similar types of special districts have been assigned qualitative allocations for the canals and rights-of-way to the special districts, as the districts have control over these portions of their jurisdictions. These districts are required to implement specific canal and right-of-way BMPs to be compliant with the BMAP. The BMPs for each special district are based on the activities and land uses within the district, and reporting on those BMPs is due annually. The specific approach for each special district is described in **Appendix H**, and will be reevaluated in each five-year BMAP update. The evaluation will be based on the special district's operations, authorities, and utilization of those authorities.

- **Complexity of the Problem** – DEP acknowledges the complexity of the dynamics affecting the water quality of the CIRL; therefore, this BMAP is designed to encompass a wide variety of projects and management strategies that will cumulatively act to significantly reduce nutrient loads. In estuarine-based systems, the interaction with ocean waters and freshwater inflows adds

variability to the water quality conditions (including those associated with climate shifts and elevated sea levels). Other factors such as inconsistency in annual rainfall amounts, changing land uses and farming practices, and internal nutrient sources such as muck deposits also complicate measuring the benefits of projects and management strategies and understanding the relationship between nutrient loading and the biological response of the seagrass deep edge.

- **Water Depths** – Elevated sea levels and changes in lagoon water depth over time affect the depth at which seagrass growth is measured for TMDL compliance and for assessing seagrass restoration. Improved depth estimates and seagrass deep edge assessment techniques are needed.

- **Previous Restoration Efforts** – DEP recognizes that stakeholders throughout the watershed have implemented stormwater management projects prior to the implementation of the TMDLs and that these efforts have benefited water quality. Projects completed in 2000 or later are considered for credits and inclusion in the BMAP.

- **Atmospheric Deposition** – Reductions in atmospheric deposition have occurred over time and are expected to continue. This BMAP and all subsequent nutrient reduction requirements and allowable loads factor only those inputs directly from the watershed. DEP will continue to monitor atmospheric deposition and may address it in future BMAP iterations as part of the adaptive management process.

- **Muck Deposition** – Muck deposits contain nutrients that flux into the water column, increasing the abundance of phytoplankton, drift macroalgae, and epiphytes that attenuate light and constrain seagrass growth and propagation. Most IRL muck originates from upland soils and vegetation. For this reason, stringent watershed soil-erosion control and soil/vegetation containment measures are needed. Without such measures in place, muck removal will need to be frequently repeated, which is neither cost-effective nor time efficient. Ideally, muck removal projects should be performed in conjunction with soil and vegetation retention programs, including public awareness activities, that limit the amount of muck material deposited into the IRL. The SWIL Model does not automatically take this process into account; however, guidance documentation has been developed for crediting muck removal projects specifically from the lagoon.

- **Tributary Water Quality Impairments** – DEP has identified tributary nutrient impairments within the SIRL project zone but has not yet set water quality targets with TMDLs. Specifically, WBIDs 3163 and 3163B (C-25 canal) are impaired for nutrients, as indicated by elevated phosphorus levels and the abundance of macrophytes.

1.3 Pollutant Sources

There are various sources of pollution in the CIRL. Nonpoint (i.e., diffuse) sources in the watershed contribute the majority of TN and TP loads to the CIRL and include urban and agricultural runoff. The St. Lucie Estuary, to the south, is being addressed through the St. Lucie River and Estuary BMAP.

1.3.1 Land Use

1.3.1.1 Land Use of Project Zone A

Project Zone A covers more than 94,742 acres of the CIRL BMAP. As shown in **Table 5**, urban land uses make up the majority of the project zone with 55.4% of the area, followed by shrublands with 12.2%. Stakeholders in Project Zone A are agricultural producers, Brevard County, City of Melbourne, City of Palm Bay, City of Melbourne, FDOT District 5, Melbourne-Tillman WCD, Town of Melbourne Beach, Town of Grant-Valkaria, Town of Indialantic, Town of Malabar, Town of Melbourne Village, and U.S. Space Force (Malabar Annex).

Table 5. Summary of land uses in Project Zone A

Note: Land use code 5000 (water) acreage excludes lagoon water in this table.

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban	52,496	55.4
2000	Agricultural	7,994	8.4
3000	Upland Prairie and Shrublands	11,573	12.2
4000	Upland Forested Areas	8,488	9.0
5000	Water	1,514	1.6
6000	Wetlands	8,283	8.7
7000	Disturbed Lands	1,213	1.3
8000	Transportation	3,181	3.4
Totals		**94,742**	**100.0**

DEP asked stakeholders to provide information on management actions, including projects, programs, and activities that may reduce nutrient loads to the CIRL. Management actions are included in the BMAP to address nutrient loads to the lagoon and have to meet several criteria to be considered eligible for credit. In **Appendix B, Table B-1** shows progress towards the required TN and TP load reductions allocated to Project Zone A from projects completed through October 2024.

1.3.1.2 Land Use of Project Zone SEB

Project Zone SEB covers more than 117,881 acres of the CIRL BMAP. As listed in **Table 6**, urban land use makes up the largest portion of the project zone with 22.5% of the area, followed by agriculture with 21.0%. Stakeholders in Project Zone SEB are agricultural producers, Brevard County, City of Fellsmere, City of Palm Bay, City of Sebastian, FDOT District 4 and District 5, Fellsmere WCD, Indian River County, Sebastian River Improvement District, Town of Grant-Valkaria, Town of Orchid, and Vero Lakes WCD.

Table 6. Summary of land uses in Project Zone SEB

Note: Land use code 5000 (water) acreage excludes lagoon water in this table.

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban	26,562	22.5
2000	Agricultural	24,726	21.0
3000	Upland Prairie and Shrublands	24,660	20.9
4000	Upland Forested Areas	17,250	14.6
5000	Water	2,256	1.9
6000	Wetlands	18,734	15.9
7000	Disturbed Lands	1,778	1.5
8000	Transportation	1,916	1.6
Totals		**117,881**	**100.0**

DEP asked stakeholders to provide information on management actions, including projects, programs, and activities that may reduce nutrient loads to the CIRL. Management actions are included in the BMAP to address nutrient loads to the lagoon and have to meet several criteria to be considered eligible for credit. In **Appendix B, Table B-2** shows progress towards the required TN and TP load reductions allocated to Project Zone SEB from projects completed through October 2024.

1.3.1.3 Land Use of Project Zone B

Project Zone B covers more than 68,938 acres of the CIRL BMAP area. As listed in **Table 7**, urban land uses make up the majority of the project zone with 55.6% of the area, followed by agriculture with 19.3%. Stakeholders in Project Zone B are agricultural producers, City of Vero Beach, FDOT District 4, Fort Pierce Farms WCD, Indian River County, Indian River Farms WCD, and Town of Indian River Shores.

Table 7. Summary of land uses in Project Zone B

Note: Land use code 5000 (water) acreage excludes lagoon water in this table.

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban	38,344	55.6
2000	Agricultural	13,308	19.3
3000	Upland Prairie and Shrublands	5,984	8.7
4000	Upland Forested Areas	4,456	6.5
5000	Water	1,229	1.8
6000	Wetlands	2,383	3.5
7000	Disturbed Lands	929	1.3
8000	Transportation	2,301	3.3
9000	Open Lands	3	0.0
Totals		**68,938**	**100.0**

DEP asked stakeholders to provide information on management actions, including projects, programs, and activities that may reduce nutrient loads to the CIRL. Management actions are

included in the BMAP to address nutrient loads to the lagoon and have to meet several criteria to be considered eligible for credit. In **Appendix B, Table B-3** shows progress towards the required TN and TP load reductions allocated to Project Zone B from projects completed through October 2024.

1.3.1.4 Land Use of Project Zone SIRL

Project Zone SIRL covers more than 34,653 acres of the CIRL BMAP area. As shown in **Table 8**, urban land uses make up the largest portion of the project zone with 40.6% of the area, followed by agriculture with 29.2%. Stakeholders in Project Zone SIRL are agricultural producers, City of Fort Pierce, FDOT District 4, Florida Turnpike Enterprise, Fort Pierce Farms WCD, St. Lucie County, and Town of St. Lucie Village. TMDLs have not yet been developed by DEP for the impaired waterbodies in the SIRL, although there are some tributary TMDLs in this area, as outlined in **Section 1.1.1.**

Table 8. Summary of land uses in Project Zone SIRL

Note: Land use code 5000 (water) acreage excludes lagoon water in this table.

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban	14,086	40.6
2000	Agricultural	10,130	29.2
3000	Upland Prairie and Shrublands	3,699	10.7
4000	Upland Forested Areas	2,910	8.4
5000	Water	570	1.6
6000	Wetlands	2,500	7.2
7000	Disturbed Lands	110	0.3
8000	Transportation	649	1.9
Totals		**34,653**	**100.0**

DEP asked stakeholders to provide information on management actions, including projects, programs, and activities that may reduce nutrient loads to the CIRL. Management actions are included in the BMAP to address nutrient loads to the lagoon and have to meet several criteria to be considered eligible for credit. In **Appendix B, Table B-4** shows progress towards the required TN and TP load reductions allocated to Project Zone A from projects completed through October 2024.

1.3.2 Agricultural Nonpoint Sources

The primary agricultural land uses in the CIRL BMAP area are grazing lands, fallow land, citrus, and open lands. Other agricultural land uses include nurseries and horse farms/specialty farms. Most of the horse farms are small, noncommercial hobby farms. Because of urban encroachment, citrus health issues (freeze/disease), and the downturn in the economy, a majority of previously existing citrus operations have been destroyed or abandoned, have significantly lowered their production acreage, or have transitioned to another commodity. In recent years, some of this acreage may have also shifted to nonagricultural/urban uses.

Table 9 summarizes the agricultural land use enrolled in best management practice (BMP) programs for the entire CIRL BMAP area. Enrollment is as of June 2024, and the agricultural acreage is based on the Florida Statewide Agricultural Irrigation Demand (FSAID) XI Geodatabase. **Appendix D** provides more information on agricultural activities in the CIRL BMAP area.

Table 9. Agricultural land use acreage enrolled summary in the BMP Program in the CIRL BMAP area as of June 2024

Category	Acres
FSAID VII agricultural acres in the BMAP area	54,927
Total agricultural acres enrolled	28,007
% of FSAID VII agricultural acres enrolled	51%

1.3.3 MS4s

Many of the municipalities in the watershed are regulated by the Florida 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.

1.3.4 Urban Nonpoint Sources

Subparagraph 403.067(7)(b)2.f., F.S., prescribes the pollutant reduction actions required for nonagricultural pollutant sources that are not subject to NPDES permitting. Non-MS4 sources must also implement the pollutant reduction requirements detailed in a BMAP and are subject to enforcement action by DEP or a water management district if they fail to implement their responsibilities under the BMAP.

1.3.5 Wastewater Treatment

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. These requirements are addressed in **Section 3**.

1.3.5.1 OSTDS

Based on data from the FDOH Florida Water Management Inventory (FLWMI), there are 73,844 known or likely septic systems (onsite sewage treatment and disposal systems [OSTDS]) located throughout the CIRL. **Table 10** summarizes the number of known and likely septic systems and **Figure 2** illustrates the location of known or likely septic systems in the CIRL.

Table 10. CIRL septic system counts

OSTDS Classifications	Total Number of Septic Systems
Known	66,636
Likely	7,208
Total	**73,844**

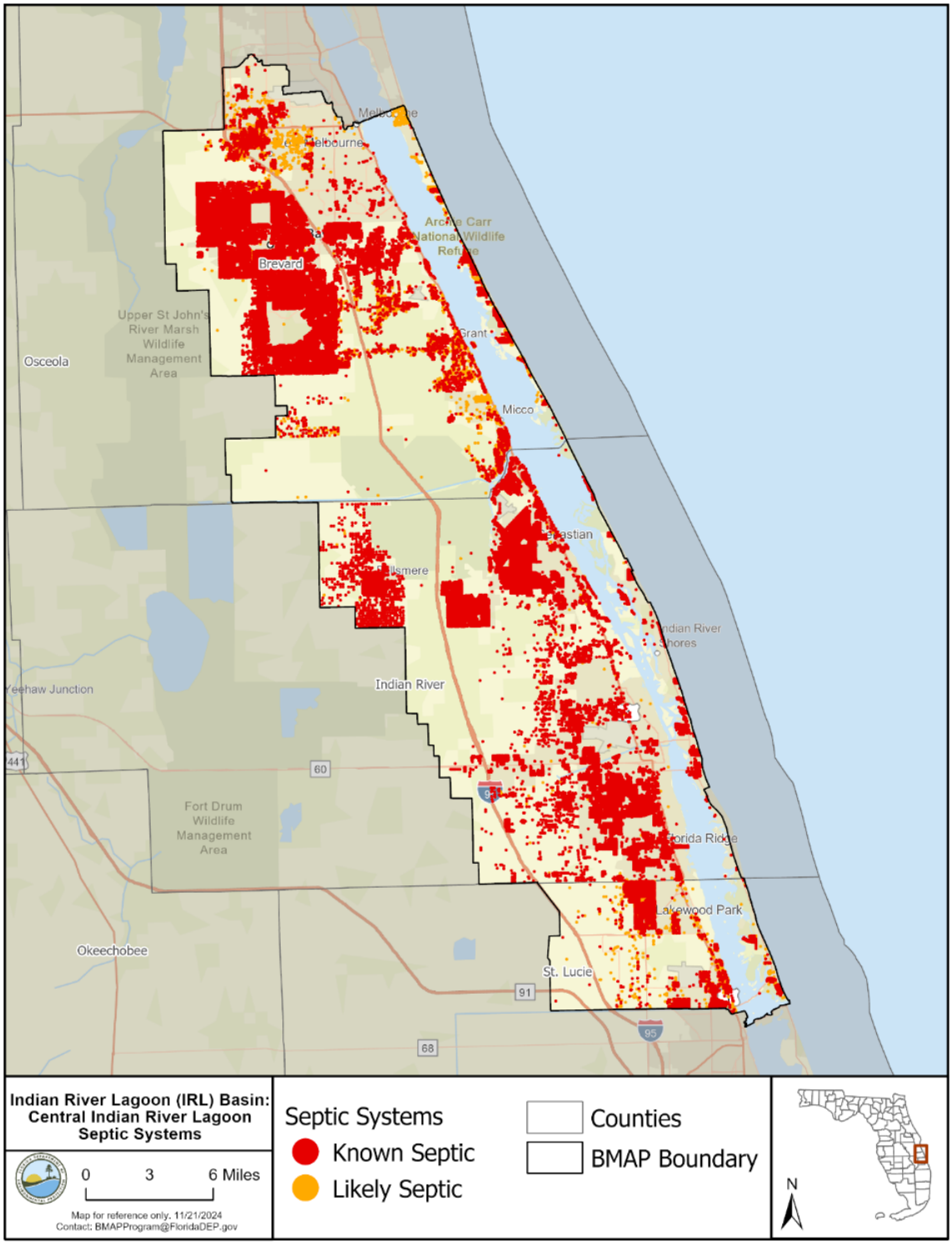

Figure 2. Map of known or likely septic locations in the CIRL

1.3.5.2 WWTFs

WWTFs located in the CIRL are shown in **Figure 3** and **Table 11.** As of January 2025, DEP identified 41 individually permitted wastewater facilities or activities in the CIRL Subbasin. The U.S. EPA authorizes DEP to issue permits for discharges to surface waters under the NPDES Program.

Table 11. Wastewater facilities in the CIRL as of January 2025

*DIW = Deep Injection Well; SLCU = St. Lucie County Utilities; IRCUD = Indian River County Utilities Department. * This is a preliminary list of facilities. Additional facilities may also dispose of effluent in the BMAP area and identified at a later date.*

Facility ID	Facility Name
FLA010352	Aquarina Beach Community WWTF
FL0042293	Barefoot Bay Advanced
FL0040622	BCUD-South Beaches WWTF
FLA010363	Camelot RV Park Inc
FLA014028	Country Cove MHP
FLA010343	Cove At South Beaches Condominium Association WWTF
FLA014025	Cypress Bay Mobile Home Park WWTF
FLA010272	Discovery Elementary School
FLA010421	Enchanted Lakes Estates
FLA014031	Harbor Branch Foundation WWTF
FLA017104	Harbor Branch Oceanographic Institution Post Doc Apartments
FLA010356	Harris Malabar Facility
FLA010435	Indian River County
FLA010431	Indian River County - Central - Gifford WWTF
FL0041637	Indian River County - West WWTF
FLA010374	Indian River Shores Trailer Park WWTF
FLA104388	IRCUD/North Regional WWTF
FLA010366	Lighthouse Cove WWTF
FLA010265	Long Point Recreational Park
FLA013982	Meadowood
FL0041122	Melbourne Grant St WWTP & DIW
FLA013946	North Hutchinson Island Regional WWTF
FLA103357	Palm Bay, City of - WWTF
FLA010346	Pelican Bay MHC WWTF
FLA010400	River Grove Mobile Home Village WWTF
FLA010472	Royal Oaks Mobile Home Park WWTF
FLA013945	SLCU Fairwinds Golf Course WWTF
FLA039586	SLCU Lakewood Park WWTF
FL0139475	SLCUD South Hutchinson Island Reg WWTF
FL0102679	South Central Regional Wastewater Treatment Plant
FLA010357	South Shores Utility
FLA010347	Southern Comfort Mobile Home Park WWTF
FLA013998	Spanish Lakes Country Club Village WWTF
FLA013977	Spanish Lakes Country Club Village WWTF
FLA013969	St. Lucie County Utilities Holiday Pines WWTF

Facility ID	Facility Name
FLA010492	Su - Rene MHP
FLA010338	Summit Cove Condominium
FLA010475	Sun Ag Mobile Home Park Wastewater Treatment Facility
FLA010359	Treetop Village
FLA021661	Vero Beach, City of
FLA010332	West Melbourne, City of - Ray Bullard WWTF

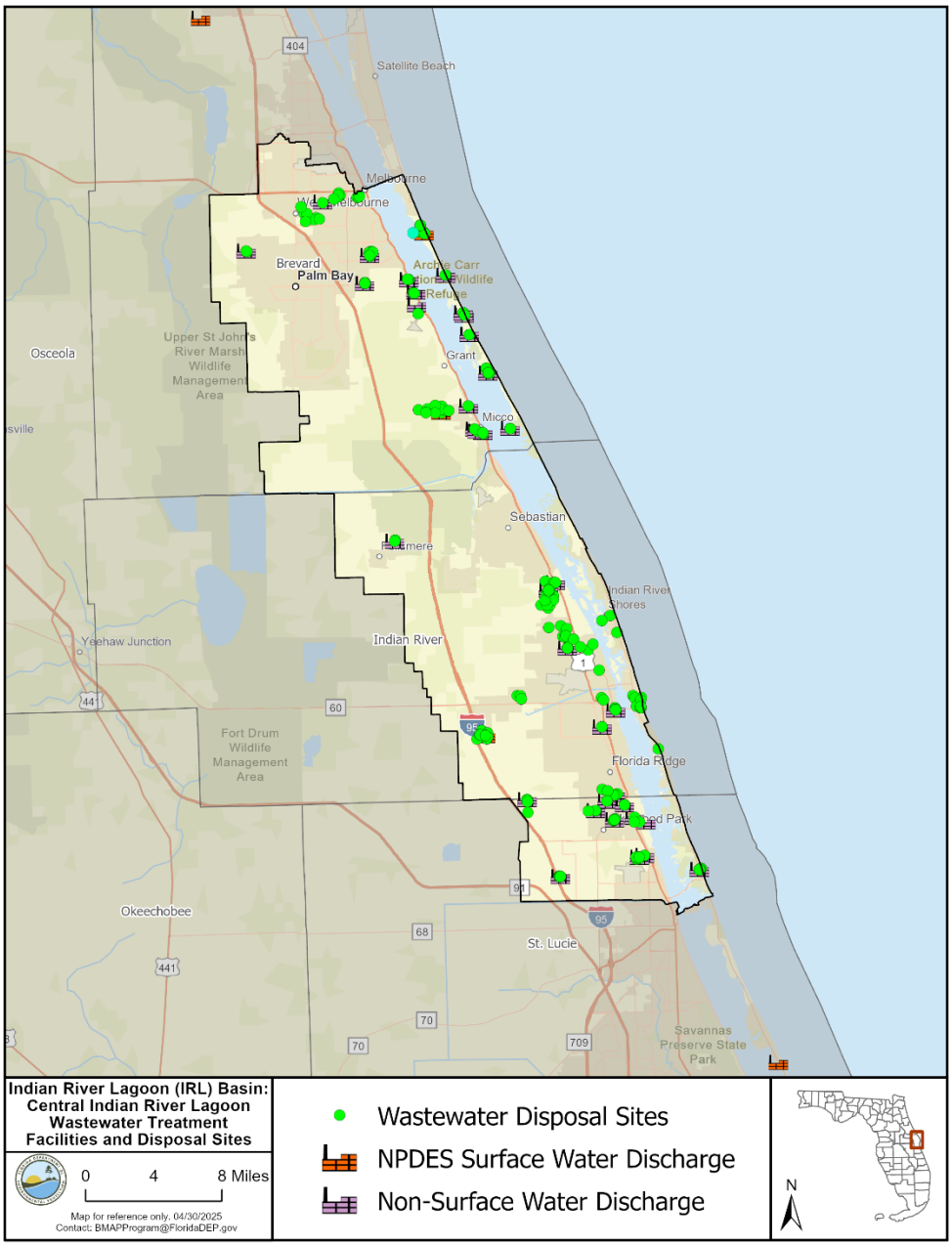

Figure 3. Map of wastewater facilities in the CIRL

1.4 IRLPP

In 2023, the IRLPP was established in Section 373.469, F.S. The IRLPP includes the Banana River Lagoon, Central IRL, and North IRL BMAPs. Specific requirements within the IRLPP include:

- **BMAP Updates**: Requires BMAPs to be evaluated and updated every five years with implementation milestones with strategies and projects and sufficient water quality monitoring to evaluate whether reasonable progress in pollutant load reductions is being achieved over time.

- **Achieving Water Quality Standards**: Requires DEP to coordinate with partners to identify, prioritize, and incorporate into BMAP/RAPs strategies and projects necessary to achieve water quality standards and meet the total maximum daily load (TMDL) within the IRL watershed.

- **IRL Watershed Research and Water Quality Monitoring Program**: Requires DEP to work with partners to establish and implement a comprehensive water quality monitoring network throughout the IRL and fund research to identify sources and prioritize projects for water quality and seagrass restoration.

- **OSTDS Requirements**: Beginning on January 1, 2024, prohibits new conventional OSTDS where sewer is available. Where sewer is not available, enhanced-nutrient reducing systems are required. All existing (residential and commercial) conventional OSTDS must be connected to sewer or upgraded to enhanced nutrient-reducing OSTDS by July 1, 2030.

DEP is working with its partners to identify data gaps, expand the monitoring network in the lagoon, and identify research projects. Since its inception, the IRL water quality grants have funded $309 million dollars for 48 projects.

1.5 Stakeholder Involvement

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

- ***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 invited stakeholders to participate in the BMAP development process and encouraged public participation and consensus to the greatest practicable extent. **Table ES-1** identifies the stakeholders who participated in the development of this BMAP.

During the development and update of the BMAP, DEP held a series of meetings involving stakeholders and the public. The purpose of these meetings was to consult with stakeholders to gather information, evaluate the best available science, define management strategies and milestones, develop entity required reductions, and update monitoring requirements. 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. Public meetings were held virtually in April 2024. All meetings were open to the public and noticed in the *Florida Administrative Register* (F.A.R.). Additionally, a final public meeting was held on May 7, 2025, that was noticed in the F.A.R. and in local newspapers.

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

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

Section 2. Seagrass and Water Quality Monitoring Plan

2.1 Water Quality Monitoring

This monitoring plan is designed to track seagrass distribution and to identify long-term water quality trends. Sampling stations, parameters, frequency, and other elements of this strategy may be modified as appropriate to match changing environmental conditions, funding resources, and understanding of the IRL system.

2.1.1 Objectives

The primary and secondary monitoring objectives for the CIRL monitoring plan are described as follows:

Primary Monitoring Objective

- Track seagrass depth extent responses to BMAP implementation.

Secondary Monitoring Objectives

- Track trends in ambient water quality in the CIRL and its watershed, including major tributaries.
- Determine if watershed nutrient loading is decreasing and resulting in improved lagoon water quality, which will allow seagrass to grow to target depths.

Additional information about the seagrass depth and compliance with the TMDL targets is discussed in **Section 4.3**, including the most recent results based on the 2023 aerial mapping data. To read more about the process for analyzing the seagrass data and depth analysis, see **Appendix C**.

2.1.2 Monitoring Parameters, Frequency, and Network

To achieve the primary monitoring objective, the main parameter that will be tracked is the seagrass depth by project zone, which is identified through flyover mapping and aerial photography interpretation. DEP and SJRWMD are partnering to fund and conduct flyovers and mapping. In the past, SJRWMD and partners typically have contracted for seagrass mapping every two to three years, and DEP will continue to work with the district to maintain this frequency for the BMAP monitoring plan.

The aerial photography is taken from spring to early summer, during the seagrass growing season. Field sampling conducted around the time of the flights provides data for assessing the accuracy of the maps, and additional field sampling is conducted to address uncertainty regarding areas mapped as seagrass. Using aerial photography, a map is created showing seagrass extent in the lagoon. These maps are used in evaluations to assess progress towards the

TMDL seagrass depth targets for the CIRL. Additional details on the seagrass assessment methodology are contained in **Appendix C**.

To achieve the secondary monitoring objective above, the existing SJRWMD and SFWMD stations in the CIRL BMAP will be monitored. On average, seagrass transects are 1 kilometer (km) away from a long-term water quality station. The monitoring strategy for these stations focuses on the following parameters:

Table 12. Core water quality indicators and field parameters

Parameters
Alkalinity
Ammonium
Chlorophyll *a* (corrected)
Depth of Collection
Dissolved Organic Carbon
Dissolved Oxygen
Field Conditions
Nitrite/Nitrate
Orthophosphate
pH
Photosynthetically Active Radiation (PAR)
Salinity
Secchi Depth
Silica
Specific Conductivity
Total Depth of Sample Site
Total Kjeldahl Nitrogen
TN
Total Organic Carbon
TP
Total Suspended Solids (TSS)
True Color
Turbidity
Volatile Suspended Solids
Water Temperature

In addition to the SJRWMD and SFWMD water quality monitoring stations, long-term stations are monitored by the Indian River Farms Water Control District (IRF-WCD), North St. Lucie River WCD (NSLR-WCD) Fort Pierce Farms WCD (FPF-WCD), and Sebastian River Improvement District (SRID) for water quality, and U.S. Geological Survey (USGS) for flow. **Table 13** lists the stations that SJRWMD, USGS, IRF-WCD, NSLR-WCD, FPF-WCD, and SRID currently sample in the CIRL BMAP area, and these stations are shown by project zone in **Figure 4**, **Figure 5**, **Figure 6**, and **Figure 7**. Data collection generally occurs from three types of stations: flow stations where volume is primarily determined; tributary water quality stations near the junction of tributaries where parameters are sampled as these waters mix with the lagoon; and lagoon water quality stations that measure parameters in the lagoon itself

Table 13. Monitoring stations in the CIRL BMAP area

Entity	Station ID	Project Zone	Status	Latitude	Longitude	Station Type	Frequency
FPFWCD	1	CIRL-SIRL	Active	27.4763	-80.3451	Tributary Water Quality	Quarterly
FPFWCD	2	CIRL-SIRL	Active	27.5208	-80.3903	Tributary Water Quality	Quarterly
FPFWCD	3	CIRL-SIRL	Active	27.5209	-80.3985	Tributary Water Quality	Quarterly
FPFWCD	4	CIRL-SIRL	Active	27.5210	-80.4068	Tributary Water Quality	Quarterly
FPFWCD	5	CIRL-SIRL	Active	27.5140	-80.4299	Tributary Water Quality	Quarterly
IRFWCD	IRF-1	CIRL-B	Active	27.6397	-80.4294	Tributary Water Quality	Quarterly
IRFWCD	IRF-2	CIRL-B	Active	27.6935	-80.4453	Tributary Water Quality	Quarterly
IRFWCD	IRF-3	CIRL-B	Active	27.5980	-80.4132	Tributary Water Quality	Quarterly
NSLRWCD	5	CIRL-SIRL	Active	27.4688	-80.3670	Tributary Water Quality	Quarterly
SFWMD	C25S50	CIRL-SIRL	Active	27.4690	-80.3383	Tributary Water Quality	Weekly
SFWMD	IRL31C	CIRL-SIRL	Active	27.4430	-80.2983	Lagoon Water Quality	7x a year (Jan., Feb., Apr., Jun., Jul., Aug., Oct.)
SFWMD	IRL34B	CIRL-SIRL	Active	27.4669	-80.3226	Lagoon Water Quality	7x a year (Jan., Feb., Apr., Jun., Jul., Aug., Oct.)
SFWMD	IRL36B	CIRL-SIRL	Active	27.4900	-80.3306	Lagoon Water Quality	7x a year (Jan., Feb., Apr., Jun., Jul., Aug., Oct.)
SFWMD	IRL39B	CIRL-SIRL	Active	27.5401	-80.3451	Lagoon Water Quality	7x a year (Jan., Feb., Apr., Jun., Jul., Aug., Oct.)
SFWMD	S50_S	CIRL-SIRL	Active	27.4686	-80.3381	Flow	Continuous
SJRWMD	CC03	CIRL-A	Active	28.0688	-80.6212	Tributary Water Quality	Monthly
SJRWMD	IRLI23	CIRL-A	Active	28.0699	-80.5689	Lagoon Water Quality	Monthly
SJRWMD	IRLI24	CIRL-A	Active	28.0447	-80.5763	Lagoon Water Quality	Monthly
SJRWMD	IRLI26	CIRL-A	Active	27.9885	-80.5325	Lagoon Water Quality	Monthly

Entity	Station ID	Project Zone	Status	Latitude	Longitude	Station Type	Frequency
SJRWMD	IRLI27	CIRL-A	Active	27.9469	-80.5284	Lagoon Water Quality	Monthly
SJRWMD	IRLI28	CIRL-SEB	Active	27.8882	-80.4851	Lagoon Water Quality	Monthly
SJRWMD	IRLIRJ01	CIRL-A	Active	27.7975	-80.4496	Lagoon Water Quality	Monthly
SJRWMD	IRLIRJ04	CIRL-B	Active	27.6921	-80.3869	Lagoon Water Quality	Monthly
SJRWMD	IRLIRJ05	CIRL-B	Active	27.6586	-80.3763	Lagoon Water Quality	Monthly
SJRWMD	IRLIRJ07	CIRL-B	Active	27.6197	-80.3685	Lagoon Water Quality	Monthly
SJRWMD	IRLIRJ08	CIRL-B	Active	27.5898	-80.3561	Lagoon Water Quality	Monthly
SJRWMD	IRLSEBNP	CIRL-SEB	Active	27.8563	-80.5242	Tributary Water Quality	Monthly
SJRWMD	IRLSG031	CIRL-A	Active	28.0692	-80.5946	Biological	Bi-annual
SJRWMD	IRLSG032	CIRL-A	Active	28.0470	-80.5543	Biological	Bi-annual
SJRWMD	IRLSG033	CIRL-A	Active	28.0428	-80.5816	Biological	Bi-annual
SJRWMD	IRLSG034	CIRL-A	Active	28.0275	-80.5739	Biological	Bi-annual
SJRWMD	IRLSG035	CIRL-A	Active	27.9750	-80.5464	Biological	Bi-annual
SJRWMD	IRLSG036	CIRL-A	Active	27.9458	-80.5318	Biological	Bi-annual
SJRWMD	IRLSG037	CIRL-A	Active	27.9235	-80.5131	Biological	Bi-annual
SJRWMD	IRLSG038	CIRL-SEB	Active	27.8856	-80.5017	Biological	Bi-annual
SJRWMD	IRLSG039	CIRL-SEB	Active	27.8644	-80.4907	Biological	Bi-annual
SJRWMD	IRLSG040	CIRL-SEB	Active	27.8598	-80.4906	Biological	Bi-annual
SJRWMD	IRLSG041	CIRL-SEB	Active	27.8595	-80.4597	Biological	Bi-annual
SJRWMD	IRLSG042	CIRL-SEB	Active	27.8529	-80.4855	Biological	Bi-annual
SJRWMD	IRLSG043	CIRL-SEB	Active	27.8369	-80.476	Biological	Bi-annual
SJRWMD	IRLSG044	CIRL-SEB	Active	27.8467	-80.4443	Biological	Bi-annual
SJRWMD	IRLSG045	CIRL-SEB	Active	27.8090	-80.4449	Biological	Bi-annual
SJRWMD	IRLSG046	CIRL-SEB	Active	27.7795	-80.4418	Biological	Bi-annual
SJRWMD	IRLSG047	CIRL-SEB	Active	27.7690	-80.4246	Biological	Bi-annual
SJRWMD	IRLSG048	CIRL-B	Active	27.7553	-80.4184	Biological	Bi-annual
SJRWMD	IRLSG049	CIRL-B	Active	27.7083	-80.3957	Biological	Bi-annual
SJRWMD	IRLSG050	CIRL-B	Active	27.6837	-80.3883	Biological	Bi-annual
SJRWMD	IRLSG051	CIRL-B	Active	27.6571	-80.3769	Biological	Bi-annual
SJRWMD	IRLSG052	CIRL-B	Active	27.6212	-80.3618	Biological	Bi-annual
SJRWMD	IRLSG053	CIRL-B	Active	27.61140	-80.3694	Biological	Bi-annual
SJRWMD	IRLSG054	CIRL-B	Active	27.59608	-80.3424	Biological	Bi-annual

Entity	Station ID	Project Zone	Status	Latitude	Longitude	Station Type	Frequency
SJRWMD	IRLSG055	CIRL-B	Active	27.58179	-80.36	Biological	Bi-annual
SJRWMD	IRLSG056	CIRL-SIRL	Active	27.54070	-80.3443	Biological	Bi-annual
SJRWMD	IRLSG057	CIRL-SIRL	Active	27.51403	-80.327	Biological	Bi-annual
SJRWMD	IRLSG058	CIRL-SIRL	Active	27.49033	-80.3343	Biological	Bi-annual
SJRWMD	IRLSG059	CIRL-SIRL	Active	27.46889	-80.325	Biological	Bi-annual
SJRWMD	IRLSG074	CIRL-A	Active	28.0315	-80.5754	Biological	Bi-annual
SJRWMD	IRLSG075	CIRL-B	Active	27.6962	-80.39	Biological	Bi-annual
SJRWMD	IRLSIR003	CIRL-SEB	Active	27.7695	-80.5058	Tributary Water Quality	Monthly
SJRWMD	IRLSUS	CIRL-SEB	Active	27.8544	-80.4913	Tributary Water Quality	Monthly
SJRWMD	IRLTPM	CIRL-A	Active	28.0171	-80.5959	Tributary Water Quality	Monthly
SJRWMD	IRLTUS	CIRL-A	Active	28.0334	-80.5797	Tributary Water Quality	Monthly
SJRWMD	IRLUPGC	CIRL-A	Active	27.9650	-80.5681	Tributary Water Quality	Monthly
SJRWMD	IRLUPSFW	CIRL-SEB	Active	27.8303	-80.5348	Tributary Water Quality	Monthly
SJRWMD	IRLVMC	CIRL-B	Active	27.6493	-80.4003	Tributary Water Quality	Monthly
SJRWMD	IRLVNCODH	CIRL-B	Active	27.6924	-80.4145	Tributary Water Quality	Monthly
SJRWMD	IRLVSC	CIRL-B	Active	27.6052	-80.3826	Tributary Water Quality	Monthly
SRID	SRID-1	CIRL-SEB	Active	27.7486	-80.4949	Tributary Water Quality	Quarterly
USGS	02249500	CIRL-A	Active	28.0792	-80.6297	Flow	Continuous
USGS	02250030	CIRL-A	Active	28.0170	-80.5959	Flow	Continuous
USGS	02251000	CIRL-SEB	Active	27.7692	-80.5061	Flow	Continuous
USGS	02251500	CIRL-SEB	Active	27.8558	-80.5244	Flow	Continuous
USGS	02251767	CIRL-SEB	Active	27.8303	-80.5344	Flow	Continuous
USGS	02252500	CIRL-B	Active	27.6934	-80.4292	Flow	Continuous
USGS	02253000	CIRL-B	Active	27.6478	-80.4056	Flow	Continuous
USGS	02253500	CIRL-B	Active	27.6034	-80.3898	Flow	Continuous

