St. Lucie River and Estuary Basin Management Action Plan

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

with participation from the
St. Lucie River and Estuary Stakeholders

February 2020

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Acknowledgments

The *St. Lucie River and Estuary Basin Management Action Plan* 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 with participation from the St. Lucie River and Estuary stakeholders identified below.

Type of Governmental or Private Entity	Participant
Local Governments	Martin County Okeechobee County St. Lucie County City of Fort Pierce City of Port St. Lucie City of Stuart Town of Sewall's Point
Community Development Districts	Copper Creek Creekside Portofino Isles River Place St. Lucie West Service District Tesoro Tradition Veranda Verano Villa Vizcaya
Special Districts	Hobe St. Lucie Conservancy District North St. Lucie River Water Control District Pal Mar Water Control District Troup-Indiantown Water Control District
Regional and State Agencies	Florida Department of Agriculture and Consumer Services Florida Department of Environmental Protection Florida Department of Transportation District 4 Florida Department of Transportation District 1 Florida Turnpike Enterprise South Florida Water Management District

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List of Acronyms and Abbreviations

µg/L	Micrograms Per Liter
ac-ft	Acre-Feet
ACOE	Army Corps of Engineers
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CDD	Community Development District
CDS	Continuous Deflection Separation
CEPP	Central Everglades Planning Project
CERP	Comprehensive Everglades Restoration Plan
CIRL	Central Indian River Lagoon
CMAC	Continuous Monitoring and Adaptive Control
CR	County Road
CWA	Clean Water Act
DEP	Florida Department of Environmental Protection
DO	Dissolved Oxygen
DOR	Florida Department of Revenue
DWM	Dispersed Water Management
EAA	Everglades Agricultural Area
EBD	Environmental Balance Device
EPA	U.S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
FCT	Florida Communities Trust
FDACS	Florida Department of Agriculture and Consumer Services
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FIND	Florida Inland Navigation District
FPL	Florida Power and Light
F.S.	Florida Statutes
FSAID	Florida Statewide Agricultural Irrigation Demand (geodatabase)
FWM	Flow Weighted Mean Concentration
FWRA	Florida Watershed Restoration Act
FYN	Florida Yards and Neighborhoods
GIS	Geographic Information System
HOA	Homeowner Association
HWTT	Hybrid Wetland Treatment Technology
IRL	Indian River Lagoon
IRL-S	Indian River Lagoon-South
lbs	Pounds
lbs/ac	Pounds Per Acre

lbs/yr	Pounds Per Year
LID	Low Impact Development
LOPP	Lake Okeechobee Protection Plan
MAPS	Managed Aquatic Plant System
mgd	Million Gallons Per Day
mg/L	Milligrams Per Liter
MS4	Municipal Separate Storm Sewer System
mt/yr	Metric Tons Per Year
N/A	Not Applicable
NEEPP	Northern Everglades and Estuaries Protection Program
NFSLR	North Fork St. Lucie River
NIRS	Nutrient Inceptor Removal System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSLRWCD	North St. Lucie River Water Control District
O&M	Operations and Maintenance
OAWP	Office of Agricultural Water Policy
ONE	Organic Nitrogen Elimination
OSTDS	Onsite Sewage Treatment and Disposal System
PMWCD	Pal Mar Water Control District
PSA	Public Service Announcement
PUD	Planned Unit Development
QA/QC	Quality Assurance/Quality Control
RFI	Request for Information
RRLA	Rapid Rate Land Application
SFER	South Florida Environmental Report
SFWMD	South Florida Water Management District
SLC	St. Lucie County
SLREW	St. Lucie River and Estuary Watershed
SLRIT	St. Lucie River Issues Team
SLRWPP	St. Lucie River Watershed Protection Plan
SLWSD	St. Lucie West Services District
SR	State Road
STA	Stormwater Treatment Area
STORET	STOrage and RETrieval (Database)
SWIG	Sustainable Water Investment Group
SWMP	Stormwater Master Plan
TIF	Tax-Increment Financing
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TOSP	Town of Sewall's Point
TP	Total Phosphorus

TRA	Targeted Restoration Area
UAL	Unit Area Load
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
WaSh	Watershed Water Quality Simulation (Model)
WBID	Waterbody Identification (number)
WCD	Water Control District
WCS	Water Control Structure
WIN	Watershed Information Network (Database)
WMA	Water Management Area
WMD	Water Management District
WWTF	Wastewater Treatment Facility
WY	Water Year

Executive Summary

Background

The St. Lucie River and Estuary Watershed (SLREW) is located in southeast Florida in Martin, St. Lucie, and Okeechobee Counties. It consists of 11 basins (see **Figure ES-1**). The 2013 St. Lucie River and Estuary Basin Management Action Plan (BMAP) area covered 13 basins; however, some of these basins were merged to align with monitoring and other priorities. The St. Lucie Estuary is a major tributary to the Southern Indian River Lagoon, and this watershed is an economically important area.

The St. Lucie River and Estuary and its associated watershed have been subjected to hydrologic, land use, and other anthropogenic modifications over the past century that have degraded its water quality. To help address the nutrient impairment, the Florida Department of Environmental Protection (DEP) adopted total maximum daily loads (TMDLs) for total nitrogen (TN) and total phosphorus (TP) to the estuary. This BMAP represents the joint efforts of multiple stakeholders to identify where nutrients, both nitrogen and phosphorus, can be reduced through regulatory and non-regulatory programs, incentive-based programs, and implementation of projects that will ultimately achieve the TN and TP TMDLs in the estuary.

TMDLs

TMDLs are water quality targets designed to address verified impairments for specific pollutants, such as TN and TP. DEP identified the St. Lucie River and Estuary as impaired by nutrients (chlorophyll *a*) in 2004. In March 2009, DEP adopted TMDLs for TN and TP as targets for the restoration of the river and estuary. The TMDL proposed target concentrations in the St. Lucie Estuary of 0.72 milligrams per liter [mg/L] for TN and 0.081 mg/L for TP. The attainment of the TMDL will be calculated using a 5-year rolling average (the latest 5 water years [WYs], which span two calendar years from May 1 through April 30) of TN and TP concentration data from the Roosevelt Bridge (SE 03) compliance point.

St. Lucie River and Estuary BMAP

DEP first adopted the St. Lucie River and Estuary BMAP in June 2013 to implement the TN and TP TMDLs in the SLREW. BMAPs are designed to be implemented in a phased approach and, at the end of each five-year phase, a review is completed and submitted to the Legislature and Governor. In June 2018, DEP and the local stakeholders completed the first 5-Year Review to evaluate implementation at the end of the first phase and make recommendations for future phases of the BMAP. The information gathered as part of the 5-Year Review was used to develop this updated BMAP for the SLREW.

In addition, in January 2019, Executive Order 19-12 (Item C) included a requirement to update and secure all restoration plans, within one year, for waterbodies impacting south Florida communities, including the St. Lucie River and Estuary BMAP. This 2020 BMAP provides

information on changes since the 2013 BMAP was adopted, including updates to the modeling, updated allocations of load reductions to the responsible stakeholders, management actions to achieve nutrient reductions, and a revised monitoring plan to continue to track trends in water quality. This update sets a deadline for achieving load reductions no later than 2028, which is 15 years after the initial BMAP adoption and the original timeline from the 2013 BMAP.

Summary of Load Reductions

DEP asked the stakeholders to provide information on management actions, including projects, programs, and activities, that would reduce nutrient loads from the SLREW. Management actions were required by the original BMAP to address nutrient loads to the estuary and had to meet several criteria to be considered eligible for credit. Through June 30, 2019, 221 projects were completed, and an additional 39 projects were underway or planned. A Request for Information (RFI) was released in October 2019 to solicit additional projects from public and private entities in the SLREW. Based on the load estimation shapefile developed from the Watershed Water Quality Simulation (WaSh) model, the completed activities in the SLREW are estimated to achieve total reductions of 811,389 pounds per year (lbs/yr) of TN, which is 65 % of the reductions needed to meet the TN TMDL. The activities completed to date are estimated to achieve total reductions of 190,377 lbs/yr of TP, which is 47 % of the reductions needed to meet the TP TMDL. **Figure ES-2** shows progress towards the TN TMDL load reductions, and **Figure ES-3** shows progress towards the TP TMDL load reductions, both based on projects completed through June 30, 2019.

To achieve the TMDL in 15 years, stakeholders must identify and submit additional local projects and the Coordinating Agencies (DEP, Florida Department of Agriculture and Consumer Services [FDACS], and South Florida Water Management District [SFWMD]) must identify additional regional projects as well as determine the significant funding that will be necessary. Enhancements to programs addressing basinwide sources will also be required. In addition, the legacy phosphorus contribution in the watershed must be addressed through further studies and projects targeted at this source. Once this additional information is provided, the Coordinating Agencies will address these constraints.

Source Requirements

This BMAP sets TN and TP effluent limits in the SLREW for individually permitted domestic wastewater facilities, their associated rapid rate land application (RRLA) effluent disposal systems and reuse activities, unless the owner or operator can demonstrate reasonable assurance that the discharge, associated RRLA or reuse activity would not cause or contribute to an exceedance of TMDLs or water quality standards. In U.S. Census–designated urbanized areas and urban clusters, local governments and utilities are also directed to develop master wastewater treatment feasibility analyses to identify specific areas to be sewered within 15 years of BMAP adoption. In areas not targeted for sewering, local governments should identify alternative methods to address loads from septic systems. The intent of the master wastewater treatment feasability analysis is to identify noncentral sewered areas so further steps can be taken with

alternative treatment options for those areas. Sources of funding to address nutrient loading from septic systems should also be identified.