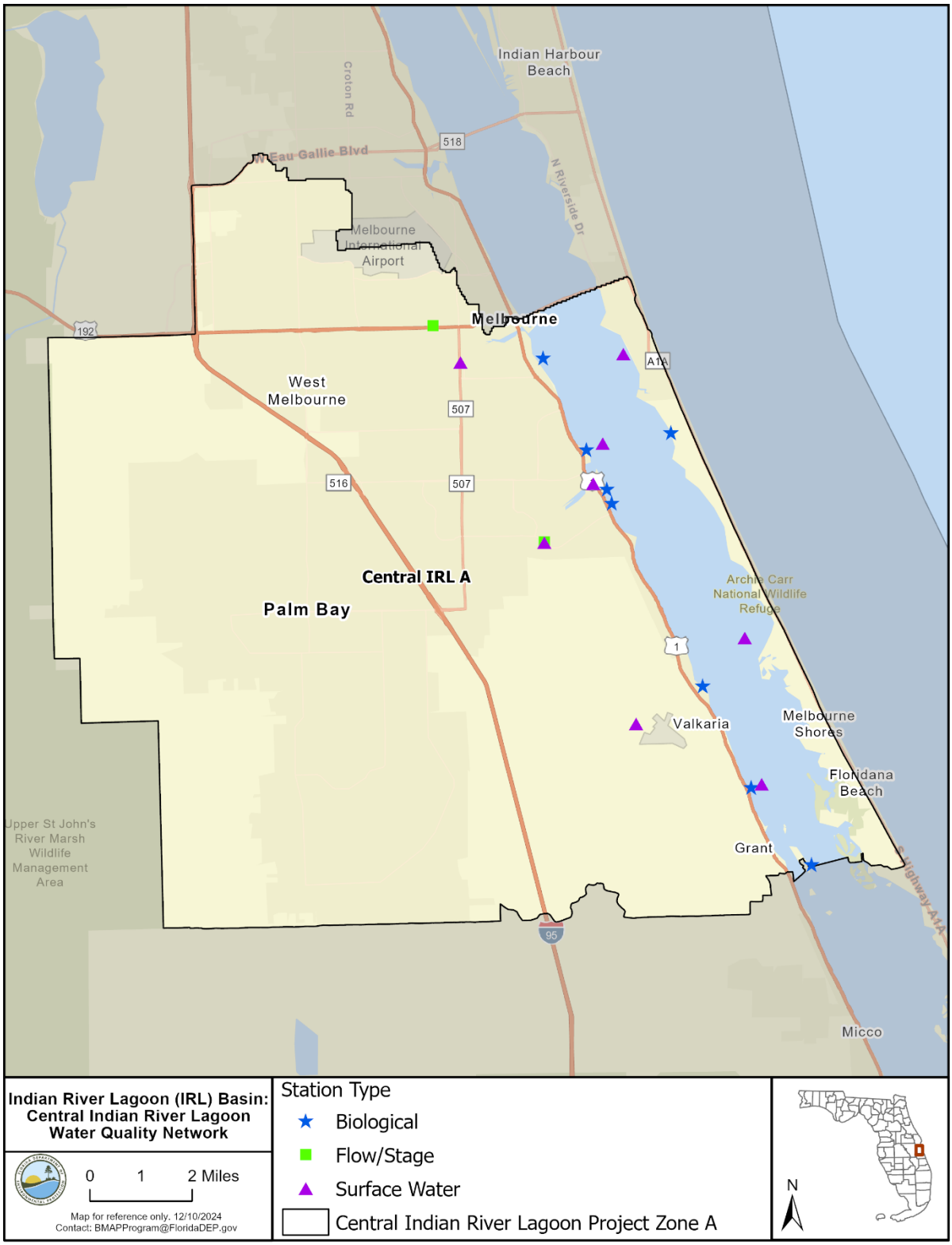

Figure 4. Monitoring network in the CIRL Project Zone A

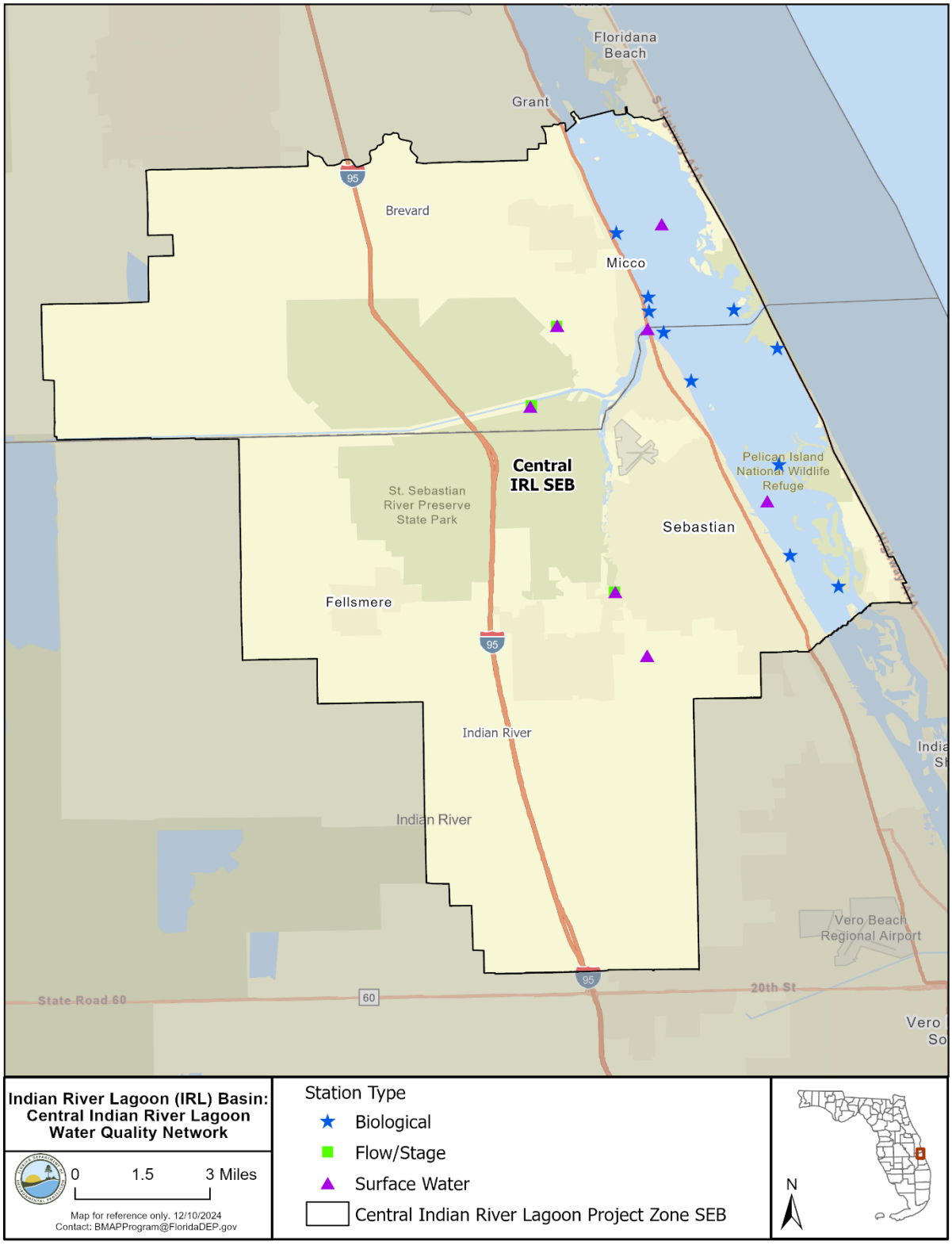

Figure 5. Monitoring network in the CIRL Project Zone SEB

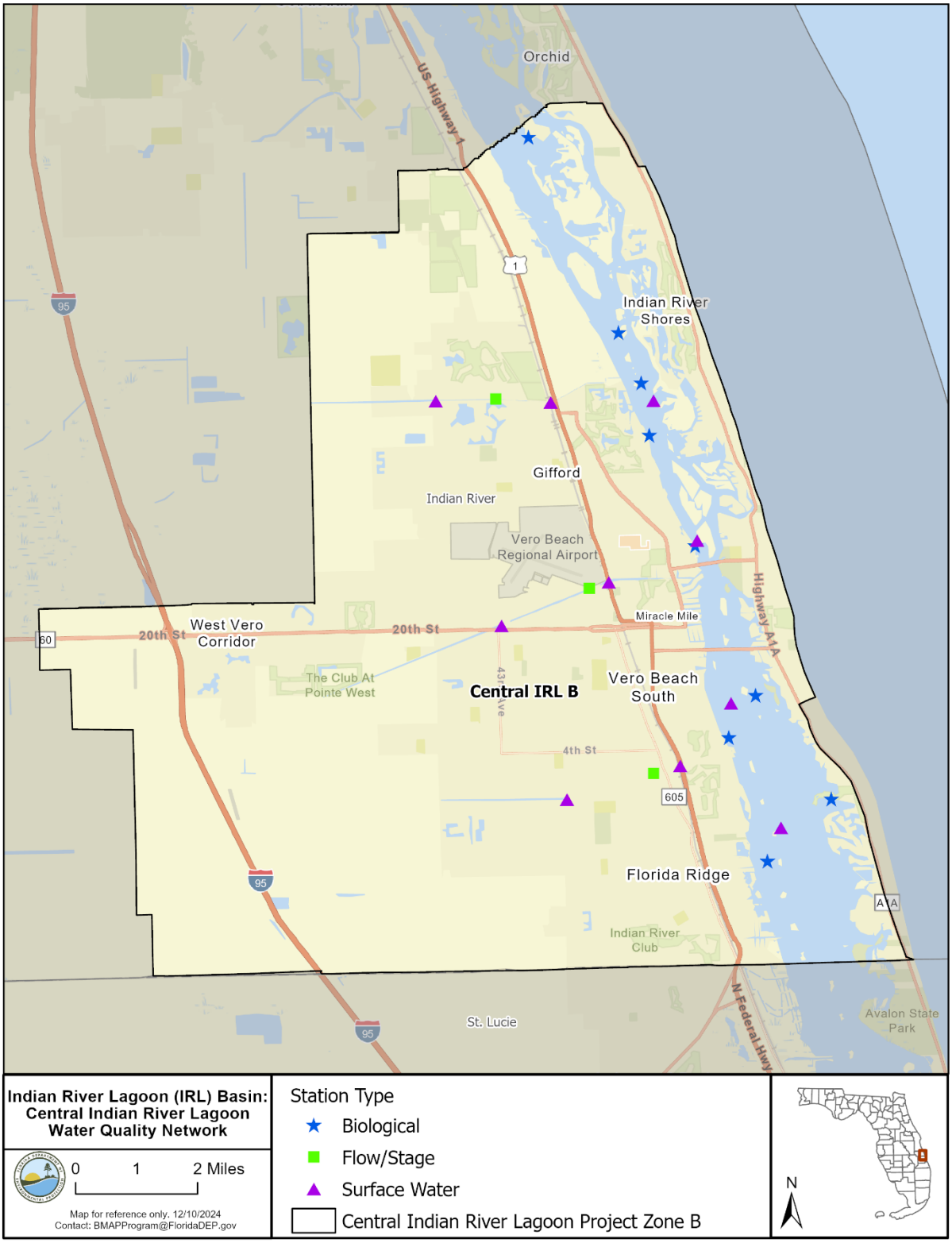

Figure 6. Monitoring network in the CIRL Project Zone B

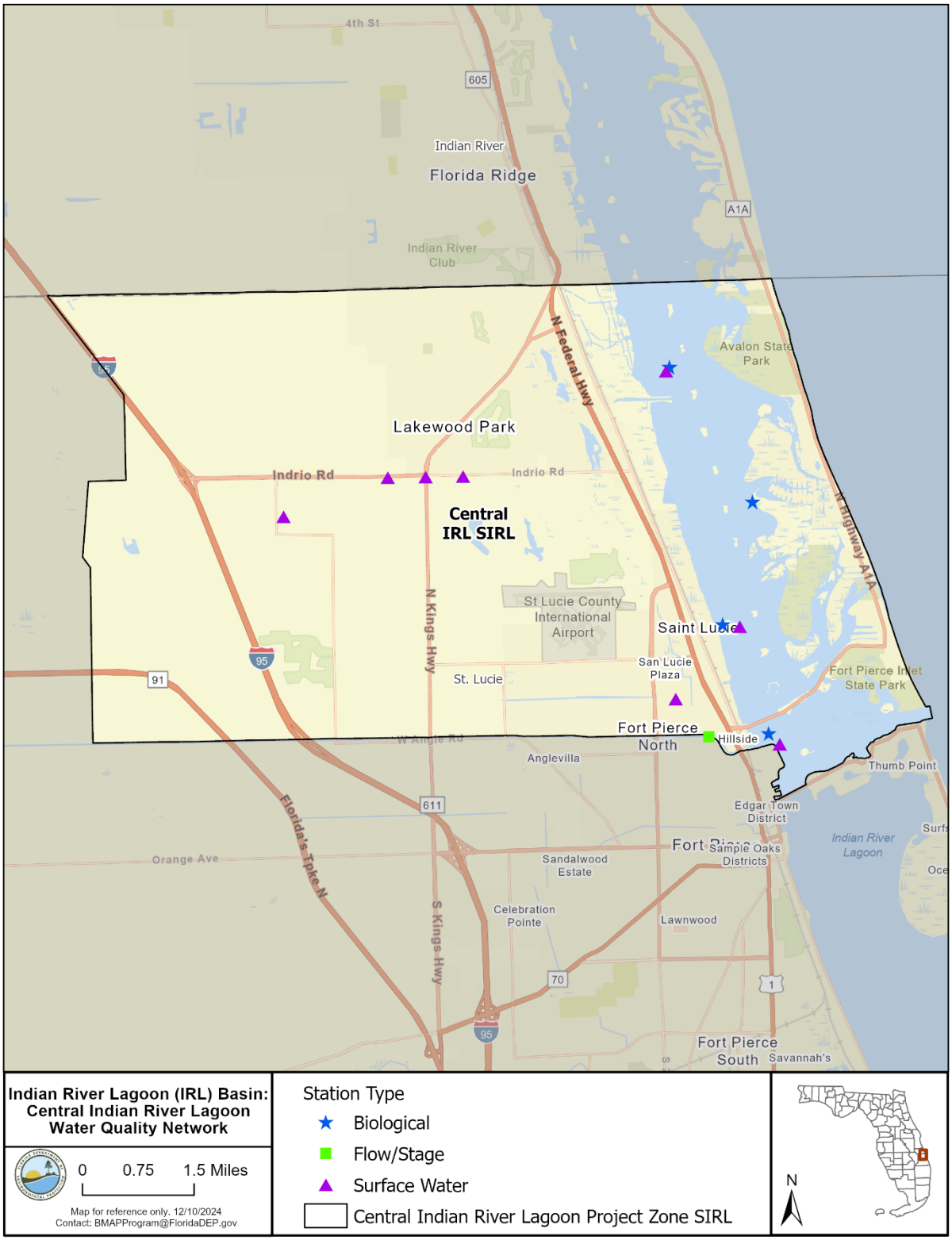

Figure 7. Monitoring network in the CIRL Project Zone SIRL

2.1.3 Data Management and Assessment

In 2017, the Florida Watershed Information Network (WIN) replaced the Florida Storage and Retrieval (STORET) Database. WIN now serves as the primary repository of ambient water quality data for the state of Florida. Water quality data from the WIN database are used for Impaired Surface Waters Rule (IWR) assessments and TMDL development. Ambient water quality data collected as part of the BMAP will be uploaded into WIN for long-term storage and availability. All BMAP data providers have agreed to upload ambient water quality data to WIN at least quarterly, upon the completion of the appropriate quality assurance/quality control (QA/QC) checks.

Other data relevant to monitoring restoration efforts, such as the extent and abundance of seagrass coverages, groundwater quality, and storm events, may be collected. Stakeholders agree to provide these data to other BMAP partners on request, and when appropriate, for inclusion in BMAP data analyses and adaptive management evaluations. Data used to assess the biological health of streams and lakes may be provided to DEP staff in the Watershed Assessment Section. For more information on submitting external biological data, visit the DEP website.

The water quality data will be analyzed periodically to determine trends in water quality in the lagoon. Specific statistical analyses were not identified during BMAP development; however, commonly accepted methods of data analysis will be used.

2.1.4 Quality Assurance/Quality Control

Stakeholders participating in the monitoring plan must collect water quality data in a manner consistent with the DEP standard operating procedures (SOPs) for QA/QC. The most current version of these procedures can be downloaded from the DEP website. For BMAP-related data analyses, entities should use National Environmental Laboratory Accreditation Council (NELAC) National Environmental Laboratory Accreditation Program (NELAP)–certified laboratories or other labs that meet the certification and other requirements outlined in the DEP SOPs.

2.2 Water Quality Trends

As the majority of the data collected in the CIRL BMAP water quality monitoring network (WQMN) is supplied by the SJRWMD, station status and trends assessments are also conducted by the SJRWMD annually. Assessment results of the 2023 status and trends report is referenced in **Table 14**. Note that all ranges are expressed as low, medium or high relative to each other, and high values do not necessarily indicate poor water quality – i.e. data from the SJRWMD status and trends assessment is not compared to TMDL or DEP Water Quality Assessment Standards. Additional details may be found in **Appendix I** on the specific methodology of the assessment. See **Appendix A** for link to information about the trends analysis.

Table 14. Water quality trends for monitoring stations in CIRL BMAP area

Subbasin	Project Zone	Station	Total Nitrogen (mg/L as N)	Total Phosphorus (ug/L as P)
CIRL	CIRL-A	CC03	Mid-range, Increasing (<5%)	Mid-range, Increasing (<5%)
CIRL	CIRL-A	IRLCCU	Mid-range, Stable	High-range, Stable
CIRL	CIRL-A	IRLI23	Mid-range, Stable	Mid-range, Increasing (<5%)
CIRL	CIRL-A	IRLI24	Mid-range, Stable	Mid-range, Increasing (<5%)
CIRL	CIRL-A	IRLI26	Low-range, Stable	Mid-range, Increasing (<5%)
CIRL	CIRL-A	IRLI27	Low-range, Stable	Mid-range, Increasing (<5%)
CIRL	CIRL-A	IRLIRJ01	Low-range, Stable	Mid-range, Stable
CIRL	CIRL-A	IRLTPM	Low-range, Stable	Low-range, Stable
CIRL	CIRL-A	IRLTUS	Mid-range, Stable	Mid-range, Stable
CIRL	CIRL-A	IRLUPGC	Mid-range, Increasing (<5%)	Low-range, Increasing (<5%)
CIRL	CIRL-B	CMVero	Low-range, Insufficient Data	Mid-range, Insufficient Data
CIRL	CIRL-B	IRLIRJ04	Low-range, Stable	Mid-range, Increasing (<5%)
CIRL	CIRL-B	IRLIRJ05	Low-range, Stable	Mid-range, Stable
CIRL	CIRL-B	IRLIRJ07	Low-range, Stable	Mid-range, Stable
CIRL	CIRL-B	IRLIRJ08	Low-range, Stable	Low-range, Stable
CIRL	CIRL-B	IRLVMC	Mid-range, Stable	High-range, Stable
CIRL	CIRL-B	IRLVNCODH	Mid-range, Stable	High-range, Stable
CIRL	CIRL-B	IRLVSC	Mid-range, Decreasing (<5%)	High-range, Decreasing (<5%)
CIRL	CIRL-SEB	IRLI28	Low-range, Stable	Low-range, Increasing (<5%)
CIRL	CIRL-SEB	IRLSEBNP	Low-range, Stable	Mid-range, Stable
CIRL	CIRL-SEB	IRLSIR003	Low-range, Stable	Mid-range, Stable
CIRL	CIRL-SEB	IRLSUS	Low-range, Stable	Mid-range, Stable
CIRL	CIRL-SEB	IRLUPSFW	Low-range, Stable	High-range, Stable

2.3 Bathymetry

Bathymetry is the measurement of the bottom depths of a waterbody and is important for understanding how the seagrass deep edge migrates across the lagoon as time passes. The current bathymetric dataset used by the SJRWMD and SFWMD was collected in 1995 and has been used in all of the seagrass assessments to date. Additional methods of mapping the lagoon bathymetry need to be pursued to assess the change in the deep edge where seagrass has historically been found.

2.4 Hot Spot Analysis

2.4.1 Approach

To better prioritize and focus resources to most efficiently achieve restoration in the CIRL 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 Chapter 403.067, F.S. The benchmarks are not

intended to measure progress towards restoration or compliance; they will only be used to prioritize 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 8**. The scores for each category are summed by station to determine an overall rank.

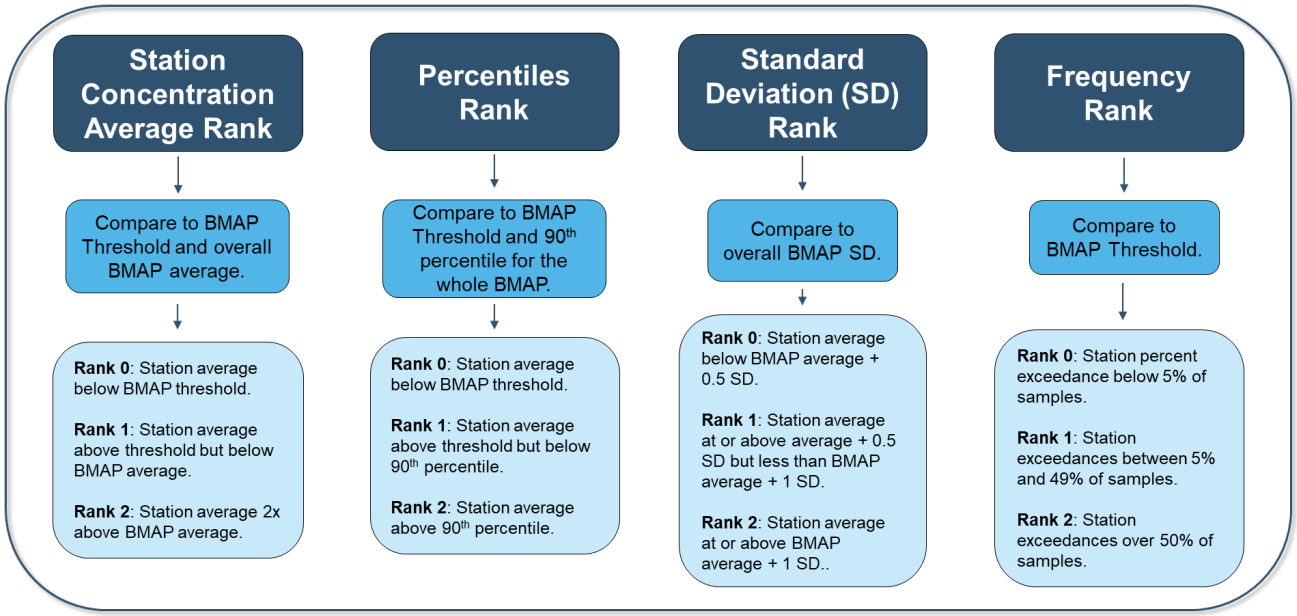

Figure 8. Summary of hot spot analysis approach

2.4.2 Results

The hot spot analysis used ambient surface water data from 2019 to 2023. To be included in the analysis, each station must have at least four samples per year and at least two years of data. This analysis will continue to be reviewed and completed as needed. **Figure 9** and **Figure 10** show the spatial results of the TN and TP hot spot analysis in CIRL.

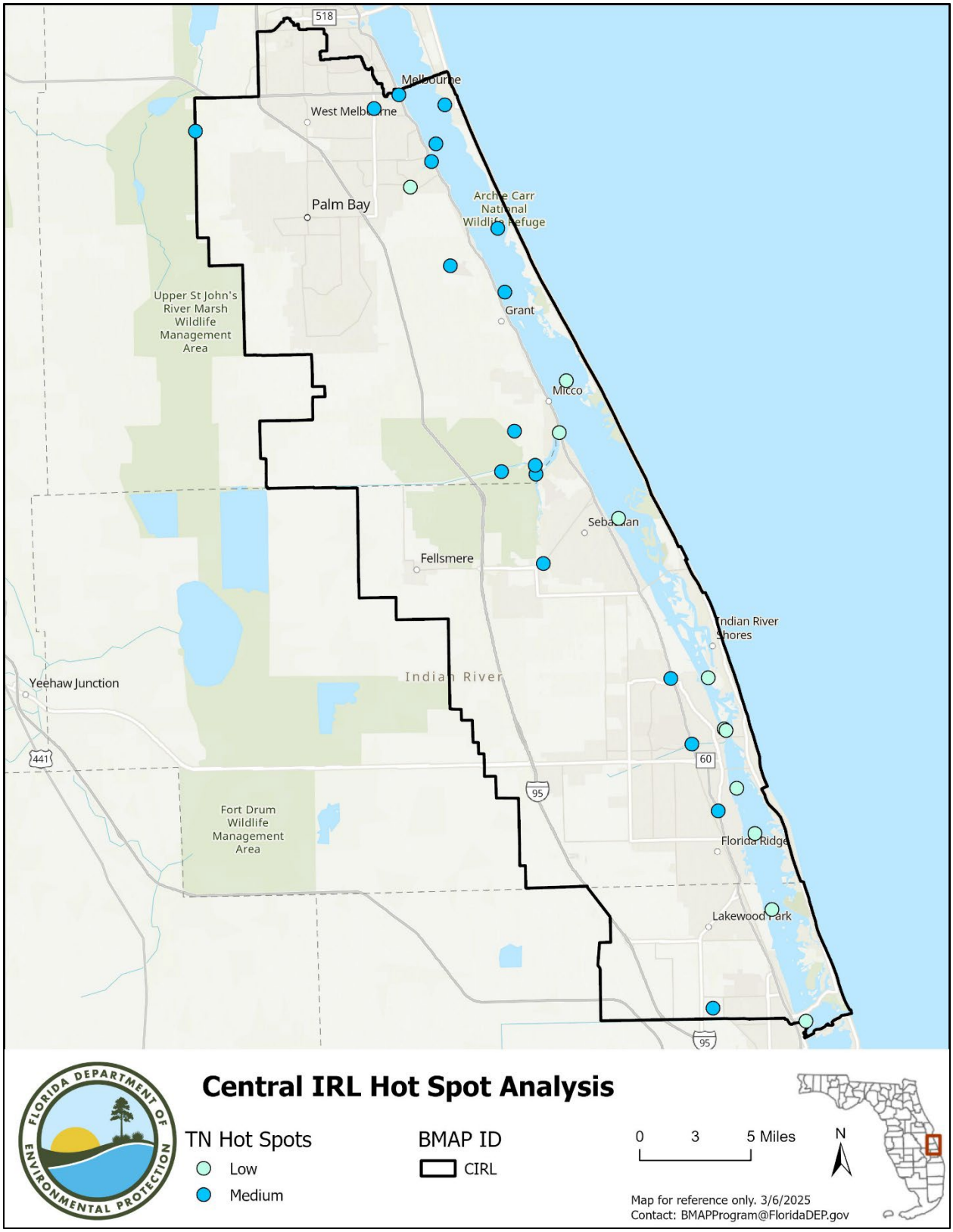

Figure 9. Total nitrogen hot spots in CIRL

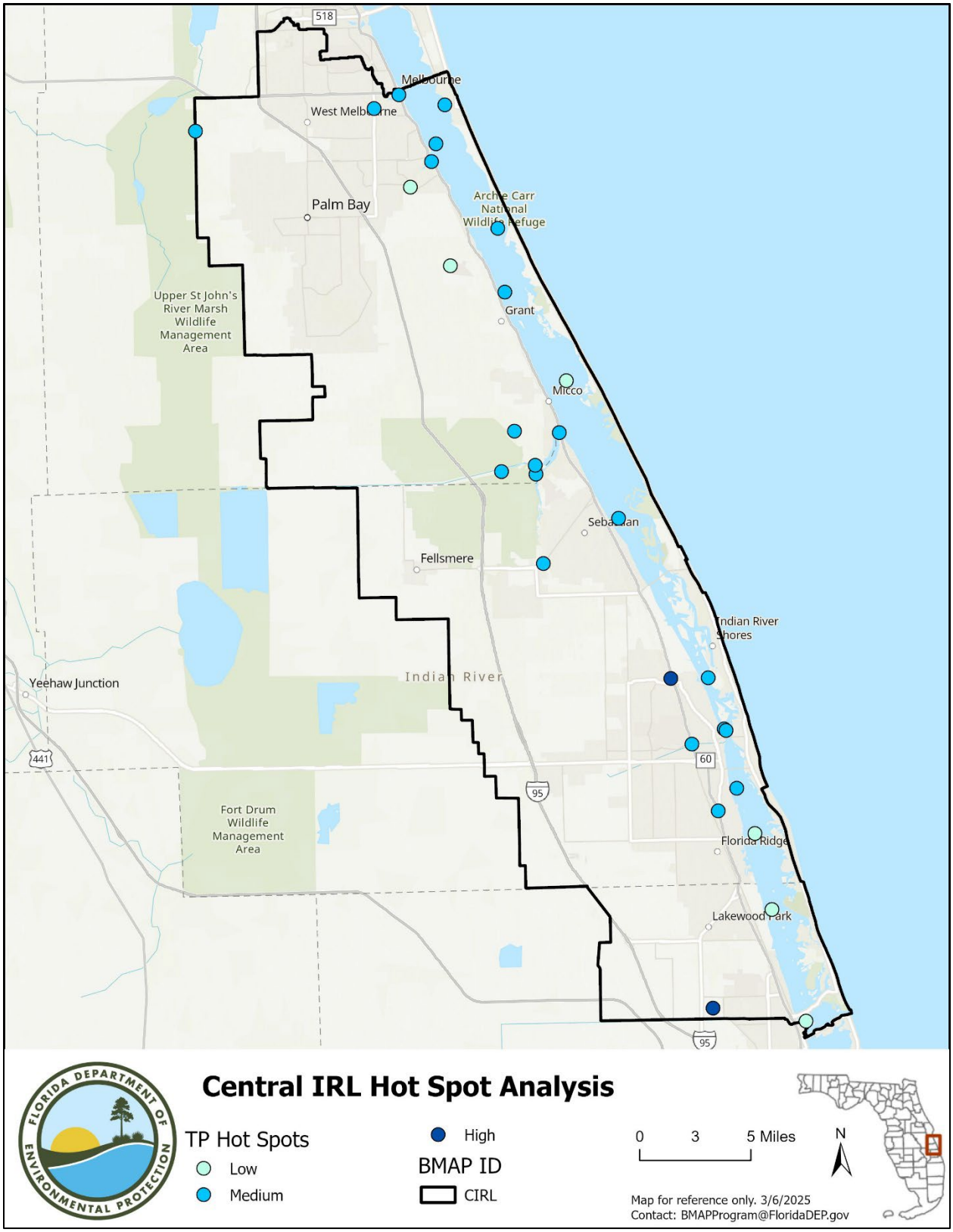

Figure 10. Total phosphorus hot spots in CIRL

Section 3. Modeling, Load Estimates, and Restoration Approach

3.1. BMAP Modeling

The seagrass depth limits were developed by SJRWMD based on a series of photo-interpreted seagrass coverages from 1943 through 2001. DEP reviewed these models and the seagrass depth limits and used them to develop the IRL TMDLs that were adopted by rule (Gao 2009). For the original 2023 BMAP, nutrient loading estimates were calculated using the Pollutant Load Screening Model (PLSM) which was developed by SJRWMD to represent year 2000 loading (Adkins et al. 2004) in most of the IRL Watershed (excluding the IRL south of the Indian River County –St. Lucie County boundary).

Through cooperative local effects, the MS4 permittees within the Brevard County section of the IRL (17 entities) partnered in a study to update and refine the information that was used in the PLSM and associated IRL TMDLs. One outcome of this study was the development of the Spatial Watershed Iterative Loading (SWIL) model, which incorporated more data, recent conditions, and temporally fine datasets. SWIL is a custom ESRI ArcGIS toolset, originally designed to provide a continuous monthly simulation of runoff over a 16-year period (Applied Ecology 2019).

3.1.1. SWIL Modeling

The SWIL model uses input parameters derived from observed datasets to create a spatial and temporal representation of nutrient loads and volumes for the IRL watershed. The SWIL model estimates the volume of water, TN, and TP loads discharged by segmenting the hydrological and nutrient contributions of subsurface flow and direct rainfall runoff. The contributions from portions of a basin are determined by land use, soil type, precipitation, evapotranspiration, peer-reviewed event mean concentrations, and runoff coefficients (Applied Ecology 2024).

The initial version of SWIL (SWIL 1.0) was developed in 2012, and updates were made over time to improve execution, processing time, and calibration. SWIL 4.0 was used by DEP in the 2021 BMAP Update. Following the BMAP update in 2021, stakeholders requested updates to the SWIL model given the rapid growth occurring within the basin. DEP began this effort in 2021, through a contract with Applied Ecology, to update the SWIL model to create SWIL 5.0. The updated model will incorporate new land use, rainfall, soils, and event mean concentration information. These updates are expected to lead to an overall better model for estimating nutrient loading in the watershed as a planning tool for reducing loads allocated to stakeholders. After the SWIL model refinement (SWIL 5.0) is complete, DEP will reevaluate and, if necessary, adopt another iteration of the BRL BMAP, most likely before 2030. The next iteration will include updated loading estimates and required reductions.

DEP providing revised starting loads and allocations is an expected part of the iterative BMAP process where loading estimates are reassessed as land uses and other loading sources change over time as well as the response of environmental conditions to improved loading rates are

assessed. Responsible entities and agencies should expect periodic adjustments to their reduction assignments during the BMAP process.

The SWIL Model starting loads for each project zone are described in **Table 15**.

Table 15. SWIL Model starting loads

BMAP Area	Starting TN Load (lbs/yr)	% Total Load TN	Starting TP Load (lbs/yr)	% Total Load TP
CIRL A	616,171	28	85,081	28
CIRL B	567,009	26	78,837	26
CIRL SEB	762,595	34	96,865	32
CIRL SIRL	266,181	12	38,975	13
CIRL Totals	**2,211,956**	**100**	**299,758**	**100**

3.1.2. Allocation Process

The allocation process remains the same as the 2021 BMAP. To generate average annual TN and TP loads from the IRL Watershed, SWIL 4.0 was run using rainfall inputs that were thought to be from a representative period covering various conditions from high to low rainfall years. The outputs from this model run were used to generate a GIS-based Load Estimation Tool (LET) that included annual average loads from the watershed and was the basis of the allocation calculations.

The LET based on the SWIL Model can produce polygon outputs with loading data included. The determination of each entity's loading was performed using the LET and a GIS process. Through a series of GIS steps, polygons were generated for each stakeholder. GIS data were used to overlay and unite the area within the BMAP boundary associated with each entity's jurisdictional boundary or the codes from the model land cover data related to natural and agricultural lands. The union overlay process was layered sequentially, as follows:

1. Dispersed Water Management (DWM) or Comprehensive Everglades Restoration Plan (CERP) projects.
2. A percentage of atmospheric deposition was removed from the loading calculations.
3. Roads (FDOT and Florida's Turnpike Enterprise).
4. WCDs and improvement district canals and rights-of-way.
5. Remaining estuary and tributary area with land use codes of 5000.
6. Natural lands (land use codes 3000 [not including 3300], 4000, and 6000).
7. Agriculture (land use codes 2000 and 3300).
    a. Agricultural fertilizer (land use codes 3300).

b. Livestock waste (land use codes 3300).

8. Urban fertilizer, OSTDS, WWTF Reuse
    a. CDDs, if they meet the criteria.
    b. Municipalities.
    c. Remaining area assigned to each county.

3.1.3. Required Reductions

The assigned required reductions are based off the starting loads and allocation approach used in the 2021 BMAP. However, following BMAP adoption, DEP worked with responsible entities to make corrections to the LET based on the identification of additional natural land areas and other local considerations. The assigned required reductions below are a result of those corrections. The TN and TP reductions required by each entity are shown in **Table 16** and **Table 17**, respectively.

Table 16. TN load required reductions by entity (lbs/yr)

* = Adjusted using the natural load per acre.
N/A = Not applicable

Entity	Project Zone A	Project Zone SEB	Project Zone B	Project Zone SIRL	Total (lbs/yr)
Agricultural Producers	28,912	128,681	74,773	31,287	263,653
Brevard County	19,940	27,987	N/A	N/A	47,927
City of Fellsmere	N/A	5,694	N/A	N/A	5,694
City of Fort Pierce	N/A	N/A	N/A	887	0
City of Melbourne	33,921	N/A	N/A	N/A	33,921
City of Palm Bay	110,334	1,657	N/A	N/A	111,991
City of Sebastian	N/A	33,196	N/A	N/A	33,196
City of Vero Beach	N/A	N/A	30,713	N/A	30,713
City of West Melbourne	18,449	N/A	N/A	N/A	18,449
FDOT District 4	N/A	3,325	5,976	3,375	12,676
FDOT District 5	5,226	1,780	N/A	N/A	7,006
FL Turnpike	N/A	N/A	N/A	391	0
Indian River County	N/A	47,223	169,639	N/A	216,862
St. Lucie County	N/A	N/A	N/A	49,780	49,780
Town of Melbourne Beach	2,817	N/A	N/A	N/A	2,817
Town of Grant-Valkaria	20,519	5,081	N/A	N/A	25,600
Town of Indialantic	1,925	N/A	N/A	N/A	0
Town of Indian River	N/A	N/A	11,040	N/A	11,040
Town of Malabar	12,386	N/A	N/A	N/A	12,386
Town of Melbourne Village	1,713	N/A	N/A	N/A	0
Town of Orchid	N/A	1,368	N/A	N/A	0
Town of St. Lucie Village	N/A	N/A	N/A	1,727	0
U.S. Space Force	512	N/A	N/A	N/A	0

Entity	Project Zone A	Project Zone SEB	Project Zone B	Project Zone SIRL	Total (lbs/yr)
Totals	**256,654***	**255,992***	**292,141***	**87,447**	**892,233**

Table 17. TP load required reductions by entity (lbs/yr)

* = Adjusted using the natural load per acre.
N/A = Not applicable.

Entity	Project Zone A	Project Zone SEB	Project Zone B	Project Zone SIRL	Total (lbs/yr)
Agricultural Producers	4,740	22,286	9,120	7,173	43,319
Brevard County	3,197	5,251	N/A	N/A	8,448
City of Fellsmere	N/A	1,043	N/A	N/A	1,043
City of Fort Pierce	N/A	N/A	N/A	217	0
City of Melbourne	5,182	N/A	N/A	N/A	5,182
City of Palm Bay	17,041	279	N/A	N/A	17,320
City of Sebastian	N/A	6,015	N/A	N/A	6,015
City of Vero Beach	N/A	N/A	3,998	N/A	3,998
City of West Melbourne	2,866	N/A	N/A	N/A	2,866
FDOT District 4	N/A	501	724	685	1,910
FDOT District 5	744	282	N/A	N/A	1,026
FL Turnpike	N/A	N/A	N/A	72	0
Indian River County	N/A	8,580	22,231	N/A	30,811
St. Lucie County	N/A	N/A	N/A	11,964	11,964
Town of Grant-Valkaria	3,131	910	N/A	N/A	4,041
Town of Indialantic	304	N/A	N/A	N/A	0
Town of Indian River Shores	N/A	N/A	1,497	N/A	1,497
Town of Malabar	1,910	N/A	N/A	N/A	1,910
Town of Melbourne Beach	446	N/A	N/A	N/A	446
Town of Melbourne Village	272	N/A	N/A	N/A	0
Town of Orchid	N/A	248	N/A	N/A	0
Town of St. Lucie Village	N/A	N/A	N/A	455	0
U.S. Space Force	67	N/A	N/A	N/A	0
Totals	**39,900**	**45,395**	**37,570**	**20,566***	**143,431**

3.1.4. Project Credit Process

Updated in the 2021 BMAP and with additional projects added annually after that time, the LET (based on SWIL Version 4.0) was used to calculate updated TN and TP baseloads from all existing project treatment areas in the BMAP. The DEP BMP Efficiencies Guidance document was used to determine the appropriate credit calculations for the various project types. Some project types that have credits based on measured data or weighed material, such as street sweeping, did not need to be updated using the LET.

3.2. Project Zones

There are four project zones in the CIRL. All projects identified as part of this BMAP are listed by project zone in **Appendix B**. For projects that treat lands in multiple project zones, the nutrient reductions provided in the table are only the estimated reductions for the project zone specified. To calculate the total benefits from these projects, credits from all project zones treated by the project should be summed. The table of existing and planned projects lists those projects submitted by stakeholders to help meet their obligations under the BMAP. Information in the tables was provided by the lead entity and is subject to change as the project develops and more information becomes available. In **Appendix B, Table B-1, Table B-2, Table B-3, and Table B-4,** show progress towards the required TN and TP load reductions allocated to each project zone from projects completed through October 2024.

It should be noted that only projects completed in 2000 and beyond are eligible for BMAP credit. Since the treatment input data for the hydrology calibration was from an earlier period in the model simulation, most projects beyond permit requirements installed from 2000 onward were not included in the calibration and are not well represented in the SWIL Model loading estimates. Therefore, projects completed from 2000 onward are eligible for BMAP credit. Projects completed prior to 2000 are accounted for in the period of record used for calibration of the SWIL Model, Version 4.0.

The projects and management strategies are ranked with a priority of high, medium, or low. Projects with a "completed" status were assigned a low priority. Projects classified as "underway" were assigned a medium priority because some resources have been allocated to these projects, but additional assistance may be needed for the projects to be completed. A high priority was assigned to projects listed as "planned," as well as certain "ongoing" projects (i.e., "street sweeping," "catch basin inserts/inlet filter clean out," "public education efforts," "fertilizer cessation," "fertilizer reduction," or "aquatic vegetation harvesting").

3.3. Basinwide Sources Approach

3.3.1. Agriculture

3.3.1.1. 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.

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 BRL 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 44 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 GIS to calculate the acres of agricultural land in an enrolled parcel. **Table 18** summarizes agricultural lands within the NIRL BMAP based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

Table 18. Agricultural lands in the CIRL Basin by crediting location

* Enrollment information current as of June 30, 2024.

Crediting Location	Agricultural Acres	Unenrolled - Unlikely Enrollable Acres	Agricultural Acres - Adjusted	Agricultural Acres Enrolled*
A	9,497	3,670	5,827	3,944
B	15,917	4,116	11,801	3,594
SEB	32,325	6,240	26,085	15,933
SIRL	12,666	1,452	11,214	4,536

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. Currently, no producers are conducting water quality monitoring in lieu of implementing BMPs. Although it is anticipated that additional enrollment in agricultural BMPs along with more frequent implementation verification site visits by FDACS will increase nutrient reductions from agricultural nonpoint sources, it is also recognized that further reductions, beyond the implementation of required owner-implemented BMPs, will be necessary to achieve the TMDLs.

Other reductions associated with the implementation and modification of BMPs may be realized through ongoing studies, data collection, and water management district initiatives. These additional projects and activities are to be implemented in conjunction with the BMP program, which needs to achieve full enrollment with verification to ensure that the BMAP goals are achieved.

3.3.1.2. Dairies and Other Concentrated 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 dairy 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 in the permit and implemented in accordance with the monitoring plan.

3.3.1.3. 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 water management district.

3.3.1.4. 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.

3.3.1.5. Silviculture

The Florida Forest Service within FDACS is the lead agency responsible for assisting landowners, loggers and forestry professionals with silviculture BMP implementation as well as conducting statewide silviculture BMP training and compliance monitoring. The Florida Forest Service 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 Florida Forest Service and thereby committing to follow BMPs during all current and future forestry operations.

3.3.1.6. Agricultural Cooperative Regional Elements (ACEs)

Section 403.067, F.S., requires FDACS, DEP and agricultural producers to work together to establish ACEs 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.

Addressing nutrient loading from agricultural sources in Florida's waterways requires collective action and partnership among key stakeholders. 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 statutorily required 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 storage and/or 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 or innovative projects funded through existing or enhanced cost share programs administered by FDACS or the water management districts.

While FDACS is assigned the lead role on project solicitation, development, selection and implementation, FDACS 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 annual workshops to identify potential regional projects. Identified regional 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 regional 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 collection of water quality monitoring data. The default performance measures will be the expected range of pollutant removal efficiencies. Tools may be needed to determine the effectiveness of projects, such as modeling.

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

Agricultural nonpoint sources contribute 25% of the TN and 26% of the TP nutrient sources in the CIRL BMAP. Pursuant to subparagraph 403.067(7)(e)1., F.S., an ACE is required in this BMAP.

Most agricultural lands are engaged in livestock production. **Table 19** shows the three dominant crop types within the CIRL BMAP.

Table 19. Dominant crop types within the CIRL BMAP

Crop Type	Acres
Citrus	2,309
Grazing Land	20,677
Row Crops	15,718
Totals	**38,704**

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 BRL 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 D**.

3.3.1.7. Description of BMPs Adopted by Rule

Appendix D provides detailed information on BMPs and agricultural practices in the BMAP area. **Table 20** identifies the adopted BMPs and BMP manuals relevant to this BMAP.

Table 20. 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 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
Florida Forest Service	5I-6	Best Management Practices for Silviculture
DEP	62-330	Environmental Resource Permitting

3.3.2. Urban Stormwater

Urban stormwater is a considerable source of nutrient loading to the CIRL, and many urban areas are already regulated under the MS4 NPDES Stormwater Program. An MS4 is a conveyance or system of conveyances, such as roads with stormwater systems, municipal streets, catch basins, curbs, gutters, ditches, constructed channels, or storm drains. If an MS4 permittee is identified as a contributor in the BMAP, the permitted MS4 must undertake projects specified in the BMAP.

Regulated MS4s are required to implement stormwater management plans (SWMPs) 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.

Additionally, in accordance with Section 403.067, F.S., if an MS4 permittee is identified in an area with an adopted BMAP, the permittee must comply with the adopted provisions of the BMAP that specify activities to be undertaken by the permittee. If the permittee discharges stormwater to a waterbody with an adopted TMDL pursuant to Chapter 62-304, F.A.C., then the permittee must revise its SWMP to address the assigned wasteload in the TMDL.

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 ground water can be found within the Stormwater Applicant Handbook Volume I, Section 8.5.2.

3.3.2.1. 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. Urban structural projects completed since January 1, 2000, and planned in the future were eligible for BMAP credit. Urban structural projects only received credit for the portion of the load reduction that was over and above any permit requirements. This criterion was needed because permit conditions are established to prevent impacts from the new development and do not contribute to water quality improvement.

Public education and outreach efforts and nonstructural projects were eligible for BMAP credit regardless of when they were implemented because these efforts were excluded in the SWIL model. Estimates of TN and TP reductions from street sweeping and BMP clean out were made using a tool developed by the Florida Stormwater Association 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.

3.3.2.2. 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.

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

3.3.3. Wastewater Treatment

3.3.3.1. Facility Improvements and Effluent Limits

DEP issues permits for facilities and activities to discharge wastewater to surface waters and groundwaters of the state. DEP is authorized by the EPA to issue permits for discharges to surface waters under the NPDES Program. Permits for discharges to groundwaters 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. Section 403.086, F.S. requires that beginning July 1, 2025, in the IRL or any river, canal, bay, bayou, sound, or other tributary thereto, sewage disposal facilities may not dispose any wastes without providing advanced waste treatment or a more stringent treatment standard if the department determines the more stringent standard is necessary to achieve the TMDL.

The nitrogen and phosphorus effluent limits set forth in **Table 21** and **Table 22** 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. DEP will evaluate the need for more stringent nutrient effluent limits as appropriate.

Table 21. Nitrogen effluent limits for WWTFs

mgd = Million gallons per day.
mg/L = milligrams per liter.

Facility Capacity (mgd)	Surface Water Discharges (mg/L)	WWTFs Listed in Appendix G (mg/L)	WWTFs Not Listed in Appendix G – Rapid Rate Land Application (RRLA) Effluent Disposal System (mg/L)	WWTFs Not Listed in Appendix G – All Other Disposal Methods, Including Reuse (mg/L)
Greater than or equal to 0.5	3	3	3	10
Less than 0.5 and greater than or equal to 0.01	3	3	6	10
Less than 0.01	3	N/A	10	10

Table 22. Phosphorus effluent limits for WWTFs

mgd = Million gallons per day
mg/L = milligrams per liter

Facility Capacity (mgd)	Surface Water Discharges (mg/L)	WWTFs Listed in Appendix G (mg/L)	WWTFs Not Listed in Appendix G – Rapid Rate Land Application (RRLA) Effluent Disposal System (mg/L)	WWTFs Not Listed in Appendix G – All Other Disposal Methods, Including Reuse (mg/L)
Greater than or equal to 0.5	1	1	1	6
Less than 0.5 and greater than or equal to 0.01	1	1	3	6
Less than 0.01	1	N/A	6	6

Where the law does not provide for 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 and report these sampling results in the discharge monitoring reports 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.

3.3.3.2. 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 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 G** are subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S. The facilities listed in **Appendix G** 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. 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 in the BMAP, are required to meet AWT standards for TN and TP in accordance with section 403.086, F.S.

3.3.3.3. WWTF 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, water management districts (WMDs), and public and private domestic WWTFs 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 23-0115 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.

3.3.3.4. 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.

3.3.3.5. Biosolids and Septage Application Processes

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.

3.3.4. OSTDS

In accordance with section 373.469, F.S., beginning on January 1, 2024, unless previously permitted, the installation of new OSTDS were prohibited within the Banana River Lagoon BMAP, Central Indian River Lagoon BMAP, North Indian River Lagoon BMAP, and Mosquito Lagoon Reasonable Assurance Plan (RAP) areas where a publicly owned or investor-owned sewerage system is available as defined in paragraph 381.0065(2)(a), F.S. Where central sewerage is not available, only enhanced nutrient-reducing OSTDS or other wastewater treatment systems that achieve at least 65% nitrogen reduction are authorized.

Also in accordance with section 373.469, by July 1, 2030, any commercial or residential property with an existing OSTDS located within the Banana River Lagoon BMAP, Central Indian River

Lagoon BMAP, North Indian River Lagoon BMAP, and Mosquito Lagoon RAP areas must connect to central sewer if available or upgrade to an enhanced nutrient-reducing OSTDS or other wastewater treatment system that achieves at least 65% nitrogen reduction.

3.3.4.1. 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 23-0115. 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.

3.3.4.2. 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.

3.3.5. Funding Opportunities

Chapter 2023-169, L.O.F., expanded grant opportunities for local governments and eligible entities working to address a TMDL. Previously, grant funding was available for specific project types, including septic-to-sewer, AWT expansion or upgrades, and OSTDS upgrades. Now, through the Water Quality Improvement Grant program, eligible entities can also apply for grant funding for stormwater, regional agricultural projects, and a broader suite of wastewater projects including collection systems and domestic wastewater reuse. Projects are prioritized that have the maximum nutrient load per project, demonstrate project readiness, are cost-effective, have a cost-share by the applicant (except for Rural Areas of Opportunity), have previous state commitment and are in areas where reductions are most needed.

Chapter 2024-180, L.O.F., created a program to expeditiously review new and innovative enhanced nutrient-reducing OSTDS to reduce the nutrients entering Florida's waterways.

Section 4. Compliance and Adaptive Management

4.1 Economic Benefits of the IRL System

The IRL is a valuable ecological and economic asset for the state of Florida and the counties that border the lagoon and its tributaries. It is considered one of the most biologically diverse estuaries in North America and was recognized as part of the National Estuary Program (NEP) in 1990. The lagoon directly and indirectly supports a large part of the region's and the state's economy. The basin supports the multimillion-dollar Indian River citrus industry and boat and marine sales industries. Finfish and shellfish harvesting from the lagoon also contribute to local economies.

An economic study prepared by the East Coast Florida Regional Planning Council (ECFRPC) and Treasure Coast Regional Planning Council (TCRPC) (ECFRPC and TCRPC 2016) estimated the total annual value of the lagoon's benefits at $7.6 billion, measured in 2014 dollars. This does not include the estimated $934 million in annualized real estate value added for property located on or near the IRL (Hazen and Sawyer 2008). The study area spanned from Ponce de Leon Inlet in Volusia County to the Jupiter Inlet in Palm Beach County, and included all of Brevard, Indian River, St. Lucie, and Martin Counties. The economic analysis was primarily conducted using the Impact Analysis for Planning (IMPLAN) Regional Economic Input/Output Model, which estimates direct, indirect, and induced economic effects, as outlined in **Figure 11.**

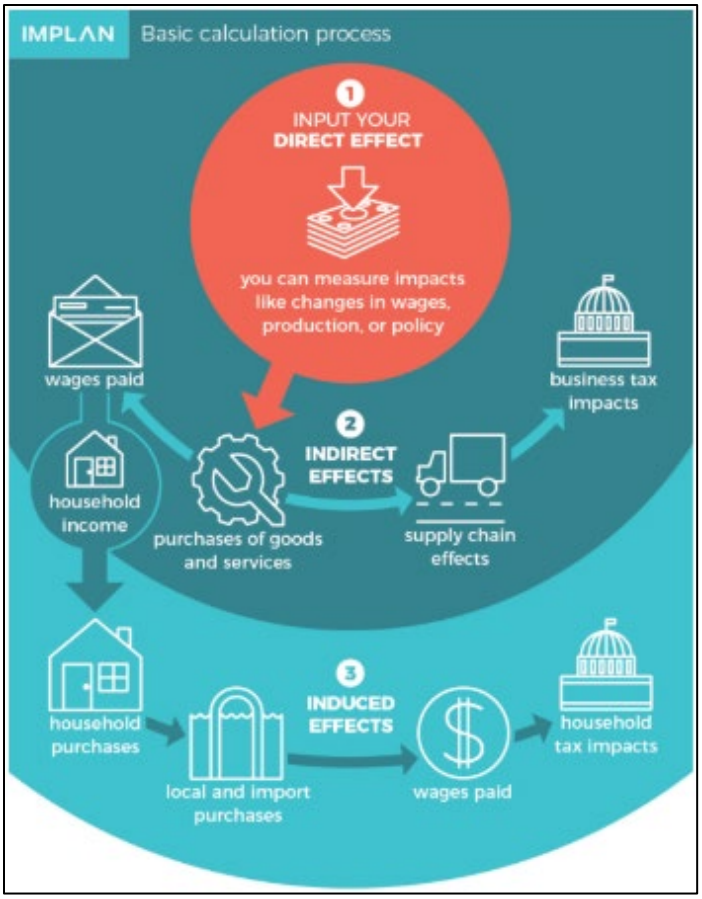

Figure 11. IMPLAN Model calculation process

The primary IRL-related industry groups identified in the study are living resources, marine industries, recreation and visitor-related, resource management, and defense and aerospace. The breakdown of the monetary contribution to the IRL regional economy is shown in **Figure 12.**

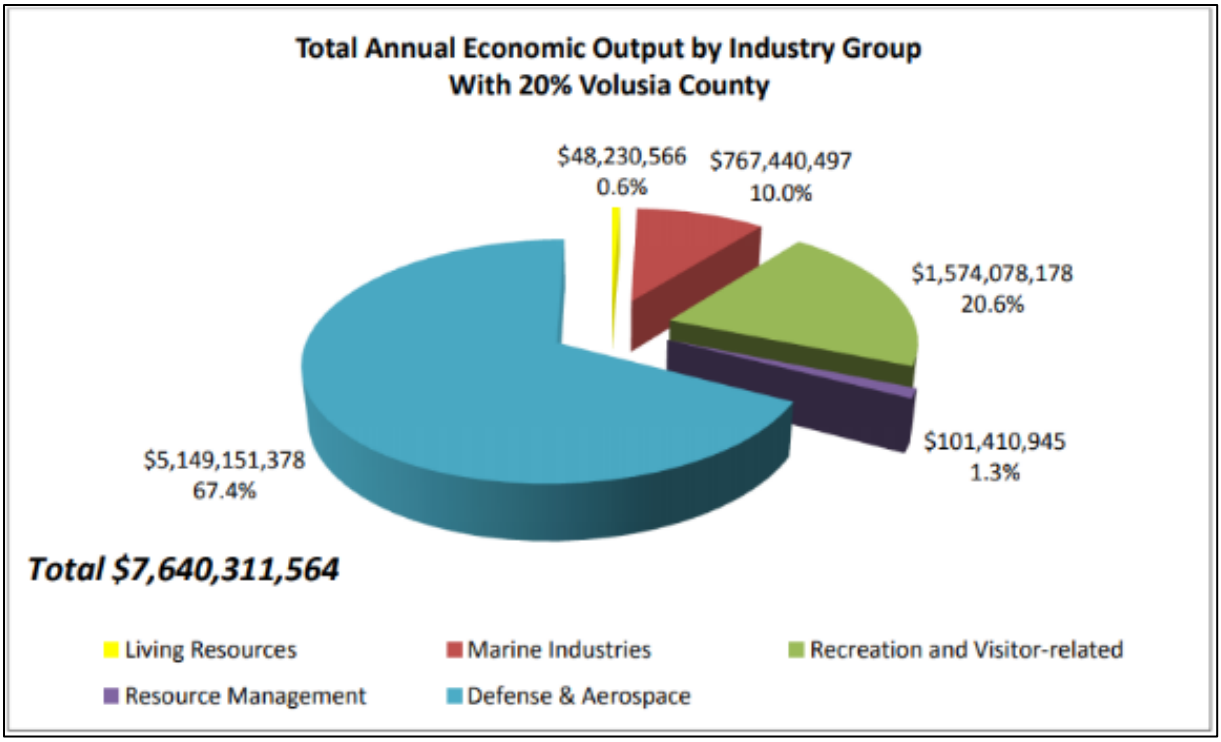

Figure 12. Total annual economic output by industry group in the IRL region, 2014

Money spent on recreation and visitor-related activities generated $1.57 billion of economic benefit. In 2014, over 7.4 million visitors traveled to the IRL region. Between 2.3 and 3.5 million visitors to the IRL region participate in IRL-related recreation, and each visitor spends an average of $162 a day. By 2025, the IRL region is anticipated to receive over 11 million visitors annually.

The study also estimated the cost of a sustainable IRL-based economy and return on investment for achieving water quality and seagrass restoration goals for the IRL. The annualized cost of achieving the nutrient load reductions required by the four BMAPs that span the entire area was estimated at $230 million. When compared with the $7.6 billion valuation of the region's average annual economic output, the return on investment from achieving water quality and seagrass restoration goals is 33 to 1. Therefore, investing in projects and programs to improve the lagoon's water quality and seagrass beds is not only important for environmental considerations but also to improve the regional economy.

4.2 Future Growth Management Strategies

Nutrient impacts from new development are addressed through a variety of mechanisms outlined in this BMAP, as well as provisions of Florida law. While most of the restoration projects and management strategies listed in this BMAP address current nutrient loading, 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 required local governments to amend their comprehensive plans with the following considerations:

- Identify and prioritize projects to meet the TMDLs.
- Update the wastewater section to include plans for treatment updates, not just capacity, and AWT must be prioritized.
- In developments with more than 50 lots with more than one OSTDS per acre, the plan must consider the feasibility of providing sanitary sewer within a 10-year planning horizon and identify the facility that could receive the flows. The plan must review the capacity of the facility and any associated transmission facilities; projected wastewater flow at that facility for the next 20 years, including expected future new construction and connections of OSTDS to sanitary sewer; and timeline for the construction of the sanitary sewer system. The plan was required to be updated by July 1, 2024.
- Comprehensive plans must contain capital improvements element to consider the need for and the location of public facilities.
    - Construction, extension, or increase in capacity of public facilities as well as principals for correcting existing public facility deficiencies. Components must cover at least a 5-year period.
    - Costs, timeline, general location and projected revenue sources to fund the facilities.
    - Standards to meet acceptable level of service.
    - Schedule of capital improvements, which may include privately funded projects.
    - Must include a list of projects necessary to achieve the pollutant load reductions attributable to the local government, as established in a BMAP.
    - The plan must include a general sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge element correlated to principals and guidelines for future land use.
    - 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 nutrient-reduction measures before the development is complete. DEP recommends that all 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 review efforts. If an increase in loading occurs an entity may receive additional reduction requirements that will require additional restoration actions by the responsible entity to remediate impact.

4.2.1 Future Growth Analysis

An analysis was done to consider the impacts of future population growth on loading from wastewater sources using per-person estimations calculated for portions of the population estimated to be on OSTDS and those connected to central sewer.

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 the 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 ("developable 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 Florida Water Management Inventory (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.

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

Per person loading calculations were used to estimate future loads from WWTFs and OSTDS under different planning scenarios, described below. DEP's Domestic Wastewater Program estimates each person in Florida generates 100 gallons of wastewater per day. For OSTDS, DOH estimates each person in Florida generates 10 lbs TN/yr. UF-IFAS estimates each person in Florida generates 10 mg/L TP (Lusk, 2011). A generalized 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 turfgrass as a result of development under different planning scenarios, described below. First, a number of developed acres were derived by applying percentages to the developable lands from the initial GIS analysis for each entity. Then, the loadings were based on DEP's statewide event mean concentrations (EMCs) and runoff coefficients (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 treating to AWT standards (3mg/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 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 treating to AWT standards 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 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 treating to 6 mg/L TN and 3 mg/L TP by 2040. This scenario also assumes that all future OSTDS will be conventional systems with the only nitrogen treatment provided by soil attenuation. For urban development, this scenario represents an extreme growth future where 17% of developable land is converted to low density residential.

Based on the methodology above, and using TN as an example, **Table 23** shows the estimated future nitrogen loads from wastewater and urban 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 nitrogen 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 23. Estimated nitrogen load from future growth in the CIRL

Entity	2040 Additional Population	2040 TN Loading (lbs/yr) Scenario 1	2040 TN Loading (lbs/yr) Scenario 2	2040 TN Loading (lbs/yr) Scenario 3
Brevard County	6,890	3,888	5,993	11,955
Fellsmere	2,448	1,390	3,566	7,108
Fort Pierce	105	60	88	175
Grant-Valkaria	3,967	2,239	6,003	11,987
Indialantic	123	70	107	214
Indian River County	13,188	7,488	12,658	25,187
Indian River Shores	305	157	165	327
Malabar	1,923	1,085	2,692	5,374
Melbourne	4,275	2,067	2,120	4,221
Melbourne Beach	181	102	157	314
Melbourne Village	126	71	189	376
Orchid	61	35	59	117
Palm Bay	17,370	9,803	20,219	40,358
Sebastian	1,407	799	1,860	3,707
St. Lucie County	5,928	3,358	5,715	11,383
St. Lucie Village	93	53	139	278
Vero Beach	1,076	611	666	1,321
West Melbourne	2,151	1,214	1,871	3,732
Basin Totals	**61,618**	**34,487**	**64,268**	**128,133**

Scenario 1, representing a future in which local communities have pursued infrastructure expansion and the highest treatment levels of wastewater, resulted in an additional basin load of 34,487 lbs-TN/yr. Scenario 3, representing a future in which local communities have maintained the status quo in terms of both rate of service connections, treatment levels and OSTDS maintenance, resulted in an additional basin load of 128,133 lbs-TN/yr. When compared to the results of the overall TN load in the BMAP area (1,648,795 lbs-TN/yr), it is estimated that growth in the basin could result in a 2% to 8% increase in nitrogen loading to the groundwater by 2040.

This broad analysis is not being used to determine allocated reductions for responsible entities, but does help shed light on how loading in the basin might change in the coming decades without comprehensive local and regional planning. Future development will likely result in an increase in loading from stormwater and wastewater sources. These changes 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. This analysis did not capture all local considerations or complexities of mixed land use.

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 changes in 2040 loading under Scenarios 1 and 2 already have a high rate of sewering in their jurisdiction. The analysis also identifies which entities have the potential for higher nitrogen reduction requirements under the BMAP if population growth trends continue as expected without major changes to wastewater management practices.

Other mechanisms discussed in the Future Growth Management Strategies 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 nutrients associated with urban stormwater and fertilizer use. 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. DEP encourages local governments to incorporate water quality considerations when developing and implementing local ordinances, comprehensive plans, stormwater planning, and septic incentive programs in areas of urban expansion.

4.3 Compliance

4.3.1 TMDL Compliance

The intent of the TMDLs is to recover the deeper water seagrass habitats, with the biological response of the seagrass being the most important factor in evaluating the success of achieving TMDL targets. To assess progress for the IRL Basin towards the median seagrass depth limit target, a two-step process was used in the A, B, and SEB Project Zones. TMDL targets for Steps 1 and 2 were not established for the lagoon in the SIRL project zone, and so it is excluded from this analysis.

For the 2013 implementation of the BMAP, DEP conducted this two-step evaluation using seagrass data from 2003, 2005, 2006, 2007, and 2009, which were the latest datasets available at the time of the analysis. For the CIRL, all three project zones were determined to be both Step 1

and Step 2 compliant in 2013. Therefore, stakeholders in the CIRL were not required to make additional reductions at the time and were not assigned detailed allocations in the first iteration of the BMAP.

In the 2021 CIRL BMAP, neither Project Zone A, SEB, nor B were compliant, so responsible entities were assigned detailed allocations in all project zones.

Since the 2021 BMAP, further evaluations of the seagrass depth limits in the CIRL have been conducted to reassess whether the CIRL project zones are compliant. In 2024, the evaluation was conducted using the 2017, 2019, 2021, and 2023 seagrass mapping data, which were the latest datasets available at that time. **Figure 13, Figure 14,** and **Figure 15** show the results of both steps of the 2024 evaluation for Project Zones A, SEB, and B respectively. None of the three project zones with TMDLs were compliant. As indicated in the 2013 BMAP, DEP assigns detailed allocations in project zones where compliance is not maintained.

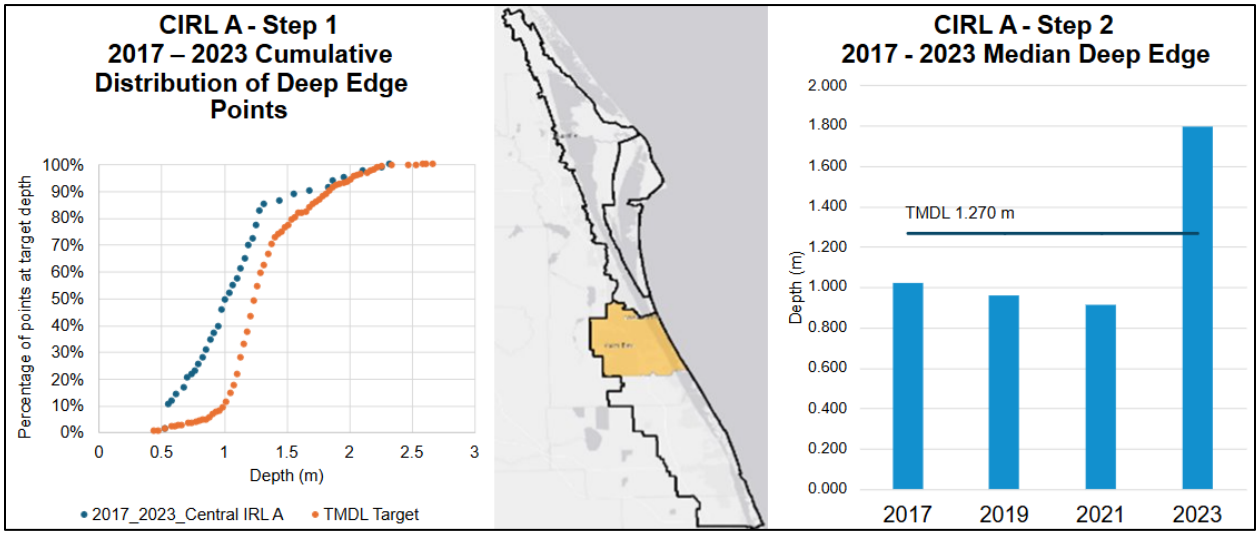

Figure 13. CIRL Project Zone A seagrass evaluation results for compliance step 1 and step 2

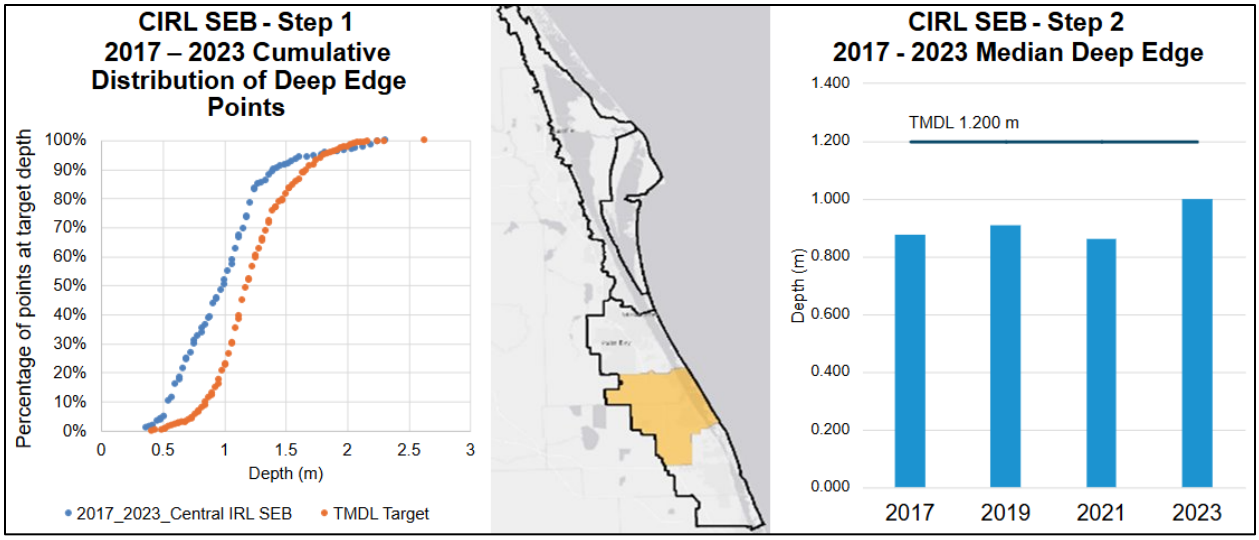

Figure 14. CIRL Project Zone SEB seagrass evaluation results for compliance step 1 and step 2

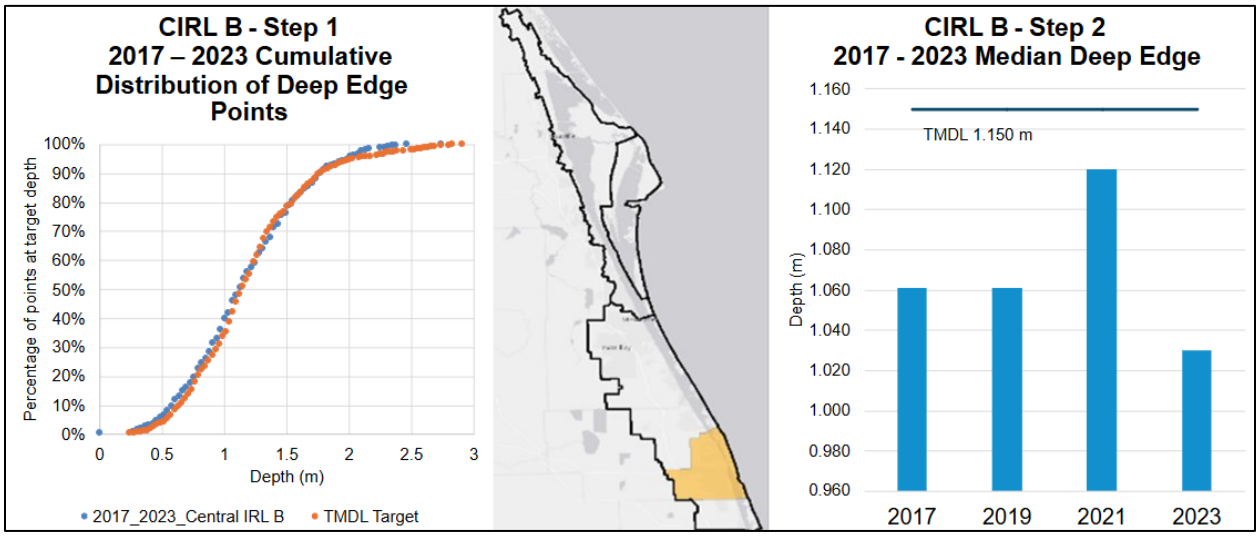

Figure 15. CIRL Project Zone B seagrass evaluation results for compliance step 1 and step 2

Table 24. Seagrass compliance results, step 1

Step 1	CIRL A	CIRL SEB	CIRL B
2007 – 2013	Pass	Pass	Pass
2009 – 2015	Pass	Pass	Pass
2011 – 2017	Fail	Fail	Fail
2013 – 2019	Fail	Fail	Fail
2015 – 2021	Fail	Fail	Fail
2017 – 2023	Fail	Fail	Fail

Table 25. Summary of seagrass compliance results, step 2

Note: Parentheses indicate number of years passing of those assessed for the compliance period of record.

Step 2	CIRL A	CIRL SEB	CIRL B
2007 – 2013	Fail (2 of 4)	Fail (2 of 4)	Fail (2 of 4)
2009 – 2015	Fail (1 of 4)	Fail (1 of 4)	Fail (1 of 4)
2011 – 2017	Fail (0 of 4)	Fail (0 of 4)	Fail (1 of 4)
2013 – 2019	Fail (0 of 4)	Fail (0 of 4)	Fail (0 of 4)
2015 – 2021	Fail (0 of 4)	Fail (0 of 4)	Fail (0 of 4)
2017 – 2023	Fail (1 of 4)	Fail (0 of 4)	Fail (0 of 4)

4.3.2 BMAP Compliance

In addition to IRL TMDL compliance and the measurement of seagrass deep edge recovery, there are other compliance elements related to the BMAP. DEP has set BMAP TN and TP reduction milestones for the years 2025 and 2030 to ensure that significant progress will be made in each five-year increment prior to the 2035 total reduction deadline. The percent reductions in the milestones apply to the total BMAP required reductions; so as various entities implement their projects, the overall milestones are also being met. Individual entities must achieve compliance by meeting their own required reductions by the 2035 deadline, as well as show progress towards the BMAP milestones by planning and implementing projects.

Section 5. References

Adkins, M., M. Mao, M. Taulor, W. Green, C. Basci, M. Bergman, and D. Smith. 2004. *Watershed model development for the Indian River Lagoon Basin: Providing simulated runoff and pollution load to the Indian River Lagoon Pollution Load Reduction Model.* Technical Memorandum 50. Palatka, FL: St. Johns River Water Management District.

Applied Ecology. March 20, 2019. *Final memorandum report for the development of baseload spatial input layers for the Indian River Lagoon Watershed.* Prepared for Brevard County Natural Resources Department.

Applied Ecology. 2024. *SWIL Hydrological and Water Quality Calibration Draft Memorandum, Task 6 and Task 7 of The Spatial Watershed Iterative Loading Model Update.* Prepared for the Florida Department of Environmental Protection.

East Coast Florida Regional Planning Council and Treasure Coast Regional Planning Council. August 2016. *Indian River Lagoon economic valuation update.*

Florida Stormwater Association. 2012. *Methodology for calculating nutrient load reductions using the FSA assessment tool.*

Gao, X. 2009. *Nutrient and dissolved oxygen TMDLs for the Indian River Lagoon and Banana River Lagoon.* TMDL report. Tallahassee, FL: Florida Department of Environmental Protection.

Gao, X., K. Rhew. 2013. *Dissolved Oxygen and Nutrient TMDLs for Eight Tributary Segments of the Indian River Lagoon*. Tallahassee, FL: Florida Department of Environmental Protection.

Hazen and Sawyer, P.C. 2008. *Indian River Lagoon economic assessment and analysis update.* Prepared for the Indian River Lagoon National Estuary Program in cooperation with the St. Johns River Water Management District and South Florida Water Management District.

Helsel, Dennis R. 2005. *Nondetects and data analysis: statistics for censored environmental data.* Hoboken, N.J.: Wiley-Interscience, 250 pp.

Lusk, M., G.S. Toor, and T. Obreza. 2011. *Onsite Sewage Treatment and Disposal Systems: Phosphorus.* UF IFAS.

St. Johns River Water Management District. January 2020. *Indian River Lagoon seagrass monitoring standard operating procedures.*

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:

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

NELAP Certified Laboratory Search: https://floridadep.gov/dear/florida-dep-laboratory/content/nelap-certified-laboratory-search

FDACS BMPs: https://www.fdacs.gov/Agriculture-Industry/Best-Management-Practices-BMPs

FDACS BMP and Field Staff Contacts: 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

SJRWMD Water Quality Trends: https://www.sjrwmd.com/data/water-quality/#status-trends

University of Florida Institute of Food and Agricultural Sciences Research: http://research.ifas.ufl.edu/

Trends analysis story map: https://www.sjrwmd.com/data/water-quality/#status-trends

Link to data: https://www.sjrwmd.com/static/waterquality/All_Data_Status_Trends_2023.csv

Appendix B. Project List by Project Zone

Table B-1 summarizes the existing and planned projects provided by the stakeholders for CIRL Project Zone A.

Table B-1. Existing and planned projects in Project Zone A

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2650	Brevard County	NA	BC-01	Tadlock and Goat Creek Baffle Box	Upgraded a 1st generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2000	40	6	A	$43,811.00
2649	Brevard County	NA	BC-02	Oak Street Drainage Improvements	Swale and baffle box.	BMP Treatment Train	Completed	2003	0	1	A	$660,285.00
2648	Brevard County	NA	BC-03	Melbourne Shores Ponds	This pond helps alleviate flooding in the south beaches and cleans the stormwater runoff from a 135.9 acre drainage basin.	Wet Detention Pond	Completed	2004	193	70	A	$939,543.00
2646	Brevard County	Cape Canaveral; Cocoa; Cocoa Beach; Grant-Valkaria; IHB; Malabar; Melbourne; W. Melbourne	BC-05	Education Efforts	FYN, fertilizer and pet waste ordinances, public service announcements (PSAs), pamphlets, website, illicit discharge program. ILA for Public Outreach.	Education Efforts	Ongoing	NA	2231	335	A	$90,000.00
2894	Brevard County	NA	BC-06	Street Sweeping	Remove debris from 786 linear feet of curb street throughout the county.	Street Sweeping	Ongoing	NA	55	35	A	$0.00
2872	Brevard County	DEP	BC-07	Valkaria Lakes	Converted borrow pits into detention ponds for stormwater treatment.	Wet Detention Pond	Completed	2014	1132	256	A	$261,000.00
2850	Brevard County	City of Melbourne	BC-14	Fountainhead	982,300 lbs of vegetation removed using 113 dump trucks.	Aquatic Vegetation Harvesting	Completed	2013	890	273	A	$39,274.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2849	Brevard County	DEP	BC-15	Corey Road at Hall	Upgraded a 1st generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2015	83	9	A	$12,507.00
7390	Brevard County	SOIRL	BC-156	Sunnyland Muck Removal Project	Brevard County, in collaboration with the Sunnyland neighborhood plan to remove an estimated 104,000 cubic yards of muck material from 15 acres.	Muck Removal/Restoration Dredging	Planned	2029	TBD	TBD	A	$10,072,478.00
2839	Brevard County	DEP	BC-16	430 Riverview	Upgraded a 1st generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2015	13	2	A	$30,508.00
2847	Brevard County	SJRWMD	BC-17	C-1 Rediversion	This project is designed to help restore the natural drainage flow from the west side of Palm Bay back to the St. Johns River.	Hydrologic Restoration	Completed	2015	35565	2038	A	$531,051.00
2855	Brevard County	NA	BC-18	Baffle Box/Sediment Trap Cleaning	Increasing cleanout frequency to quarterly.	BMP Cleanout	Ongoing	NA	1	1	A	$0.00
2845	Brevard County	DEP	BC-19	Turkey Creek Dredging	230,000 cubic yards of material collected.	Muck Removal/Restoration Dredging	Completed	2017	TBD	TBD	A	$1,545,522.00
2844	Brevard County	DEP	BC-20	Multiple Ditch Outfall Denitrification D3	Providing base flow/groundwater treatment in 20 open drainage basins. Each Project will have its own number. Replaced with individual basin projects.	Denitrification Walls	Canceled	NA	NA	NA	A	$0.00
2843	Brevard County	SOIRL	BC-21	Kingsmill Aurora Phase II	Construction of a 5-acre pond with weirs, drop structures, etc. WRONG Sub lagoon.	Wet Detention Pond	Canceled	NA	NA	NA	A	$990,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
4371	Brevard County	Palm Bay; SOIRL	BC-22	Palm Bay Bayfront Stormwater Project	CITY SOIRL, SOIRL-15.	Wet Detention Pond	Completed	2017	TBD	TBD	A	$300,000.00
4372	Brevard County	Cities within Brevard County	BC-23	Education Efforts	Fertilizer video, rain barrel workshops, Facebook page, bus wrap, and billboard.	Enhanced Public Education	Ongoing	NA	NA	NA	A	$0.00
4373	Brevard County	Melbourne	BC-24	Hoag Sewer Conversion	Septic Removal - CIRL - Melbourne, SOIRL-04. Project is also listed under City of Melbourne BMAP, MEL-10.	OSTDS Phase Out	Canceled	NA	NA	NA	A	$0.00
4374	Brevard County	SOIRL	BC-25	M1 Canal BAM - BB#1470	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond or the bottom of the swale.	Biosorption Activated Media (BAM)	Canceled	2019	NA	NA	A	$101,300.00
4376	Brevard County	SJRWMD; SOIRL	BC-27	Crane Creek/M-1 Canal Rediversion Project	The project will treat and restore small storm events and baseflow from 5,300 acres of Lagoon-diverted water.	Hydrologic Restoration	Canceled	NA	NA	NA	A	$0.00
5233	Brevard County	SOIRL	BC-29	Riverview Senior Oyster Bar	Construct 320 linear foot oyster bar.	Creating/ Enhancing Oyster Reefs	Completed	2018	TBD	TBD	A	$30,304.00
5234	Brevard County	SOIRL	BC-30	Lagoon House Living Shoreline	Plant 300 mangroves and 1,000 spartina along the shoreline of the Lagoon House.	Creating/ Enhancing Living Shoreline	Completed	2018	TBD	TBD	A	$24,000.00
5627	Brevard County	SOIRL	BC-31a	Education Efforts	Fertilizer, grass clippings, and septic system maintenance.	Enhanced Public Education	Underway	2027	NA	NA	A	$187,500.00
6294	Brevard County	SOIRL	BC-36	Central IRL Zone A Septic Upgrades 2021	Conventional septic system upgrades to advanced nitrogen reducing treatment, NSF-45 meeting at least 65% TN reduction. Credits of 212 lbs-TN/yr are accounted for	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2021	0	NA	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					in Credit Sharing project as project is 100% funded by SOIRL.							
7098	Brevard County	Florida Legislature; SOIRL	BC-36a	Central IRL A Septic Upgrades 2023	Completed 57 septic upgrades; Conventional septic system upgrades to advanced nitrogen reducing treatment, NSF-45 meeting at least 65% TN reduction.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2023	1892.83	NA	A	$1,145,974.49
6313	Brevard County	DEP	BC-37	Fountainhead Advanced Denitrification	Phosphorus reduction & denitrification chambers in pond bank. Moved from NIRL BC-67 ProjID 3011.	Denitrification Walls	Completed	2022	TBD	TBD	A	$381,000.00
6821	Brevard County	DEP; SOIRL	BC-40	Central Indian River Lagoon Quick Connects 2022	Connected 3 properties to sewer in Central Indian River Lagoon. Legislative appropriations awarded $585,000 for quick connects for BRL, NIRL, and CIRL. Credits of 28 lbs-TN/yr are accounted for in Credit Sharing project as project is 100% funded by SOIRL.	OSTDS Phase Out	Completed	2022	0	TBD	A	$235,016.00
7092	Brevard County	DEP; Florida Legislature; SOIRL	BC-40a	CIRL A Quick Connects 2023	CIRL A quick connects; connected 151 properties from septic to sanitary sewer.	OSTDS Phase Out	Completed	2023	614.18	TBD	A	$1,818,992.37
6817	Brevard County	DEP; SOIRL	BC-41	Central Indian River Lagoon Septic Upgrades 2022	Completed 34 septic upgrades; Conventional septic system upgrades to advanced nitrogen reducing treatment, NSF-45 meeting at least 65% TN reduction; Legislative Appropriates totals $450,000 and will support septic upgrades throughout NIRL, CIRL.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2022	TBD	TBD	A	$671,003.92