Agricultural nonpoint sources are the predominant contributor of TN and TP loading to the St. Lucie River and Estuary. Attainment of the TMDLs is largely contingent upon addressing the agricultural loading to the river and estuary. The St. Lucie River and Estuary BMAP was originally adopted in June 2013, and many agricultural producers have enrolled and are implementing best management practices (BMPs). However, enrollment still falls well short of the full enrollment requirement under law, and for those producers that have enrolled, onsite verification of BMP implementation is insufficient. This insufficiency in agricultural BMP enrollment and implementation verification can be a constraint to achieving the TMDL in 15 years, and to address this constraint it is paramount that FDACS carries out its statutory authority and fulfills its statutory obligations by more actively engaging agricultural nonpoint sources to enroll in BMPs and by adequately verifying BMP implementation. FDACS has requested funding for additional positions to enable it to undertake these activities at least every two years.

FDACS is responsible for verifying that all eligible landowners are enrolled in appropriate BMP programs, and within one year of the adoption of this BMAP DEP needs FDACS to provide a list of all agricultural landowners in the SLREW with their enrollment status. DEP also needs FDACS to perform regular onsite inspections of all agricultural operations enrolled under a BMP manual to ensure that these practices are being properly implemented. Ideally, these inspections would occur at least every two years.

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 detected for agricultural nonpoint sources despite the appropriate implementation of adopted BMPs, a reevaluation of the BMPs shall be conducted pursuant to Subsection 403.067(7), F.S. If the reevaluation determines that the BMPs or other measures require modification, the applicable rule will be revised to require implementation of the modified practice.

Further reductions can also be achieved through the implementation of additional agricultural projects or activities. The Coordinating Agencies (DEP, FDACS, and SFWMD) 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 targeted restoration areas (TRAs). 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. FDACS will also collect nitrogen and phosphorus fertilization records during implementation verification visits from each agricultural producer enrolled in BMPs and provide an annual summary to DEP and SFWMD of aggregated fertilizer use in the BMAP area.

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, F.A.C. DEP and the water management districts are planning to update the stormwater design and operation requirements in Environmental Resource Permit rules and incorporate the most recent scientific information available to improve nutrient reduction benefits.

Water Quality Monitoring

The updated St. Lucie River and Estuary BMAP monitoring network (**Figure 8**) consists of 72 stations sampled by the City of Port St. Lucie and SFWMD. Of the 63 SFWMD stations, 15 are new or proposed stations recently added as part of expanded SFWMD monitoring to improve monitoring in basins throughout the SLREW. The monitoring network was revised into tiers as follows: (1) Tier 1 stations are the primary/priority stations used in periodic water quality analyses to track BMAP progress and water quality trends over the long term in the basin, (2) Tier 2 stations will provide secondary information that can be used to help focus and adaptively manage implementation efforts. The monitoring stations are not specifically BMAP stations—i.e., they are designed for other purposes—but some of the data collected at these sites are used to monitor the effectiveness of BMAP implementation.

BMAP Cost

The project costs provided for the BMAP may include capital costs as well as those associated with construction and routine operations and maintenance and monitoring. Many BMAP projects were built to achieve multiple objectives and 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.

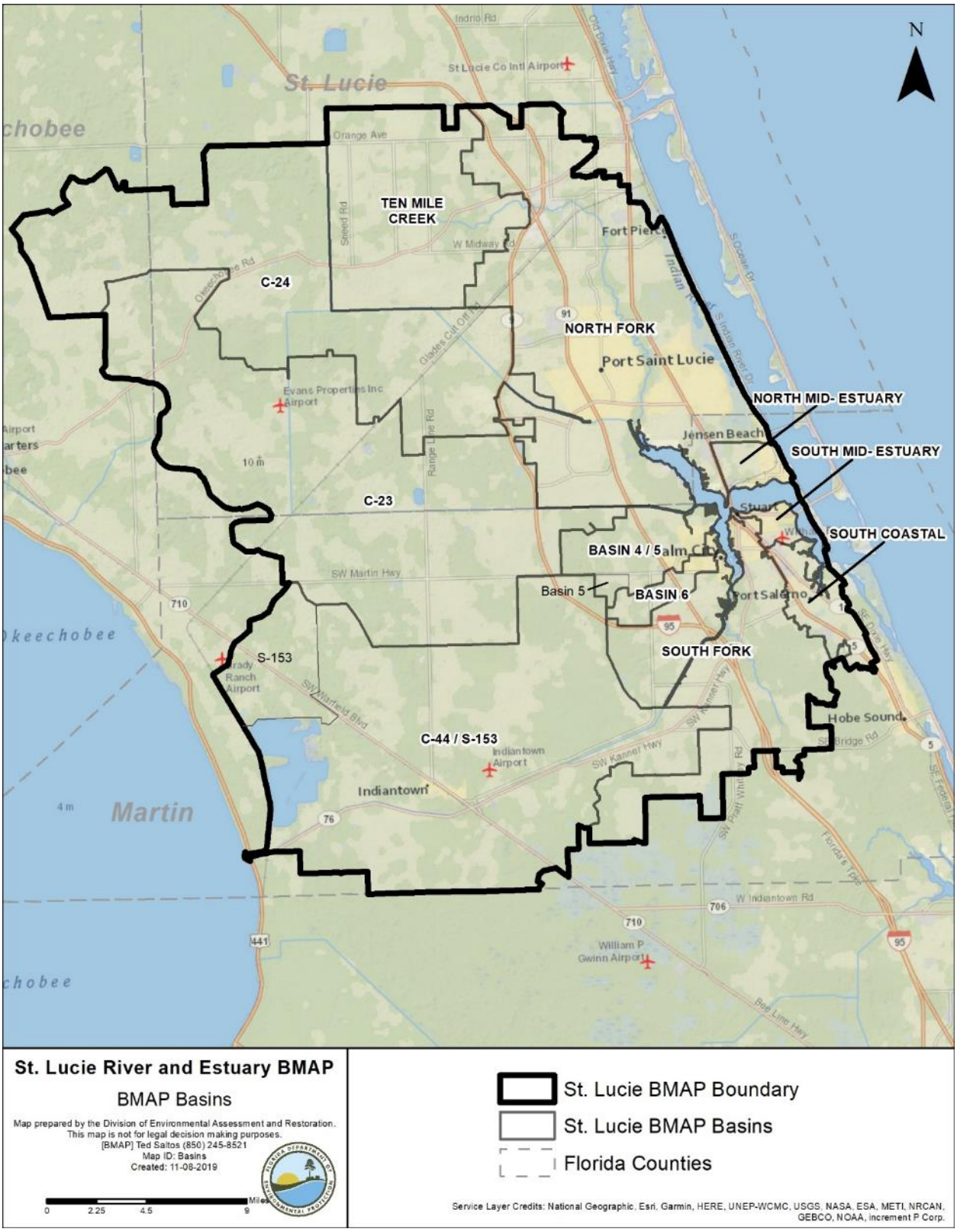


Figure ES-1. St. Lucie River and Estuary BMAP area and basins

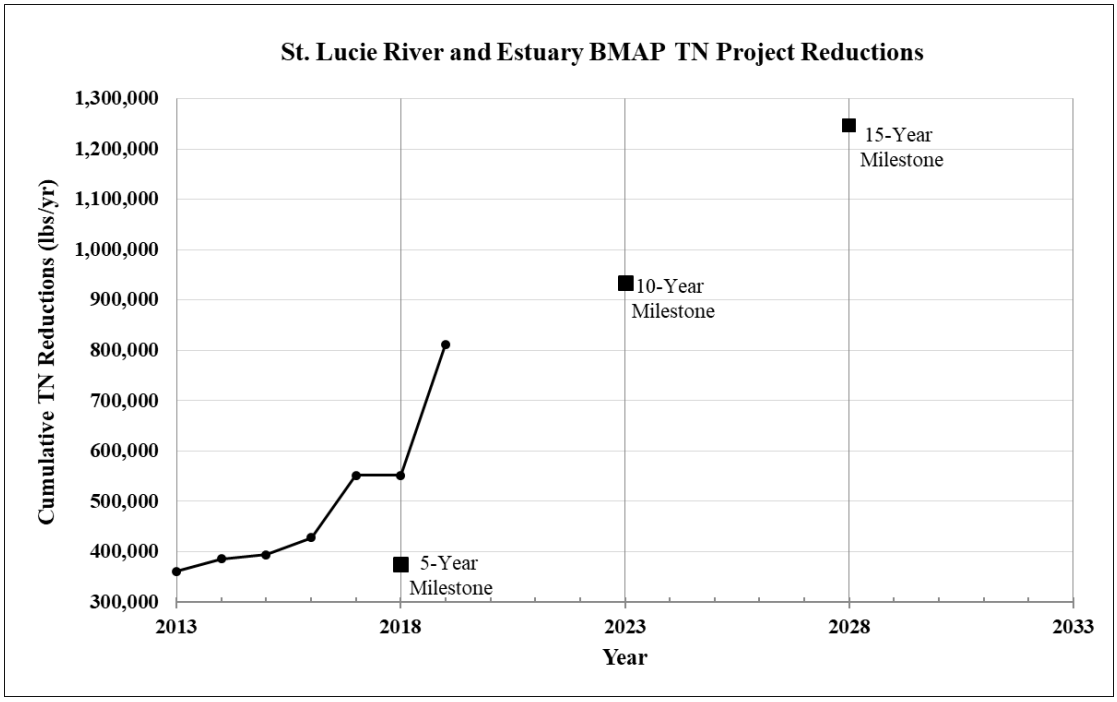


Figure ES-2. Estimated progress towards meeting the TN TMDL allocated to the St. Lucie River and Estuary Watershed with projects completed through June 30, 2019

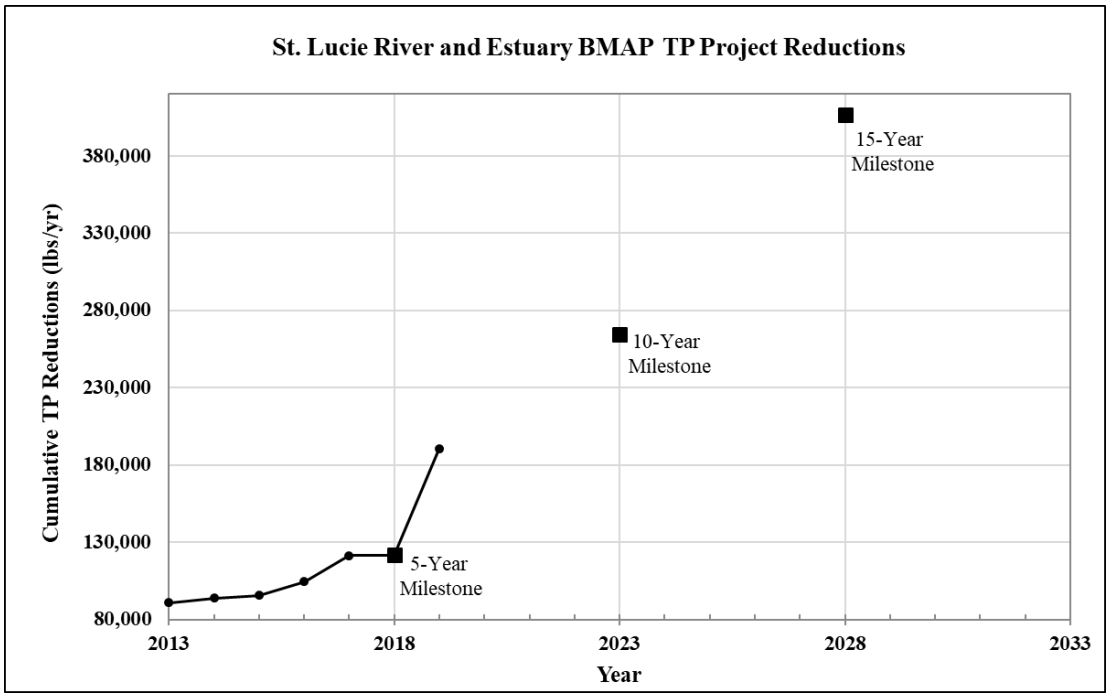


Figure ES-3. Estimated progress towards meeting the TP TMDL allocated to the St. Lucie River and Estuary Watershed with projects completed through June 30, 2019

Chapter 1. Background Information

1.1. Water Quality Standards and Total Maximum Daily Loads (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 those in the St. Lucie River and Estuary, 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. **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.

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

Section 303(d) of the federal Clean Water Act (CWA) requires that every two years each state must identify its "impaired" waters, including estuaries, lakes, rivers, and streams, that do not meet their designated uses. Florida Department of Environmental Protection (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 annual update to the state "303(d) list." In 2004, DEP identified the St. Lucie River and Estuary as impaired for dissolved oxygen (DO) and nutrients.

1.1.1. St. Lucie River and Estuary TMDLs

A TMDL is the maximum amount of a specific pollutant that a waterbody can assimilate while maintaining its designated uses. The St. Lucie River and Estuary nutrient TMDL was adopted in 2009 for total nitrogen (TN) and total phosphorus (TP), which are linked to high chlorophyll a concentrations in portions of the St. Lucie River and Estuary. The TMDLs include the segments with waterbody identification (WBID) numbers 3193 (St. Lucie Estuary), 3194 (North Fork St. Lucie River), 3194B (North Fork St. Lucie Estuary), 3197 (C-24 Canal), 3200 (C-23 Canal),

3210 (South Fork St. Lucie Estuary), 3210A (South Fork St. Lucie River), 3211 (Bessey Creek), and 3218 (C-44 Canal).

Table 2 lists the TMDLs and pollutant load allocations implemented by rule (Rule 62-304.705, Florida Administrative Code [F.A.C.], effective March 26, 2009) for the St. Lucie River and Estuary Watershed (SLREW) (based on updates to the watershed loading effective May 14, 2012). TMDL loads (in pounds [lbs]) in upstream WBIDs were calculated based on achieving the same target concentrations (0.72 milligrams per liter [mg/L] for TN and 0.081 mg/L for TP) as in the St. Lucie Estuary. The TMDLs were used as the basis for the BMAP targets and allocation calculations.

The attainment of the TMDL will be calculated using a five-year rolling average (the latest five water years [WYs]) of TN and TP concentration data from the Roosevelt Bridge (SE 03) compliance point.

Table 2. St. Lucie River and Estuary TMDLs

BOD = Biochemical oxygen demand.
NPDES = National Pollutant Discharge Elimination System.

WBID	Waterbody	Parameter	Annual TMDL Target	NPDES Stormwater (% Reduction)	Load Allocation (% Reduction)
3193	St. Lucie Estuary	TN	0.720 mg/L	21.4	21.4
3193	St. Lucie Estuary	TP	0.081 mg/L	41.3	41.3
3194	North Fork	TN	140,134 lbs	25.0	25.0
3194	North Fork	TP	15,765 lbs	42.2	42.2
3194	North Fork	BOD	2.0 mg/L	74.0	74.0
3194B	North Fork	TN	103,747 lbs	28.8	28.8
3194B	North Fork	TP	11,672 lbs	58.1	58.1
3197	C-24 Canal	TN	348,957 lbs	51.8	51.8
3197	C-24 Canal	TP	39,258 lbs	72.2	72.2
3197	C-24 Canal	BOD	2.0 mg/L	33.3	33.3
3200	C-23 Canal	TN	242,202 lbs	51.7	51.7
3200	C-23 Canal	TP	27,248 lbs	78.6	78.6
3210	South Fork	TN	24,463 lbs	38.4	38.4
3210	South Fork	TP	2,752 lbs	57.2	57.2
3210A	South Fork	TN	90,471 lbs	47.1	47.1
3210A	South Fork	TP	10,178 lbs	61.8	61.8
3211	Bessey Creek	TN	29,981 lbs	23.9	23.9
3211	Bessey Creek	TP	3,373 lbs	51.2	51.2
3218	C-44 Canal	TN	242,929 lbs	51.2	51.2
3218	C-44 Canal	TP	27,330 lbs	55.0	55.0
3218	C-44 Canal	BOD	2.0 mg/L	69.7	69.7

1.2. St. Lucie River and Estuary Basin Management Action Plan (BMAP)

DEP implements TMDLs through permits and BMAPs; the latter contain strategies to reduce and prevent pollutant discharges through various cost-effective means. During the watershed restoration process, DEP and the affected stakeholders jointly develop BMAPs or other implementation approaches. Stakeholder involvement is critical to the success of the watershed restoration program and varies with each phase of implementation to achieve different purposes. The BMAP development process is structured to achieve cooperation and consensus among a broad range of interested parties, including SFWMD, FDACS, and stakeholders representing other agencies, governments, and interested parties.

The Florida Watershed Restoration Act (FWRA), Subparagraph 403.067(7)(a)1., Florida Statutes (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 original St. Lucie River and Estuary BMAP was adopted in June 2013, and the 5-Year Update was completed in June 2018. (Section 373.4595, F.S., calls for a review of the BMAP to be completed and submitted to the Legislature and Governor every 5 years). This adaptive management process will continue until the TMDLs are met.

In January 2019, Executive Order 19-12 (Item C) included a requirement to update and secure all restoration plans, within one year, for waterbodies impacting south Florida communities, including the St. Lucie River and Estuary BMAP. This document serves as an update to the 2013 BMAP based on recommendations from the 5-Year Review. **Figure 1** shows the St. Lucie River and Estuary BMAP area. **Figure 2** shows the estimated progress toward meeting the St. Lucie River and Estuary TN TMDLs as of June 2019. **Figure 3** shows the estimated progress toward meeting the St. Lucie River and Estuary TP TMDLs as of June 2019. Through June 30, 2019, 221 projects were completed, and an additional 39 projects were underway or planned.

A Request for Information (RFI) was released in October 2019 to solicit additional projects from public and private entities in the SLREW. The completed activities are estimated to achieve total reductions of 811,389 pounds per year (lbs/yr) of TN, which is 65 % of the reductions needed to meet the TN TMDL. The activities completed to date are estimated to achieve total reductions of 190,377 lbs/yr of TP, which is 47 % of the reductions needed to meet the TP TMDL.

Subsection 373.4595(4)(d), F.S., requires DEP to set an implementation schedule for achieving the full load reductions of the BMAP. To meet this requirement, DEP establishes a set of five-year milestones by which a certain percentage of the full load reductions must be met. Additionally, stakeholders need to provide DEP with reasonable assurance that they have enough project credits to achieve their full required reductions within the period established by the BMAP. The next 5-year milestone is in 2023 (10 years after the initial BMAP adoption), by which at least 75 % of the TN required reductions and 65 % of the TP required reductions must be met. The deadline established by this BMAP for achieving the full load reductions is 2028,

which is 15 years after the initial BMAP adoption and the original timeline from the 2013 BMAP.