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6923	Brevard County	Brevard County; City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of Indialantic; Town of Malabar; Town of Melbourne Beach; Town of Melbourne Village; West Melbourne	BC-42	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	1341.4	187.4	A	$0.00
2860	City of Melbourne	NA	MEL-01	Fee & Apollo Drainage Improvements	No treatment is provided within the existing development; completely a water quality addition.	Wet Detention Pond	Completed	2011	28	40	A	$525,161.00
2859	City of Melbourne	NA	MEL-02	Education Efforts	Irrigation, fertilizer, pet waste management, and landscaping ordinances; pamphlets, presentations, website, illicit discharge program.	Education Efforts	Ongoing	NA	3795	543	A	$0.00
2858	City of Melbourne	NA	MEL-03	Street Sweeping	Street sweeping in the basin and debris removal.	Street Sweeping	Ongoing	NA	378	187	A	$0.00
2857	City of Melbourne	NA	MEL-04	Participation in FYN	Participation in FYN Program. Credited in MEL-02.	Education Efforts	Canceled	NA	NA	NA	A	$0.00
2846	City of Melbourne	NA	MEL-05	South Croton Baffle Box	Dry retention and baffle box.	BMP Treatment Train	Canceled	NA	NA	NA	A	$0.00
2925	City of Melbourne	NA	MEL-06	Southwest Park Improvements near Florida Avenue	Installation of baffle box along with pipe replacement.	Baffle Boxes- Second Generation with Media	Completed	2017	299	64	A	$582,152.62
2974	City of Melbourne	NA	MEL-07	Melbourne Avenue Existing Baffle Box Upgrade	Upgrade existing 1st generation baffle boxes to 2nd generation baffle boxes with BAM.	Baffle Boxes- Second Generation with Media	Completed	2016	96	23	A	$12,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2973	City of Melbourne	SOIRL	MEL-08	Penwood Septic to Sewer Conversion	Providing for 12 lots (4 existing and 8 proposed) to be converted to municipal sewer.	Wastewater Service Area Expansion	Underway	2024	TBD	TBD	A	$60,000.00
2980	City of Melbourne	SOIRL	MEL-09	Riverview Park Living Shoreline	Construction of a living shoreline with an oyster breakwater.	Creating/ Enhancing Living Shoreline	Underway	2024	TBD	TBD	A	$0.00
2959	City of Melbourne	SOIRL	MEL-10	Hoag Septic to Sewer Conversion	Providing for 12 lots (7 existing and 5 proposed) to be converted to municipal sewer.	Wastewater Service Area Expansion	Underway	2024	NA	NA	A	$105,000.00
2957	City of Melbourne	SOIRL	MEL-11	Grant Place Baffle Box	2nd Generation baffle box with BAM.	Baffle Boxes- Second Generation with Media	Completed	2022	176.9	27.2	A	$400,000.00
2979	City of Melbourne	SOIRL	MEL-12	Roxy Septic to Sewer Conversion	Five lots with septic systems to be converted to municipal sewer.	OSTDS Phase Out	Underway	2025	TBD	TBD	A	$265,000.00
4381	City of Melbourne	SOIRL	MEL-13	Espanolia Baffle Box	Installation of second generation baffle box with BAM along with pipe replacement.	Baffle Boxes- Second Generation with Media	Underway	2022	TBD	TBD	A	$0.00
5231	City of Melbourne	SOIRL;SRF Loan	MEL-14	Grant Street Water Reclamation Facility Improvements	Improvements include rehabilitation of major treatment elements and structures of facility.	WWTF Nutrient Reduction	Underway	2024	TBD	TBD	A	$0.00
6157	City of Melbourne	City; DEP	MEL-16	Downtown Melbourne Retrofit	Exfiltration boxes within existing landscape islands.	LID- Other	Canceled	NA	NA	NA	A	$0.00
6924	City of Melbourne	Brevard County; City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of Indialantic; Town of Malabar; Town of Melbourne Beach; Town of Melbourne	MEL-17	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	858	120	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
		Village; West Melbourne										
7036	City of Melbourne	SOIRL	MEL-18	Riverview Park Baffle Box	The Riverview Park Baffle Box project includes installation of a third-generation baffle box near Riverview Park. This basin is a currently mostly untreated mixed-use developed area with little to no stormwater treatment.	Baffle Boxes- Second Generation with Media	Planned	2026	TBD	TBD	A	$951,500.00
7040	City of Melbourne	City of Melbourne; SOIRL	MEL-19	Darrow Baffle Box	Second generation baffle box with ECT BAM for nutrient removal.	Baffle Boxes- Second Generation with Media	Planned	2026	TBD	TBD	A	$900,000.00
7219	City of Melbourne	SOIRL; DEP	MEL-20	Line Street Cemetery Baffle Box	Installation of a third generation baffle box near the Line Street Cemetery in south Melbourne to serve a drainage basin to be finalized during design. This basin is currently mostly untreated residential area with little to no stormwater treatment.	Baffle Boxes- Second Generation with Media	Planned	2027	TBD	TBD	A	$1,675,000.00
2948	City of Palm Bay	NA	PB-01	Basin 11	Not provided.	Muck Removal/Restoration Dredging	Completed	2009	TBD	TBD	A	$1,866,695.00
2949	City of Palm Bay	NA	PB-02	Chace Lane Pond Modifications	Not provided.	Dry Detention Pond	Completed	2001	78	11	A	$20,290.00
2950	City of Palm Bay	NA	PB-03	Glenham Drive Sidewalks Improvements	Not provided.	Dry Detention Pond	Completed	2014	11	2	A	$0.00
2951	City of Palm Bay	NA	PB-04	Basin 7 Stormwater Improvements Phase II	Not provided.	Wet Detention Pond	Completed	2009	352	101	A	$79,109.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2952	City of Palm Bay	NA	PB-05	Boundary Canal Trail Phase 3	Not provided.	Baffle Boxes- First Generation	Completed	2014	17	12	A	$0.00
2953	City of Palm Bay	NA	PB-06	Boundary Canal Phase II Stormwater Improvement	Not provided.	On-line Retention BMPs	Completed	2014	3276	383	A	$0.00
2954	City of Palm Bay	NA	PB-07	Boundary Canal Phase I Baffle Box Installation	Not provided.	Baffle Boxes- First Generation	Completed	2014	0	0	A	$0.00
2956	City of Palm Bay	NA	PB-08	Norwood Street Baffle Box Installation	Not provided.	Baffle Boxes- First Generation	Completed	2014	16	12	A	$0.00
2970	City of Palm Bay	NA	PB-09	Basin 1 Drainage Improvements Phase 1 (East of US 1)	Not provided.	Wet Detention Pond	Completed	2007	110	10	A	$22,247.00
2958	City of Palm Bay	NA	PB-10	Basin 13 Stormwater Improvements	Not provided.	Wet Detention Pond	Completed	2006	143	37	A	$200,419.00
2946	City of Palm Bay	NA	PB-11	Powell's Subdivision Paving & Drainage Improvements	Not provided.	Wet Detention Pond	Completed	2000	176	82	A	$147,478.00
2960	City of Palm Bay	NA	PB-12	Port Malabar Unit 40 Drainage Improvements North	Not provided.	Wet Detention Pond	Completed	2015	737	182	A	$23,778.00
2947	City of Palm Bay	NA	PB-13	Mandarin Ditch (South)	Not provided.	Grass swales without swale blocks or raised culverts	Completed	2006	213	30	A	$308,797.00
2969	City of Palm Bay	NA	PB-14	Basin 3 Main Street Parking Lot	Treatment train with PB-15.	Pervious Pavement Systems	Completed	2008	1428	206	A	$4,845.00
2968	City of Palm Bay	NA	PB-15	Basin 3 Main Street Improvements	Treatment train with PB-14.	BMP Treatment Train	Completed	2010	1604	231	A	$403,561.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
				Channel Alignment								
2967	City of Palm Bay	NA	PB-16	Street Sweeping	Not provided.	Street Sweeping	Ongoing	NA	57	36	A	$8,900.00
2966	City of Palm Bay	NA	PB-17	Turkey Creek Maintenance Dredging	Not provided.	Muck Removal/Restoration Dredging	Completed	2007	TBD	TBD	A	$255,241.00
2965	City of Palm Bay	NA	PB-18	Turkey Creek Maintenance Dredging - Sump	Not provided.	Muck Removal/Restoration Dredging	Completed	2014	TBD	TBD	A	$0.00
2964	City of Palm Bay	NA	PB-19	Anglers Drive	Not provided.	Baffle Boxes- First Generation	Completed	2008	1	1	A	$85,000.00
2963	City of Palm Bay	NA	PB-20	Worth Court	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	2014	0	0	A	$0.00
2962	City of Palm Bay	SJRWMD; DEP	PB-21	Basin 9 (Harris Pond)	Not provided.	Wet Detention Pond	Completed	2010	TBD	TBD	A	$294,519.00
2961	City of Palm Bay	NA	PB-22	Wild Rose BMP	Not provided.	Baffle Boxes- First Generation	Completed	2014	0	0	A	$0.00
2975	City of Palm Bay	NA	PB-24	Port Malabar Inlet Inserts	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	2010	TBD	TBD	A	$19,518.00
2976	City of Palm Bay	NA	PB-25	Kent Street Baffle Box	Not provided.	Baffle Boxes- First Generation	Completed	2009	1	1	A	$50,000.00
2977	City of Palm Bay	NA	PB-26	PMU1 North (Florin Pond)	Not provided.	Dry Detention Pond	Completed	2000	TBD	TBD	A	$150,000.00
2978	City of Palm Bay	NA	PB-27	Education Efforts	FYN, ordinances, pamphlets, PSAs, website, illicit discharge program.	Education Efforts	Ongoing	NA	12343	1787	A	$0.00
2971	City of Palm Bay	NA	PB-28	Vance Circle-Drainage Improvements	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Canceled	NA	NA	NA	A	$0.00
2972	City of Palm Bay	DEP	PB-29	Basin 1 Drainage Improvements Phase 1	Baffle box, modular wetlands, and upward filter.	BMP Treatment Train	Completed	2017	TBD	TBD	A	$250,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2955	City of Palm Bay	NA	PB-30	Troutman/ Clearmond Drainage Pond	Roadway widening from rural to urban section with underground drainage.	Dry Detention Pond	Completed	2014	7	1	A	$5,400,000.00
2911	City of Palm Bay	NA	PB-31	Port Malabar Drainage Improvements Central	Modification of existing drainage system redesigned to promote infiltration of stormwater runoff. The system has perforated piping, baffles, and infiltration trenches to encourage percolation.	Exfiltration Trench	Completed	2013	12	2	A	$0.00
2926	City of Palm Bay	NA	PB-32	Kingswood Drainage Pond	Modification and expansion of existing drainage pond to provide additional stormwater capacity, attenuation, and treatment.	Dry Detention Pond	Completed	2015	61	8	A	$0.00
2937	City of Palm Bay	DEP	PB-33	Basin 3 Bayfront Community SW Improvements (Koske Pond Phase 1)	Baffle box, modular wetlands, and upward filter.	BMP Treatment Train	Completed	2017	TBD	TBD	A	$500,000.00
2924	City of Palm Bay	SJRWMD; DEP	PB-34	Stormwater Treatment at City Marina	Baffle box, modular wetlands, and upward filter.	BMP Treatment Train	Planned	TBD	TBD	TBD	A	$890,050.00
2921	City of Palm Bay	NA	PB-37	Norwood Baffle Box Retrofit	Harding stormwater infrastructure and installing a NSBB box.	Baffle Boxes- Second Generation	Planned	2028	NA	NA	A	$0.00
2920	City of Palm Bay	NA	PB-38	Victoria Pond	N/A.	Baffle Boxes- First Generation	Canceled	NA	NA	NA	A	$0.00
2910	City of Palm Bay	NA	PB-39	Goode Park	The project is to reduce pollutant discharges into the impaired Indian River Lagoon by installing nutrient separating baffle boxes at two drainage outfalls within the City of Palm Bay.	Baffle Boxes- Second Generation with Media	Completed	2023	TBD	TBD	A	$588,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2918	City of Palm Bay	NA	PB-40	Florin Pond	N/A.	Baffle Boxes- First Generation	Canceled	NA	NA	NA	A	$0.00
2927	City of Palm Bay	NA	PB-41	Turkey Creek Shoreline Restoration	Bayfront shoreline restoration to place fill addressing hurricane erosion damage from 2016 and 2017.	Shoreline Stabilization	Completed	2018	TBD	TBD	A	$180,000.00
2916	City of Palm Bay	NA	PB-42	Unit 48 Drainage Improvements - Emerson	Expansion of wet detention system and adjustment of control structures.	Wet Detention Pond	Planned	2019	TBD	TBD	A	$0.00
2915	City of Palm Bay	Brevard County; Brevard Zoo	PB-43	Bayfront/Palm Bay Living Shoreline at Turkey Creek	Installation of oyster mats and plantings to uptake nutrients from sheet flow.	Creating/ Enhancing Living Shoreline	Canceled	2019	NA	NA	A	$113,000.00
2914	City of Palm Bay	NA	PB-44	Basin 3 Bayfront Community SW Improvements (Koske Pond Phases 2 and 3)	Expansion of wet pond.	Wet Detention Pond	Planned	2019	TBD	TBD	A	$0.00
2913	City of Palm Bay	NA	PB-45	Basin 1 Drainage Improvements Phase 2B Victoria Pond (West of U.S. 1)	Baffle box and upflow filter.	BMP Treatment Train	Planned	2019	TBD	TBD	A	$0.00
6925	City of Palm Bay	Brevard County; City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of Indialantic; Town of Malabar; Town of Melbourne Beach; Town of Melbourne Village; West Melbourne	PB-46	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	3127.1	437.3	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6985	City of Palm Bay	NA	PB-48	22PW10 Turkey Creek Baffle Box Treatment Train	To reduce pollutant discharges into the impaired CIRL by installing NSBB's at 5 drainage outfalls within the City of Palm Bay to include basins 3, 6 & 7.	BMP Treatment Train	Completed	2024	TBD	TBD	A	$1,500,000.00
7179	City of Palm Bay	DEP	PB-49	IRL 6 Baffle Boxes	Install 6 nutrient separating baffle boxes with media.	Baffle Boxes- Second Generation with Media	Planned	2026	TBD	TBD	A	$1,500,000.00
7180	City of Palm Bay	DEP	PB-50	Robert J Conlan Pond Base Flow Improvement Projects	Robert J Conlan Pond Base Flow Improvement. Pond retrofit to improve nutrient removal by base flow filtering.	Retention/Detention BMP Retrofit with Nutrient Reducing Media	Planned	2026	TBD	TBD	A	$1,800,000.00
2608	City of West Melbourne	NA	WM-01	Westbrooke	Not provided.	Wet Detention Pond	Completed	2004	23	4	A	$0.00
2619	City of West Melbourne	NA	WM-02	Saddlebrook	Not provided.	Wet Detention Pond	Completed	2004	0	0	A	$0.00
2631	City of West Melbourne	NA	WM-03	Stratford Point	Not provided.	Wet Detention Pond	Completed	2004	23	6	A	$0.00
2617	City of West Melbourne	NA	WM-04	Oak Grove	Not provided.	Wet Detention Pond	Completed	2010	20	5	A	$0.00
2616	City of West Melbourne	NA	WM-05	Manchester Lakes	Not provided.	Wet Detention Pond	Completed	2007	11	2	A	$0.00
2615	City of West Melbourne	NA	WM-06	Havens at Riviera	Not provided.	Wet Detention Pond	Completed	2009	5	4	A	$0.00
2932	City of West Melbourne	NA	WM-07	Cypress/Creek Imagine Schools	Not provided.	Wet Detention Pond	Completed	2009	32	4	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2931	City of West Melbourne	NA	WM-08	Lynnwood	Not provided.	Wet Detention Pond	Completed	2006	3	1	A	$0.00
2930	City of West Melbourne	NA	WM-09	Coastal Commerce	Not provided.	Wet Detention Pond	Completed	2009	12	5	A	$0.00
2929	City of West Melbourne	NA	WM-10	Hammock Landing	Not provided.	Wet Detention Pond	Completed	2009	5	2	A	$0.00
2863	City of West Melbourne	NA	WM-11	Crystal Lakes	Not provided.	Wet Detention Pond	Completed	2009	11	7	A	$0.00
2688	City of West Melbourne	NA	WM-12	Orange View Drive	Not provided.	Baffle Boxes- Second Generation	Completed	2014	90	11	A	$0.00
2737	City of West Melbourne	NA	WM-13	Stephenson Drive	Not provided.	Baffle Boxes- Second Generation	Completed	2014	28	3	A	$0.00
2736	City of West Melbourne	NA	WM-14	Parker Road	Not provided.	Baffle Boxes- Second Generation	Completed	2014	25	3	A	$0.00
2735	City of West Melbourne	NA	WM-15	Laila Drive	Not provided.	Baffle Boxes- Second Generation	Completed	2014	42	5	A	$0.00
2734	City of West Melbourne	NA	WM-16	Doherty Drive	Not provided.	Baffle Boxes- Second Generation	Completed	2014	120	16	A	$0.00
2733	City of West Melbourne	NA	WM-17	Trend Road	Not provided.	Baffle Boxes- Second Generation	Completed	2014	17	2	A	$0.00
2732	City of West Melbourne	NA	WM-18	San Paolo	Not provided.	Baffle Boxes- Second Generation	Completed	2014	6	1	A	$0.00
2731	City of West Melbourne	NA	WM-19	San Paolo West	Not provided.	Baffle Boxes- Second Generation	Completed	2014	17	2	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2730	City of West Melbourne	NA	WM-20	John Carrol	Not provided.	Baffle Boxes- Second Generation	Completed	2014	133	16	A	$0.00
2719	City of West Melbourne	NA	WM-21	Street Sweeping	Not provided.	Street Sweeping	Ongoing	NA	316	216	A	$0.00
2817	City of West Melbourne	NA	WM-22	Inlet Cleaning	Inlet cleanout to reduce nutrients.	BMP Cleanout	Ongoing	NA	20	2	A	$0.00
2738	City of West Melbourne	NA	WM-23	Sawgrass Lakes Ph. I	Not provided.	Wet Detention Pond	Completed	2015	TBD	TBD	A	$0.00
2841	City of West Melbourne	NA	WM-24	Manchester Lakes	Not provided.	Wet Detention Pond	Completed	2016	TBD	TBD	A	$0.00
5240	City of West Melbourne	Brevard County; SJRWMD	WM-25	Construction of Sylvan Drive Septic to Sewer Project	Connecting 59 properties to public sewer and abandoning 59 septic tanks.	OSTDS Phase Out	Completed	2021	TBD	TBD	A	$2,322,551.00
5630	City of West Melbourne	SOIRL; SJRWMD	WM-26	Ray Bullard Stormwater Management Area	Stormwater retrofit and pollutant removal project.	BMP Treatment Train	Completed	2022	1752	313	A	$1,146,017.59
5631	City of West Melbourne	Brevard County; DEP; SJRWMD	WM-27	Ray Bullard WRF Biological Nutrient Removal Upgrades	To ruduce Nutrient loading in public access reuse water.	OSTDS Phase Out	Underway	2026	TBD	TBD	A	$9,000,000.00
6837	City of West Melbourne	Brevard County SOIRL; DEP; SJRWMD	WM-28	Ashley Manor, Dundee Circle & Manor Place Septic to Sewer	The project will connect 121 homes currently served by septic tanks to the city's wastewater collection system.	OSTDS Phase Out	Underway	2026	TBD	NA	A	$7,810,410.00
6927	City of West Melbourne	Brevard County; City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of	WM-29	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	585.7	81.9	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
		Indialantic; Town of Malabar; Town of Melbourne Beach; Town of Melbourne Village; West Melbourne										
4830	FDACS	Agricultural Producers	FDACS-01	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 SWIL - LET.	Agricultural BMPs	Ongoing	NA	3209	344	A	$0.00
5557	FDACS	Agricultural Producers	FDACS-05	Cost-Share BMP Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP July 2020 Enrollment. Reductions based on SWIL Model-LET.	Agricultural BMPs	Completed	2020	0	0	A	$0.00
2689	FDOT District 5	NA	FDOTD5-01	D5_70010-3528-01	Pond A.	Wet Detention Pond	Completed	2002	1	0	A	$0.00
2698	FDOT District 5	NA	FDOTD5-02	D5_70010-3528-02	Pond B.	Wet Detention Pond	Completed	2002	2	0	A	$0.00
2687	FDOT District 5	NA	FDOTD5-03	D5_70012-3503-01 (Missing from model)	Pond WRA 1.	Wet Detention Pond	Completed	2013	165	0	A	$0.00
2686	FDOT District 5	NA	FDOTD5-04	D5_70012-3503-02 (Missing from model)	Pond WRA 2.	Wet Detention Pond	Completed	2013	0	0	A	$0.00
2685	FDOT District 5	NA	FDOTD5-05	D5_70012-3503-03 (Missing from model)	Pond WRA 3.	Dry Detention Pond	Completed	2013	6	1	A	$0.00
2684	FDOT District 5	NA	FDOTD5-06	D5_70050-3544-03	Pond 7B.	Wet Detention Pond	Completed	2004	2	0	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2683	FDOT District 5	NA	FDOTD5-07	D5_70100-3517-01 (Missing from model)	French drains. Project canceled. Start date prior to 2000. BMP is accounted for in new model.	100% On-site Retention	Canceled	NA	NA	NA	A	$0.00
2682	FDOT District 5	NA	FDOTD5-08	D5_70220-3433-01	Pond C.	Wet Detention Pond	Completed	2000	3	0	A	$0.00
2681	FDOT District 5	NA	FDOTD5-09	D5_70220-3429-01 (Missing from model)	Pond A; Pond 1A under 242251-2 (10/09). Project canceled. Start date prior to 2000. BMP is accounted for in new model.	Wet Detention Pond	Canceled	NA	NA	NA	A	$0.00
2707	FDOT District 5	NA	FDOTD5-10	D5_70220-3429-02 (Missing from model)	Pond B is now Pond 1B under 241221-2 (10/09). Project canceled. Start date prior to 2000. BMP is accounted for in new model.	Wet Detention Pond	Canceled	NA	NA	NA	A	$0.00
2709	FDOT District 5	NA	FDOTD5-11	D5_70220-3429-03 (Missing from model)	Pond C is now Pond 2B under 241221-2 (10/09). Project canceled. Start date prior to 2000. BMP is accounted for in new model.	Wet Detention Pond	Canceled	NA	NA	NA	A	$0.00
2690	FDOT District 5	NA	FDOTD5-12	D5_70220-3429-04 (Missing from model)	Pond D is now Pond 2A under 241221-2 (10/09). Project canceled. Start date prior to 2000. BMP is accounted for in new model.	Wet Detention Pond	Canceled	2013	NA	NA	A	$0.00
2716	FDOT District 5	NA	FDOTD5-13	D5_409034-01	French drains.	100% On-site Retention	Completed	2005	4	1	A	$0.00
2715	FDOT District 5	NA	FDOTD5-14	Education Efforts	Pamphlets, Illicit Discharge Program.	Education Efforts	Ongoing	NA	97	13	A	$0.00
2714	FDOT District 5	NA	FDOTD5-15	Fertilizer Cessation	Elimination of fertilizer application in rights-of-way.	Fertilizer Cessation	Completed	2005	1586	0	A	$0.00
2713	FDOT District 5	NA	FDOTD5-16	Street Sweeping	Street sweeping.	Street Sweeping	Ongoing	NA	346	188	A	$0.00
5632	FDOT District 5	NA	FDOTD5-17	FM: 426904-3-52-1	Wet Detention Pond 2S.	Wet Detention Pond	Completed	2019	13	3	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5633	FDOT District 5	NA	FDOTD5-18	FM: 426905-3-52-1	Wet Detention Pond 2A-B.	Wet Detention Pond	Completed	2019	12	4	A	$0.00
2702	Melbourne Tillman WCD	DEP	MT-01	C-1 Re-Diversion Project	Not provided.	Hydrologic Restoration	Completed	2014	TBD	TBD	A	$0.00
2701	Melbourne Tillman WCD	NA	MT-02	Weir Construction C-69 @ C-1	Not provided.	Control Structure	Completed	2016	TBD	TBD	A	$0.00
2700	Melbourne Tillman WCD	NA	MT-03	Weir Construction C-69 @ C-75	Not provided.	Control Structure	Completed	2016	TBD	TBD	A	$0.00
2777	Melbourne Tillman WCD	NA	MT-04	Weir Construction C-74 @ C-69	Not provided.	Control Structure	Completed	2016	TBD	TBD	A	$0.00
2829	Melbourne Tillman WCD	NA	MT-05	Windmill Aeration	Not provided.	Stormwater Aeration System	Completed	2022	NA	NA	A	$0.00
2740	Melbourne Tillman WCD	NA	MT-06	C-9R	Woodchip logs.	Turbidity Reducing Polymers (e.g., Floc logs ®)	Completed	2016	TBD	TBD	A	$0.00
2816	Melbourne Tillman WCD	NA	MT-07	C-49 Pond	Not provided.	Stormwater - Biological/ Bacteria Treatment	Completed	2016	TBD	TBD	A	$0.00
2815	Melbourne Tillman WCD	NA	MT-08	C-47	Not provided.	Stormwater - Biological/ Bacteria Treatment	Completed	2016	TBD	TBD	A	$0.00
2814	Melbourne Tillman WCD	NA	MT-09	C-62	Woodchip logs.	Turbidity Reducing Polymers (e.g., Floc logs ®)	Completed	2016	TBD	TBD	A	$0.00
2813	Melbourne Tillman WCD	NA	MT-10	C-84	Not provided.	Stormwater - Biological/ Bacteria Treatment	Completed	2016	TBD	TBD	A	$0.00
2812	Melbourne Tillman WCD	NA	MT-11	Harvesting	Hydrilla harvesting.	Aquatic Vegetation Harvesting	Completed	2016	TBD	TBD	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5239	Melbourne Tillman WCD	NA	MT-12	Harvesting	Hygrophilia and tape grass harvesting.	Aquatic Vegetation Harvesting	Ongoing	NA	18479.57	4166.9	A	$86,917.72
5594	Melbourne Tillman WCD	NA	MT-13	Control Structure Maintenance	Maintain existing water control structures and any adjustable gates on water control structures. Remove vegetation around gates.	Control Structure	Underway	2022	NA	NA	A	$0.00
5595	Melbourne Tillman WCD	NA	MT-14	Public Education and Outreach	Update website with links and literature related to clean waters and the Indian River Lagoon, and participate in education training to include FESCI program.	Education Efforts	Ongoing	NA	NA	NA	A	$0.00
5596	Melbourne Tillman WCD	NA	MT-15	New Outfall Discharge Requirements	Implement discharge requirements for new outfalls from developments which are greater than required by other agencies to regulate the peak flow into the canals. Recently updated policy for subaqueous hazardous crossings include wastewater, gas, etc.	Regulations, Ordinances, and Guidelines	Ongoing	NA	NA	NA	A	$0.00
6701	Melbourne Tillman WCD	Brevard County SOIRL	MT-16	Mechanical Harvesting C-21	Harvesting by excavator or hydrilla	Aquatic Vegetation Harvesting	Completed	2022	2170.78	339.19	A	$0.00
6728	Melbourne Tillman WCD	Brevard County SOIRL	MT-17	Mechanical Aquatic Vegetation Harvesting Canal C-14	Removal of hydrilla by excavator from Canal C-14 and disposed offsite. Credits of 5,773 lbs-TN/yr and 833 lbs-TP/yr are accounted for in Credit Sharing project as project is 100% funded by SOIRL.	Aquatic Vegetation Harvesting	Completed	2022	0	0	A	$262,544.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
7104	Melbourne Tillman WCD	Brevard County SOIRL	MT-18	MTWCD Aquatic Vegetation Removal Canal C-13	Removal of aquatic vegetation (Hydrilla verticillata, Chara) from Canal C-13 by mechanical harvesting.	Aquatic Vegetation Harvesting	Completed	2023	4177	1703.72	A	$254,797.00
7109	Melbourne Tillman WCD	Brevard County SORIL	MT-19	MTWCD Aquatic Vegetation Removal Canal C-17	MTWCD aquatic vegetation removal of hydrilla from Canal C-17 with excavator.	Aquatic Vegetation Harvesting	Completed	2023	5748	1422	A	$350,628.00
7108	Melbourne Tillman WCD	Brevard County SOIRL	MT-20	MTWCD Aquatic Vegetation Removal Canal C-8	MTWCD aquatic vegetation removal by mechanical methods (excavator).	Aquatic Vegetation Harvesting	Completed	2023	1012	227	A	$61,732.00
7080	Melbourne Tillman WCD	Brevard County SOIRL	MT-21	Mechanical Harvesting Canal C-20	Removed 245,200 pounds of wet vegetation including Hydrilla verticillata (hydrilla), Myriophyllum aquaticum (parrot's feather), etc. from canal.	Aquatic Vegetation Harvesting	Completed	2022	2354	981	A	$143,589.00
5565	SJRWMD	Brevard County SOIRL; DEP	SJRWMD-05	C-10 Water Management Area Project	Construction of a 1,300 acre reservoir with pump station and outfall structure designed to increase the flow restoration to the St. Johns River of the C-1 Rediversion Project to a total of 50% of the average annual flow.	Hydrologic Restoration	Planned	2030	29300	1300	A	$71,000,000.00
5566	SJRWMD	Brevard County; DEP	SJRWMD-06	Crane Creek M-1 Canal Flow Restoration	This project would restore M-1 Canal baseflows and small stormflows west of Evans Road back to the USJRB by constructing an operable diversion structure in the M-1 Canal to divert and treat flows prior to discharging to the USJRB.	Hydrologic Restoration	Underway	2025	24000	3100	A	$23,700,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6988	SJRWMD	SJRWMD	SJRWMD-14	C-1 Canal Baseflow Treatment	Project involves pumping water from C-1 Canal into an innovative media-based treatment system to remove nutrients and then discharging the treated water downstream.	In Waterbody - Biological/ Bacteria Treatment	Planned	2027	TBD	TBD	A	$995,000.00
6928	Town of Grant-Valkaria	Brevard County; City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of Indialantic; Town of Malabar; Town of Melbourne Beach; Town of Melbourne Village; West Melbourne	GV-01	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	94.5	13.2	A	$0.00
2809	Town of Indialantic	NA	TI-01	Education Efforts	Pamphlets, website, and fertilizer ordinance.	Education Efforts	Ongoing	NA	144	21	A	$0.00
2837	Town of Indialantic	NA	TI-02	Swale Construction	Not provided.	Grass swales without swale blocks or raised culverts	Underway	TBD	12	2	A	$0.00
2836	Town of Indialantic	NA	TI-03	Drainage Inlet Cleaning	Not provided.	BMP Cleanout	Ongoing	NA	TBD	TBD	A	$0.00
2835	Town of Indialantic	NA	TI-04	Street Sweeping	Not provided.	Street Sweeping	Ongoing	NA	28	18	A	$0.00
2834	Town of Indialantic	NA	TI-05	Lily Park	Not provided.	On-line Retention BMPs	Planned	2018	TBD	TBD	A	$0.00
6926	Town of Indialantic	Brevard County; City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of Indialantic; Town of Malabar; Town of	TI-06	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	46.7	6.5	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
		Melbourne Beach; Town of Melbourne Village; West Melbourne										
6495	Town of Malabar	Brevard County	MAL-01	Education Efforts	Fertilizer ordinance, landscaping ordinance, FYN through County partnership, stormwater website - Lagoon Loyal, and informational pamphlets and newsletter includes information about illicit discharges.	Education Efforts	Ongoing	NA	1212	175	A	$0.00
6496	Town of Malabar	NA	MAL-02	Baffle Box	First generation baffle box.	Baffle Boxes- First Generation	Completed	2013	TBD	TBD	A	$0.00
6497	Town of Malabar	NA	MAL-03	Ditch and Swale Maintenance Program	Cleanout existing ditch and swale network. Increase retention depth. Reshape ditches to avoid water table contamination for conveyance and quality.	Grass swales without swale blocks or raised culverts	Underway	TBD	TBD	TBD	A	$212,000.00
6498	Town of Malabar	NA	MAL-04	Catch basin	RFP issued for contracted service to inspect and cleanout all town right of way culverts, expected award date by 12/2024 and commencement Jan 2025. 2 year contract, multi-award.	Catch Basin Inserts/Inlet Filter Cleanout	Ongoing	NA	1	0	A	$0.00
6930	Town of Malabar	Brevard County; City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of Indialantic; Town of Malabar; Town of Melbourne Beach; Town of Melbourne	MAL-05	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	80.8	11.3	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
		Village; West Melbourne										
2838	Town of Melbourne Beach	NA	MB-01	Basin 9 - Oak Street Pedway	Not provided.	Exfiltration Trench	Completed	2007	115.27	17.67	A	$146,000.00
2826	Town of Melbourne Beach	NA	MB-02	Basin 9 - Oak Street Pedway - Improvement Project	Not provided.	Baffle Boxes- Second Generation	Completed	2007	152.16	18.78	A	$146,000.00
2825	Town of Melbourne Beach	NA	MB-03	Basin 8, 9 & 11 Oak Street Pedway - Improvement Project	Not provided.	Grass swales without swale blocks or raised culverts	Completed	2007	199.35	29.72	A	$146,000.00
2824	Town of Melbourne Beach	NA	MB-04	Basin 1 - Hazard Mitigation Grant Program (HMGP) Flood Water Improvements Project	Not provided.	Baffle Boxes- Second Generation	Completed	2010	150.04	17.95	A	$500,000.00
2823	Town of Melbourne Beach	NA	MB-05	Basin 1 - HMGP Flood Water Improvements Project	Not provided.	Grass swales without swale blocks or raised culverts	Completed	2010	3.88	0.57	A	$500,000.00
2822	Town of Melbourne Beach	NA	MB-06	Basin 9 - HMGP Flood Water Improvements Project	Not provided.	Grass swales without swale blocks or raised culverts	Completed	2010	4.47	0.66	A	$500,000.00
2821	Town of Melbourne Beach	NA	MB-07	Anchor Key Drainage Improvements - Basin 16	Not provided.	Baffle Boxes- First Generation	Completed	2002	0.14	0.1	A	$0.00
2820	Town of Melbourne Beach	NA	MB-08	Pelican Key Drainage Improvements - Basin 14	Not provided.	Baffle Boxes- First Generation	Completed	2002	0.08	0.05	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2726	Town of Melbourne Beach	DEP	MB-09	Basin 5 - Ocean Ave Baffle Box	Not provided.	Baffle Boxes- First Generation	Completed	2000	TBD	TBD	A	$0.00
2760	Town of Melbourne Beach	NA	MB-10	Basin 10 - Cherry Drive Baffle Box	Not provided.	Baffle Boxes- First Generation	Completed	2000	TBD	TBD	A	$0.00
2668	Town of Melbourne Beach	NA	MB-11	Basin 15 - Neptune Drive Baffle Box	Not provided.	Baffle Boxes- First Generation	Completed	2000	TBD	TBD	A	$0.00
2800	Town of Melbourne Beach	NA	MB-12	Basin 17 - Riverview Lane Baffle Box	Not provided.	Baffle Boxes- First Generation	Completed	2000	0.05	0.03	A	$0.00
2776	Town of Melbourne Beach	NA	MB-13	Basin 18 - Riverview Lane Baffle Box	Not provided.	Baffle Boxes- First Generation	Completed	2000	0.26	0.18	A	$0.00
2775	Town of Melbourne Beach	NA	MB-14	CIBs - Basins 4, 6, 10 & 15	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	2000	5	3.5	A	$0.00
2774	Town of Melbourne Beach	NA	MB-15	Melbourne Beach Chevron	Not provided.	100% On-site Retention	Completed	2010	TBD	TBD	A	$0.00
2773	Town of Melbourne Beach	NA	MB-16	Melbourne Beach Library	Not provided.	Dry Detention Pond	Completed	2001	TBD	TBD	A	$0.00
2772	Town of Melbourne Beach	NA	MB-17	Melbourne Beach Town Hall	Not provided.	100% On-site Retention	Completed	2005	TBD	TBD	A	$0.00
6882	Town of Melbourne Beach	NA	MB-18	2204 Redwood Ave	Install swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2024	5.44	1.56	A	$0.00
6877	Town of Melbourne Beach	NA	MB-19	Redwood & Cherry Stormwater Improvements	Installation of swales and ribbon curbing to retain stormwater on street .	Dry Detention Pond	Completed	2023	38.58	9.34	A	$0.00
6881	Town of Melbourne Beach	NA	MB-20	513 Magnolia Ave	Installation of swales to retain stormwater on	Grass swales without swale blocks or raised culverts	Completed	2023	1.37	0.2	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					property per Town Ordinance.							
6878	Town of Melbourne Beach	NA	MB-21	202 Second Ave	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2023	2.92	0.43	A	$0.00
6879	Town of Melbourne Beach	none	MB-22	400 Banyan Way	Installation of swale to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2023	1.7	0.25	A	$0.00
6880	Town of Melbourne Beach	NA	MB-23	304 First Ave	Installation of swales to retain stormwater on property per Town Ordinance.	Dry Detention Pond	Completed	2022	1.65	0.42	A	$0.00
6851	Town of Melbourne Beach	none	MB-25	451 Riverview	Installation of swale.	Dry Detention Pond	Completed	2021	0.45	0.14	A	$0.00
6840	Town of Melbourne Beach	none	MB-27	Hibiscus Trail & Magnolia Drainage Improvements	installation of dry retention pond	Dry Detention Pond	Completed	2011	TBD	TBD	A	$0.00
6848	Town of Melbourne Beach	none	MB-28	Riverside & Avenue A Erosion	stabilization of shoreline at Avenue A and Riverside	Shoreline Stabilization	Completed	2019	TBD	TBD	A	$0.00
6864	Town of Melbourne Beach	NA	MB-29	509 Third Ave	Installation of swales to retain stormwater on property per Town Ordinance.	Dry Detention Pond	Completed	2021	3.31	0.68	A	$0.00
6874	Town of Melbourne Beach	none	MB-30	414 Hibiscus	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	0.75	0.11	A	$0.00
6875	Town of Melbourne Beach	NA	MB-31	1507 Pine St	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	1.67	0.25	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6865	Town of Melbourne Beach	NA	MB-32	303 Riverside Dr	Installation of swales to retain stormwater per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	1.93	0.73	A	$0.00
6866	Town of Melbourne Beach	none	MB-33	509 Sunset Blvd	Installation of swale to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	2.28	0.54	A	$0.00
6868	Town of Melbourne Beach	none	MB-34	447 Riverside Dr	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	1.92	0.27	A	$0.00
6871	Town of Melbourne Beach	none	MB-35	208 Second Ave	Installation of swales on property to retain stormwater per Town Ordinance. Subparceled of property associated with Project ID 6878. All credited reduction applied to 6878, MB-21.	Grass swales without swale blocks or raised culverts	Completed	2022	NA	NA	A	$0.00
6867	Town of Melbourne Beach	none	MB-36	402 River View Ln	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	1.05	0.27	A	$0.00
6869	Town of Melbourne Beach	none	MB-37	419 Avenue B	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	1.73	0.94	A	$0.00
6870	Town of Melbourne Beach	none	MB-38	407 Third Ave	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	1.02	0.15	A	$0.00
6824	Town of Melbourne Beach	None	MB-39	Riverview Lane Baffle Box	Install baffle box.	Baffle Boxes- First Generation	Completed	2000	0.59	0.54	A	$0.00
6846	Town of Melbourne Beach	none	MB-40	Basin 4 Swales Sunset Ave	installation of swale median along entire street from Riverside to A1A	Dry Detention Pond	Completed	2014	98.22	18.58	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6863	Town of Melbourne Beach	none	MB-41	208 Third Ave	Installation of swales on property to retain stormwater per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2021	1.42	0.63	A	$0.00
6872	Town of Melbourne Beach	none	MB-42	309 Ocean Ave	Installation of swales to retain stormwater on property per Town Ordinance.	Dry Detention Pond	Completed	2022	2.04	0.29	A	$0.00
6873	Town of Melbourne Beach	none	MB-43	322 Fourth Ave	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2022	1.4	0.21	A	$0.00
6850	Town of Melbourne Beach	none	MB-45	409 Second Ave	Installation of a swale.	Grass swales without swale blocks or raised culverts	Completed	2021	1.4	0.21	A	$0.00
6859	Town of Melbourne Beach	none	MB-46	221 Fifth Ave	Installation of swale to retain water on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2021	1.48	0.22	A	$0.00
6860	Town of Melbourne Beach	none	MB-47	204 Riverside Dr	Installation of swale to retain water on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2021	3.49	0.51	A	$0.00
6862	Town of Melbourne Beach	NA	MB-48	902 Oak St	Installation of swale on property to retain stormwater per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2021	1.09	0.29	A	$0.00
6854	Town of Melbourne Beach	none	MB-49	Orange Street Project	Installation of swales for 0.75 miles both sides of roadway.	Dry Detention Pond	Completed	2022	78.74	16.72	A	$0.00
6856	Town of Melbourne Beach	none	MB-50	307 Avenue B Lot Grading	Lot graded to retain water on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2021	1.84	0.4	A	$0.00
6876	Town of Melbourne Beach	NA	MB-51	527 Sunset Blvd Lot	Installation of swales to retain stormwater on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2023	1.75	0.27	A	$0.00
6857	Town of Melbourne Beach	NA	MB-53	404 Avenue B	Swale installation to retain water on property per Town Ordinance.	Grass swales without swale blocks or raised culverts	Completed	2023	3.07	0.27	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6843	Town of Melbourne Beach	none	MB-54	Basin 1 Drainage Improvements Shannon Ave Exfiltration	installation of exfiltration drainage	Exfiltration Trench	Completed	2015	TBD	TBD	A	$0.00
6845	Town of Melbourne Beach	none	MB-55	Basin 3 Riverside Baffle Box	Installation of baffle boxes.	Baffle Boxes- First Generation	Completed	2014	2.33	1.84	A	$0.00
6849	Town of Melbourne Beach	none	MB-56	221 Surf Road	Swale installation.	Grass swales without swale blocks or raised culverts	Completed	2020	1.32	0.19	A	$0.00
6853	Town of Melbourne Beach	none	MB-57	304 First Ave	Swale installation. Subparceled of property associated with Project ID 6880, MB-23. All credit applied to Project ID 6880, MB-23.	Dry Detention Pond	Completed	2021	NA	NA	A	$0.00
6931	Town of Melbourne Beach	Brevard County; City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of Indialantic; Town of Malabar; Town of Melbourne Beach; Town of Melbourne Village; West Melbourne	MB-59	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	88	12.4	A	$0.00
7045	Town of Melbourne Beach	NA	MB-60	411 First Ave	Per Town Ordinance 2019-06 all property owners must retain all stormwater on their property.	Grass swales without swale blocks or raised culverts	Completed	2023	TBD	TBD	A	$0.00
7536	Town of Melbourne Beach	NA	MB-61	506 Third Ave Dry Detention Stormwater Treatment System	Compliance with Town Ordinance 2019-06. All stormwater runoff must be retained on property.	Dry Detention Pond	Completed	2024	TBD	TBD	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
7537	Town of Melbourne Beach	NA	MB-62	1609 Atlantic Street - Stormwater Management System	Compliance with 2019-06 Town Ordinance. All stormwater runoff must be retained on property.	Dry Detention Pond	Completed	2024	TBD	TBD	A	$0.00
7539	Town of Melbourne Beach	NA	MB-63	510 Third Ave - Stormwater Treatment System	Compliance with Town Ordinance 2019-06. All stormwater runoff must be retained on property.	Dry Detention Pond	Completed	2023	TBD	TBD	A	$0.00
2771	Town of Melbourne Village	NA	MV-01	Platt Circle	Not provided.	Baffle Boxes- Second Generation	Completed	2005	29.4	3.7	A	$124,000.00
5603	Town of Melbourne Village	NA	MV-02	Education Efforts	FYN, fertilizer ordinance, irrigation ordinance, PSAs, and informational pamphlets.	Education Efforts	Ongoing	NA	144	21	A	$0.00
5604	Town of Melbourne Village	NA	MV-03	Dayton Culvert	Restoration of swale and installation of new culvert with baffle box.	Baffle Boxes- Second Generation	Completed	2021	TBD	TBD	A	$11,300.00
6929	Town of Melbourne Village	City of Melbourne; City of Palm Bay; Town of Grant-Valkaria; Town of Indialantic; Town of Malabar; Town of Melbourne Beach; Town of Melbourne Village; West Melbourne; Brevard County	MV-04	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	19.1	2.6	A	$0.00

Table B-2 summarizes the existing and planned projects provided by the stakeholders for Project Zone SEB.