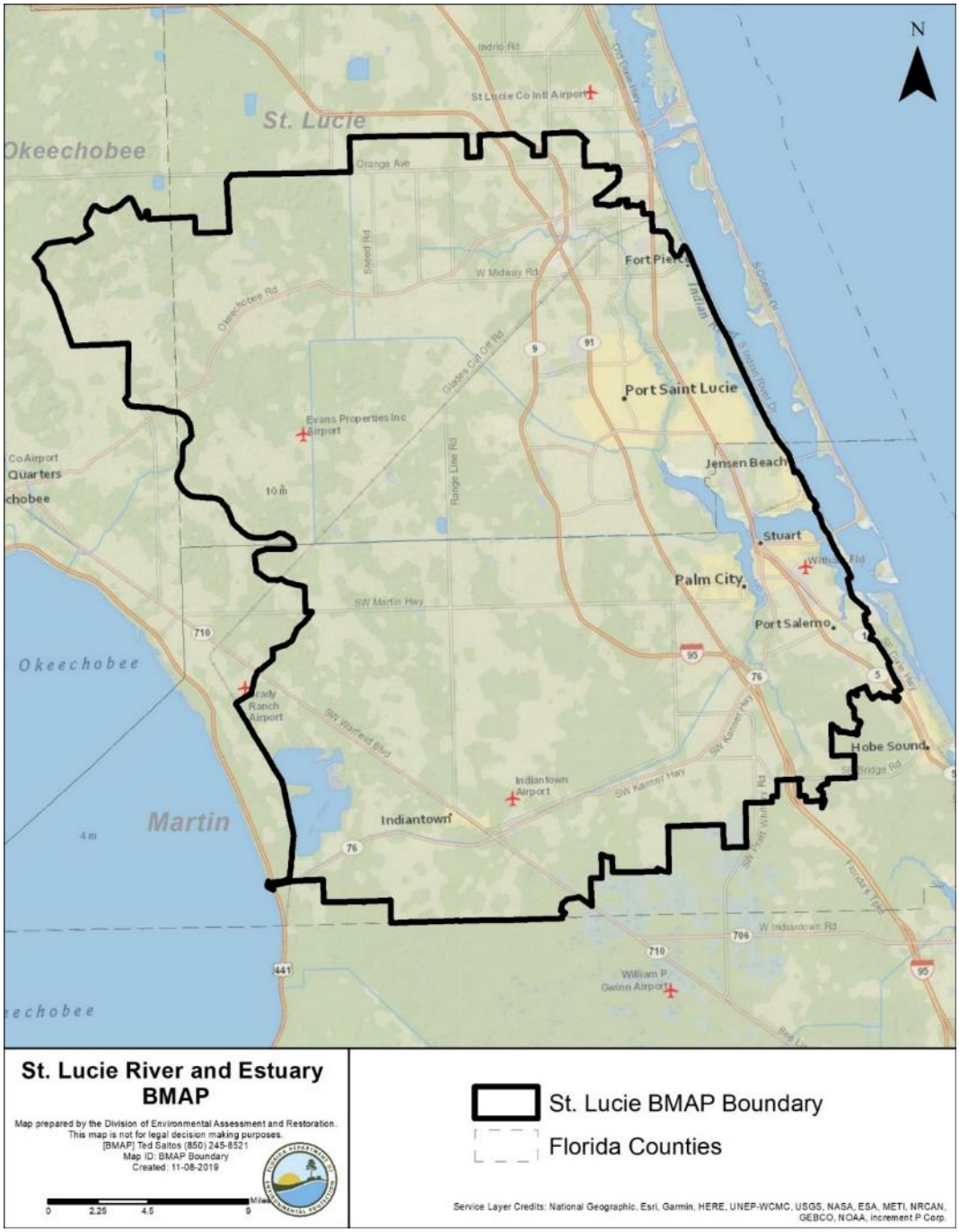


Figure 1. St. Lucie River and Estuary BMAP area

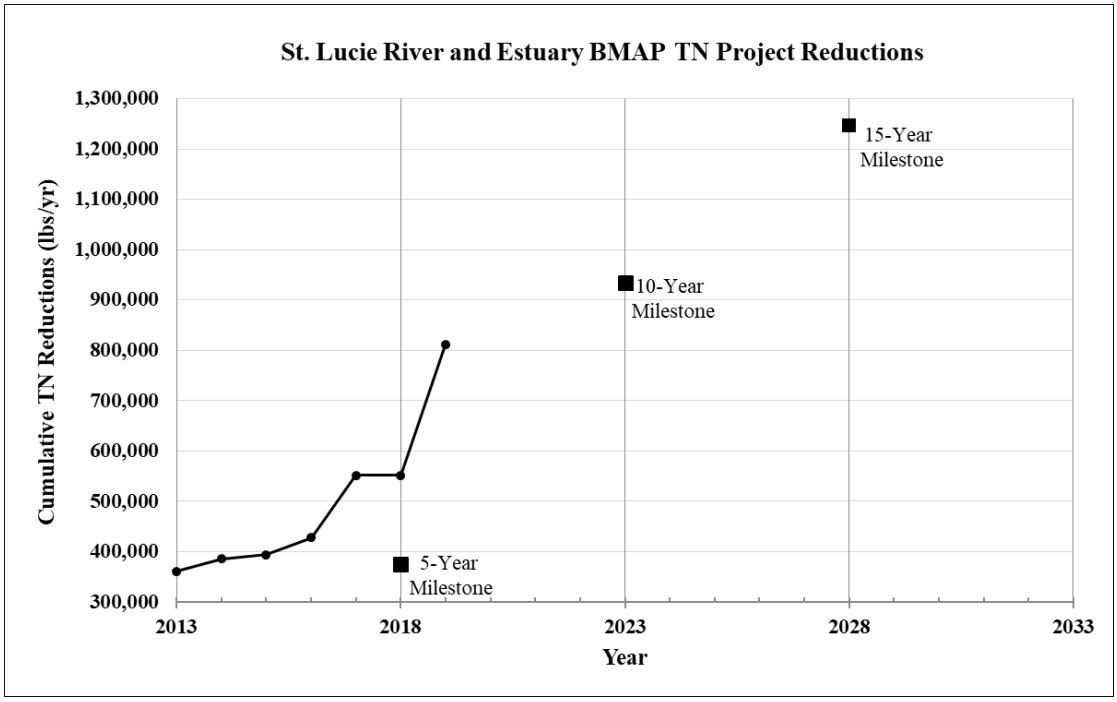


Figure 3. Estimated progress towards meeting the TN TMDL allocated to the SLREW with projects completed through June 30, 2019

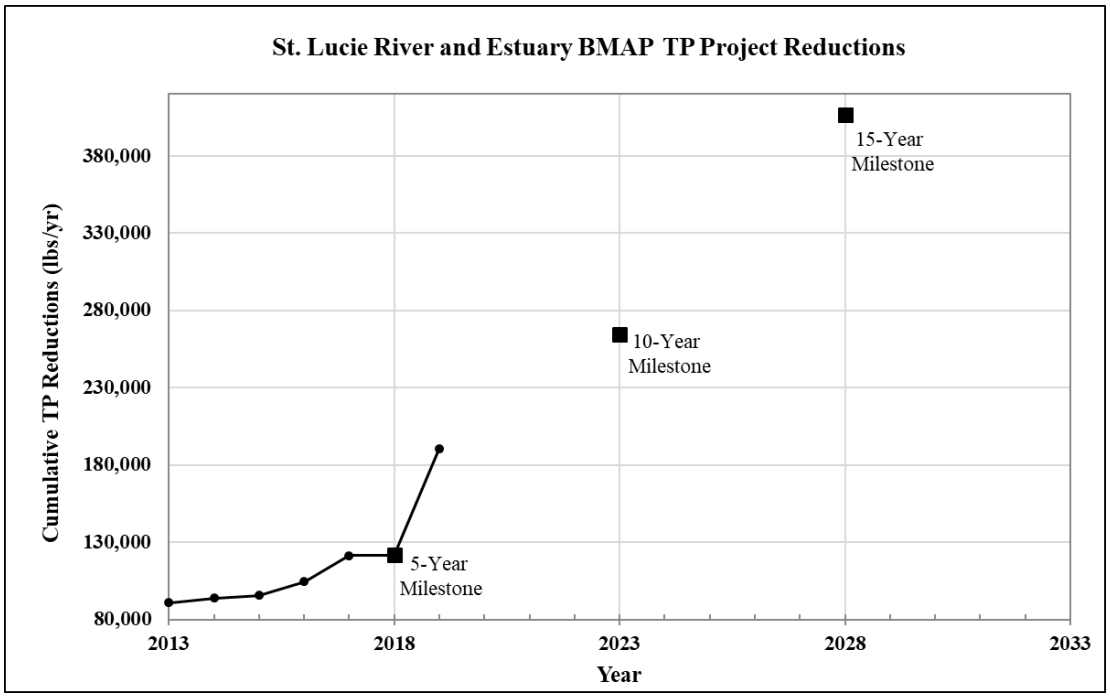


Figure 3. Estimated progress towards meeting the TP TMDL allocated to the SLREW with projects completed through June 30, 2019

1.2.1. Five-Year Review

The 5-Year Review, completed in June 2018, provided recommendations for improving the health of the St. Lucie River and Estuary, and these recommendations are included throughout this 2020 BMAP. The 5-Year Review also included a water quality trend analysis to track trends in TN and TP concentrations in the St. Lucie River and Estuary and its basins. The results of this trend analysis are used in the TRA approach described in **Section 2.4**.

The 5-Year Review mentioned the ongoing large-scale restoration efforts in south Florida, including the Central Everglades Planning Project (CEPP), a component of the Comprehensive Everglades Restoration Plan (CERP). CEPP sets the foundation for restoring the central portion of the Everglades ecosystem and sending additional water south. The implementation of the CEPP as well as the CERP projects (C-44 Reservoir and Stormwater Treatment Area [STA]) will significantly improve water quality in the St. Lucie River and Estuary by cleaning local basin runoff and discharges from Lake Okeechobee. In addition to the projects included in CERP and CEPP, the Everglades Agricultural Area (EAA) Storage Reservoir project will benefit the St. Lucie River and Estuary by redirecting the additional flows from Lake Okeechobee south to the Restoration Strategies complex and ultimately to the Everglades with the completion of CEPP features. The goal of the Restoration Strategies is to improve water quality and flow to the Everglades.

The 5-Year Review also recommended the refinement of the water quality model and revision of the assigned allocations to reflect updated results. The model was expanded to allow for the refinement of the BMAP boundary, with the inclusion of the South Coastal Basin and other areas draining to the St. Lucie Estuary. The update also recommended revising the BMAP monitoring network to help prioritize monitoring resources, improve how progress is tracked, and reorganize the network into a tiered system. Updates to the BMAP monitoring network are described in **Section 2.5**.

1.2.2. Pollutant Sources

There are various sources of pollution in the SLREW. Nonpoint (i.e., diffuse) sources in the watershed contribute the majority of the TN and TP loads to the SLREW and include urban and agricultural stormwater runoff. Lake Okeechobee loading is being addressed through the Lake Okeechobee BMAP. Several reports (SFWMD; DEP; FDACS; periodic St. Lucie River Watershed Protection Plan [SLRWPP] updates) document more detailed information regarding TN and TP inputs from the SLREW.

Table 3 summarizes the percent contribution of TN and TP loads to the St. Lucie River and Estuary from each land use category in each basin, as determined by the 2012 land use coverage from the Watershed Water Quality Simulation (WaSh) model and load estimation shapefile discussed in **Section 2.1**. The subsections below discuss the sources included in this BMAP in more detail.

Table 3. Summary of TN and TP loads by WaSh land use category by basin

Basin	Land Use Category	TN Load (% Basin Total)	TP Load (% Basin Total)
Basin 4/5	Urban	62	60
Basin 4/5	Agriculture	19	23
Basin 4/5	Natural	19	17
Basin 6	Urban	73	72
Basin 6	Agriculture	12	14
Basin 6	Natural	15	14
C-23	Urban	5	4
C-23	Agriculture	79	80
C-23	Natural	16	16
C-24	Urban	11	9
C-24	Agriculture	75	78
C-24	Natural	14	13
C-44/S-153	Urban	6	5
C-44/S-153	Agriculture	74	75
C-44/S-153	Natural	21	20
North Fork	Urban	75	75
North Fork	Agriculture	6	7
North Fork	Natural	19	18
North Mid-Estuary	Urban	82	81
North Mid-Estuary	Agriculture	0	0
North Mid-Estuary	Natural	18	19
South Coastal	Urban	87	87
South Coastal	Agriculture	0	0
South Coastal	Natural	13	13
South Mid-Estuary	Urban	92	93
South Mid-Estuary	Agriculture	0	0
South Mid-Estuary	Natural	8	7
South Fork	Urban	35	32
South Fork	Agriculture	38	44
South Fork	Natural	26	24
Ten Mile Creek	Urban	16	15
Ten Mile Creek	Agriculture	76	78
Ten Mile Creek	Natural	8	7

1.2.2.1. Agricultural Nonpoint Sources

The primary agricultural land uses in the SLREW are cow/calf operations (pasture), row/field crops, and citrus. Other agricultural land uses include nurseries and horse farms/specialty farms. Most of the horse farms are small, noncommercial hobby farms, concentrated in Martin County. Because of urban encroachment, citrus health issues (freeze/disease), and the downturn in the economy, many 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 shifted to nonagricultural/urban uses.

Per Section 403.067, F.S., when DEP adopts a BMAP that includes agriculture, it is the agricultural landowner's responsibility to implement best management practices (BMPs) adopted

by FDACS to help achieve load reductions or demonstrate through monitoring, per Chapter 62-307, F.A.C., that water quality standards are already being met. To date, FDACS' Office of Agricultural Water Policy (OAWP) has adopted BMP manuals by rule for cow/calf, citrus, vegetable and agronomic crops, nurseries, equine, sod, dairy, poultry, and specialty fruit and nut operations.

To enroll in the BMP Program, landowners first meet with OAWP to determine the BMPs that are applicable to that individual operation. The landowner must then submit to OAWP a Notice of Intent (NOI) to implement the BMPs on the BMP checklist from the applicable BMP manual. Because many agricultural operations are diverse and are engaged in the production of multiple commodities, a landowner may be required to sign multiple NOIs for a single parcel.

OAWP is required to verify that landowners are implementing the BMPs identified in their NOIs. Rule 5M-1.008, F.A.C., outlines the procedures used to verify the implementation of agricultural BMPs. BMP implementation is verified through annual surveys submitted by producers enrolled in the BMP Program and site visits by OAWP staff. 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 are exhausted.

FDACS staff conduct site visits to verify that all BMPs are being implemented correctly and to review nutrient and irrigation management records. In addition, OAWP verifies that cost-share items are being implemented correctly. Site visits are prioritized based on the date the NOI was signed, the date of the last BMP verification site visit, whether a survey was completed by the producer for the most recent year, and whether the operation has received cost-share funding. FDACS has requested funding for additional positions to enable it to undertake these onsite inspections at least every two years and provide information it obtains to DEP, subject to any confidentiality restrictions.

Pursuant to Subsection 373.4595(3), F.S., where water quality problems are detected for agricultural nonpoint sources despite the appropriate implementation of adopted BMPs, a reevaluation of the BMPs shall be conducted pursuant to Subsection 403.067(7), F.S. If the reevaluation determines that the BMPs or other measures require modification, the applicable rule will be revised to require implementation of the modified practice. Continuing water quality problems may be detected through the monitoring component of the BMAP and other DEP and SFWMD activities. If a reevaluation of the BMPs is needed, FDACS will also include DEP, SFWMD and other partners in the process. **Section 2.3.1** provides further details on the reevaluation of existing practices.

For the BMAP, the implementation of agricultural BMPs will be documented based on participation in FDACS' BMP Program. The program rules provide the presumption of compliance to those landowners.

Table 4 and **Table 5** summarize the agricultural land use enrolled in BMP programs for the entire SLREW and by basin, respectively. Enrollment is as of June 30, 2019, and the agricultural

acreage in each basin is based on the Florida Statewide Agricultural Irrigation Demand (FSAID) VI geodatabase. As new BMAPs are developed or existing BMAP areas are expanded, overlap among BMAPs is increasing. In the St. Lucie River and Estuary BMAP area, 81,661 agricultural acres are also included in the Lake Okeechobee BMAP. While calculations, allocations, and projects are specific to each BMAP, the number of acres from the individual BMAP reports, if added, exceeds the total acres in the two BMAP areas. **Appendix B** provides more information on agricultural activities in the SLREW.

Table 4. Summary of agricultural land use acreage enrolled in the BMP Program in the St. Lucie River and Estuary BMAP area

Category	Acres
FSAID VI agricultural acres in the BMAP	283,609
Total agricultural acres enrolled	173,448
% of FSAID VI agricultural acres enrolled	61 %

Table 5. Agricultural land use acreage enrolled in the BMP Program in the St. Lucie River and Estuary BMAP by basin

Basin	Total FSAID VI Agricultural Acres	Agricultural Acres Enrolled	% of Agricultural Acreage Enrolled
North Fork	7,161	1,928	27
Ten Mile Creek	33,271	11,877	36
C-24	59,804	42,785	72
C-23	81,466	60,127	74
C-44/S-153	81,660	48,083	59
Basin 4/5	1,949	78	4
Basin 6	454	19	4
South Fork	17,814	8,550	48
South Coastal	28	0	0
South Mid-Estuary	0	0	N/A
North Mid-Estuary	2	0	0
Total	**283,609**	**173,448**	**61**

UNENROLLED AGRICULTURAL ACREAGE

Agricultural land use designation is not always indicative of current agricultural activity and consequently presents challenges to estimating load allocations accurately as well as enrolling every agricultural acre in an appropriate BMP manual. To characterize unenrolled agricultural acres, OAWP identified FSAID VI features outside of the BMP enrollment areas using geographic information system (GIS) software (see **Appendix B** for details). **Table 6** summarizes the results of that analysis.

Table 6. Summary of unenrolled agricultural land use acreage in the St. Lucie River and Estuary BMAP area

Note: Because of geometric variations between shapefiles used in the unenrolled agricultural lands analysis performed by OAWP, the unenrolled agricultural acres differ from the subtraction of the FSAID VI agricultural acres in the BMAP and the total agricultural acres enrolled referenced in **Table 5**.

Category	Acres
Unenrolled agricultural acres	110,195
Acres identified within slivers of unenrolled agricultural areas	3,227
Lands without enrollable agricultural activity (e.g., tribal lands, residential development, and parcels with Department of Revenue (DOR) use codes 70-98)	25,533
Total lands with potentially enrollable agricultural activities	**81,435**

As of June 30, 2019, OAWP had enrolled 173,448 agricultural acres in BMPs. Considering the results of the analysis shown in **Table 6**, the total acreage with the potential to have agricultural activities that can be enrolled in FDACS' BMP Program in the watershed is 254,849 acres. Using this adjusted agricultural acreage, 68 % of agricultural acres have been enrolled.

Analyzing land use data and parcel data is a valuable first step in identifying the agricultural areas that provide the greatest net benefits to water resources for enrollment in FDACS' BMP Program, as well as prioritizing implementation verification visits in a given basin. OAWP will continue to enroll agricultural lands in the BMP Program, focusing on intensive operations, including irrigated acreage, dairies and nurseries, parcels greater than 50 acres in size, and agricultural parcels adjacent to waterways.

The next step to help prioritize the enrollment efforts could use the parcel loading information derived from the WaSh model. This effort could help FDACS identify specific parcels with the highest modeled nutrient loading. These parcels could then be targeted for enrollment and implementation of BMPs, as well as the verification of BMP implementation.

AQUACULTURE

Under the CWA, aquaculture activities are defined as a point source. Starting in 1992, DEP and/or the water management districts regulated all aquaculture facilities through a general fish farm permit authorized by Section 403.814, F.S. In 1999, the Florida Legislature amended Chapter 597, F.S., Florida Aquaculture Policy Act, to create a program within FDACS requiring Floridians 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.

However, as with agricultural land use in Florida, aquaculture facilities are frequently in and out of production. The facilities for which acreages were provided in the original BMAP may no longer be in operation and there may be new companies in different parts of the basin. In the SLREW, 198 acres of aquaculture are under certification with FDACS' Division of Aquaculture as of September 2019. For purposes of the BMAP, OAWP delineated the aquaculture facilities

using parcel data. Since the acreages were not delineated to just the tank, pond, or pool areas, in most cases these calculations overestimate the acreages of aquaculture activity.