Table B-2. Existing and planned projects in Project Zone SEB

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2647	Brevard County	NA	BC-04	Church Street Pond Cleanout	Removed vegetation from pond.	BMP Cleanout	Completed	2014	137	26	SEB	$0.00
5553	Brevard County	Cape Canaveral; Cocoa; Cocoa Beach; Grant-Valkaria; IHB; Malabar; Melbourne; W. Melbourne	BC-05a	Education Efforts	FYN, fertilizer and pet waste ordinances, public service announcements (PSAs), pamphlets, website, illicit discharge program. ILA for Public Education.	Education Efforts	Ongoing	NA	3127	466	SEB	$0.00
5554	Brevard County	NA	BC-06a	Street Sweeping	Remove debris from 786 linear feet of curb street throughout the county.	Street Sweeping	Ongoing	NA	58	37	SEB	$0.00
2901	Brevard County	SJRWMD	BC-08	Wheeler Properties (Sebastian River Improvements)	Wet detention pond and wetland enhancement.	Wet Detention Pond	Completed	2012	TBD	TBD	SEB	$3,500,000.00
2875	Brevard County	NA	BC-09	Micco I	Exfiltration and denitrification.	BMP Treatment Train	Completed	2016	40	6	SEB	$175,599.00
2854	Brevard County	NA	BC-10	Micco B	Not provided.	Dry Detention Pond	Canceled	NA	41	6	SEB	$0.00
2853	Brevard County	NA	BC-11	Mockingbird Pond	Installation of a floating vegetated island in an existing stormwater retention pond to provide	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2017	23	3	SEB	$10,923.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					additional nutrient removal.							
2852	Brevard County	NA	BC-12	Church Street Pond MAPS	Installation of a floating vegetated island in an existing stormwater retention pond to provide additional nutrient removal.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2010	135	21	SEB	$4,212.00
2851	Brevard County	DEP	BC-13	Wheeler Flemming Grant	Construction of a wet detention pond that will help remove nitrogen and phosphorus from the stormwater adjacent to Fleming Grant Road in southeastern Brevard County.	Wet Detention Pond	Completed	2016	553	182	SEB	$645,073.00
5555	Brevard County	DEP	BC-20a	Multiple Ditch Outfall Denitrification D3	Providing base flow/groundwater treatment in 20 open drainage basins. Each Project will have its own number. Replaced with individual basin projects.	Denitrification Walls	Canceled	NA	NA	NA	SEB	$0.00
4375	Brevard County	SOIRL	BC-26	Flemming Grant BAM - BB#2134	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of	Biosorption Activated Media (BAM)	Completed	2020	448.88	56.95	SEB	$181,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					the pond or the bottom of the swale.							
5232	Brevard County	SOIRL	BC-28	Long Point Park Denitrification	Denitrification wall to remove nitrogen from the groundwater flowing from campground rapid infiltration wet pond into IRL.	Denitrification Walls	Completed	2017	TBD	TBD	SEB	$101,854.00
5235	Brevard County	SOIRL	BC-31	Education Efforts	Fertilizer, grass clippings, and septic system maintenance.	Enhanced Public Education	Underway	2027	NA	NA	SEB	$187,500.00
5236	Brevard County	SOIRL	BC-32	Babcock @C54 - BB#2258	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond or the bottom of the swale.	Biosorption Activated Media (BAM)	Underway	2025	TBD	TBD	SEB	$223,538.00
5237	Brevard County	SOIRL	BC-33	Grass Clippings Campaign Phase 1	Marketing and surveying. Included in BC-31.	Education Efforts	Canceled	2019	NA	NA	SEB	$6,667.00
5628	Brevard County	DEP; IRL NEP; SOIRL	BC-34	Micco Sewer Extension	Connecting 29 properties from septic to sewer.	OSTDS Phase Out	Underway	2025	TBD	TBD	SEB	$4,870,536.00
6285	Brevard County	SOIRL	BC-35	CIRL SEB Septic Upgrades 2021	Conventional septic system upgrades to advanced nitrogen reducing treatment, NSF-45 meeting at least 65% TN reduction. Credits of 87 lbs-TN/yr are	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2021	0	NA	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					accounted for in Credit Sharing project as project is 100% funded by SOIRL.							
7099	Brevard County	Florida Legislature; SOIRL	BC-35a	Central IRL SEB Septic Upgrades 2023	Completed 8 septic upgrades; Conventional septic system upgrades to advanced nitrogen reducing treatment, NSF-45 meeting at least 65% TN reduction.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2023	274.13	NA	SEB	$165,995.00
6595	Brevard County	DEP; SOIRL	BC-38	Micco Zone B Septic to Sewer	Connect 229 properties.	OSTDS Phase Out	Planned	2028	TBD	TBD	SEB	$15,000,000.00
6933	Brevard County	Brevard County; Town of Grant-Valkaria	BC-43	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	256.1	23.4	SEB	$0.00
7149	Brevard County	Brevard County	BC-44	Long Point Park Pond Aquatic Vegetation Harvesting 2023	Harvested 278,640 pounds of aquatic vegetation (cattails) from the Long Point Park pond.	Aquatic Vegetation Harvesting	Completed	2023	NA	NA	SEB	$0.00
2842	City of Fellsmere	Fellsmere WCD	F-01	State Street Improvements and Stormwater Lake Project	Not provided.	Wet Detention Pond	Completed	Prior to 2013	78	22	SEB	$0.00
2923	City of Fellsmere	NA	F-02	Senior League Field Park Improvements	Not provided.	Wet Detention Pond	Completed	2008	4	1	SEB	$0.00
2840	City of Fellsmere	NA	F-03	City Hall/Orange Street Project	Not provided.	Wet Detention Pond	Completed	2018	4	1	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2893	City of Fellsmere	NA	F-04	Sunrise Apartments Phase 1 & 2	Not provided.	Wet Detention Pond	Completed	2009	12	4	SEB	$0.00
2865	City of Fellsmere	Fellsmere WCD	F-05	Grace Meadows Subdivision	Not provided.	Wet Detention Pond	Completed	2009	4	2	SEB	$0.00
2848	City of Fellsmere	NA	F-07	Solid Waste Transfer Station	Not provided.	Wet Detention Pond	Completed	2008	0	0	SEB	$0.00
2871	City of Fellsmere	NA	F-08	Fertilizer Ordinance	Ordinance.	Regulations, Ordinances, and Guidelines	Ongoing	NA	53	8	SEB	$0.00
2870	City of Fellsmere	SJRWMD; Property Owner	F-09	North Regional Lake	Not provided.	Wet Detention Pond	Completed	2017	1512	456	SEB	$615,000.00
2869	City of Fellsmere	DEP	F-10	South Regional Lake	Created wetland flow through system.	BMP Treatment Train	Completed	2022	3025	797	SEB	$787,187.00
2868	City of Fellsmere	NA	F-11	Alleyway Grading	Convert alleyway system into stormwater treatment system.	Grass swales without swale blocks or raised culverts	Underway	2025	TBD	TBD	SEB	$1,260,000.00
2867	City of Fellsmere	NA	F-12	Stormwater Greenway	Convert unused rights-of-way into stormwater greenways.	Bioswales	Planned	TBD	TBD	TBD	SEB	$1,750,000.00
2866	City of Fellsmere	NA	F-13	Additional Regional Treatment	Lake or treatment train system (additional 40 acres required).	Wet Detention Pond	Planned	TBD	TBD	TBD	SEB	$2,080,000.00
2856	City of Fellsmere	NA	F-14	Road Culverts, Stormwater Conveyance, and Paving	Reconstruct road culverts, stormwater conveyance, paving.	Grass swales without swale blocks or raised culverts	Planned	TBD	TBD	TBD	SEB	$13,000,000.00
2864	City of Fellsmere	NA	F-15	Micro system basins	Construct micro system basins for stormwater treatment.	BMP Treatment Train	Planned	TBD	TBD	TBD	SEB	$1,000,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2873	City of Fellsmere	NA	F-16	Stormwater data inventory	Develop stormwater data inventory system.	Study	Completed	2018	NA	NA	SEB	$15,000.00
4377	City of Fellsmere	IRL NEP	F-17	259 S. Pine Stormwater	Construct swale conveyances, dry retention and control structures for micro basin.	Dry Detention Pond	Planned	TBD	37	5	SEB	$130,000.00
4378	City of Fellsmere	NA	F-18	89th St. Basin Retrofit	Reconstruct road culverts, stormwater conveyance, flood mitigation.	BMP Treatment Train	Planned	2025	TBD	TBD	SEB	$2,800,000.00
5556	City of Fellsmere	Fellsmere WCD	F-19	97th Street Flood Control	Road paving, stormwater conveyance, flood mitigation.	BMP Treatment Train	Underway	2024	TBD	TBD	SEB	$4,400,000.00
6669	City of Fellsmere	NA	F-20	State Street Reservoir Expansion	Expand State Street Reservoir to allow for additional stormwater treatment.	100% On-site Retention	Planned	TBD	TBD	TBD	SEB	$0.00
4832	FDACS	Agricultural Producers	FDACS-03	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 SWIL - LET.	Agricultural BMPs	Ongoing	NA	13751	1508	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5558	FDACS	Agricultural Producers	FDACS-06	Cost-Share BMP Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP July 2020 Enrollment. Reductions based on SWIL Model-LET.	Agricultural BMPs	Completed	2020	3324	187	SEB	$0.00
2723	FDOT District 4	NA	FDOT4-03	FM# 228615-1	Resurfacing SR 5 between CR 510 to just south of Harrison Street.	Baffle Boxes-Second Generation	Completed	2007	108	12	SEB	$0.00
5571	FDOT District 4	NA	FDOT4-04a	FDOT4 Street Sweeping	Materials from roadway and gutter sweeping.	Street Sweeping	Ongoing	NA	76	49	SEB	$0.00
5573	FDOT District 4	NA	FDOT4-09a	Education Efforts	Pamphlets and Illicit Discharge Program.	Education Efforts	Ongoing	NA	20	2	SEB	$0.00
5575	FDOT District 4	NA	FDOT4-10a	Fertilizer Cessation	No longer applying routine fertilizer.	Fertilizer Cessation	Completed	2014	6045	1511	SEB	$0.00
5577	FDOT District 4	NA	FDOT4-21a	FM#: 413048-1 (Interstate-95 from St. Lucie/ Indian River County Line to North of State Road 60)	Widening SR 9 from St. Lucie / IRC Line to North of State Rd 60.	100% On-site Retention	Completed	2016	36	4	SEB	$0.00
2744	FDOT District 4	NA	FDOT4-22	FM# 411476-1 (Sebastian River Bridge Replacement Project)	SR A1A Sebastian River Bridge replacement.	Grass swales without swale blocks or raised culverts	Completed	2014	0	0	SEB	$0.00
2743	FDOT District 4	NA	FDOT4-23	FM# 413049-2	Widening SR 9 from North of SR 60 to Indian River/ Brevard County line.	Grass swales without swale blocks or raised culverts	Completed	2018	554	0	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5578	FDOT District 4	NA	FDOT4-35A	FM# 431152-1	US-1 lateral ditch restoration.	On-line Retention BMPs	Completed	2016	TBD	TBD	SEB	$0.00
5579	FDOT District 5	NA	FDOTD5-14a	Education Efforts	Pamphlets, Illicit Discharge Program.	Education Efforts	Ongoing	NA	33	4	SEB	$0.00
2712	Fellsmere WCD	Sunrise Villas	FWCD-01	Sunrise Villas	Pond designed per two-inch/day limitation rule.	Wet Detention Pond	Completed	2003	5	2	SEB	$0.00
2711	Fellsmere WCD	SJRWMD; Indian River County; State	FWCD-02	St. Johns Land Purchase	Conservation land.	Land Use Change	Completed	Prior to 2013	NA	NA	SEB	$0.00
2710	Fellsmere WCD	City of Fellsmere; SJRWMD	FWCD-03	Fellsmere Stormwater Lake and State Street Improvements	Stormwater retrofit improvements. Reduction split 50/50 with the City of Fellsmere.	Wet Detention Pond	Completed	2003	76	21	SEB	$0.00
2699	Fellsmere WCD	Indian River County Habitat for Humanity	FWCD-04	Grace Meadows	Pond designed per two-inch/day limitation rule. Reductions split 50/50 with City of Fellsmere.	Wet Detention Pond	Completed	2009	2	1	SEB	$0.00
2708	Fellsmere WCD	NA	FWCD-05	2-Inch Limitation Discharges	Establishment of two-inch discharge rule.	Regulations, Ordinances, and Guidelines	Ongoing	NA	TBD	TBD	SEB	$0.00
2895	Fellsmere WCD	NA	FWCD-06	Fellsmere WCD Mechanical Canal Maintenance	Canal cleaning/maintenance.	Stormwater System Rehabilitation	Ongoing	NA	NA	NA	SEB	$0.00
2667	Fellsmere WCD	City of Fellsmere	FWCD-07	Historic Fellsmere Master Drainage Plan	Stormwater retrofit improvements. Reductions will be split with the City of	Regional Stormwater Treatment	Planned	TBD	TBD	TBD	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					Fellsmere once determined.							
4379	Fellsmere WCD	City of Fellsmere; SJRWMD	FWCD-08	SOUTH REGIONAL LAKE	Created wetland flow through system. Reductions to be split with the City of Fellsmere once determined.	BMP Treatment Train	Underway	TBD	TBD	TBD	SEB	$0.00
4380	Fellsmere WCD	City of Fellsmere; SJRWMD	FWCD-09	NORTH REGIONAL LAKE	Reductions to be split with the City of Fellsmere once determined.	Wet Detention Pond	Completed	2018	TBD	TBD	SEB	$0.00
2679	Fellsmere WCD	Fellsmere Joint Venture (FJV); SJRWMD	FWCD-10	Water Dispersion Project	Construction of berms and two pump stations to remove water from outfall canals and store on land.	Dispersed Water Management (DWM)	Canceled	NA	NA	NA	SEB	$0.00
5580	Fellsmere WCD	NA	FWCD-11	Public Education and Outreach	Provide public education to residents of the District that fosters an understanding of the necessity to reduce nutrient impacts to surface waters.	Education Efforts	Ongoing	NA	NA	NA	SEB	$0.00
5581	Fellsmere WCD	NA	FWCD-12	Assist FDACS with BMP Enrollment Outreach	Assist FDACS, where needed, with identifying and contacting landowners/ producers within the District boundaries	Agricultural BMPs	Ongoing	NA	NA	NA	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					for purposes of participating in the relevant FDACS BMP programs.							
6934	Town of Grant-Valkaria	Brevard County; Town of Grant-Valkaria	GV-02	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	56.3	5.2	SEB	$0.00
2662	Indian River County	DEP	IRC-01	Vero Lake Estates Stormwater Improvements - Phase 1	Series of swales and canals in a large development leading to large stormwater detention ponds.	Wet Detention Pond	Completed	2002	7655	1993	SEB	$1,572,829.00
2661	Indian River County	DEP	IRC-02	East Roseland Stormwater Improvements	A stormwater detention pond receiving water from swale systems in a subdivision.	Wet Detention Pond	Completed	2005	216	58	SEB	$433,134.00
5587	Indian River County	NA	IRC-07a	Moorhen Marsh Low Energy Aquatic Plant System	This is a managed aquatic plant system that will remove sediment and suspended solids through settling and filtration by aquatic plant roots. The aquatic plants will be harvested on a regular basis.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2023	52	7	SEB	$11,070,000.00
5588	Indian River County	NA	IRC-08a	Education Efforts	Fertilizer ordinance, PSAs, website, pamphlets, Illicit Discharge Program,	Education Efforts	Ongoing	NA	5277	762	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					and signs along Indian River Farms WCD canals.							
5589	Indian River County	NA	IRC-09a	Street Sweeping	Street sweeping.	Street Sweeping	Ongoing	NA	91	58	SEB	$0.00
5590	Indian River County	NA	IRC-10a	Storm Drain Cleaning with Vacuum Trucks	Nutrient removal from measured data.	BMP Cleanout	Planned	TBD	TBD	TBD	SEB	$0.00
5591	Indian River County	NA	IRC-11a	Floating Aquatic Plant Islands in County Stormwater Ponds and Lakes	Nutrient removal from measured data.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Planned	TBD	TBD	TBD	SEB	$0.00
2602	Indian River County	NA	IRC-13	North Relief Canal Mechanical Vegetation/Debris Removal	Removal of aquatic vegetation containing nitrogen and phosphorus that otherwise, would enter IRL and die, releasing nutrients into the lagoon.	Aquatic Vegetation Harvesting	Planned	TBD	TBD	TBD	SEB	$1,000,000.00
5639	Indian River County	SJRWMD	IRC-21	Artesian Well Plugging	Cost share plugging of free flowing Artesian Wells.	Plugging Artesian Wells	Underway	TBD	TBD	TBD	SEB	$10,998.00
5641	Indian River County	DEO; SJRWMD	IRC-23	IRC Sebastian Septic to Sewer Phase 1	Abandoning OSTDS and connecting to centralized sewer.	OSTDS Phase Out	Completed	2018	TBD	TBD	SEB	$3,283,000.00
7093	Indian River County	DEP; IRLNEP; SJRWMD	IRC-23a	Sebastian Phase 2	148 septic 2 sewer conversions were completed in 2023. Only 1 more connection is left to complete this project. The final connection is a church and it is	OSTDS Phase Out	Underway	2025	2007	NA	SEB	$1,413,460.40

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					anticipated to be completed by December of 2024.							
5642	Indian River County	DEP; IRL NEP; SJRWMD	IRC-24	IRC West Wabasso Septic to Sewer Phase 2	Abandoning OSTDS and connecting to centralized sewer.	OSTDS Phase Out	Completed	2020	TBD	TBD	SEB	$2,250,984.00
7169	Indian River County	NA	IRC-30	Sebastian Highlands Unit 02 Collier Service Extention	Sebastian Highlands Unit 02 Collier Service Extension consists of approximately 27 homes that will connect to county sewer.	OSTDS Phase Out	Planned	2028	304	NA	SEB	$2,165,998.13
7170	Indian River County	TBD	IRC-31	Sebastian Highlands Unit 05 Service Extension	Sebastian Highlands Unit 05 consists of approximately 570 homes that will have the ability to connect to sewer.	OSTDS Phase Out	Planned	2029	TBD	NA	SEB	$22,670,872.00
7171	Indian River County	TBD	IRC-32	Sebastian Highlands Unit 04 Service Extension	Sebastian Highlands Unit 04 consists of approximately 385 homes on septic tanks that will be able to connect to sewer.	OSTDS Phase Out	Planned	2030	TBD	NA	SEB	$20,595,754.00
7172	Indian River County	TBD	IRC-33	Sebastian Highlands Unit 03	Sebastian Highlands Unit 03 consists of approximately 155 homes that will convert to sewer.	OSTDS Phase Out	Planned	2033	TBD	NA	SEB	$6,408,091.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
7174	Indian River County	TBD	IRC-34	North Sebastian Phase 3 Water and Septic to Sewer	The North Sebastian Phase 3 water and septic to sewer project will convert approximately 138 existing septic systems to centralized sewer and provide water service to approximately 88 residential properties.	OSTDS Phase Out	Planned	2032	TBD	TBD	SEB	$0.00
7175	Indian River County	TBD	IRC-35	Sebastian Highlands Unit 01 Service Extension	Sebastian Highlands Unit 01 consists of approximately 754 homes on septic that will be connected to sewer service.	OSTDS Phase Out	Planned	2033	TBD	TBD	SEB	$39,344,111.00
7166	Indian River County	NA	IRC-36	FLOROVAN Shores Sewer Service Extension	Florovan Shores is a subdivision with 19 parcels adjacent to the Indian River Lagoon. The subdivision is located on 110th Street, just off of US HWY1 in the City of Sebastian. The septic to sewer project will enable residents to connect to sewer.	OSTDS Conversion to Distributed Wastewater System	Underway	2025	214	NA	SEB	$0.00
7202	Indian River County	NA	IRC-39	Ambersand Beach Sub No. 1 & 2	Ambersand Beach Subdivison consists of approximately 7	OSTDS Conversion to Distributed Wastewater System	Planned	2031	23.7	NA	SEB	$7,087,799.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					homes on septic tanks.							
7173	Indian River County	TBD	IRC-40	Roseland Road Sewer Laterals	The Roseland Sewer Laterals will convert approximately 9 existing residences to sewer.	OSTDS Phase Out	Planned	2029	101	NA	SEB	$0.00
2922	City of Palm Bay	NA	PB-35	Education Efforts	FYN, ordinances, pamphlets, PSAs, website, illicit discharge program.	Education Efforts	Ongoing	NA	185	25	SEB	$0.00
2912	City of Sebastian	NA	SEB-01	Main Street/Indian River Drive Improvements	Not provided.	Dry Detention Pond	Completed	2009	6	1	SEB	$0.00
2935	City of Sebastian	NA	SEB-02	Main Street 4	Not provided.	Dry Detention Pond	Canceled	NA	NA	NA	SEB	$0.00
2917	City of Sebastian	NA	SEB-03	T-Hangar Development/Access Roads	Not provided.	Dry Detention Pond	Completed	2004	2	0	SEB	$0.00
2919	City of Sebastian	NA	SEB-04	Louisiana Avenue Improvements Projects	Not provided.	Dry Detention Pond	Completed	2004	3	0	SEB	$0.00
2944	City of Sebastian	NA	SEB-05	Twin Ditches Stormwater Retrofit	Joined two parallel ditches into one larger ditch or wet detention system with a spillway control structure to limit discharge to the tributary of the St. Sebastian River.	Wet Detention Pond	Completed	2007	241	127	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2943	City of Sebastian	NA	SEB-06	Indian River Drive & Davis Street Baffle Box	Not provided.	Baffle Boxes- First Generation	Completed	2009	1	1	SEB	$0.00
2942	City of Sebastian	DEP	SEB-07	Periwinkle Drive Stormwater	Not provided.	Wet Detention Pond	Completed	2008	5	1	SEB	$0.00
2941	City of Sebastian	DEP	SEB-08	Collier Canal Stormwater Retrofit	Not provided.	Wet Detention Pond	Completed	2010	1655	444	SEB	$0.00
2940	City of Sebastian	NA	SEB-09	Schumann Park Improvements	Not provided.	Dry Detention Pond	Completed	2009	4	1	SEB	$0.00
2939	City of Sebastian	NA	SEB-10	Education & Outreach	Fertilizer Ordinance, FYN, irrigation, etc.	Education Efforts	Ongoing	NA	3245.6	467.3	SEB	$0.00
2938	City of Sebastian	NA	SEB-11	Airport Drive	Not provided.	Baffle Boxes- First Generation	Canceled	NA	NA	NA	SEB	$0.00
2928	City of Sebastian	NA	SEB-12	Presidential Street	Installed (2) 2nd generation baffle boxes with bold and gold media filters as outfalls into the IRL. The two locations can be considered the Cleveland Street and Washington Street Baffle Boxes.	Baffle Boxes- Second Generation	Completed	2016	737.4	97.4	SEB	$0.00
2936	City of Sebastian	NA	SEB-13	Powerline Road	Creation of roadside water storage and treatment.	Dry Detention Pond	Completed	2014	TBD	TBD	SEB	$0.00
2945	City of Sebastian	NA	SEB-14	STEP Septic System	Project completed by Indian River County Utilities. Canceled as a City of Sebastian project.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Canceled	NA	NA	NA	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2934	City of Sebastian	NA	SEB-15	Collier Canal Dredge	Project was completed was data was not acquired that aligned with DEP reporting process. Consider nutrient reductions occurred but they are not credited for the region.	Muck Removal/Restoration Dredging	Canceled	2010	NA	NA	SEB	$0.00
2933	City of Sebastian	NA	SEB-16	Stormwater Park	SW Treatment Facility. A pump system that brings water from all of the City's canals into this park and moves it between a series of detention ponds and wetlands. Project site is 166.1 acres, but treats all of watersheds feeding into the canal system.	Stormwater Treatment Areas (STAs)	Completed	2013	TBD	TBD	SEB	$0.00
2600	City of Sebastian	NA	SEB-18	Water Quality Testing	Not provided.	Monitoring/Data Collection	Canceled	NA	NA	NA	SEB	$0.00
2599	City of Sebastian	NA	SEB-19	Drainage Improvements	Not provided.	BMP Treatment Train	Completed	2016	TBD	TBD	SEB	$0.00
2598	City of Sebastian	NA	SEB-20	Tulip Drainage	On-line retention pond designed for stormwater collection and removal of pollutant loadings.	On-line Retention BMPs	Completed	2016	TBD	TBD	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2597	City of Sebastian	NA	SEB-21	Septic to Sewer	34 septic systems converted to central sewer.	OSTDS Phase Out	Completed	2022	401	NA	SEB	$375,309.00
2595	City of Sebastian	IRL Council	SEB-23	Community Oyster Garden Project	Community Oyster Garden Outreach Education Project.	Enhanced Public Education	Ongoing	NA	NA	NA	SEB	$47,928.00
7060	City of Sebastian	Indian River County Utilities	SEB-24	Airport Tenants Septic to Sewer Conversion	Converted 8 commercial tenants at the City of Sebastian Municipal Airport from septic to sewer.	OSTDS Phase Out	Completed	2022	117	NA	SEB	$1,659,000.00
7507	City of Sebastian	IRLNEP; ORCA	SEB-25	Twin Piers Living Shoreline	Shoreline stabilization and living shoreline installation at the Twin Piers. Installation of oyster reef and native plantings along with 3 years of monitoring data.	Shoreline Stabilization	Planned	2025	TBD	TBD	SEB	$0.00
7508	City of Sebastian	NA	SEB-26	Storm Drain Vegetative Buffer	Installation of a vegetative buffer around three storm drains/catch basins within the city. Testing and monitoring of water quality improvements of runoff into the catch basin will be completed for 3 years.	Control Structure	Planned	2026	TBD	TBD	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
7511	City of Sebastian	NA	SEB-27	Riverview Park Baffle Box Upgrade	Retrofit existing first generation baffle box into a second generation baffle box with media.	Baffle Boxes-Second Generation with Media	Planned	2027	TBD	TBD	SEB	$0.00
7513	City of Sebastian	NA	SEB-28	Indian River Drive (Truman St) Cistern Upgrade to Baffle Box	Replace historic cistern/catch basin with chambers with a second generation baffle box with media.	Baffle Boxes-Second Generation with Media	Planned	2027	TBD	TBD	SEB	$0.00
7509	City of Sebastian	FEMA; ORCA	SEB-30	Main Street Shoreline Stabilization	Stabilization of existing shoreline and installation of living shoreline with oyster reef as well as native vegetation. Testing and monitoring of water quality improvements will be completed for 3 years.	Shoreline Stabilization	Planned	2026	TBD	TBD	SEB	$0.00
7504	City of Sebastian	NA	SEB-31	Street Sweeping	Street sweeping of 23.4 lane miles of curb and gutter roadways.	Street Sweeping	Planned	TBD	2	2	SEB	$5,000.00
7506	City of Sebastian	NA	SEB-32	Canal Dredging	Dredging/muck removal of 13.3 miles of canals.	Muck Removal/Restoration Dredging	Planned	TBD	NA	NA	SEB	$187,000,000.00
7054	City of Sebastian	Indian River County Utilities	SEB-33	2024 Septic to Sewer Conversions along Indian River Drive	Coordination with Indian River County Utilities to transfer properties along the Indian River Lagoon	OSTDS Phase Out	Planned	2025	804	TBD	SEB	$3,800,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					within the CRA district from septic to sewer. Exact addresses to be determined after grant/City/County funding has been allocated.							
5562	SJRWMD	Banack Family Partnership	SJRWMD-02	Banack Family Partnership	Upgrade irrigation system to better utilize surface water on approximately 80 acres of citrus.	Agricultural BMPs	Completed	2019	34	4	SEB	$277,387.55
5563	SJRWMD	IMG Citrus	SJRWMD-03	IMG Citrus Inc.	Purchase of compost and compost spreader for approximately 920 acres of citrus.	Agricultural BMPs	Completed	2020	533	60	SEB	$175,959.00
5564	SJRWMD	Hammond Groves; SJRWMD	SJRWMD-04	Surface Water Conversion - Hammond Groves	Design and install a surface water pump station, design and complete a pond restoration project and purchase and install mesh bags for citrus trees on approximately 400 acres of citrus.	Agricultural BMPs	Completed	2021	1245	140	SEB	$363,491.00
5567	SJRWMD	Fellsmere Joint Venture	SJRWMD-07	Dispersed Water Storage / Nutrient Reduction Pilot Project with Fellsmere Joint Venture	The District is evaluating use of groves and private lands for retention. Project will create a ~2000 acre reservoir that should store	Dispersed Water Management (DWM)	Underway	2034	TBD	TBD	SEB	$16,155,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					about 18 MGD and reduce ~24 metric tons (MT) TN and 3 MT TP annually. Costs are for 5 years of operations.							
5568	SJRWMD	Graves Brothers	SJRWMD-08	Dispersed Water Storage / Nutrient Reduction Pilot Project with Graves Brothers	The District is evaluating benefits of using groves and private lands for retention to reduce excess nutrients. Project will create a ~200 acre reservoir that should store about 5 MGD and provide nutrient reductions of ~ 3 MT TN and 1 MT TP annually.	Dispersed Water Management (DWM)	Canceled	2021	NA	NA	SEB	$5,655,000.00
5569	SJRWMD	FWC; NRCS	SJRWMD-09	Fellsmere Water Management Area	A component of the Upper St. Johns River Basin Project constructing a 10,000-acre reservoir to treat agricultural discharges and also benefits the IRL. Project will collectively restore more than 160,000 acres of the St. Johns River headwaters.	Stormwater Reuse	Completed	2021	500	6000	SEB	$55,704,560.53

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5570	SJRWMD	FDOT; Brevard County	SJRWMD-10	Micco Stormwater Park	Two wet-detention ponds and wetland restoration areas, which improve the water quality to the Sebastian River and IRL. The stormwater system infrastructure was complete in 2016 and the park opened in 2018 with educational signs and other site amenities.	Regional Stormwater Treatment	Completed	2018	27200	16750	SEB	$2,816,603.00
6586	SJRWMD	Hammond Groves; SJRWMD	SJRWMD-12	Irrigation Retrofit/Fertigation - Hammond Groves	This project involves performing an irrigation retrofit with fertigation on approximately 510 acres of citrus.	Agricultural BMPs	Completed	2023	176	36	SEB	$364,731.10
7137	SJRWMD	FWC; NRCS	SJRWMD-13	Fellsmere Water Management Area	A component of the USJB Project constructing a 10,000-acre reservoir to treat agricultural discharges and also benefits the IRL. Project will collectively restore more than 160,000 acres of the St. Johns River headwaters. See projID 5569.	Stormwater Reuse	Planned	2028	NA	NA	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2645	Sebastian River Improvement District	NA	SRID-01	2-Inch Rule	Establishment of two-inch discharge rule.	Regulations, Ordinances, and Guidelines	Ongoing	NA	NA	NA	SEB	$0.00
2632	Sebastian River Improvement District	Not provided	SRID-02	Control Gates	Radial arm control gates.	Control Structure	Planned	TBD	TBD	TBD	SEB	$0.00
2643	Sebastian River Improvement District	NA	SRID-03	Muck Removal	Vegetation and sediment/muck removal from canals.	Stormwater System Rehabilitation	Ongoing	NA	TBD	TBD	SEB	$0.00
2655	Sebastian River Improvement District	NA	SRID-04	Education Efforts	Permit manual on website that encourages the use of BMPs.	Education Efforts	Ongoing	NA	NA	NA	SEB	$0.00
2641	Sebastian River Improvement District	NA	SRID-05	Water Conservation	Large regional water conservation/ storage areas.	Off-line Retention BMPs	Planned	TBD	TBD	TBD	SEB	$0.00
2640	Sebastian River Improvement District	Groves Brothers; SJRWMD	SRID-06	200-Acre Water Dispersion Project	Construction of berms and two pump stations to remove water from outfall canals and store on land.	Dispersed Water Management (DWM)	Underway	TBD	TBD	TBD	SEB	$5,650,000.00
2639	Sebastian River Improvement District	NA	SRID-07	Lateral D System Stormwater Management	Lateral D system stormwater discharge limitation.	Regulations, Ordinances, and Guidelines	Planned	TBD	NA	NA	SEB	$0.00
5601	Sebastian River Improvement District	FDACS	SRID-08	Assist FDACS with BMP Enrollment Outreach	Assist FDACS, where needed, with identifying and contacting producers	Agricultural BMPs	Ongoing	NA	NA	NA	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					within the district boundaries for purposes of participating in the relevant FDACS BMP programs.							
2770	Town of Orchid	NA	TO-1	Education Efforts	Fertilizer, landscape, and irrigation ordinances along with targeted email campaigns about pollution sources.	Education Efforts	Ongoing	NA	34	6	SEB	$0.00
5605	Vero Lakes WCD	NA	VL-01	Public Education and Outreach	Include annual meeting agenda item to alert the landowner of the existence of the BMAP and requirements for this landowner.	Education Efforts	Ongoing	NA	NA	NA	SEB	$0.00
5606	Vero Lakes WCD	FDACS	VL-02	Assist FDACS with BMP Enrollment Outreach	Identify the current landowner and his contact information as shown on the VLWCD records, and encourage participation in the FDACS BMP program.	Agricultural BMPs	Ongoing	NA	NA	NA	SEB	$0.00
5607	Vero Lakes WCD	NA	VL-03	Canal/Ditch Bank Berms	Minimize sediment transport by constructing berms on top of canal/ditch banks and promoting vegetation to cover.	Vegetated Buffers	Underway	NA	NA	NA	SEB	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5608	Vero Lakes WCD	NA	VL-04	Culverts	Regular inspection is made to insure flow is maintained through culverts.	Stormwater System Rehabilitation	Ongoing	NA	NA	NA	SEB	$0.00

Table B-3 summarizes the existing and planned projects provided by the stakeholders for Project Zone B.