1.2.2.2. Municipal Separate Storm Sewer Systems (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. The BMAP projects required to be undertaken by MS4s are detailed for each basin in **Chapter 3**. Phase I and Phase II MS4s are required to implement stormwater management programs to reduce pollutants to the maximum extent practicable and address applicable TMDL allocations. Phase I MS4 permits include assessment practices to determine the effectiveness of stormwater management programs (SWMPs), which can include water quality monitoring. Both Phase I and Phase II MS4 permits include provisions for the modification of SWMP activities, at the time of permit renewal, for consistency with the assumptions and requirements of the adopted BMAP. There are no Phase I permittees in the SLREW as of October 2019.

PHASE II MS4 STORMWATER PERMIT REQUIREMENTS

Table 7 lists the Phase II MS4s in the SLREW as of October 2019. Under a generic permit, the operators of regulated Phase II MS4s must develop an SWMP that includes BMPs with measurable goals and a schedule for implementation to meet the following six minimum control measures:

- **Public Education and Outreach** – Implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on waterbodies and the steps that the public can take to reduce pollutants in stormwater runoff.
    - *Public Participation/Involvement* – Implement a public participation/involvement program that complies with state and local public notice requirements.
- **Illicit Discharge Detection and Elimination** – Subsection 62-624.200(2), F.A.C., defines an illicit discharge as "…any discharge to an MS4 that is not composed entirely of stormwater…," except discharges under an NPDES permit, or those listed in rule that do not cause a violation of water quality standards. Illicit discharges can include septic/sanitary sewer discharge, car wash wastewater, laundry wastewater, the improper disposal of auto and household toxics, and spills from roadway accidents.

- Develop, if not already completed, a storm sewer system map showing the location of all outfalls, and the names and location of all surface waters of the state that receive discharges from those outfalls.

- To the extent allowable under state or local law, effectively prohibit, through ordinance or other regulatory mechanism, nonstormwater discharges into the storm sewer system and implement appropriate enforcement procedures and actions.

- Develop and implement a plan to detect and address nonstormwater discharges, including illegal dumping, to the storm sewer system.

- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper waste disposal.

- **Construction Site Runoff Control** –

  - Implement a regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to reduce pollutants in any stormwater runoff to the Phase II MS4 from construction activity that results in a land disturbance greater than or equal to an acre. Construction activity disturbing less than one acre must also be included if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

  - Develop and implement requirements for construction site operators to implement appropriate erosion and sediment control BMPs.

  - Implement requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.

  - Develop and implement procedures for site plan review that incorporate the consideration of potential water quality impacts.

  - Develop and implement procedures for receiving and considering information submitted by the public.

  - Develop and implement procedures for site inspection and the enforcement of control measures.

- **Postconstruction Runoff Control** – Implement and enforce a program to address the discharges of postconstruction stormwater runoff from areas with new development and redevelopment. (**Note**: In Florida, Environmental

Resource Permits issued by water management districts typically serve as a Qualifying Alternative Program for purposes of this minimum control measure.)

- **Pollution Prevention/Good Housekeeping** – Implement an operations and maintenance program that has the ultimate goal of preventing or reducing pollutant runoff from MS4 operator activities, such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, stormwater system maintenance, and staff training in pollution prevention.

The "NPDES Generic Permit for Discharge of Stormwater from Phase II MS4s," Paragraph 62-621.300(7)(a), F.A.C., also requires that 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. Additionally, in accordance with Section 403.067, F.S., if an MS4 permittee is identified in an area with an adopted BMAP or a BMAP in development, the permittee must comply with the adopted provisions of the BMAP that specify activities to be undertaken by the permittee.

DEP can designate an entity as a regulated Phase II 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. If an MS4 is designated as a regulated Phase II MS4, it is subject to the conditions of the "NPDES Generic Permit for Stormwater Discharges from Phase II MS4s."

Table 7. Entities in the SLREW designated as Phase II MS4s as of October 2019

Permittee	Permit Number
Martin County	FLR04E013
Okeechobee County	FLR04E140
St. Lucie County	FLR04E029
City of Fort Pierce	FLR04E065
City of Stuart	FLR04E031
City of Port St. Lucie	FLR04E001
FDOT District 4	FLR04E083
Florida Turnpike	FLR04E049
Town of Sewall's Point	FLR04E044

1.2.2.3. Septic Systems

Based on 2019 data from the Florida Department of Health (FDOH), there are 46,269 known or likely septic systems located throughout the SLREW (**Figure 4**). **Table 8** summarizes the number of septic systems by basin.

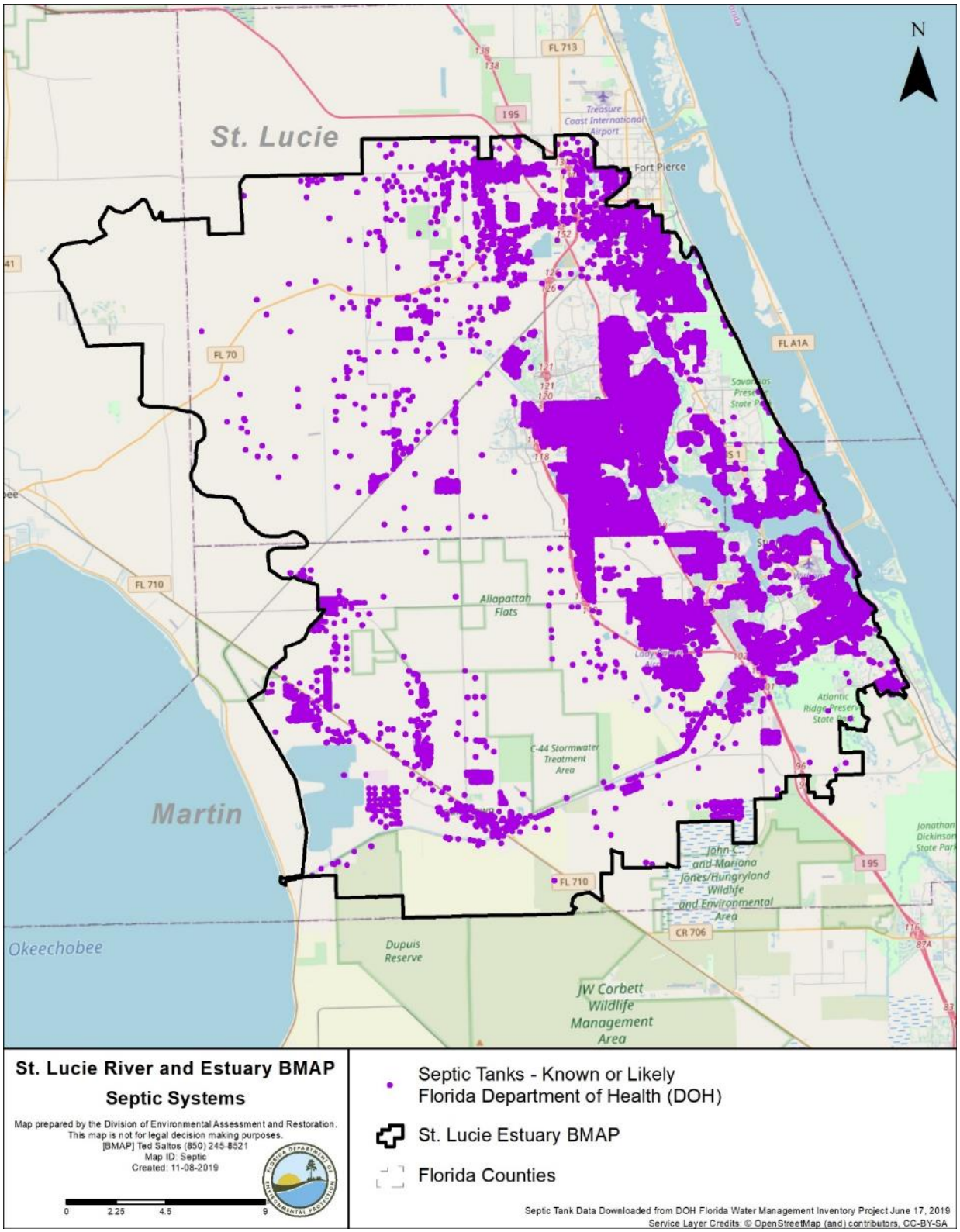


Figure 4. Location of septic systems in the SLREW

Table 8. Septic system counts by basin

Basin	Number of Septic Systems
North Fork	26,350
Ten Mile Creek	823
C-24	1,320
C-23	737
C-44/S-153	900
Basin 4/5	1,815
Basin 6	679
South Fork	4,739
South Coastal	5,071
South Mid-Estuary	1,124
North Mid-Estuary	2,711
Total	**46,269**

1.2.2.4. Urban Nonpoint Sources

Subsubparagraph 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. **Table 9** lists the nonpoint sources in the SLREW.

Table 9. Urban nonpoint sources in the SLREW

Type of Entity	Participant
Government Entities and Special Districts	Copper Creek Community Development District (CDD) Hobe St. Lucie Conservancy District North St. Lucie River Water Control District (NSLRWCD) Pal Mar Water Control District (WCD) Pal Mar WCD Tradition CDD Troup-Indiantown WCD Verano CDD

1.2.2.5. Wastewater Treatment Facilities (WWTFs)

The TMDL analysis identified 15 permitted NPDES WWTFs in the SLREW. All these facilities were only permitted to discharge during a 25-year, 72-hour storm event resulting in minimal and highly irregular impacts on nutrient discharges in the SLREW. Facilities with permitted discharges above this level are for cooling or dewatering, which effectively discharge ambient water. As of December 2019, there were 37 individually permitted industrial and domestic WWTFs in the SLREW. Of these, 7 hold NPDES permits and therefore are authorized, within the limitations of their permits, to discharge directly to surface waters within the LOW. The remaining 30 do not have authorization to discharge directly to surface waters.

1.2.3. 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.

- 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.

- Reductions in TN and TP loading to the St. Lucie River and Estuary will increase DO concentrations and reduce chlorophyll *a* concentrations to improve the water quality conditions in these waterbodies.

- The allocations do not include required load reductions from areas identified as natural land use areas in the 2012 SFWMD land use coverage. These loads are considered uncontrollable, background sources, and the stakeholders are not required to make reductions on natural lands. The focus of the BMAP allocations is on urban and agricultural stormwater sources and septic tanks in the watershed.

- Achieving the St. Lucie River and Estuary TMDLs is contingent on reductions from the Lake Okeechobee Watershed, and in the St. Lucie River and Estuary allocations it was assumed that the Lake Okeechobee TMDL had been met. A separate BMAP is adopted for the Lake Okeechobee Watershed.

1.2.4. Considerations

This BMAP requires stakeholders to implement their projects to achieve reductions within the specified 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 followup 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:

- **Land Uses** – The loading estimates in the BMAP are based on land uses at a point in time, allowing the model to be validated and calibrated. The loading estimates for this BMAP iteration were based on 2012 land use data that were used in the WaSh model.

- **Basin Boundaries** – During BMAP development, DEP and SFWMD worked closely in consultation with the stakeholders to identify an appropriate basin boundary for both the BMAP and SLRWPP. The BMAP area was originally divided into six basins, which were also used in the water quality analysis for the SLRWPP (SFWMD et al. 2009). As both the SLRWPP and BMAP are requirements of the Northern Everglades and Estuaries Protection Program (NEEPP), the BMAP boundary was based on the SLRWPP to align the BMAP process with the SLRWPP.

  Since the 2013 BMAP adoption, the basin boundaries have been updated based on the hydrologic evaluation of tributaries in the SLREW. This evaluation involved conversations with local entities, aerial surveys, and the investigation of areas where discrepancies were noted in the SFWMD ArcHydro Database. Each basin boundary was refined to more accurately reflect drainage conditions, and the changes in acreage were documented. The boundary was also affected by redelineation efforts for the watersheds in the northern part of Palm Beach County as part of the Loxahatchee River Restoration Project.

  The South Coastal Basin was not included within the original BMAP boundary because of a lack of nutrient loading data for the area. Tidal stage data have since become available at the St. Lucie Inlet in the northern portion of the South Coastal Basin that drains to the lower St. Lucie Estuary. As a result, the WaSh model revisions expanded the model domain to include the remainder of the South Mid-Estuary Basin, South Coastal Basin, and Lower St. Lucie Estuary.

  In addition, the northeastern portion of the St. Lucie BMAP boundary was refined based on a stormwater master plan completed by the City of Fort Pierce (Kimley-Horn and Associates, Inc. 2010). Proposed changes to the boundary were made in two of the city's drainage basins—Virginia Avenue Canal East and Virginia Avenue Canal West. The southern portion of the boundary was also refined to follow the northern portion of the city's Cortez NSLRWCD Canal Drainage Basin.

The North Mid-Estuary Basin boundary was revised based on the results of a hydrology study commissioned by SFWMD. The boundary originally extended east close to the Indian River Lagoon (IRL) and included most of the Town of Sewall's Point; however, the boundary was moved west towards St. Lucie Estuary to follow the ridge line and more accurately reflect drainage into the St. Lucie Estuary.

The St. Lucie River and Estuary BMAP area is now divided into 11 basins. The 2013 BMAP area included 13 basins; however, some of these basins were merged to better align with the monitoring network and updated BMAP approach. The C-44 Basin was merged with the S-153 Basin, and Basin 4 was merged with Basin 5.

Figure 5 shows the previous and updated BMAP boundary. Overall, 22,443 acres were added to the BMAP area and 3,922 acres removed, resulting in a net addition of 18,521 acres. **Figure 6** displays the proposed BMAP basin boundaries.

- **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.

- **CDD Responsibilities** –DEP has had several conversations with the City of Port St. Lucie and the numerous CDDs located in the city. CDDs were 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 the City of Port St. Lucie's MS4; and (3) the CDD pays a stormwater fee and receives a refund of this fee. As further details are provided (e.g., discharge locations from these CDDs), revisions to the city's allocations and boundaries will be made in future BMAP iterations. Furthermore, some of the CDDs that did not receive an allocation in this BMAP iteration may receive allocations in future BMAP iterations.

- **Chapter 40E-61, F.A.C.** – SFWMD has initiated rulemaking to revise Chapter 40E-61, F.A.C., to ensure its objectives are consistent with Sections 373.4595 and 403.067, F.S.

- **WCDs** – In the 2013 BMAP, WCDs and other special districts were assigned allocations, which included all agricultural and urban lands within their jurisdictional boundaries that were not part of an MS4. During the development of the BMAP, there were concerns with this approach, because FDACS is the only entity that can enroll agricultural producers in BMPs, but the WCDs were responsible for 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 only assigns the canals and rights-of-way to the special districts, 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.

- **Complexity of Problem** – DEP acknowledges the complexity of the dynamics that affect the water quality of the SLREW; therefore, this BMAP is designed to encompass a wide variety of projects that will cumulatively act to significantly reduce nutrient loads. In October 2019, DEP released an RFI to obtain new proposals for restoration projects and technologies to be implemented in the SLREW. **Appendix D** describes the projects and technologies submitted through this RFI for each of the 11 basins. Resources will be needed to implement any of these projects throughout the watershed.

- **Legacy Phosphorus** – DEP recognizes that legacy phosphorus may be present in the St. Lucie River and Estuary and in the watershed as a result of past anthropogenic activities, and this watershed load has the potential to be transported to the St. Lucie River and Estuary. The Coordinating Agencies (DEP, FDACS, and SFWMD) and stakeholders will identify projects and management strategies that will address the legacy load.

- **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.

- **Lake Okeechobee BMAP Overlap** – Portions of the Lake Okeechobee Watershed overlap with the SLREW. The projects in these overlap areas are included in both this BMAP and the Lake Okeechobee BMAP. The benefits of these projects will vary by BMAP as the reductions are calculated for the waterbody that is the focus of the BMAP.