Table B-3. Existing and planned projects in Project Zone B

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5629	City of Melbourne	SOIRL; City; DEP	MEL-15	Avenida Del Rio Septic to Sewer	Septic conversion.	OSTDS Phase Out	Planned	2025	TBD	NA	B	$0.00
2607	City of Vero Beach	DEP	VB-01	Date Palm Baffle Box	Suntree baffle box with Bold and GoldTM media.	Baffle Boxes-Second Generation	Completed	2010	109	13	B	$200,232.27
2593	City of Vero Beach	NA	VB-02	10th and 12th Avenue Baffle Boxes	Includes ESI Ecovault® with a debris collection screen and baffle.	Baffle Boxes-Second Generation	Completed	2011	135	16	B	$97,800.00
2458	City of Vero Beach	NA	VB-03	Greytwig Baffle Box	Includes ESI Ecovault® with a debris collection screen and baffle.	Baffle Boxes-Second Generation	Completed	2011	51	6	B	$75,000.00
2591	City of Vero Beach	NA	VB-04	Education Efforts	FYN, landscape, fertilizer, irrigation, and pet waste ordinances, PSAs, informational pamphlets, website, and IDDE program.	Regulations, Ordinances, and Guidelines	Ongoing	NA	2925	423	B	$0.00
2513	City of Vero Beach	NA	VB-05	STEP Septic System	Conversion of existing septic systems to septic tank effluent pumping (STEP) systems. 659 systems have been transitioned as of 12/31/2023. Which is an increase from the 581 systems that had been transitioned as of 12/23/2022.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Underway	TBD	6783.8	NA	B	$500,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2590	City of Vero Beach	DEP	VB-06	18th Street Outfall	EcoVault baffle box with Baffle Buddy filters.	Baffle Boxes-Second Generation	Completed	2014	255	32	B	$161,511.01
2589	City of Vero Beach	DEP	VB-07	Humiston Park Outfall	Stormwater lift station and exfiltration trench system with control structure.	Exfiltration Trench	Completed	2010	329	52	B	$577,312.77
2588	City of Vero Beach	NA	VB-08	Bahia Mar Road Outfall	EcoVault baffle box with Baffle Buddy filters.	Baffle Boxes-Second Generation	Completed	2012	23	3	B	$0.00
2587	City of Vero Beach	NA	VB-09	Bay Drive Bridge	Install baffle boxes.	Baffle Boxes-Second Generation	Completed	2010	3	0	B	$0.00
2586	City of Vero Beach	NA	VB-10	Indian Bay North and South	Install baffle boxes.	Baffle Boxes-Second Generation	Completed	2012	21	3	B	$0.00
2618	City of Vero Beach	NA	VB-11	Live Oak Outfall	Install baffle box.	Baffle Boxes-Second Generation	Completed	2012	113	14	B	$0.00
2594	City of Vero Beach	NA	VB-12	Indian River Drive E at Conn Way	Install baffle box.	Baffle Boxes-Second Generation	Completed	2013	71	8	B	$0.00
2596	City of Vero Beach	NA	VB-13	River Drive Bridge	Install baffle boxes.	Baffle Boxes-Second Generation	Completed	2010	12	1	B	$0.00
2630	City of Vero Beach	NA	VB-14	Lantana Lane	Project canceled.	Pervious Pavement Systems	Canceled	NA	NA	NA	B	$0.00
2629	City of Vero Beach	NA	VB-15	Royal Palm Pointe	Install baffle boxes.	Baffle Boxes-First Generation	Completed	2001	1	1	B	$0.00
2628	City of Vero Beach	NA	VB-16	Deep Injection Well	Construct deep injection well.	Wastewater - Injection Well	Completed	2010	15158	1403	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2627	City of Vero Beach	NA	VB-17	Street Sweeping	Street sweeper operating 40 hours per week and sweeping approximately 9,600 miles annually. Began prior to 1991 but official start year unknown.	Street Sweeping	Ongoing	NA	1021	418.66	B	$506,000.00
2626	City of Vero Beach	NA	VB-18	Country Club Drive Outfall	Install baffle box.	Baffle Boxes-First Generation	Completed	2016	1	0	B	$0.00
2625	City of Vero Beach	NA	VB-19	Mockingbird Drive / Iris Lane	Install baffle box.	Baffle Boxes-First Generation	Completed	2016	3	2	B	$0.00
2624	City of Vero Beach	Indian River Lagoon Council	VB-20	Vero Isles Inlet Retrofits	Retrofit 52 existing open grate structure tops with Flexi-Pave media. **PROJECT CANCELLED** Flexi-Pave was clogging and had to be removed for flood control. Structures were converted back to open grate.	Pervious Pavement Systems	Canceled	NA	NA	NA	B	$0.00
2623	City of Vero Beach	NA	VB-21	McAnsh Park Inlet Retrofits	Project canceled.	Pervious Pavement Systems	Canceled	NA	NA	NA	B	$0.00
2622	City of Vero Beach	NA	VB-22	Original Town Inlet Retrofits	Project canceled.	Pervious Pavement Systems	Canceled	NA	NA	NA	B	$0.00
2621	City of Vero Beach	NA	VB-23	BMP Maintenance	Stormwater structure maintenance.	Catch Basin Inserts/Inlet	Ongoing	NA	190	114	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
						Filter Cleanout						
6754	City of Vero Beach	NA	VB-24	Fertilizer Elimination	This City of Vero Beach historically applied fertilizer to City owned properties twice per year. Fertilizing ceased in 2009.	Fertilizer Cessation	Completed	2009	8222.4	NA	B	$0.00
6775	City of Vero Beach	NA	VB-25	Stormwater Removal From Main Canal	Remove stormwater from the Main Relief Canal and provide to City of Vero Beach Water & Sewer customers. Alternative water supply project. This project is solely for the removal of stormwater from the canal.	Stormwater Reuse	Planned	2025	7174	NA	B	$3,000,000.00
6777	City of Vero Beach	NA	VB-26	Water Reclamation Facility - Reuse	City is building a new water reclamation facility with advanced water treatment. Reuse effluent provided to customers will have a lower nutrient concentration than existing reuse source.	WWTF Upgrade	Underway	2026	TBD	TBD	B	$0.00
6889	City of Vero Beach	NA	VB-27	WWTF Reuse Volume Reduction	Currently, the City provides WWTF effluent reuse water to customers. The Stormwater Reuse	WWTF Nutrient Reduction	Underway	2025	12246	NA	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					project (VB-25) will replace a portion of the reuse volume provided from the WWTF. The WWTF effluent reuse has a higher nutrient load than the stormwater reuse.							
4831	FDACS	Agricultural Producers	FDACS-02	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 SWIL - LET.	Agricultural BMPs	Ongoing	NA	3179	414	B	$0.00
5559	FDACS	Agricultural Producers	FDACS-07	Cost-Share BMP Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP July 2020 Enrollment. Reductions based on SWIL Model-LET.	Agricultural BMPs	Completed	2020	575	44	B	$0.00
2725	FDOT District 4	NA	FDOT4-01	FM# 228595-1 (Basin 4B)	Widening SR 60 between SR 9 and SR 91.	Wet Detention Pond	Completed	2007	10	2	B	$0.00
2724	FDOT District 4	NA	FDOT4-02	FM# 228620-1	Resurfacing SR 60 and SR A1A intersection.	100% On-site Retention	Completed	2005	20	3	B	$0.00
2722	FDOT District 4	NA	FDOT4-04	FDOT4 Street Sweeping	Materials from roadway and gutter sweeping.	Street Sweeping	Ongoing	NA	90	58	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2721	FDOT District 4	NA	FDOT4-05	FM# 228583-5 (Pond 1)	Widening SR 5 from just south of Oslo Road to South Relief Canal.	Wet Detention Pond	Completed	2010	1	0	B	$0.00
2747	FDOT District 4	NA	FDOT4-06	FM# 228583-5 (Pond 2)	Widening SR 5 from just south of Oslo Road to South Relief Canal.	Wet Detention Pond	Completed	2010	1	0	B	$0.00
2727	FDOT District 4	NA	FDOT4-07	FM# 228627-1 (Pond 1)	Widening SR 60 between 82nd Ave to 66th Ave.	Wet Detention Pond	Completed	2010	14	3	B	$0.00
2729	FDOT District 4	NA	FDOT4-08	FM# 228627-1 (Pond 2)	Widening SR 60 between 82nd Ave to 66th Ave.	Wet Detention Pond	Completed	2010	9	2	B	$0.00
2757	FDOT District 4	NA	FDOT4-09	Education Efforts	Pamphlets and Illicit Discharge Program.	Education Efforts	Ongoing	NA	36	5	B	$0.00
2756	FDOT District 4	NA	FDOT4-10	Fertilizer Cessation	No longer applying routine fertilizer.	Fertilizer Cessation	Completed	2014	7179	1795	B	$0.00
2748	FDOT District 4	NA	FDOT4-18	FM# 228583-3 (State Road 5/US-1)	Widening SR 5 from South Relief Canal to north of 4th Street.	Wet Detention Pond	Completed	2014	2	0	B	$0.00
2758	FDOT District 4	NA	FDOT4-19	FM#: 230873-1 (27th Avenue Reconstruction)	27th Avenue reconstruction.	100% On-site Retention	Completed	2014	61	9	B	$0.00
2746	FDOT District 4	NA	FDOT4-20	FM#: 229966-1 (State Road A1A at the Moorings)	Drainage Improvements for SR A1A at the Moorings (from north of Periwinkle Drive to south of Harbour Drive).	Grass swales without swale blocks or raised culverts	Completed	2014	TBD	TBD	B	$0.00
2745	FDOT District 4	NA	FDOT4-21	FM#: 413048-1 (Interstate-95 from St. Lucie/	Widening SR 9 from St. Lucie / IRC Line to North of State Rd 60.	100% On-site Retention	Completed	2016	1298	166	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
				Indian River County Line to North of State Road 60)								
2697	FDOT District 4	NA	FDOT4-29	FM# 228583-2 US 1 Widening (Pond 3)	Widening SR 5 from north of SR 713 to south of Oslo Road (Pond 3).	Wet Detention Pond	Completed	2016	9	3	B	$0.00
2696	FDOT District 4	City of Vero Beach	FDOT4-30	FM# 403596-1: SR 60 Resurfacing (20th Street Outfall)	Resurfacing SR 60 from 21st Ave to Mockingbird Drive (20th Street outfall).	Baffle Boxes-Second Generation	Completed	2008	211	24	B	$0.00
2695	FDOT District 4	City of Vero Beach	FDOT4-31	FM# 403596-1: SR 60 Resurfacing (21st Street Outfall)	Resurfacing SR 60 from 21st Ave to Mockingbird Drive (21st Street outfall).	Baffle Boxes-Second Generation	Completed	2008	40	4	B	$0.00
2694	FDOT District 4	City of Vero Beach	FDOT4-32	FM# 403596-1: SR 60 Resurfacing (23rd Street Outfall)	Resurfacing SR 60 from 21st Ave to Mockingbird Drive (23rd Street outfall).	Baffle Boxes-Second Generation	Completed	2008	292	34	B	$0.00
2693	FDOT District 4	City of Vero Beach	FDOT4-33	FM# 403596-1: SR 60 Resurfacing (25th and Royal Palm Outfall) - Baffle Box # 1	Resurfacing SR 60 from 21st Ave to Mockingbird Drive (25th Street and Royal Palm outfall) - Baffle Boxes #1 and #2.	Baffle Boxes-Second Generation	Completed	2008	98	12	B	$0.00
2692	FDOT District 4	City of Vero Beach	FDOT4-34	FM# 403596-1: SR 60 Resurfacing (25th and Royal Palm Outfall) - Baffle Box # 2	Combined with FDOT4-33.	Baffle Boxes-Second Generation	Completed	2008	NA	NA	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2691	FDOT District 4	NA	FDOT4-35	FM# 431152-1	US-1 lateral ditch restoration.	On-line Retention BMPs	Completed	2016	TBD	TBD	B	$0.00
2660	Indian River County	DEP	IRC-03	East Gifford Stormwater Improvements	A stormwater detention pond receiving water from swale systems in a subdivision.	Wet Detention Pond	Completed	2004	129	39	B	$686,136.00
2659	Indian River County	DEP	IRC-04	PC Main Screening System	Nutrient removal from measured data via monthly to quarterly vegetation removal and as needed retrieval of sediments or other nutrient sources. Reduction values averaged from data provided between 2015 and 2020.	BMP Cleanout	Ongoing	NA	1631	431	B	$5,331,908.00
2658	Indian River County	DEP	IRC-05	Egret Marsh Stormwater Park	Nutrient removal from measured data.	Regional Stormwater Treatment	Completed	2010	8550	2331	B	$7,563,274.00
2657	Indian River County	DEP	IRC-06	PC South (Osprey Marsh) Algal Nutrient Removal Facility	Nutrient removal from measured data.	Regional Stormwater Treatment	Completed	2016	10392	1301	B	$0.00
2620	Indian River County	NA	IRC-07	Moorhen Marsh Low Energy Aquatic Plant System	This is a managed aquatic plant system that will remove sediment and suspended solids through settling and filtration by aquatic plant roots. The	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2023	4889	680	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					aquatic plants will be harvested on a regular basis.							
2585	Indian River County	NA	IRC-08	Education Efforts	Fertilizer ordinance, PSAs, website, pamphlets, Illicit Discharge Program, and signs along Indian River Farms WCD canals.	Education Efforts	Ongoing	NA	16158	2352	B	$0.00
2633	Indian River County	NA	IRC-09	Street Sweeping	Street sweeping.	Street Sweeping	Ongoing	NA	274	176	B	$0.00
2605	Indian River County	NA	IRC-10	Storm Drain Cleaning with Vacuum Trucks	Nutrient removal from measured data.	BMP Cleanout	Planned	TBD	TBD	TBD	B	$0.00
2604	Indian River County	NA	IRC-11	Floating Aquatic Plant Islands in County Stormwater Ponds and Lakes	Nutrient removal from measured data.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Planned	TBD	TBD	TBD	B	$0.00
2603	Indian River County	NA	IRC-12	Spoonbill Marsh Project	Nutrient removal from measured data.	Constructed Wetland Treatment	Completed	2010	7129	357	B	$4,200,000.00
2718	Indian River County	NA	IRC-14	South Relief Canal Mechanical Vegetation/Debris Removal	Removal of aquatic vegetation containing nitrogen and phosphorus that otherwise, would enter IRL and die, releasing nutrients into the lagoon.	Aquatic Vegetation Harvesting	Planned	TBD	TBD	TBD	B	$1,000,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2706	Indian River County	DEP; EPA; SJRWMD	IRC-15	Osprey Acres Floway and Nature Preserve	This is a managed aquatic plant system that will remove nutrients using aquatic vegetation that will be harvested on a regular basis.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2019	4790	624	B	$7,500,000.00
5634	Indian River County	NA	IRC-16	Round Island Living Shoreline Project	Planting of native vegetation to stabilize the shoreline and provide water quality benefits.	Creating/ Enhancing Living Shoreline	Completed	2018	TBD	TBD	B	$27,000.00
5635	Indian River County	NA	IRC-17	Jungle Trail Shoreline Stabilization Project	Planting of native vegetation to stabilize the shoreline and provide water quality benefits.	Creating/ Enhancing Living Shoreline	Completed	2019	TBD	TBD	B	$178,234.00
5636	Indian River County	DEP	IRC-18	CORE Modules Pilot Project	Enhancement of natural oyster reefs using a plastic-free substrate.	Creating/ Enhancing Oyster Reefs	Completed	2022	NA	NA	B	$0.00
5637	Indian River County	NA	IRC-19	Central WWTF Nutrient Reduction	Carbon dosing to reduce Nitrogen and Phosphorus beyond permit limits. Permit No FLA010431	WWTF Nutrient Reduction	Canceled	NA	NA	NA	B	$0.00
5638	Indian River County	NA	IRC-20	West WWTF Nutrient Reduction	Carbon dosing to reduce Nitrogen and Phosphorus beyond permit limits.	WWTF Nutrient Reduction	Completed	2017	5673	1871	B	$350,000.00
5640	Indian River County	SJRWMD	IRC-22	Artesian Well Plugging-A	Cost share plugging of free flowing Artesian Wells.	Plugging Artesian Wells	Underway	TBD	TBD	TBD	B	$66,320.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6717	Indian River County	SJRWMD	IRC-25	West Wabasso Septic to Sewer Phase 3A and Phase 3B	Wabasso Area Septic to Sewer on CR 510 and 61st (Phase 3A) Drive, 58th Ave and 58th Ct. 30 connections have been completed. Phases 3A and 3B are complete.	OSTDS Phase Out	Underway	2025	4.91	NA	B	$1,403,350.48
6808	Indian River County	IRC	IRC-26	Pilot Oyster Reef Project for Nutrient Removal and Habitat Restoration	Constructed oyster reef in Indian river Lagoon for nutrient removal.	Creating/ Enhancing Oyster Reefs	Completed	2014	NA	NA	B	$28,500.00
7094	Indian River County	NA	IRC-27	ArcNLET Model	TetraTech developed the ArcNLET Model and provide the report for all of unincorporated Indian River County.	Study	Completed	2023	NA	NA	B	$48,867.00
7243	Indian River County	FDOT District 4	IRC-28	66th Ave Widening	66th Ave widening from 49th St to CR 510.	Wet Detention Pond	Underway	2024	TBD	TBD	B	$32,728,000.00
7244	Indian River County	FDOT District 4	IRC-29	SR 60 and 43rd Ave Intersection	Wet Detention Pond for SR 60 and 43rd Ave Intersection and surrounding lands.	Wet Detention Pond	Completed	2024	TBD	TBD	B	$13,641,589.00
7167	Indian River County	DEP - 319	IRC-37	Hobart Landing	Hobart Landing is a community of approximately 53 homes adjacent to the Indian River Lagoon.	OSTDS Phase Out	Planned	2026	597	NA	B	$4,400,000.00
7168	Indian River County	NA	IRC-38	Orchid Island Service Extension	Orchid Island is a community of approximately 100	OSTDS Phase Out	Planned	2027	TBD	NA	B	$9,900,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					homes on septic tanks down Live Oak Drive, Seacrest Drive, and Bayview Court.							
2705	Indian River Farms WCD	NA	IRF-01	Tilting Weir Gates	Not provided.	Control Structure	Completed	Prior to 2013	TBD	TBD	B	$0.00
2704	Indian River Farms WCD	NA	IRF-02	Mechanical Removal of Floating Vegetation	Not provided.	Aquatic Vegetation Harvesting	Ongoing	NA	TBD	TBD	B	$0.00
2703	Indian River Farms WCD	NA	IRF-03	Establishment of 2-Inch Discharge Rule	Establishment of 2-Inch Discharge Rule.	Regulations, Ordinances, and Guidelines	Ongoing	NA	TBD	TBD	B	$0.00
5592	Indian River Farms WCD	NA	IRF-04	Public Education and Outreach	Provide public education to residents of the District that fosters an understanding of the necessity to reduce nutrient impacts to surface waters.	Education Efforts	Ongoing	NA	NA	NA	B	$0.00
5593	Indian River Farms WCD	FDACS	IRF-05	Assist FDACS with BMP Enrollment Outreach	Assist FDACS, where needed, with identifying and contacting landowners/ producers within the District boundaries for purposes of participating in the relevant FDACS BMP programs.	Agricultural BMPs	Ongoing	NA	NA	NA	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5561	SJRWMD	Lambeth Citrus	SJRWMD-01	Lambeth Citrus Micro Jet Irrigation Replacement	Replace micro-jet system with more efficient one and install soil moisture sensors on 116 acres of citrus.	Agricultural BMPs	Completed	2018	165	17	B	$213,070.44
6674	SJRWMD	Florida Research Center for Ag Sustainability; SJRWMD	SJRWMD-11	Soil Moisture Sensors - Florida Research Center for Ag Sustainability	Purchase and implementation of soil moisture sensors and a weather station.	Agricultural BMPs	Completed	2023	21	5	B	$7,088.35
2833	Town of Indian River Shores	DEP; Indian River County; IRL NEP	IRS-01	Public Education	Implement FYN Program; adopted fertilizer, landscape, and irrigation ordinances; public website; and inspection of illicit discharges.	Education Efforts	Ongoing	NA	1051.5	158.3	B	$25,000.00
2832	Town of Indian River Shores	DEP	IRS-02	Hurricane Evacuation Stormwater Improvements	Stormwater improvements including exfiltration, polyacrylamide (PAM) blocks, dry retention, swales, and stormwater reuse line.	BMP Treatment Train	Completed	2021	429.75	82.6	B	$1,470,000.00
2831	Town of Indian River Shores	SJRWMD	IRS-03	Inlet Baskets, Stormwater Design, and Dredging of Indian/Seminole Lane Stormwater Drainage Canal	Removal of accumulated muck that will reduce nutrient loading in the drainage canal. Added additional stormH2O inlets and filter baskets that lead to the baffle box.	Catch Basin Inserts/Inlet Filter Cleanout	Ongoing	NA	371	193	B	$425,818.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2830	Town of Indian River Shores	DEP	IRS-04	Pebble Bay Estates Stormwater Retrofit	Pebble Bay Estates Stormwater Retrofit , integrating new curb and gutter to direct stormwater to inlets., and make it easier for street sweeping.	Street Sweeping	Ongoing	NA	TBD	TBD	B	$0.00
2819	Town of Indian River Shores	IRL NEP	IRS-05	Baffle Box	Installation of baffle box to reduce nutrient loading to lagoon. When this project was first envisioned in 2015, the baffle was a stand alone component. However, with the improvements finished in Project ID 2831, the baffle box is connected to the system	Baffle Boxes-Second Generation	Completed	2015	197.4	30.88	B	$122,103.00
2828	Town of Indian River Shores	IRL NEP	IRS-06	Oyster Reef	2023 update to cancel this project. Construct an oyster bar reef waterside of Indian and Seminole Lanes.	Creating/ Enhancing Oyster Reefs	Canceled	NA	NA	NA	B	$0.00

Table B-4 summarizes the existing and planned projects provided by the stakeholders for Project Zone SIRL.

Table B-4. Existing and planned projects in Project Zone SIRL

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2862	City of Fort Pierce	NA	FP-05	Street Sweeping	6,599 cubic yards of material.	Street Sweeping	Ongoing	NA	774	421	SIRL	$0.00
2861	City of Fort Pierce	NA	FP-07	Education Efforts	Stormwater education shows, pamphlets, presentations, storm drain stenciling, Illicit Discharge Program, and adopted fertilizer ordinance.	Education Efforts	Ongoing	NA	93	15	SIRL	$0.00
4833	FDACS	Agricultural Producers	FDACS-04	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 SWIL - LET.	Agricultural BMPs	Ongoing	NA	5845	1003	SIRL	$0.00
5560	FDACS	Agricultural Producers	FDACS-08	Cost-Share BMP Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP July 2020 Enrollment. Reductions based on SWIL Model-LET.	Agricultural BMPs	Completed	2020	760	120	SIRL	$0.00
5572	FDOT District 4	NA	FDOT4-04b	FDOT4 Street Sweeping	Materials from roadway and gutter sweeping.	Street Sweeping	Ongoing	NA	71	46	SIRL	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5574	FDOT District 4	NA	FDOT4-09b	Education Efforts	Pamphlets and Illicit Discharge Program.	Education Efforts	Ongoing	NA	21	3	SIRL	$0.00
5576	FDOT District 4	NA	FDOT4-10b	Fertilizer Cessation	No longer applying routine fertilizer.	Fertilizer Cessation	Completed	2014	5667	1417	SIRL	$0.00
2755	FDOT District 4	NA	FDOT4-11	FM# 230132-1 (system 1)	Widening SR 615 between Avenue Q and Industrial Ave Three and constructing new roadway between Industrial Ave Three to SR 5 (system 1).	Dry Detention Pond	Completed	2001	TBD	TBD	SIRL	$0.00
2754	FDOT District 4	NA	FDOT4-12	FM# 230132-1 (system 2)	Widening SR 615 between Avenue Q and Industrial Ave Three and constructing new roadway between Industrial Ave Three to SR 5 (system 2).	Dry Detention Pond	Completed	2001	26	4	SIRL	$0.00
2753	FDOT District 4	NA	FDOT4-13	FM# 230132-1 (system 3)	Widening SR 615 between Avenue Q and Industrial Ave Three and constructing new roadway between Industrial Ave Three to SR 5 (system 3).	Dry Detention Pond	Completed	2001	5	1	SIRL	$0.00
2752	FDOT District 4	NA	FDOT4-14	FM# 230132-1 (system 4)	Widening SR 615 between Avenue Q and Industrial Ave Three and constructing new roadway between	Dry Detention Pond	Completed	2001	10	1	SIRL	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					Industrial Ave Three to SR 5 (system 4).							
2751	FDOT District 4	NA	FDOT4-15	FM# 230132-1 (system 5)	Widening SR 615 between Avenue Q and Industrial Ave Three and constructing new roadway between Industrial Ave Three to SR 5 (system 5).	Wet Detention Pond	Completed	2001	24	8	SIRL	$0.00
2750	FDOT District 4	NA	FDOT4-16	FM# 230132-1 (system 6)	Widening SR 615 between Avenue Q and Industrial Ave Three and constructing new roadway between Industrial Ave Three to SR 5 (system 6).	Wet Detention Pond	Completed	2001	8	3	SIRL	$0.00
2739	FDOT District 4	NA	FDOT4-17	FM# 230132-1 (system 7)	Widening SR 615 between Avenue Q and Industrial Ave Three and constructing new roadway between Industrial Ave Three to SR 5 (system 7).	100% On-site Retention	Completed	2001	65	8	SIRL	$0.00
2742	FDOT District 4	NA	FDOT4-24	FM# 230279-1 (Kings Highway)	Constructing surface water management system for SR 713 (King's Highway).	Dry Detention Pond	Completed	2003	1	0	SIRL	$0.00
2741	FDOT District 4	NA	FDOT4-25	FM# 413046-1	Widening SR 9 from south of SR 70 to south of Indrio Rd.	Grass swales without swale blocks or raised culverts	Completed	2014	226	29	SIRL	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2717	FDOT District 4	NA	FDOT4-26	FM# 413047-1	Widening SR 9 from Indrio Rd to Indian River County.	Grass swales without swale blocks or raised culverts	Completed	2013	151	20	SIRL	$0.00
2749	FDOT District 4	NA	FDOT4-27	FM# 230108-1 (Pond 1)	SR 68 from SR 9 to east of CR-607A: widening and new lane construction (60% credit, remaining 40% to SLE).	Wet Detention Pond	Completed	2013	TBD	TBD	SIRL	$0.00
2720	FDOT District 4	NA	FDOT4-28	FM# 230108-1 (Pond 4)	SR 68 from SR 9 to east of CR-607A: widening and new lane construction (60% credit, remaining 40% to SLE).	Wet Detention Pond	Completed	2013	TBD	TBD	SIRL	$0.00
2680	FDOT District 4	NA	FDOT4-36	FM# 230338-4	Indrio Rd. widening - I-95 to SR-607.	BMP Treatment Train	Completed	2019	0	0	SIRL	$0.00
2665	Fort Pierce Farms WCD	NA	FPF-01	Swale Along Canal 1 Top of Bank (SLRIT Grant 2006-07)	Grassed swale constructed along Canal 1 top of bank, immediately upstream of IRL, to collect stormwater runoff and provide some water quality benefit. Project addressed previous area of bank erosion.	Grass swales without swale blocks or raised culverts	Completed	Prior to 2013	TBD	TBD	SIRL	$0.00
2664	Fort Pierce Farms WCD	NA	FPF-02	Dry Detention Area Along Canal 1 Top of Bank (SLRIT	Grassed dry detention area and control structure replacement to address stormwater	Dry Detention Pond	Completed	Prior to 2013	TBD	TBD	SIRL	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
				Grants 2006-07 and 2007-08)	runoff issues and canal bank erosion immediately upstream of the IRL.							
2663	Fort Pierce Farms WCD	NA	FPF-03	Discharge Criteria Adopted as Part of Fort Pierce Farms WCD Permit Application Criteria	More stringent than standard pre vs. post; allows for approximately 11 % more volume per development to be detained by stormwater system.	Regulations, Ordinances, and Guidelines	Ongoing	NA	NA	NA	SIRL	$0.00
5582	Fort Pierce Farms WCD	NA	FPF-04	Mechanical Removal of Aquatic Vegetation	Perform harvest aquatic vegetation within the canals using mechanical processes to the extent practicable to reduce the need for herbicide treatment.	Aquatic Vegetation Harvesting	Ongoing	NA	NA	NA	SIRL	$0.00
5583	Fort Pierce Farms WCD	NA	FPF-05	Canal Buffer	Create a canal buffer or filter strip to help reduce loading from stormwater runoff to the canals.	Vegetated Buffers	Underway	TBD	NA	NA	SIRL	$0.00
5584	Fort Pierce Farms WCD	FDACS	FPF-06	Assist FDACS with BMP Enrollment Outreach	Assist FDACS, where needed, with identifying and contacting landowners/ producers within the District boundaries for purposes of participating in the	Agricultural BMPs	Ongoing	NA	NA	NA	SIRL	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					relevant FDACS BMP programs.							
5585	Fort Pierce Farms WCD	NA	FPF-07	Public Education and Outreach	Provide public education to residents of the District that fosters an understanding of the necessity to reduce nutrient impacts to surface waters.	Education Efforts	Ongoing	NA	NA	NA	SIRL	$0.00
5586	Fort Pierce Farms WCD	NA	FPF-08	Control Structure Maintenance	Maintain existing water control structures and any adjustable gates on water control structures.	Control Structure	Underway	TBD	NA	NA	SIRL	$0.00
2811	North St. Lucie River WCD	NA	NSLR-01	C-25 Diversion Structure	Replace previous pump structure with gravity flow control structure.	Control Structure	Completed	Prior to 2013	NA	NA	SIRL	$0.00
2810	North St. Lucie River WCD	NA	NSLR-02	Invasive Vegetation Removal at Canals 33 and 42	Mechanical removal of invasive vegetation in canals and surrounding banks.	Aquatic Vegetation Harvesting	Completed	Prior to 2013	NA	NA	SIRL	$0.00
2799	North St. Lucie River WCD	NA	NSLR-03	Canal Maintenance Program	Ongoing maintenance primarily by mechanical means to keep canals free of exotic and decaying vegetation.	Aquatic Vegetation Harvesting	Ongoing	NA	NA	NA	SIRL	$0.00
5597	North St. Lucie River WCD	NA	NSLR-04	Canal Buffer	Create a canal buffer or filter strip to help reduce loading from	Vegetated Buffers	Underway	TBD	NA	NA	SIRL	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					stormwater runoff to the canals.							
5598	North St. Lucie River WCD	FDACS	NSLR-05	Assist FDACS with BMP Enrollment Outreach	Assist FDACS, where needed, with identifying and contacting landowners/ producers within the District boundaries for purposes of participating in the relevant FDACS BMP programs.	Agricultural BMPs	Ongoing	NA	NA	NA	SIRL	$0.00
5599	North St. Lucie River WCD	NA	NSLR-06	Public Education and Outreach	Provide public education to residents of the District that fosters an understanding of the necessity to reduce nutrient impacts to surface waters.	Education Efforts	Ongoing	NA	NA	NA	SIRL	$0.00
5600	North St. Lucie River WCD	NA	NSLR-07	Control Structure Maintenance	Maintain existing water control structures and any adjustable gates on water control structures.	Control Structure	Underway	TBD	NA	NA	SIRL	$0.00
2638	St. Lucie County	NA	SLC-01	Education Efforts	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, and illicit discharge program.	Education Efforts	Ongoing	NA	6241	1006	SIRL	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2808	St. Lucie County	NA	SLC-02	Street Sweeping	470 tons/yr collected.	Street Sweeping	Ongoing	NA	664	299	SIRL	$150,000.00
2818	St. Lucie County	DEP; SFWMD; IRL National Estuary Program (NEP)	SLC-03	Paradise Park Stormwater Improvement	Construction of drainage system providing 75 % treatment of first 1-inch runoff.	Dry Detention Pond	Completed	2014	171	28	SIRL	$10,000,000.00
2806	St. Lucie County	NA	SLC-04	Harmony Heights Stormwater Improvement	Construction of drainage system providing 75 % treatment of first 1-inch runoff.	Dry Detention Pond	Completed	2015	253	44	SIRL	$10,000,000.00
2805	St. Lucie County	NA	SLC-05	Taylor Creek Dredging	Three-phase sediment/muck removal project totaling approximately 200,000 cubic yards.	Muck Removal/Restoration Dredging	Completed	2021	TBD	TBD	SIRL	$7,500,000.00
2804	St. Lucie County	NA	SLC-06	Stan Blum Memorial Boat Launch	Not provided.	Wet Detention Pond	Completed	Prior to 2013	TBD	TBD	SIRL	$0.00
2803	St. Lucie County	IRL NEP	SLC-07	San Lucie Plaza Stormwater Master Plan	Construction of drainage system providing 75 % treatment of first 1-inch runoff.	On-line Retention BMPs	Completed	2018	1210	214	SIRL	$20,000,000.00
2802	St. Lucie County	NA	SLC-08	Georgia Ave. Basin WQ Improvement	Baffle box and control weir.	Baffle Boxes- Second Generation	Canceled	NA	NA	NA	SIRL	$0.00
2801	St. Lucie County	NA	SLC-09	North Hutchinson Island Septic to Sewer Project	538 Homes converted to Central Sewer.	Wastewater Service Area Expansion	Underway	2024	NA	NA	SIRL	$1,846,465.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2827	St. Lucie County	NA	SLC-10	Port of Fort Pierce	Stormwater management system.	Stormwater System Rehabilitation	Completed	2018	NA	NA	SIRL	$0.00
4382	St. Lucie County	NA	SLC-11	Swales Material Collected	Roadside swale cleanout and reprofiling.	BMP Cleanout	Underway	TBD	TBD	TBD	SIRL	$0.00
5238	St. Lucie County	NA	SLC-12	St. Lucie County Stormwater Needs Assessment Study	Report that will provide information on identified project opportunities to reduce nutrients, estimated benefits, and costs.	Study	Completed	2021	NA	NA	SIRL	$142,380.00
6234	St. Lucie County	American Rescue Plan	SLC-13	Indrio Savannahs Wet Pond with Gabions	Indrio Savannahs is a preserve that contains a natural flow-way that connects the northernmost lands in St. Lucie County to Taylor Creek. This site has some restrictions associated with state funding but an existing lake is currently bypassed and could be	Hydrologic Restoration	Planned	2026	TBD	TBD	SIRL	$1,200,000.00
6231	St. Lucie County	American Rescue Plan	SLC-14	Harmony Heights Phase 3	The goal of the project is to construct dry detention ponds and associated swales in the Harmony Heights subdivision, a 228-acre basin. Due to the age of the area,	Dry Detention Pond	Planned	2025	TBD	TBD	SIRL	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					the subdivision currently lacks an overall stormwater management system. The project will p							
6976	St. Lucie County	NA	SLC-15	Sheraton Plaza Stormwater Treatment Area	Initial project designs include a multi-celled shallow water treatment train that might include bioswales, dry detention areas, and wet retention areas.	BMP Treatment Train	Underway	2024	TBD	TBD	SIRL	$166,140.00
7194	St. Lucie County	ARP; DEP; SFWMD; SLC	SLC-16	North Hutchinson Island Septic to Sewer	Design and construction of 1 vacuum sewer system and 2 gravity systems for 327 homes on North Hutchinson Island.	OSTDS Phase Out	Underway	2026	39240	736	SIRL	$12,500,000.00
7193	St. Lucie County	NA	SLC-17	North County Regional Deep Injection Well	Disposal source of demineralized concentrate and non-spec water for the North County W & WWT Plants.	Wastewater - Injection Well	Planned	2025	NA	NA	SIRL	$0.00
7239	St. Lucie County	NA	SLC-18	North County (aka Holiday Pines) WRF Expansion	The proposed Holiday Pines Water Reclamation Facility (WRF) expansion from 0.30 MGD to 0.60 MGD will serve the growing community in the	Industrial Facility Upgrades	Underway	2024	TBD	3.75	SIRL	$6,808,550.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					North St. Lucie County community and benefit the Indian River Lagoon.							
2807	St. Lucie Village	NA	SLV-01	Peninsula Drive	0.75" detention storage for western half of Peninsula Drive where there was no previous treatment.	Wet Detention Pond	Completed	2011	TBD	TBD	SIRL	$0.00
5602	St. Lucie Village	NA	SLV-02	Education Efforts	Credit for fertilizer ordinance.	Education Efforts	Ongoing	NA	18	3	SIRL	$0.00
6887	St. Lucie Village	Fort Pierce Utilities Authority	SLV-03	St. Lucie Village Septic to Sewer - Phase 1	Phase 1 will run sanitary sewer to 187 homes currently on septic. These homes' septic tanks routinely fail during flooding events causing backups and sewage overflows in extremely close proximity to the IRL. Ph. 1 incl. 2 of the Village's 4 neighborhoods.	OSTDS Phase Out	Planned	2035	TBD	TBD	SIRL	$2,019,000.00
2759	Turnpike Enterprise	NA	T-01	Street Sweeping	Street sweeping along MP 158-160.	Street Sweeping	Ongoing	NA	6	3	SIRL	$0.00
2768	Turnpike Enterprise	NA	T-02	Public Education	No fertilizer on rights-of-way, educational signage, and illicit discharge training.	Education Efforts	Ongoing	NA	8	1	SIRL	$0.00

Appendix C. Seagrass Analysis

Process to Conduct the Seagrass Depth Limit Compliance Evaluation

The goal of the IRL Basin TMDLs is to recover the deeper seagrass habitats. The seagrass response is the most important factor in evaluating the success of the nutrient TMDLs. Even if the relationship among nutrient loads and seagrass recovery is not as predicted by the regression model, the load reduction requirements themselves will not determine TMDL success. The assessment of success is based on whether the seagrass grows at sufficient depths.

The TMDL seagrass depth limit targets are based on a union coverage of the seagrass mapping data from 1943, 1986, 1989, 1992, 1994, 1996, and 1999. SJRWMD created this union coverage when it set pollutant load reduction goals for the IRL Basin. The TMDL targets are not based on the full restoration of seagrass depths represented by this union coverage; instead, they were set at 90% of the full restoration estimate. These targets allow for seagrass growth almost to the depths previously seen in the lagoon, while accounting for the fact that changes have been made to the lagoon system that may limit seagrass growth in some areas, such as dredged areas similar to the Intracoastal Waterway.

Compliance with the TMDL seagrass depth limit targets is assessed on a project zone scale using the latest four consecutive data sets of seagrass mapping data. For the assessment years to be compliant with the TMDL seagrass depth limit targets, the data must meet the requirements of a two-step evaluation process.

The first step is a comparison of the TMDL union coverage cumulative frequency distribution curve with the assessment years' union cumulative frequency distribution curve. The cumulative distribution curves show what percentage of the seagrass deep edge is located at different depths. To be compliant, at least 50% of the assessment years' curve, including the median, must be on or to the right of the TMDL curve.

The second step in the evaluation process is a comparison of the TMDL union coverage median value with each assessment year's median value. To be compliant in the second step, at least three of the four assessment year medians must be equal to or greater than the TMDL median. If the seagrass data from the four assessment years are compliant with both steps of the test, the project zone is achieving the TMDL depth limit target.

A series of GIS steps must be conducted to obtain the data necessary to complete the two-step evaluation process. These steps are as follows:

- Start with the seagrass GIS shapefiles for the four latest assessment years and edit these files to include only Categories 9113 and 9116, which represent seagrass. Other categories in the GIS shapefiles represent algae cover, which should not be included in this assessment. The seagrass shapefiles only represent the location of the seagrass beds.

- Use the dissolve function in GIS to create the union file of the assessment years. This union file results in a coverage of where seagrass beds were located during all four assessment years.
- Transform the polygons to a polyline in the assessment years' union file. This polyline represents the edges of the seagrass beds.
- Draw a 15.8-m buffer around the seagrass polyline that is 7.9 m inside and 7.9 m outside the seagrass bed. The bathymetry layer was created by SJRWMD in 1996, and the bathymetry was measured every 15.2 m. The 15.8 m buffer around the seagrass polyline ensures that 1 bathymetry point will be captured in the GIS analysis.
- Intersect the updated bathymetry shapefile with the seagrass coverage file that was transformed into a polyline. This intersection correlates the depth data with the seagrass locations so that depths along the seagrass bed edge can be determined.
- Intersect the deep edge file to each project zone (BRL A, BRL B, North A, North B, Central A, Central SEB, and Central B).
- Use the select by location function to identify and note points within dredged areas. The dredged areas are removed from this coverage because seagrass is not expected to grow in areas that have been dredged.
- Identify and note points that fall below 0.3 m and above 3.5 m from the coverage. This step is needed because seagrass growing at depths less than 0.3 m are likely not light-limited, and seagrass are not expected to grow at depths greater than 3.5 m.
- Identify and note points from the intersections of holes or bare areas, which do not represent the deep edge of the seagrass bed.
- These steps are also followed separately for each assessment year so that the median value can be calculated.

The final points that represent the seagrass deep edge boundary for the assessment years' union coverage are then exported from GIS into Excel to conduct the two-step evaluation. The depth points are sorted from highest to lowest, and the count of the number of points at each depth is determined. The cumulative count is determined by taking the count for the shallowest depth and adding it to the count for the next shallowest point until the counts for all the depths are added together to yield the total number of depth points. The cumulative count at each depth is divided by the total points to determine the percentage of the seagrass points at each depth. These points are then plotted as a curve on a graph for comparison with the TMDL cumulative distribution curve. For the Step 2 evaluation, the median depth point is calculated for each assessment year using Excel. These medians are then compared with the TMDL median to determine compliance.

The maps in **Figure C-1, Figure C-2,** and **Figure C-3** include the locations of ground truthing conducted before and during aerial surveys. Additionally, the transect locations where SJRWMD conducts seasonal monitoring are shown. For more information on how SJRWMD and partners conduct seagrass surveys, the SJRWMD SOP (SJRWMD 2020) is referenced in **Section 5**.

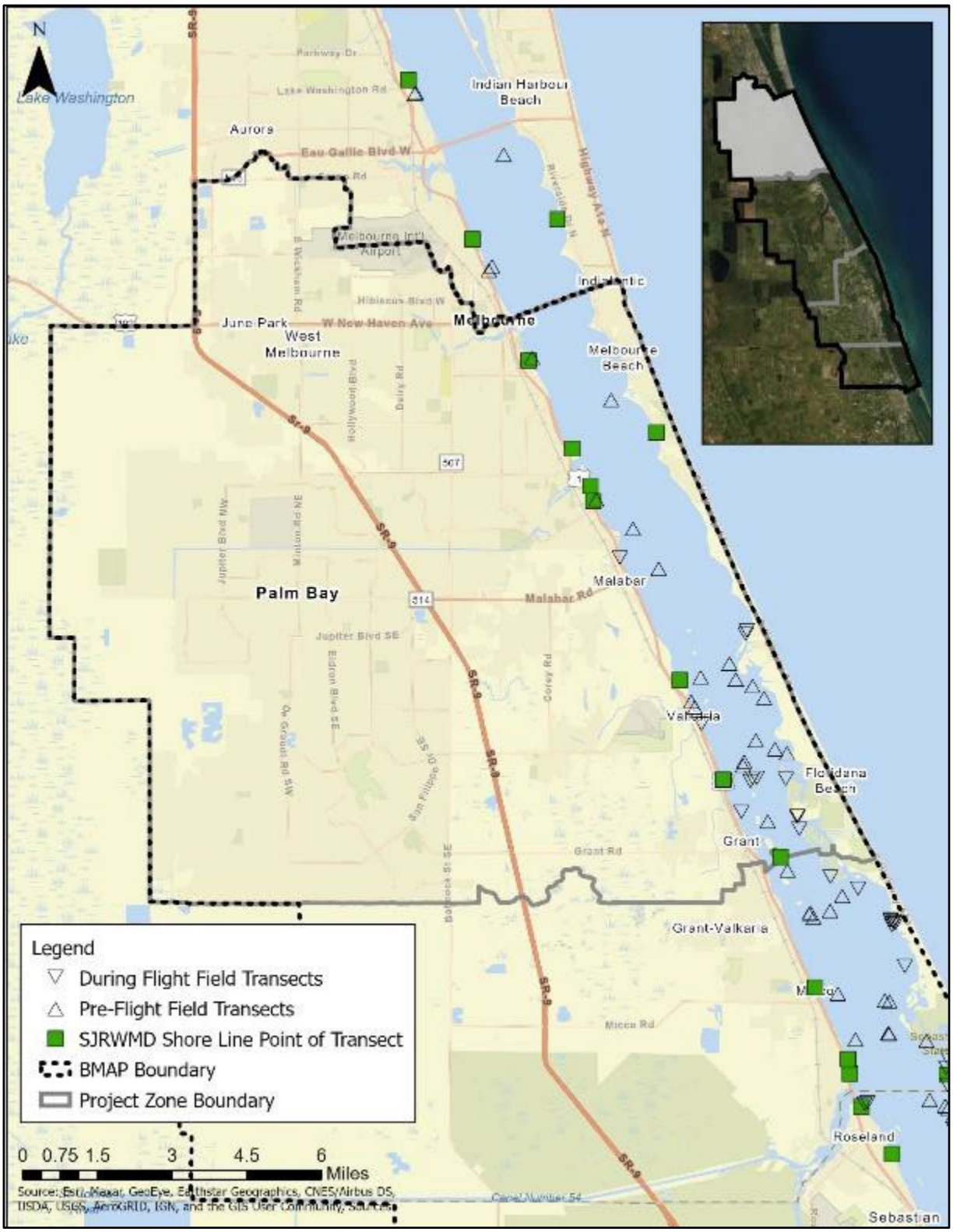

Figure C-1. Map of the seagrass transects in CIRL A

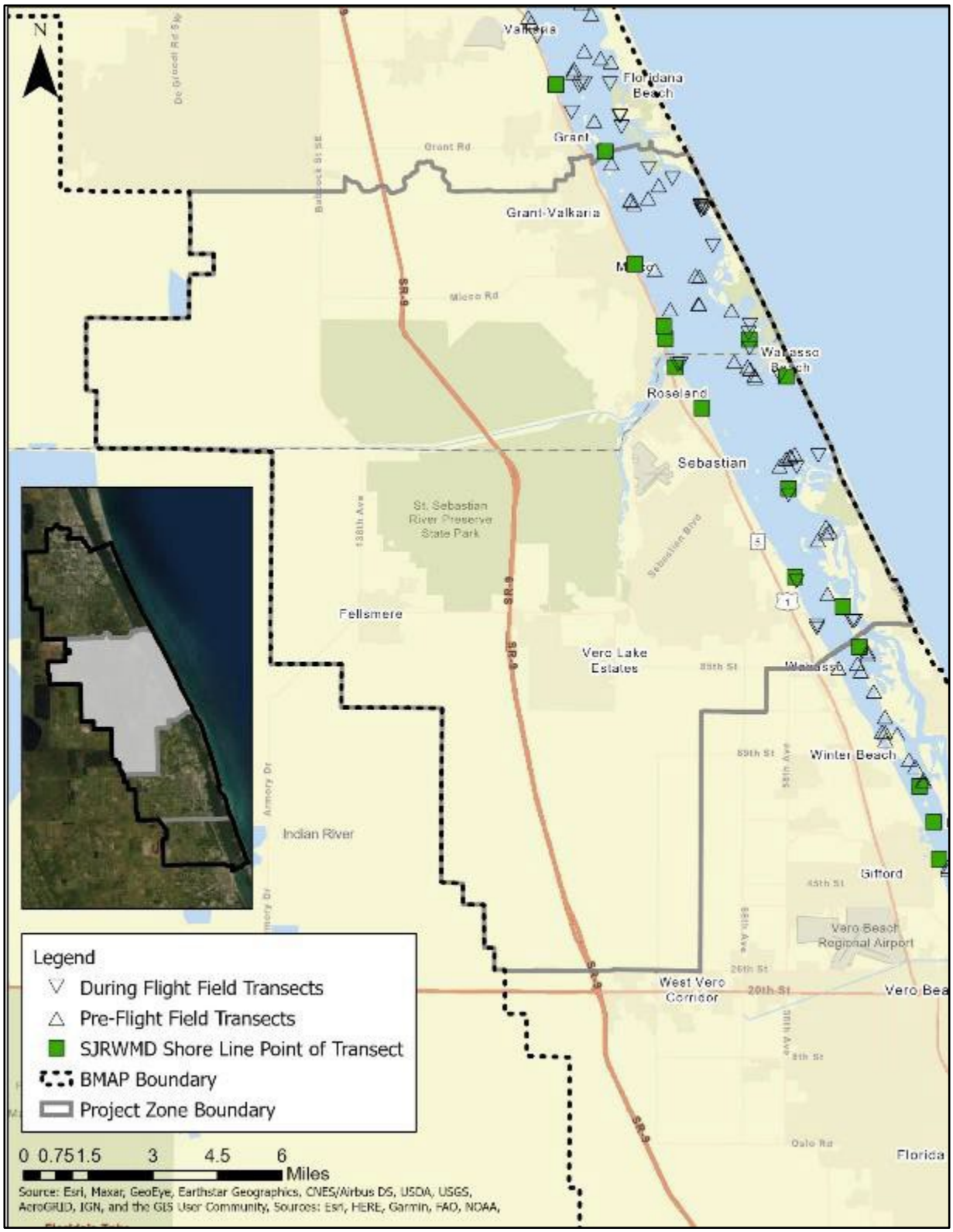

Figure C-2. Map of the seagrass transects in CIRL SEB

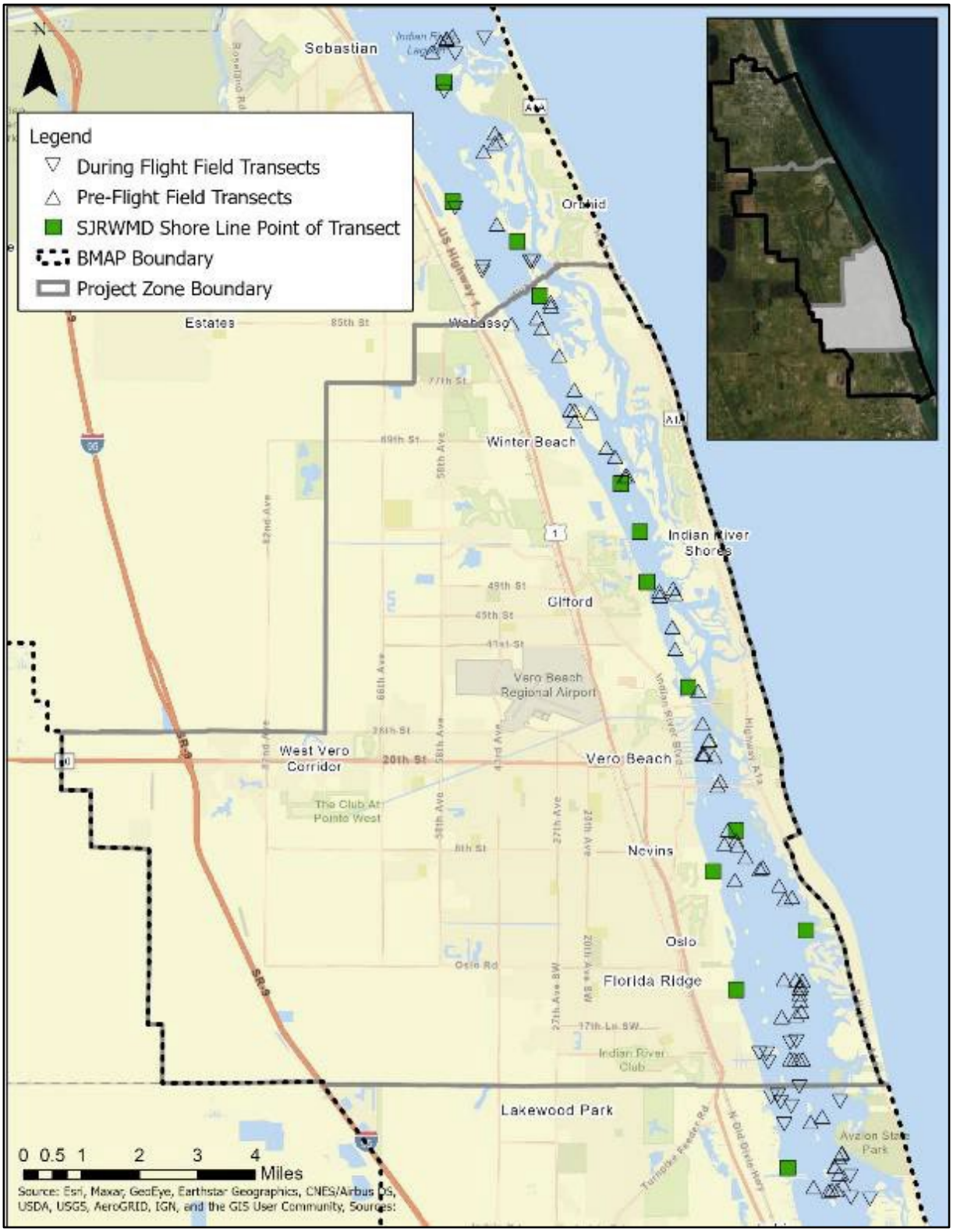

Figure C-3. Map of the seagrass transects in CIRL B

Appendix D. 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 Office of Agricultural Water Policy (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 FDEP, water management districts (WMDs), industry experts, and academic institutions to understand the environmental and agronomic effects addressed by BMPs.

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

Enrolling in an 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 Central Indian River Lagoon BMAP, there are 40 aquaculture facilities under certification with the FDACS Division of Aquaculture as of November 2024. As with agricultural land use in Florida, aquaculture facilities are frequently in and out of production. The facilities being provided may no longer be in operation and/or there may be new companies in different parts of the basin by the next BMAP iteration.

Forestry

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

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

Agricultural Land Use

Agricultural Land Use in BMAPs

Land use data are helpful as a starting point for estimating agricultural acreage, determining agricultural nonpoint source loads, and developing strategies to reduce those loads in a BMAP area,

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

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

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

Figure D-1 and **Table D-1** show the percentage of agricultural land use within the Central Indian River Lagoon 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 D-1. Agricultural land use in the CIRL BMAP

Non-agricultural acres	283,258
Agricultural acres	54,928

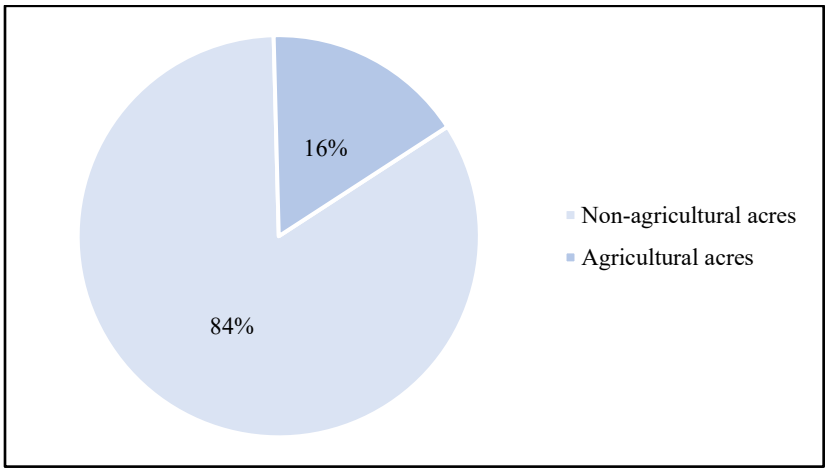

Figure D-1. Agricultural land use in the CIRL BMAP

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 D-2. Agricultural lands enrolled in the CIRL BMAP area by BMP program commodity

Commodity	Agricultural Acres Enrolled	Percent of Agriculture Enrolled in BMPs
Citrus	2,212	51%
Cow/Calf	16,693	51%
Equine	237	51%
Fruit/Nut	13	51%
Multiple Commodities	4,738	51%
Nursery	286	51%
Row/Field Crop	3,274	51%
Sod	554	51%
Total	**28,007**	**51%**

Table D-3. Agricultural acres enrolled by commodity and crediting location

Commodity	Project Zone A	Project Zone B	Project Zone SEB	Project Zone SIRL
Citrus	0	331	953	928
Cow/Calf	1,145	2,537	11,436	1,575
Equine	40	110	87	0
Fruit/Nut	3	5	4	0
Multiple Commodities	2,707	436	812	782
Nursery	45	121	37	83
Row/Field Crop	4	53	2,603	614
Sod	0	0	0	554
Total	**3,944**	**3,594**	**15,933**	**4,536**
Percent of Agricultural Lands Enrolled in BMPs	**68%**	**30%**	**61%**	**40%**

As of July 2024, 51% of the agricultural acres in the Central Indian River Lagoon BMAP area are enrolled in FDACS' BMP program. **Table D-2** and **Table D-3** show the acreages enrolled in the BMP Program by commodity. It is important to note that producers often undertake the production of multiple commodities on their operations, resulting in the requirement to implement the applicable BMPs from more than one BMP manual. When this occurs, the acres enrolled under more than one BMP manual are classified as “multiple commodity” and not included in the individual commodity totals to prevent duplication.

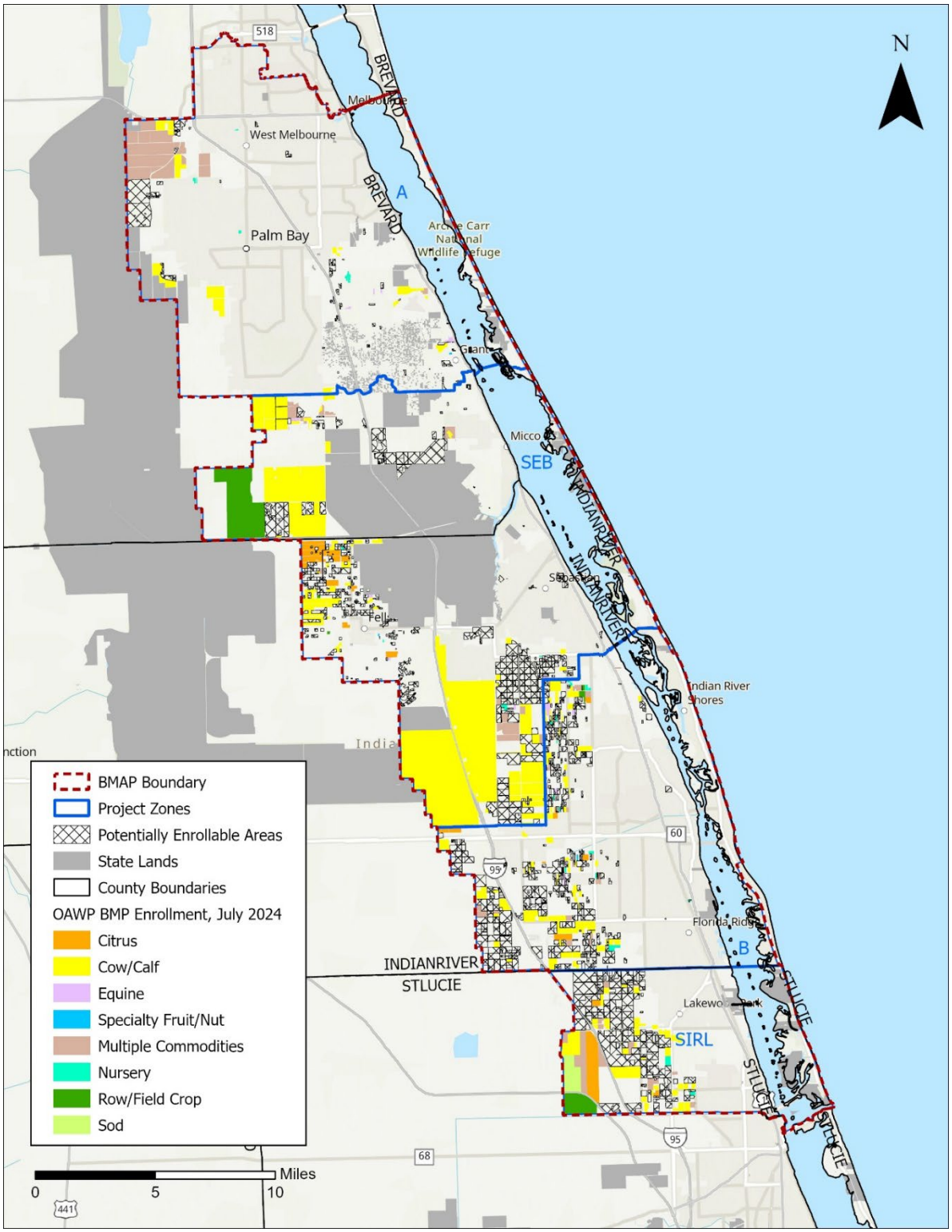

Figure D-2. Agricultural enrollment in the CIRL BMAP

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 D-4 shows the breakdown of agricultural lands within the Central Indian River Lagoon BMAP by Crediting Location based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

Table D-4. Agricultural lands in CIRL BMAP by crediting location

* Enrollment information current as of June 30th, 2024.

Crediting Location	Agricultural Acres	Unenrolled - Unlikely Enrollable Acres	Agricultural Acres - Adjusted	Agricultural Acres Enrolled*
A	9,497	3,670	5,827	3,944
B	15,917	4,116	11,801	3,594
SEB	32,325	6,240	26,085	15,933
SIRL	12,666	1,452	11,214	4,536

Indian River Lagoon BMAP Mailout Effort

To increase enrollment rates and verify land uses where additional focus may be required to achieve resource protection, FDACS is sending correspondence to agricultural landowners not currently enrolled in the BMP Program. FDACS determines enrollment eligibility using the land use codes provided by the Florida Department of Revenue (DOR) and data from local property appraisers' websites indicating that the parcel owner has applied for and received an agricultural tax status as a commercial agricultural operation. FDACS is using a contractor to validate addresses prior to mailing out the letters, facilitate sending out the letters, and respond to questions about the letters.

FDACS also coordinates with partner agencies such as the water management districts, extension offices, farm bureau, counties to let them know these efforts would take place and to direct letter recipients to the OAWP. The letter responses rates and FDACS field staff enrollment assignments are tracked via a GIS web-based application. Landowners that fail to respond to the mailed letter, indicate that they do not want to enroll in the FDACS BMP program, or choose to engage in the water quality monitoring option, are referred to DEP for enforcement. As of February 2024, BMP enrollment within the Indian River Lagoon has increased by almost 14,000 acres due to mail out efforts.

Potentially Enrollable Lands

There are 26,921 acres of potentially enrollable lands within the Central Indian River Lagoon BMAP based on the assessment of unenrolled agricultural lands performed by FDACS. **Table D-5** shows the potentially enrollable acreages by crop type. **Figure D-3** shows the count of potentially enrollable parcels based on size classifications used by FDACS.

Table D-5. Potentially enrollable acres by crop type

Crop Type	Acres
Citrus	241
Crops	101
Fallow	10,095
Grazing Land	11,823
Hay	1,722
Livestock	422
Nursery	821
Open Lands	1,692
Sod	6
Total	**26,921**

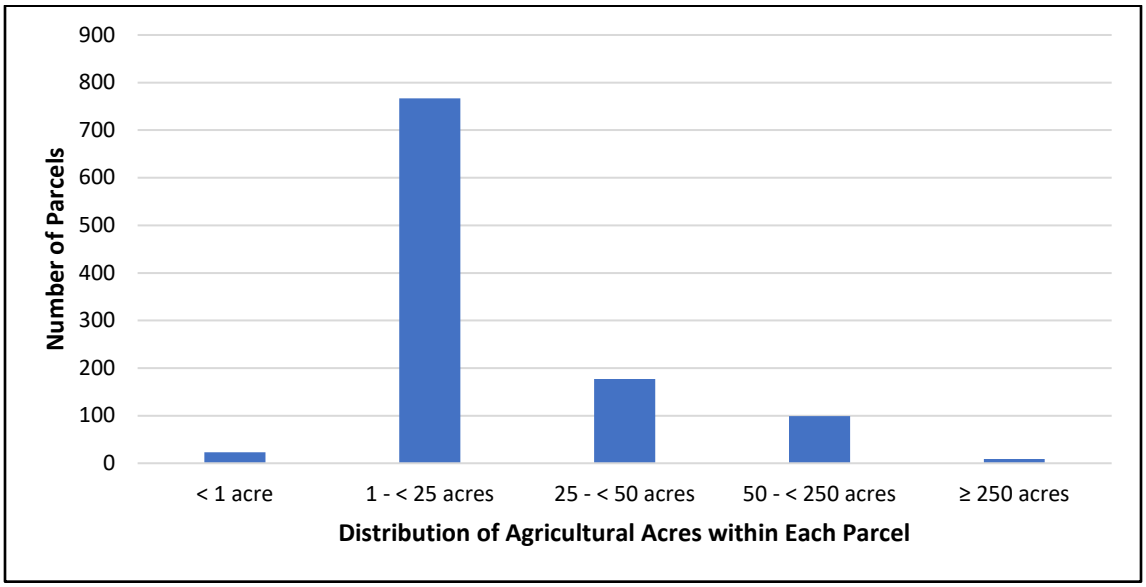

Figure D-3. Count of potentially enrollable parcels by size class in the CIRL

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 D-6 identifies the number of agricultural technologies that received cost-share assistance in the Central Indian River Lagoon BMAP area and the associated nutrient reductions[1]. The nutrient reductions were used to develop a methodology to estimate nutrient reductions for NOIs that have received cost-share funding. 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 D-7**.

[1] Soil and Water Engineering Technology, Inc. (2016). Estimation of Total Phosphorous & Nitrogen Loads Reductions. Soil and Water Engineering Technology, Inc.

Table D-6. Cost share project counts and estimated nutrient reduction efficiencies

Project Types	TN Reduction	TP Reduction	Project Count
Fence	10%	10%	3
Irrigation improvements, automation	20%	20%	8
Weather station	20%	5%	4
Chemigation/fertigation	20%	20%	7
Precision ag technology	30%	10%	3
Drainage improvements, mole drain, ditch cleaning	10%	15%	0
Well, pipeline, trough, pond, heavy use protection	50%	50%	2
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 D-7. Estimated nutrient reductions from FDACS cost share

Crediting Location	Estimated Reductions (TN)	Estimated Reductions (TP)
A	275	16
B	408	38
SEB	5,887	471
SIRL	580	66

Future Efforts

Outreach

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

Legacy Loads

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

implementation, will continue to provide improvements in overall water quality despite the impacts from legacy loads.

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

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

Appendix E. Planning for Additional Management Strategies

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 is unable to submit a sufficient list of eligible management strategies to meet their next 5-year milestone reductions, specific project identification efforts are required to be submitted by January 14, 2026. Any such project identification efforts must define the purpose of and a timeline to identify sufficient projects to meet the upcoming milestone. The project description and estimated completion date for any such project identification effort must be provided and reflect the urgency of defining, funding, and implementing projects to meet the upcoming and future BMAP milestones. These planning efforts are ineligible for BMAP credit themselves but are necessary to demonstrate that additional eligible management actions will be forthcoming and BMAP compliance will be achieved. Only those entities that provide sufficient project identification efforts will be deemed as possessing a defined compliance schedule. Those entities without an adequate project list nor a defined compliance schedule to meet their upcoming 5-year milestone may be subject to enforcement actions. 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 memorandum of understanding 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 F. Nutrient Management Plan Requirements

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 F-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 F-1. Nutrient ranges for warm-season turfgrass species

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

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

2. All golf courses located within a BMAP are required to submit a 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					

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

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

BCUD = Brevard County Utilities Department; WWTF = Wastewater treatment facility; WWTP = Wastewater treatment plant; DIW = Deep Injection Well; RV = Recreational vehicle; MHP = Mobile home park; SLCU = St. Lucie County Utilities; IRCUD = Indian River County Utilities Department.

Facility ID	Facility Name
FL0040622	BCUD-South Beaches WWTF
FL0041122	Melbourne Grant St WWTP & DIW
FL0041637	Indian River County - West Regional WWTF
FL0042293	Barefoot Bay Advanced
FL0102679	South Central Regional Wastewater Treatment Plant
FL0139475	SLCUD South Hutchinson Island Reg WWTF
FLA010332	West Melbourne, City of - Ray Bullard WWTF
FLA010431	Indian River County - Central - Gifford WWTF
FLA010435	Indian River County – South Regional WWTF
FLA013946	North Hutchinson Island Regional WWTF
FLA021661	Vero Beach, City of
FLA103357	Palm Bay, City of - WWTF
FLA104388	IRCUD/North Regional WWTF

Appendix H. WCDs and Other Special Districts

In the 2013 BMAP, WCDs and other special districts were assigned quantitative (numeric) allocations, which included all agricultural and urban lands within their jurisdictional boundaries that were not part of an MS4. During the development of the 2021 BMAP, there were concerns with this approach, because FDACS is the only entity that can enroll agricultural producers in BMPs, but the WCDs were held responsible for reducing loading from the agricultural areas. In addition, the urban lands within the districts were permitted by the city or county and not under the district's control.

Therefore, this 2020 BMAP assigns qualitative (activity-based) allocations to the special districts for the canals and rights-of-way, as the districts have control over these portions of their jurisdictions. The districts are required to implement specific canal and right-of-way BMPs to be compliant with the BMAP. The BMPs for each special district are based on the activities and land uses in the district, and reporting on those BMPs is due annually. The included BMP plans were prepared and submitted by each individual WCD and reviewed by DEP.

FELLSMERE WATER CONTROL DISTRICT (FWCD)

The FWCD (formerly known as the Fellsmere Drainage District) was created April 8, 1919, under the General Drainage Laws of the State of Florida, by a Circuit Court proceeding (St. Lucie County, Case No. RED 533) and currently operates under Chapter 298 of the Florida Statutes, and amendments thereto, as an Independent Single Purpose Special District. The district was created and is responsible for the drainage, flood protection, and control with respect to drainage in times of excess water within its geographical boundaries. The FWCD does not generate any nutrient loading. The district receives the runoff from the lands within the gravity drainage portion of the overall district and conveys the flow to the Fellsmere Main Canal discharge point. The district map is shown in **Figure H-1**.

The original overall district watershed included 50,000 acres of land primarily used for agriculture. The system includes east-west sublateral ditches approximately one-quarter mile on center. Because of the naturally occurring 10 mile ridge (Interstate 95) east of the district; the land generally slopes from east to west. The one-quarter mile ditches flow west into the lateral canals. The lateral canals flow north to the Fellsmere Main Canal.

The Fellsmere Main Canal is located along the north boundary of Indian River County and is graded to drain east through the 10-mile ridge and into the west prong of the St. Sebastian River. A plug in the Fellsmere Main Canal west of Lateral U, and internal control structures in Lateral U near Sublateral Ditch 20 and in Park Lateral near Sublateral Ditch 24, separates the gravity drained watershed and the pumped drained watershed.

With the acquisition of lands and development of the Upper St. Johns River Basin project by SJRWMD, the watershed basin of the original Fellsmere Water Control District has been reduced to 34,000 acres. A majority of the remaining area within the Fellsmere Water Control

District is owned by Fellsmere Joint Ventures (FJV) and is pumped, or partially pumped, into portions of the Upper St. Johns River Basin.

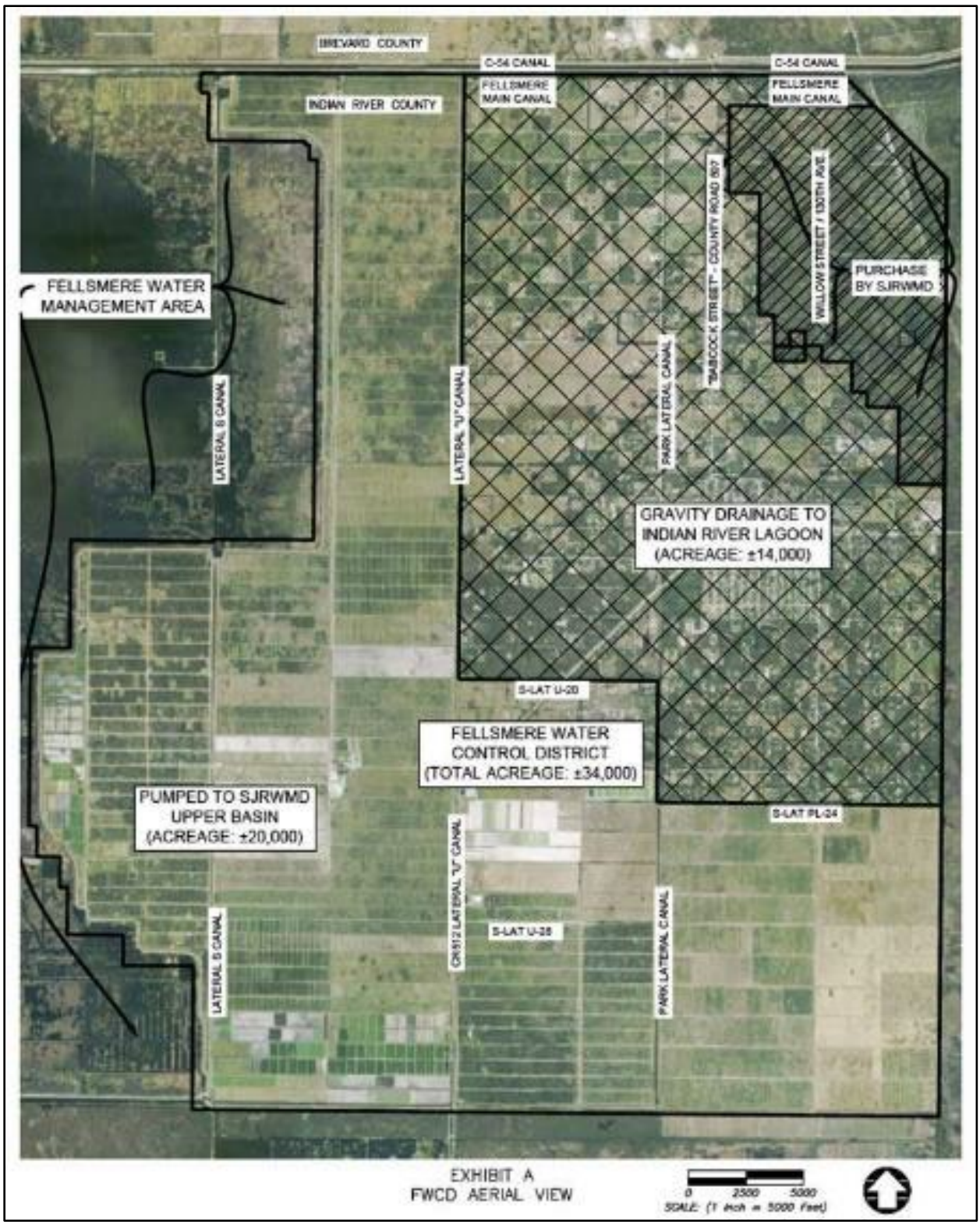

Figure H-1. Map of the Fellsmere WCD

The remaining gravity drained portion of the FWCD is drained by two lateral canals (Park Lateral and Lateral "U"). Generally, Park Lateral drains all the land within FWCD lying east of Park Lateral (including "The Original Town of Fellsmere") and north of Sub-lateral PL-24, containing approximately 14.0 square miles. Park Lateral also partially drains the former "Berry Groves" parcel (now owned by FJV), containing approximately 6 square miles, that is pumped south into the Blue Cypress Water Management Area (BCWMA), during heavy rainfall events.

Lateral "U" Canal gravity drains all the land west of Park Lateral Canal and north of Sublateral U-20, containing approximately 8.4 square miles, and partially drains a portion of its southern basin (between Sublateral U-20 and U-28), containing approximately 2.5 square miles. This area is pumped south into BCWMA during heavy storm events.

The remaining nongravity-drained portions of the district are drained through pump stations, all owned and operated by FJV (SunAg, Inc.), into water management areas of the Upper St. Johns River Basin.

The FJV agricultural land that gravity drains to the CIRL is enrolled and is subject to the BMP Program managed by FDACS.

FWCD developed the *Permit Information and Criteria Manual for Use of or Connection to Works of the District*, the purpose of which is to provide information describing the criteria and permitting requirements relating to the utilization of, and connection to, the works of the FWCD. A copy of the manual and other information associated with FWCD can be found on the district's website: http://www.fellsmerewatercontroldistrict.com/permits.html.

FWCD proposes that the listed BMPs will be implemented and reported as active-based strategies. A specific allocation or nutrient reduction target will not be established. Rather, the FWCD's activities will serve to assist in the control of nutrients as part of the efforts described in the BMAP. Implementation of the BMPs shall provide compliance with the BMAP.

In selecting the BMPs, in coordination with DEP, the function, operation, and budget of FWCD has been considered. Each year, during the annual report information collection period, FWCD will confirm that these activities continue in its canals and rights-of-way. Each BMP includes a description and the required records.

Fellsmere Water Control District BMPs (For the Gravity Drainage Watershed Area Only)

1. Assist FDACS, where needed, with identifying and contacting producers within the district boundaries for purposes of participating in the relevant FDACS BMP programs.

    - Report: Number of landowners contacted to assist FDACS, and the names of landowners.

2. For all new change of land use development projects, exempting single family residences, a FWCD connection permit will require the compliance with the

stormwater discharge limitation policy of 2 inches/24 hours for a 25-year-24-hour storm event. This limitation applies to any 24-hour period (hour 10–34, hour 14-38, etc.) during the 72 hours starting at time 0 of a 25-year, 24-hour storm event.

- Report: The FWCD will provide the developer's engineer with a boundary condition at the connection point to the FWCD system. The boundary condition will include a time stage summary for hours 0 – hour 72 of the 24-hour–25-year event. A list of projects permitted over the year will be provided.

3. Routine maintainence of laterals and sublaterals for drainage and flood protection for land owners. Harvest aquatic vegetation in the canals using mechanical processes along with some necessary herbicide treatment. Vegetation removed from the canals must be disposed of in a location where the material will not be able to reenter the canal. Vegetation harvesting should consider the DEP guidelines in *Removal of Aquatic Vegetation for Nutrient Credits in the Indian River Lagoon (IRL) Basin* (September 2012).

    - Report: Dates when harvesting occurred and disposal location. Report any herbicide treatments and justification for nonmechanical removal of vegetation.

4. Provide public education to residents of the FWCD that fosters an understanding of the necessity to reduce nutrient impacts to surface waters.

    - Report: Provide link or brief summary of the information regarding the encouraged use of BMPs throughout the district.

FORT PIERCE FARMS WATER CONTROL DISTRICT (FPFWCD)

The FPFWCD was originally created in 1919 under the provisions of Chapter 298, F.S., commonly referred to as the General Drainage Law of Florida. The FPFWCD is located in St. Lucie County, and current FPFWCD boundaries encompass roughly 13,000 acres. The FPFWCD is responsible for drainage, flood control and protection, water management and the reclamation of lands within FPFWCD boundaries. The FPFWCD owns, operates, and maintains works for water management and regulates their use by others. The water management system generally includes a network of approximately 50 miles of canals, and associated pumps and water control structures. The Phillip C. Gates structure is the main water control structure located within Canal No. 1 that serves to regulate stormwater discharges into the Indian River Lagoon from FPFWCD. The original construction consisted of four 8 foot (ft) by 16 ft radial gates that opened from the bottom at elevation 6 ft National Geodetic Vertical Datum (NGVD). In 2018, FPFWCD completed a retrofit project in which the two outer gates were split at elevation 10 ft-NGVD and the two center gates were split at elevation 8 ft-NGVD. The retrofitted structure reduces sediment deposits downstream of the structure. An aerial map of the FPFWCD boundary (thick

white line) and drainage canals is shown in **Figure H-2**. A more detailed map identifying the canal numbers and associated rights of way is shown in **Figure H-3**.

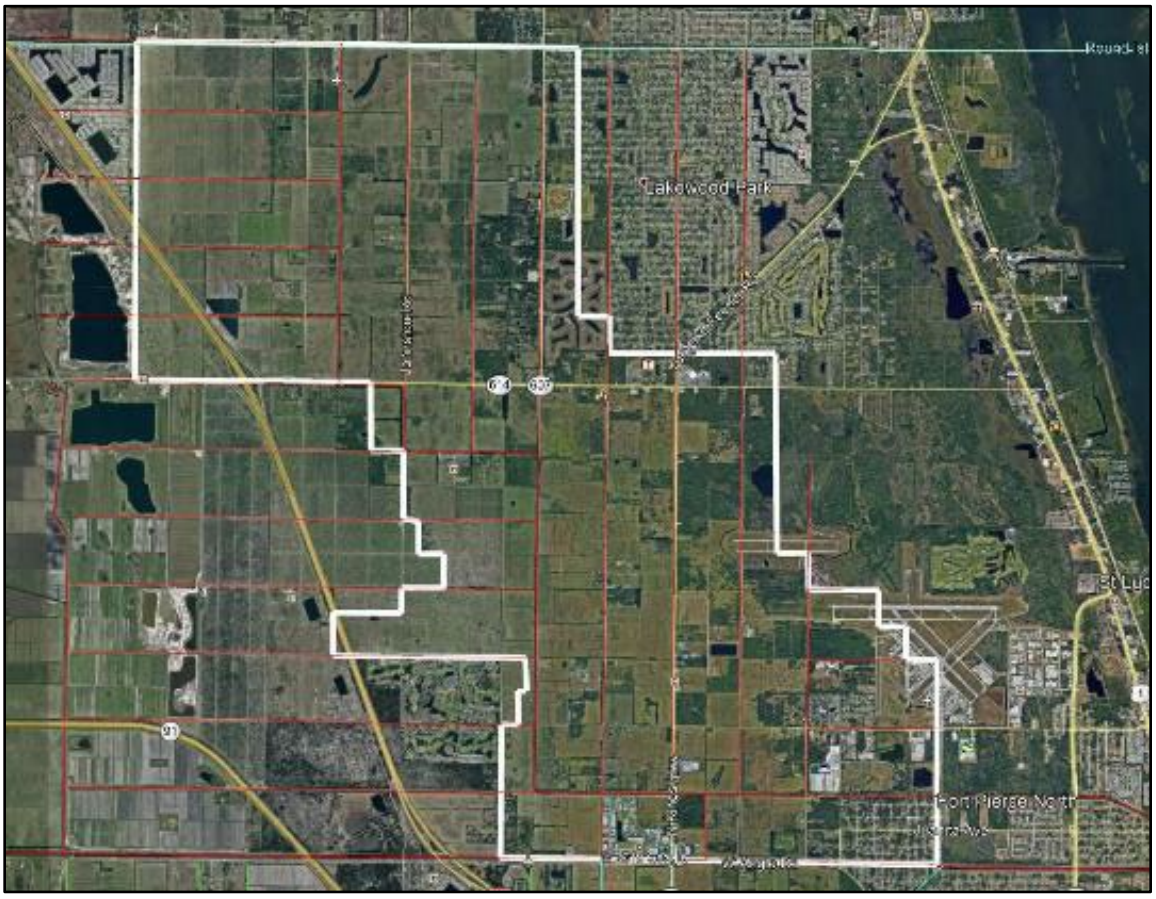

Figure H-2. Map of the FPFWMD

A map generally depicting the agricultural producers enrolled within the FPFWCD is on file with FDACS. Significant stormwater entering the FPFWCD canals is subject to the FDACS program. Additionally, stormwater entering the FPFWCD canals are subject to criteria imposed by other local, state, and federal agencies—including, but not limited to, the City of Fort Pierce, St. Lucie County, SFWMD, DEP, and U.S. Army Corps of Engineers (USACE).

The FPFWCD developed the *Permit Information and Criteria Manual for Use of or Connection to Works of the District*, the purpose of which is to provide information describing the criteria and permitting requirements relating to the utilization of, and connection to, the works of the FPFWCD. A copy of the manual and other information associated with FPFWCD can be found on the district's website: http://fpfwcd.org/.

The FPFWCD proposes that the listed BMPs will be implemented and reported as active-based strategies. A specific allocation or nutrient reduction target will not be established. Rather, the FPFWCD's activities will assist in the control of nutrients as part of the efforts described in the BMAP. The implementation of the BMPs shall provide compliance with the BMAP.

In selecting the BMPs, in coordination with DEP, the function, operation, and budget of the FPFWCD has been considered, and these listed BMPs should not be considered as cost-effective, technically practical, or applicable to any other water control district within the BMAP area. Each BMP includes a description and the required records.

1. Aquatic Vegetation Control

Description: Perform harvest aquatic vegetation within the canals using mechanical processes to the extent practicable to reduce the need for herbicide treatment. Vegetation removal from the canals shall be placed in a manner as to limit the possibility of the material reentering the canal. Use of herbicide treatments shall be used at locations where canal bank stabilization measures, such as rock riprap, have been installed.

Report: Disposal of material outside of the district's rights-of-way is cost prohibitive at this time and will only be performed when deemed necessary by the district. The FPFWCD shall report herbicide treatment locations and provide a justification for each location.

2. Canal Buffer

Description: Create a canal buffer or filter strip to help reduce loading from stormwater runoff to the canals. Maintenance activities consisting of mowing the canal banks shall be limited to the area outside a minimum distance of 10 feet from the canal top-of-bank. Mowing and maintenance activities shall be done in such a way to prevent grass clippings from entering the canals, where they can decompose and add nutrients.

Report: Width and locations (or percentage of canal banks that include a buffer strip) of vegetated buffer strip. Type and location of any alternative methods of canal buffer or filter strips.

3. Assist FDACS

Description: Assist FDACS, where needed, with identifying and contacting landowners/ producers within the district boundaries for the purposes of participating in the relevant FDACS BMP programs.

Report: Number of landowners/ producers information requested by FDACS and response provided.

4. Public Education and Outreach

Description: Provide public education to residents of the district that fosters an understanding of the necessity to reduce nutrient impacts to surface waters.

Report: Provide a link or brief summary of the information regarding the encouraged use of BMPs throughout the district.

5. Control Structures

Description: Maintain existing water control structures and any adjustable gates on water control structures. The location of each water control structure can be found on the map in **Figure H-3**.

Report: Provide an update on any changes to existing water control structures including, but not limited to structure removal, modification or significant repairs.

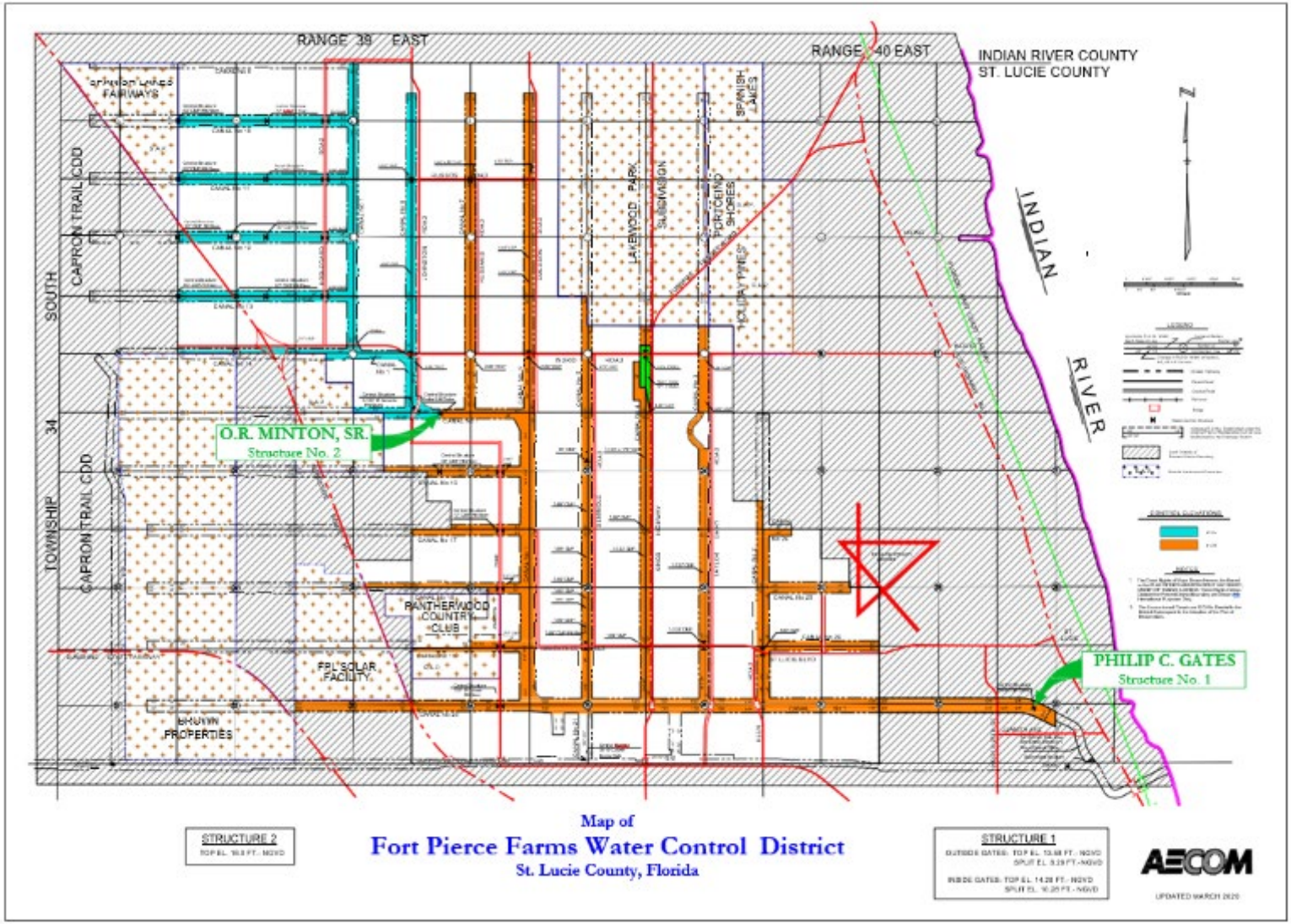

Figure H-3. Map of the FPFWCD

INDIAN RIVER FARMS WATER CONTROL DISTRICT (IRFWCD)

The original Plan of Reclamation of the IRFWCD, formerly known as the Indian River Farms Drainage District, was initially adopted and approved by the Board of Supervisors of the Indian River Farms Drainage District on March 4, 1920.

At that point in time, the Indian River Farms Drainage District was located in St. Lucie County (Indian River County was created in June 1925), and the order approving the Report of Commissioners was approved by the Fifteenth Judicial Circuit in St. Lucie County on August 18, 1921, and recorded in Chancery Order Book 2, Page 493, Public Records of St. Lucie County.

The original Plan of Reclamation (now an integral part of the "Water Control Plan") has long been completed, and the IRFWCD now functions as an operations and maintenance entity of the *Works of Improvements* therein.

In the early to mid 1980s, the IRFWCD approved and undertook a project of evaluation and updating of the original *Works of Improvements of the District*. This study resulted in the creation of a computer model of the District's facilities and various revised recommendations in the operations of the district, including the two-inches-per-day volume discharge limitation. The district map is shown in **Figure H-4**.

The IRFWCD contains approximately 50,000 gross acres lying within portions of Township 32 and 33 South, Range 39 East and Township 33 South, Range 38 East, and a small portion of Township 33 South, Range 40 East in Indian River County.

The IRFWCD contains the western portion of the City of Vero Beach (primarily west of the ancient coastal dune/ridge located along the Florida East Coast Railroad alignment) and the remainder of the district lies within the unincorporated area of Indian River County.

The 1913 Plat of Indian River Farms Subdivision was originally subdivided into primarily 40-acre, more or less, tracts and developed for agricultural use. With the growth of population and development in the IRFWCD, the gradual conversion of agricultural lands to urbanization has occurred concentrically around the City of Vero Beach (westward from the coast) and along major corridors such as State Road 60, 27th Avenue, 43rd Avenue, 58th Avenue, and Oslo Road (9th Street, S.W.)

The initial canal system was designed and constructed by the Indian River Farms Company in the 1912 to 1917 era, and contained only the Main Outfall Canal.

In early 1919, steps were taken to reorganize the former "district" under the General Drainage Laws of Florida. This new district was modified and reformed into the Indian River Farms Drainage District in May of 1919 and currently operates under Chapter 298, F.A.. This plan expanded the limits of the original project, adding the north and south relief canals and interconnecting lateral and sublateral canals.

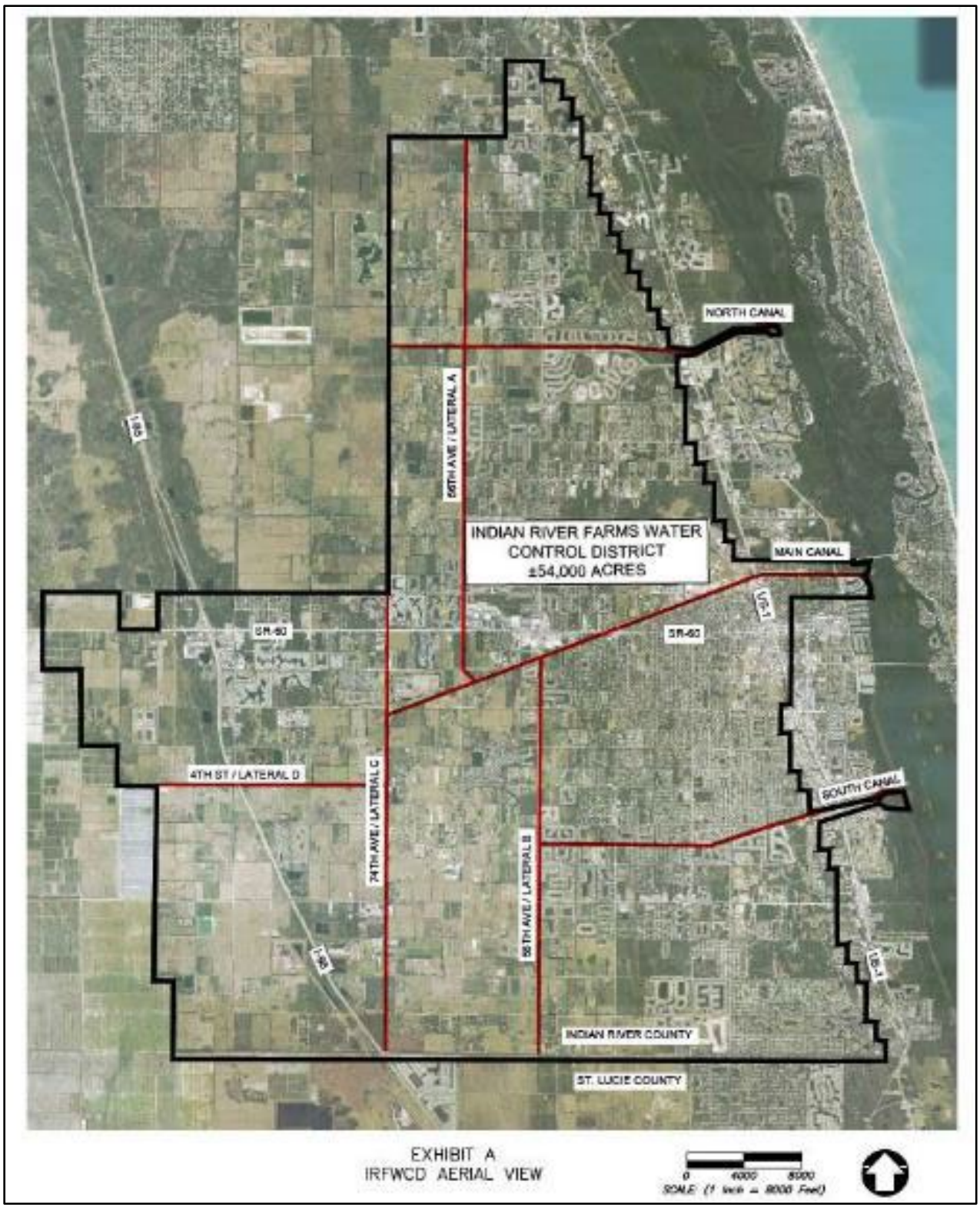

Figure H-4. Map of the IRFWCD

This system was designed and constructed only as a gravity flow drainage district comprising many sublateral canals spaced one-half mile apart (generally along section and one-quarter section lines in an east-west alignment). These sublateral canals discharge into lateral canals (generally running in a north-south direction which, in turn, discharge into three major relief canals) that ultimately outfall into the IRL.

The initial design and construction of the system contained only one structure in the Main Canal. This structure is a drop spillway structure and provides a grade transition from 9.0 ft above sea level upstream to 0.00 ft downstream to prevent erosion and sloughing in the Main Relief Canal.

In the mid-1950s, radial gate water control structures were constructed in the three outfall canals to (1) reduce irrigation requirements, (2) conserve water, and (3) provide a limited source of supplemental irrigation water.

A salinity control weir structure was constructed in the Main Canal downstream of the drop spillway structure in 1962 to protect the City of Vero Beach wellfield from saltwater intrusion, and to provide irrigation water for the Vero Beach Country Club golf course.

In 1963, a fourth radial gate water control structure was added in Lateral "C" Canal (74th Avenue) south of 8th Street to reduce irrigation requirements and provide a limited source of irrigation for landowners in the southwest portion of the district.

The operation of the radial gate structures in the district relate directly to the duration and intensity of storm events and the antecedent rainfall conditions. The gates are kept closed a majority of the time, maintaining a minimum elevation of 15.5 ft, more or less, above sea level upstream of the 3 radial gates located in the 3 outfall canals, and 18.5 ft, more or less, above sea level upstream of the Lateral "C" structure.

These gates are opened, or partially opened, following storm events that create flooding conditions in the respective upstream pool elevations of the structures. The gates are opened only for a few hours to relieve flooding conditions in the affected areas. Following major storm events and complete ground saturation, the gates may be left open for a few days to provide groundwater draw down.

The IRFWCD is isolated from surrounding drainage by a levee (elevation 28.5 ft, more or less, above sea level, 6 ft to 8 ft top width and 1.5 ft to 1 ft side slope) along its north, west, and south boundary and by a coastal/dune ridge along its eastern boundary. It is further protected by adjoining water control districts along its north, west and southern boundaries, and serves no area outside its geographic area.

The IRFWCD proposes that the listed BMPs will be implemented and reported as active-based strategies. A specific allocation or nutrient reduction target will not be established. Rather, the IRFWCD's activities will assist in the control of nutrients as part of the efforts described in the BMAP. The implementation of the BMPs shall provide compliance with the BMAP.

In selecting the BMPs, in coordination with DEP, the function, operation and budget of the IRFWCD has been considered. Each year, during the annual report information collection period, the IRFWCD will confirm that these activities continue in their canals and rights-of-way. Each BMP includes a description and the required records.

Indian River Farms Water Control District BMPs

1. Harvest aquatic vegetation in the canals using mechanical processes along with some necessary herbicide treatment. Vegetation removed from the canals must be disposed of in a location where the material will not be able to reenter the canal. Vegetation harvesting should consider the DEP guidelines in *Removal of Aquatic Vegetation for Nutrient Credits in the Indian River Lagoon (IRL) Basin* (September 2012).

    - Report: Dates when harvesting occurred and disposal location. Report any herbicide treatments and justification for non-mechanical removal of vegetation.

2. For all new change of land use development projects, exempting single-family residences, an IRFWCD connection permit will require the compliance with the stormwater discharge limitation policy of 2 inches/24 hours for a 25-year-24-hour storm event. This limitation applies to any 24-hour period (hour 10–34, hour 14–38, etc.) during the 72-hours starting at time 0 of a 25-year, 24-hour storm event.

    - Report: The IRFWCD model results will provide the developer's engineer with a boundary condition at the connection point to the IRFWCD system. The boundary condition will include a time stage summary for hours 0 – hour 72 of the 24-hour–25-year event. A list of projects permitted over the year will be provided.

3. Provide public education to residents of the district that fosters an understanding of the necessity to reduce nutrient impacts to surface waters.

    - Report: Provide a link or brief summary of the information regarding the encouraged use of BMPs throughout the district.

4. Assist FDACS, where needed, with identifying and contacting producers within the district boundaries for purposes of participating in the relevant FDACS BMP programs.

    - Report: Number of landowners contacted to assist FDACS, and the names of landowners.

MELBOURNE-TILLMAN WATER CONTROL DISTRICT (MTWCD)

The Melbourne-Tillman Water Control District (MTWCD) is a dependent special district authorized by the Florida Legislature under Chapter 2001-336, Laws of Florida, as amended by Chapters 2003-334 and 2010-253, respectively, for the purpose of constructing, reconstructing, and repairing, maintaining, and operating a surface water management system.

It was initially authorized as an independent district in 1922 for land reclamation for agricultural development and operating under Chapter 298, F.S.. It was reorganized as a dependent district in 1986 under Chapter 86-418, Laws of Florida, and codified in the 2001 legislation.

The Board of Directors has the power to establish a water management system to prevent damage from flooding, soil erosion, and excessive drainage; to promote the conservation, development, and proper utilization of surface and ground water; to preserve natural resources, fish, and wildlife; to maintain water quality; and to preserve and protect natural systems within and surrounding the district. The Board may authorize the cleaning, straightening, widening, or the change of course or flow, and alter or deepen any canal, ditch, drain, watercourse, or natural stream within the district boundaries. The building and construction of other works and improvements to preserve and maintain the works of the district are also authorized.

The MTWCD encompasses portions of unincorporated Brevard County, City of West Melbourne, City of Melbourne, City of Palm Bay, Town of Malabar, and Town of Grant-Valkaria. MTWCD is responsible for maintaining a primary network of canals within the district boundary. Various parcels have privately owned outfalls to the canals, with runoff from the remaining lands collected by the various governmental agencies delivering the runoff to the canals.

A map of the MTWCD canals and boundary is shown in **Figure H-5**. The district owns and maintains over 2,300 acres of canal rights-of-way in 163 miles of canals; 50% has a right-of-way width greater than 100 ft, and 8% has a right-of-way width greater than 250 feet. The district boundary covers 102 square miles.

The MTWCD proposes that the listed BMPs will be implemented and reported as activity-based strategies. A specific allocation or nutrient reduction target will not be established. The MTWCD's activities will assist in the control of nutrients as part of the efforts described in the IRL BMAP. Implementation of the BMPs shall provide compliance with the BMAP.

The BMPs, in coordination with DEP, are selected with the function, operation, and budget of the MTWCD in consideration, and the BMPs are not intended to be cost-effective, technically practical, or applicable to any other water control district within the BMAP area. Each BMP includes a description and the required record keeping.

It is recognized that the configuration of the canals and rights-of-way are limiting factors to the performance of certain BMP. An annual report confirming the activities identified are reported to DEP, with detailed records kept at the MTWCD office.

Melbourne-Tillman Water Control District BMPs

1. Redirect flows to the St Johns River from the IRL during certain storm conditions. Replacement of the control structure gates (from underflow to over top) in the WCD's structure at the east end of Canal C-1 was completed in 2011.
    - Report: Once completed, reports will be included with those defined in Point 5 below. Establish and maintain a stormwater aeration system at specified locations.
    - Report: Operation type, location (shapefile), and operation. Operation and any maintenance for the structure(s).
2. Introduce turbidity-reducing polymers to canals such as woodchip logs.
    - Report: Operation type, location (shapefile), operation, and monitoring reports. Operation and any maintenance for the structure(s).
3. Establish and maintain biological/bacteria treatment at specified locations.
    - Report: Operation type, location (shapefile), operation, and monitoring reports. Operation and any maintenance for the structure/facility(s)
4. Harvest aquatic vegetation in the canals using mechanical processes instead of herbicide treatment. Vegetation removed from the canals must be disposed of in a location where the material will not be able to reenter the canal. Vegetation harvesting should consider the DEP guidelines in *Removal of Aquatic Vegetation for Nutrient Credits in the Indian River Lagoon (IRL) Basin* (September 2012).
    - Report: Dates when harvesting occurred and disposal location. Report any herbicide treatments and justification for non-mechanical removal of vegetation.
5. Maintain existing water control structure(s).
    - Report: Structure type, location (shapefile), and operation. Operation and any maintenance for the structure(s).
6. Provide education outreach and public involvement efforts as follows:
    - Update website with links and literature related to clean waters and the IRL.
    - Participate in educational training to include the Florida Erosion and Sedimentation Control Inspector program.

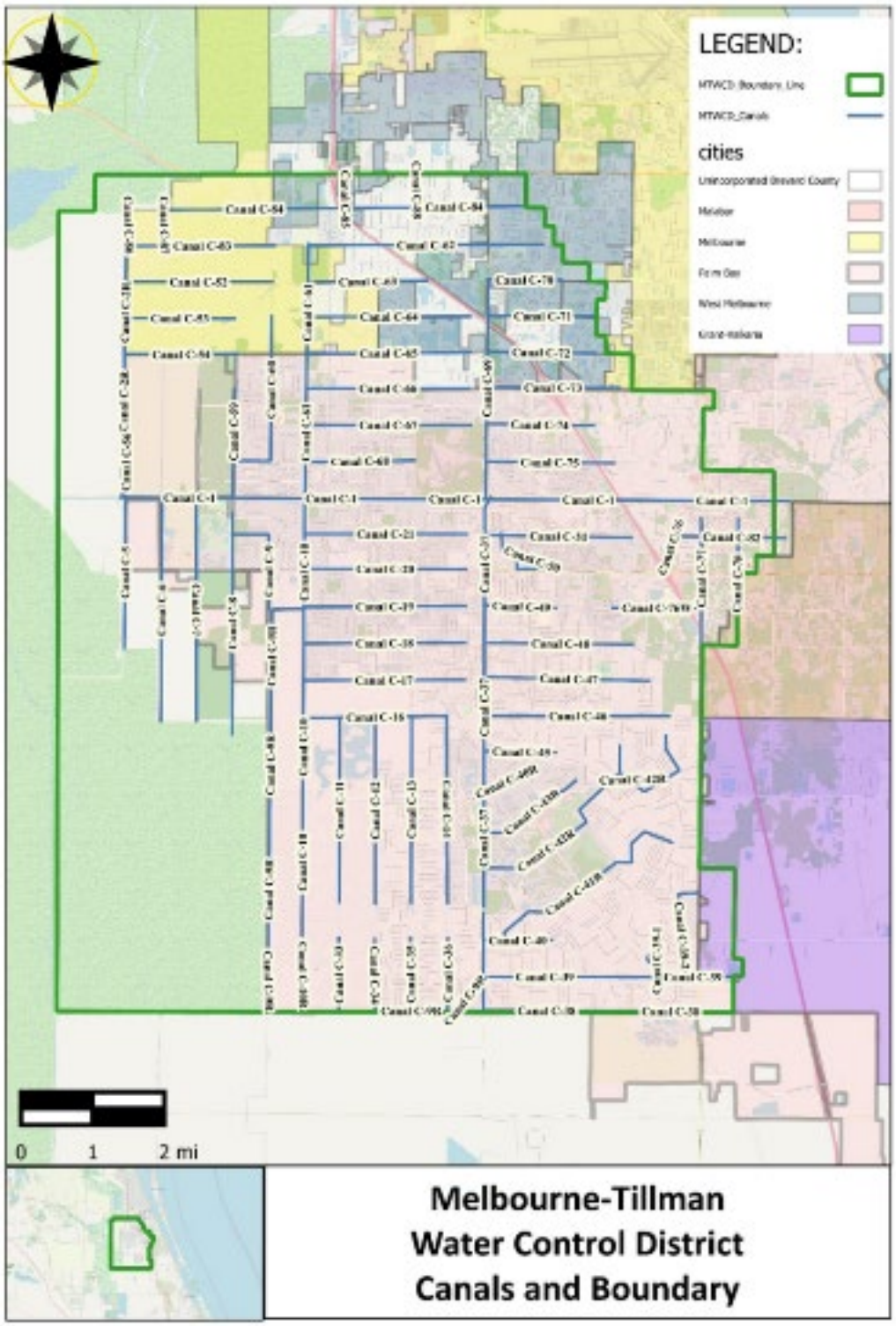

Figure H-5. Map of the MTWCD

SEBASTIAN RIVER IMPROVEMENT DISTRICT (SRID)

The SRID is a "Chapter 189 – Improvement District" that was originally organized as a "Chapter 298 Drainage District." Reorganized under Chapter 189, the district is now known as SRID; however, the district still operates as a single-purpose drainage district.

The Sebastian River Water Control District was initially created by Decree of Incorporation entered by the Circuit Court in 1927 and included approximately 50,000 acres. Following the 1929 Depression, the Plan of Reclamation was scaled back in 1939 to the approximate 11,000 acres of the present day SRID.

The SRID system was designed and constructed as a gravity flow drainage district comprising sublateral canals spaced one-half mile apart in an east to west alignment. These sublateral canals discharge into Lateral Canals C and L which are constructed in a north-south alignment and drain to the north, and discharge into the south fork of the St. Sebastian River that ultimately outfalls into the IRL.

In the late 1950s, radial gate water control structures were constructed in the two outfall canals to (1) reduce irrigation requirements, (2) conserve water, and (3) provide a limited source of supplemental irrigation water.

In 2009, the district undertook a project to create a Survey Inventory of Existing Infrastructure and prepared a report called, "Stormwater Modeling to Evaluate the Works of Improvements of the District." This study resulted in the creation of a computer model of the district's facilities and various revised recommendations for the operations of the district, including the 2-inches-per-day volume discharge limitation.

The SRID contains a few residential areas, churches, a golf course, and schools but remains mostly in agricultural lands that lie within the unincorporated area of Indian River County.

The operation of the radial gate control structures within the district relate directly to the duration and intensity of storm events and the antecedent rainfall conditions. The gates are kept closed the majority of the time, maintaining a minimum elevation of 14.5 and 12.5 ft NAVD, more or less, upstream of the radial gates located in Lateral Canals C and L, respectively.

The district map is shown in **Figure H-6**.

These control gates are opened, or partially opened, following storm events that create flooding conditions in the respective upstream pool elevations of the structures. The gates are opened only for a few hours to relieve flooding conditions in the affected areas. Following major storm events and complete ground saturation, the gates may be left open for a few days to provide groundwater drawdown.

The SRID is isolated from surrounding drainage to the west by a levee. The south and east boundaries are common boundaries with IRFWCD, and each district has levees and boundary

canals to manage water within their limits. The north boundary of SRID is isolated with smaller dikes, since the land slopes off the Sebastian River to the north.

The SRID proposes that the listed BMPs will be implemented and reported as active-based strategies. A specific allocation or nutrient reduction target will not be established. Rather, the SRID's activities will assist in the control of nutrients as part of the efforts described in the BMAP. The implementation of the BMPs shall provide compliance with the BMAP.

In selecting the BMPs, in coordination with DEP, the function, operation, and budget of the SRID has been considered. Each year, during the annual report information collection period, the SRID will confirm that these activities continue in its canals and rights-of-way. Each BMP includes a description and the required records.

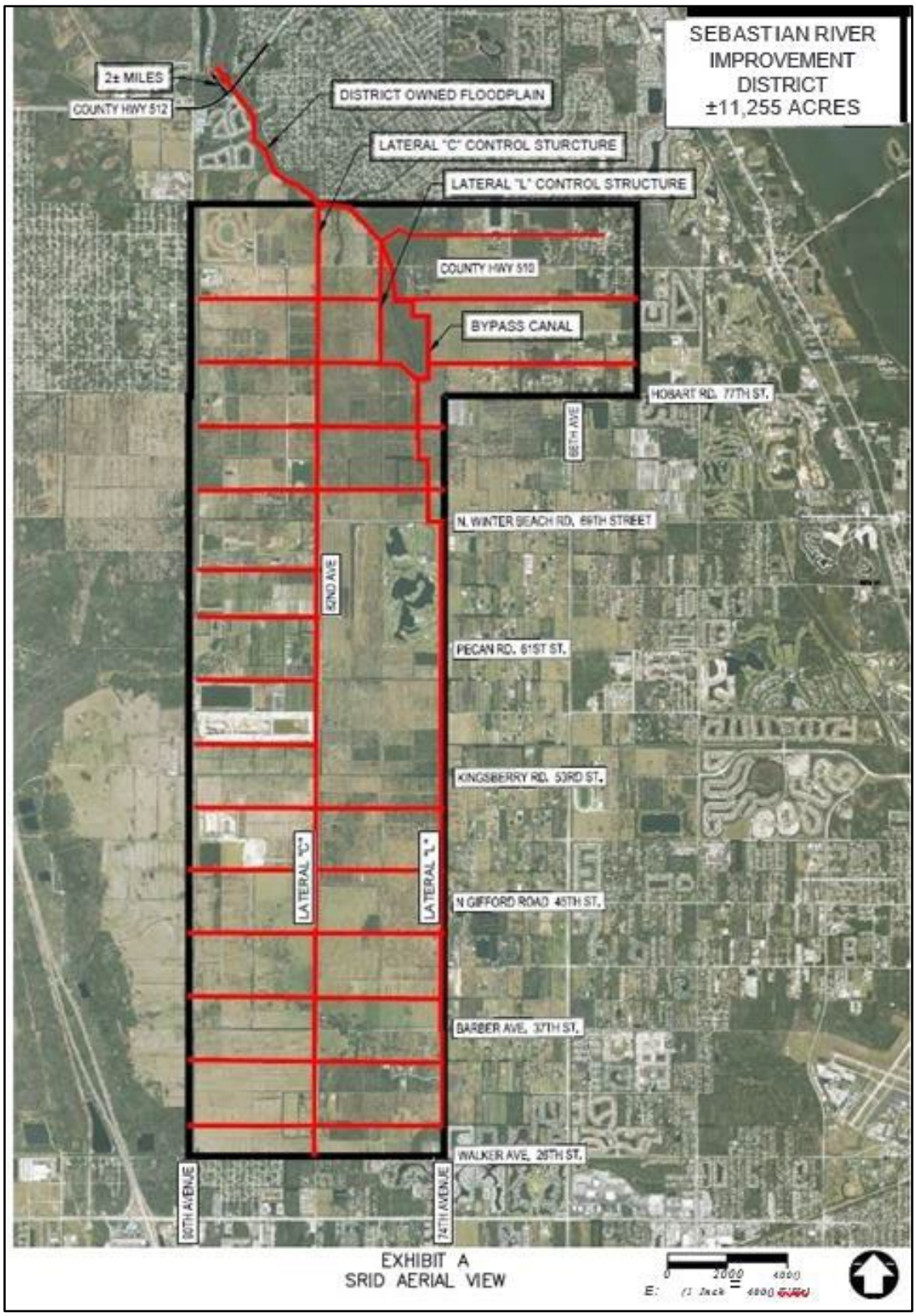

Figure H-6. Map of the SRID

Sebastian River Improvement District BMPs

1. Harvest aquatic vegetation in the canals using mechanical processes along with some necessary herbicide treatment. Vegetation removed from the canals must be of disposed in a location where the material will not be able to reenter the canal. Vegetation harvesting should consider DEP guidelines in *Removal of Aquatic Vegetation for Nutrient Credits in the Indian River Lagoon (IRL) Basin* (September 2012).

    - Report: Dates when harvesting occurred and disposal location.

2. For all new change of land use development projects, exempting single-family residences, a SRID connection permit will require compliance with the stormwater discharge limitation policy of 2 inches/24 hours for any 24-hour period (hour 10–34, hour 14–38, etc.) during a 25-year–24-hour storm event. The SRID will provide the developer's engineer with a boundary condition at the connection point to the SRID system. The boundary condition will include a time stage summary for hours 0–hour 72 of the 24-hour–25-year event.

    - Report: A list of projects permitted over the year will be provided.

3. Assist FDACS, where needed, with identifying and contacting producers within the district boundaries for purposes of participating in the relevant FDACS BMP programs.

    - Report: Number of landowners contacted to assist FDACS, and the names of landowners.

VERO LAKES WATER CONTROL DISTRICT

The Vero Lakes Water Control District (VLWCD) is a Chapter 298 District originally established as Vero Lakes Drainage by Decree of Incorporation of the Ninth Judicial Circuit in Indian River County, dated June 17, 1965. The VLWCD encompasses approximately 6,250 acres located entirely in north Indian River County, Florida. In general, the district is bisected by I-95, with portions of the district lying both east and west of I-95. The entire district is located south of SR 512. See **Figure H-7** to better locate the boundaries of the district (shown in blue).

The entire district is undeveloped, raw land with a single landowner. The entire district is in agriculture for the purpose of cattle raising. The stormwater runoff is collected in various low wetland areas. A primary ditch carries some stormwater from the southwest to the northeast section of the district that lies west of I-95. There are culverts under I-95 that allow some runoff that does not percolate back into the soil to flow east towards the eastern edge of the district.

Eventually, water that does not percolate back into the soil flows east to Lateral D. This does not increase the nutrient load in the runoff. The natural, undeveloped land acts as a filter for any runoff that makes its way east to Lateral D.

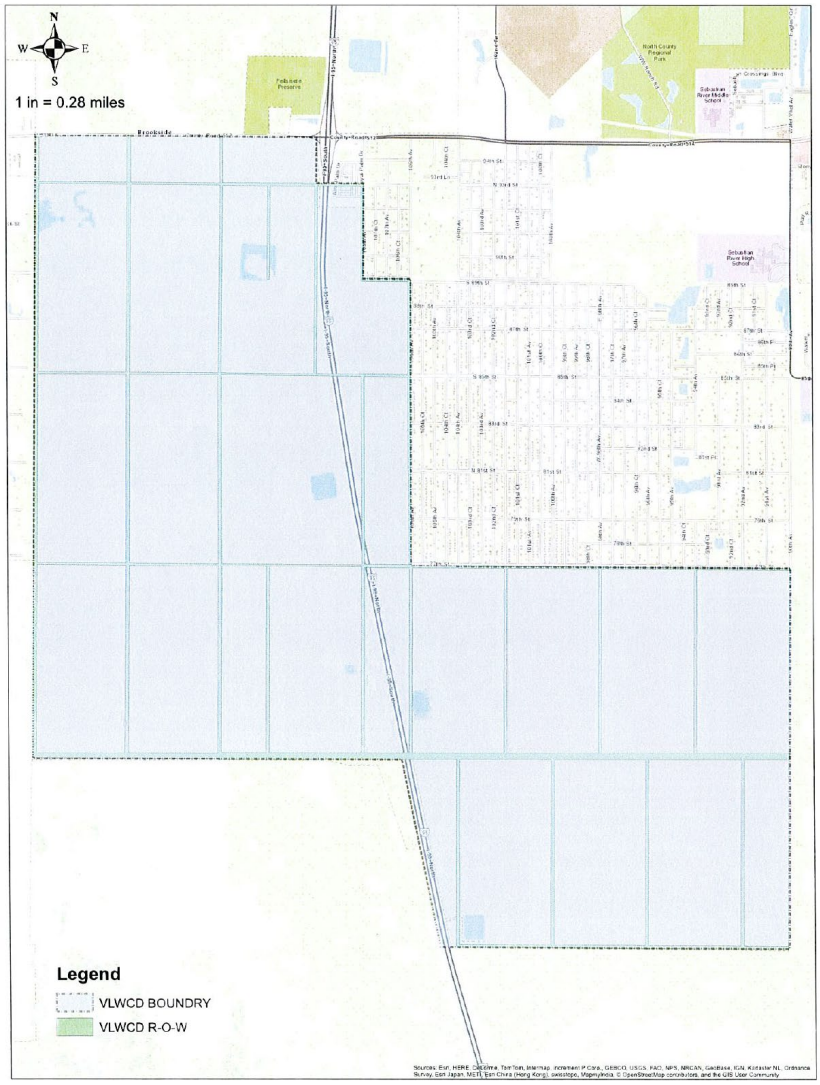

Figure H-7. Map of the VLWCD

The VLWCD proposes that the listed BMPs will be implemented as activity-based strategies. A specific nutrient-based reduction target will not be established. Rather, the VLWCD's activities will assist in the control of nutrients as part of the efforts described in the BMAP. Implementation of the BMPs shall provide compliance with the BMAP.

In selecting the BMPs, in coordination with DEP, the function, operation, and budget of the VLWCD has been considered, and these listed BMPs should not be considered cost-effective, technically practical, or applicable to any other water control district within the BMAP. Each BMP includes a description and the required records.

The VLWCD will provide DEP with an annual report confirming the following activities:

1. **Public Education and Outreach**

Description: The VLWCD shall include as part of its annual meeting, an agenda item to alert the landowner of the existence of the BMAP and requirements for this landowner.

Report: Annual Landowner's Agenda. A copy of the agenda and material shall be kept on file.

2. FDACS BMP Assistance

Description: The VLWCD will provide assistance to FDACS when requested. The VLWCD will identify the current landowner and his contact information as shown on the VLWCD records. The VLWCD will contact the landowner to encourage participation in the FDACS BMP program and encourage him to contact DEP if he have any questions.

Report: Landowner information requested by FDACS and the response provided.

3. Nutrient Controls

Description: No nutrients imported via direct land application in the VLWCD rights of way.

Report: Annual verification by VLWCD.

4. Canal/Ditch Bank Berms

Description: Minimize sediment transport by constructing berms on top of canal/ditch banks and promoting vegetation to cover. The agricultural pasturelands will continue to drain into the main ditch via smaller tributaries. On a regular basis, sediment is removed from the ditch and Lateral D canal. Vegetation is removed by mechanical methods, and not by herbicide treatment. Bank slopes are maintained at a slope that is flatter to prevent erosion.

Report: Visual observation and dates when sediment is removed.

5. Control Structures and Culverts

Description: There are no control structures within the VLWCD. Regular inspection is made to ensure flow is maintained through culverts.

Report: Annual verification by VLWCD.

6. Fertilizer Cessation

Description: No application of fertilizer within the VLWCD rights-of-way.

Report: Annual verification by VLWCD.

Appendix I. Methods for SJRWMD Status and Trends Assessment

Surface water quality data in the IRL were analyzed for status and trends from 23 stations in the CIRL, 16 stations in the BRL, and 7 stations in the NIRL. Water quality status is an indication of the condition of a waterbody for a given analyte or parameter (for example, color or total phosphorus). Water quality trends indicate whether a series of analyte or parameter values is increasing or decreasing over time.

Water quality status

The status assessment period was five years, from Jan. 1, 2018, to Dec. 31, 2022. At least three years of data during the five-year status assessment period were required to complete the status assessment, and the last year had to be 2022 (2020 for groundwater stations). Water quality status is represented by the median of annual median values from the five-year assessment period. Median values were chosen to represent water quality status as they are not greatly skewed by outliers, and thus serve as a robust indicator of central tendency.

Water quality status is indicated by symbol color in the status and trends maps. For surface water analytes and some springs and groundwater analytes, percentiles were assigned to ranked status results. Ranges of percentiles were established (low: 0th–25th percentile, medium: 25th–75th percentiles, high: 75th–100th percentile) and these three ranges are indicated with different shades of blue color, from light to dark. For most of the springs and groundwater analytes, the range is not based on a percentile distribution, but rather a numerical range. Note that all ranges are expressed as low, medium or high relative to each other, and high values do not necessarily indicate poor water quality.

Water quality trends

The trend assessment period was 15 years, from Jan. 1, 2008, to Dec. 31, 2022. At least 10 years of data were required from the 15-year period of record to calculate a trend. The 10-year period of record could be any 10 years within the 15-year period, including periods for which there was a gap in the data, although the last year in the period had to be 2022 (2020 for groundwater stations). Years in the period of record that had more samples than other years were adjusted such that each year was represented by the same number of samples, when possible. Trends were calculated using the nonparametric Mann-Kendall test. A non-seasonal version of the test was used if there were no statistically significant differences between monthly values (Kruskal-Wallis test, $p<0.05$). A seasonal version of the Mann-Kendall test was used if there were significant differences.

Water quality trends are described as increasing trend, decreasing trend, a statistically non-significant trend, or some stations may have insufficient data to conduct a trend analysis. Trends that are changing more than 5% per year are indicated in **Table 14** in **Section 2.2**. Stations may have insufficient data for a variety of reasons. For example, a newly established station that has not been sampled for at least 10 years will have insufficient data for a trend calculation. In some

cases, a station will have results for some analytes, but not others. This report does not attempt to analyze the cause or impacts of any trends, nor are the trend results meant to be forecasts. Rather, trends indicate what has happened at the water quality station over the assessment period.

Water quality sample collection and laboratory analysis

Water quality data were derived from samples collected primarily by SJRWMD field staff. For surface water and springs monitoring stations, most samples were "grab" samples, which means that they were collected using a technique of either inverting the sample bottle in the water column or pouring sample water from a separate collection device, such as a Van Dorn sampler, into the sample bottle. "Vertically integrated" samples were also included in the surface water and springs assessments. These samples were obtained with the use of a long sampling tube and indicate water quality over a range of depths. Since most waterbodies in the district are shallow and not stratified, data from all depths were used for the assessment, including vertically integrated samples. The samples for all three water resource types were analyzed using U.S. Environmental Protection Agency (EPA) methods at the district's laboratory or at various contract labs.

Water quality data preparation

Prior to use in the assessment, sample data were evaluated and filtered in a multi-step process. Important details of this process are outlined below.

- All sample data were analyzed using both SAS and R software.
- Collection, analysis and processing of water quality samples and data can be an error-prone process, and problems can occur. On those rare occasions, the laboratory will associate qualifier codes with the data. In this assessment, qualifier codes were evaluated and any suspect data were omitted. In addition, any quality assurance samples such as duplicates and blanks were omitted.
- Total nitrogen (TN) was calculated for each day of data from the sum of total Kjeldahl nitrogen (TKN) and total nitrate + nitrite (NOx), even if NOx was missing. If TKN was missing, then TN was not calculated. If total NOx was missing, then dissolved NOx was used instead, if it was available. Calculated TN was then added to the data set.
- Daily median values were calculated for all data to ensure that there was only one value per day. The daily median value closest to the midpoint of each month was used to represent the month for trend calculations.
- Individual station and analyte datasets that contained more than 5% non-detect values were evaluated for status using survival statistics methods and for trends using the Kendall tau correlation coefficient with an Akritas-Theil-Sen regression estimate (Helsel 2005).
- Analytical results were combined with a spatial representation of sampling locations. The interactive maps were created using an Esri ArcGIS Online web application template.