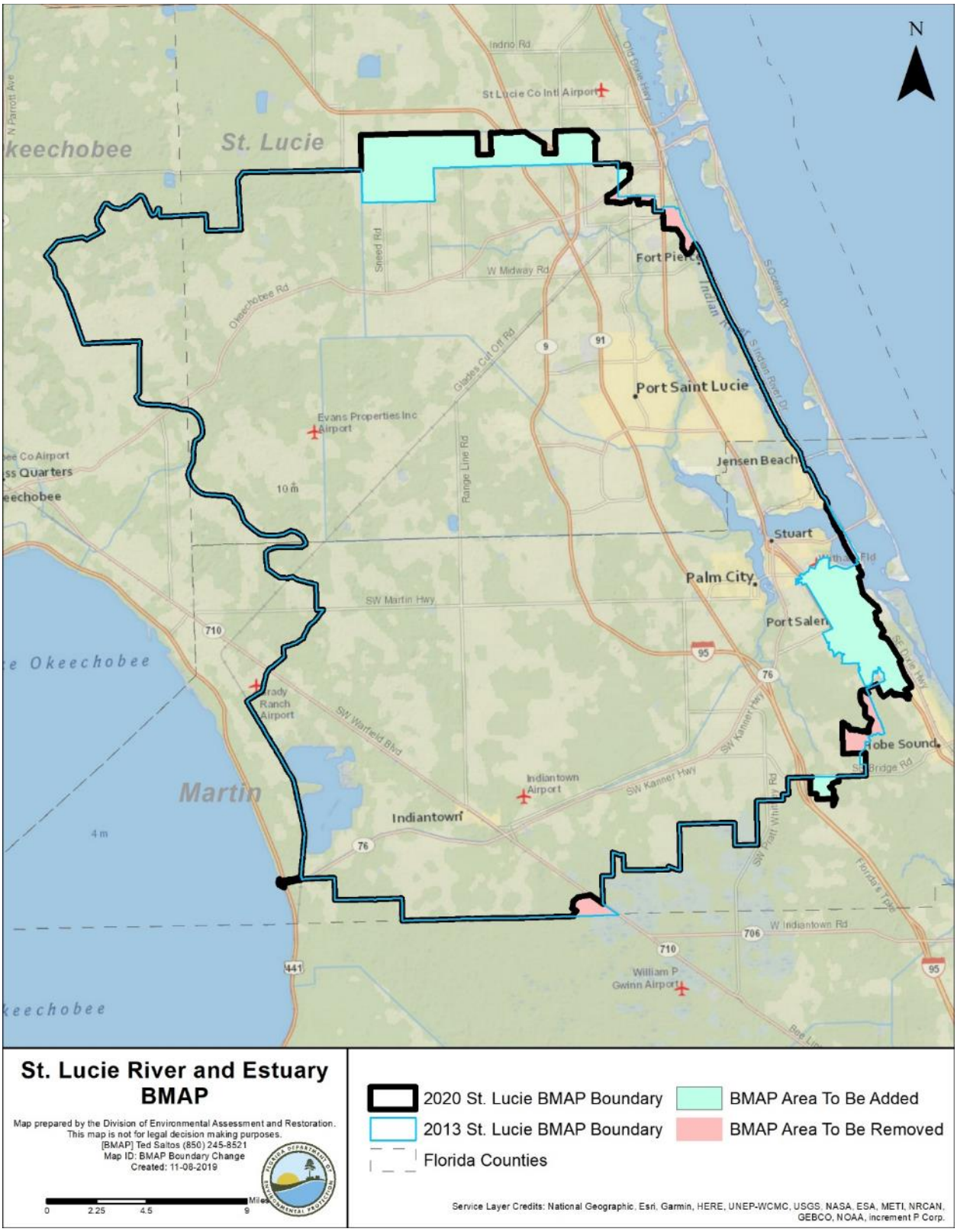


Figure 5. 2013 BMAP area boundary and 2020 BMAP area boundary

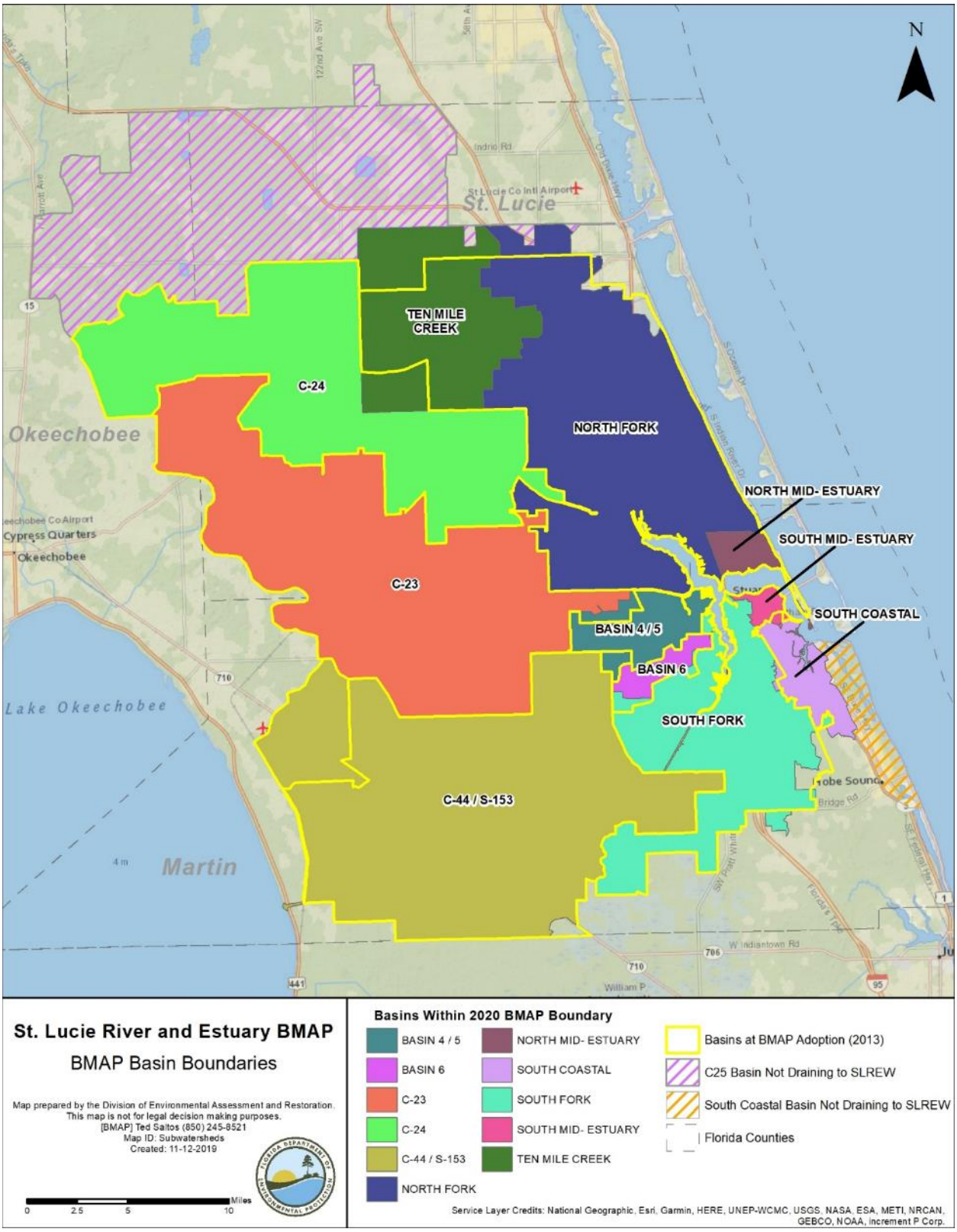


Figure 6. Proposed BMAP area basin boundaries

Chapter 2. Modeling, Load Estimates, and Restoration Approach

The St. Lucie Estuary WaSh model was updated and revised as part of the 5-Year Review. The revisions and scenarios are summarized below, and a separate modeling report provides additional descriptions of model functionality, data sources, calibration and verification results, and alternative scenario outcomes (SFWMD et al. 2018).

2.1. BMAP Modeling

2.1.1. WaSh Modeling Revisions

The WaSh model is a hydrologic, hydrodynamic, and water quality model that was developed for the SLREW. The model domain covers the C-23, C-24, C-44/S-153, Ten Mile Creek, North Fork, South Fork, and South Coastal Basins and Basins 4/5/6. The model was originally developed for the unique hydrologic conditions in south Florida (URS 2008) and was adapted during the first phase of implementation to better suit the planning purposes of the BMAP.

DEP coordinated with SFWMD to revise, enhance, and update the model, first by simulating the baseline scenario. The baseline scenario period of record is 1994 to 2016, and the model uses 2004, 2008, and 2012 land use data. The model was calibrated using available SFWMD data from 2001 to 2006 and verified with available SFWMD data from 1995 to 2000.

The draft report for the WaSh baseline scenario (SFWMD 2017) was made available to stakeholders for review, and preliminary modeling results were presented at the BMAP public meeting in January 2018. Stakeholder comments were incorporated into an updated model report (SFWMD et al. 2018), which was further revised based on additional work and made available for stakeholder review in May 2018.

The results of this modeling effort were used as inputs for the revised nutrient load allocation methodology.

2.1.2. WaSh Baseline Condition Scenario

The baseline WaSh model was calibrated using the following measured data: flow (cubic feet per second), ammonia nitrogen (mg/L), nitrate nitrogen (mg/L), organic nitrogen (mg/L), chlorophyll *a* (micrograms per liter [µg/L]), inorganic phosphorus (mg/L), organic phosphorus (mg/L), and DO (mg/L). Annual and monthly TN and TP loads (lbs/yr) were calculated based on model output (flows and nutrient concentrations). The locations for model calibration and verification of flow included S-80, S-97, and S-49, and for water quality included S-80, S-48, S-49, HR1, SE 01, SE 02, SE 03 SE 06, SE 08/SE 08B, and SE 11.

Overall, the model was well calibrated and verified within the periods chosen for the baseline scenario. The comparison of simulated and measured time series plots for both flow and water quality data were generally in good agreement. The comparison plots and evaluation statistics indicate that the model can predict annual TN and TP loads well. Generally, the comparison of

simulated and measured data indicates that the model closely reproduces the patterns of flow and captures the variation of nutrient dynamics.

Under the baseline condition scenario, Lake Okeechobee is meeting its TMDL; therefore, the S-308 input is set to the TMDL as well. The S-308 structure allows water from Lake Okeechobee to be released into the C-44 canal to the St. Lucie River. This scenario was used so that stakeholders were not asked to reduce loads from the lake, for which they are not responsible.

2.1.3. WaSh Alternative Condition Scenarios

Two alternative condition scenarios from 2007 to 2016 were run using the WaSh model: (1) the impact of select large-scale BMAP projects, and (2) the impact of septic system removal. The results of these scenarios are not currently being used to draft new allocations, but the model may be expanded in the future and used to support restoration activities in the BMAP. More detailed information about the setup, data, and assumptions used as well as the results of these scenarios can be found in the draft modeling report (SFWMD et al. 2018).

2.1.4. Use of Model for Allocations

The revised WaSh model can produce polygon outputs with loading data included. Through a series of GIS steps, polygons were generated for each stakeholder. GIS data were used to clip the area within the BMAP boundary associated with each entity's jurisdictional boundary or the codes from SFWMD 2012 land use data related to the natural lands and agriculture categories. The clipping was done sequentially, as follows:

1. Water Management Areas (Florida Power and Light [FPL] Pond, Dispersed Water Management [DWM], and CERP projects in construction or design).
2. Roads (Florida Department of Transportation [FDOT] and Florida's Turnpike Enterprise).
3. WCDs and other special district canals and rights-of-way.
4. Natural lands (land use codes 3000 [not including 3300], 4000, 5000, and 6000).
5. Agriculture (land use codes 2000 and 3300).
6. CDDs.
7. Municipalities.[1]
8. Remaining area assigned to each county.

[1] Includes the Village of Indiantown, which is a new entity in the 2020 BMAP. The Village of Indiantown's allocations are grouped with Martin County's allocations but may be separated in a future iteration of the BMAP.

The loads associated with water and natural lands were not assigned to any stakeholder as the TMDLs focus on loads from anthropogenic (urban and agricultural) sources and does not require reductions from natural lands. In addition, the WCDs and other special districts were not assigned an allocation and were instead asked to implement specific BMPs as discussed in **Appendix C**.

2.1.5. Use of Model for Project Estimates

The polygon output feature of the updated WaSh model could also be used to obtain load per acre values for each land use type on a basin basis. This information was linked with the 2012 land use shapefile to create a load estimation shapefile that could be manipulated to calculate updated baseloads from all existing project treatment areas in the BMAP.

2.2. Calculation of Starting Loads and Allocations

This section describes the process to calculate the load reductions needed to achieve the TMDL loads and to allocate the load reduction requirements to the responsible stakeholders.

2.2.1. Starting Loads

The current concentrations were estimated by the model for each basin and compared with the TMDL target concentration to calculate the percent required reduction needed in each basin to achieve the TMDL loads. The current and target TN concentrations as well as the required reduction by basin are shown in **Table 10**, and the current and target TP concentrations as well as the required reduction by basin are listed in **Table 11**. The starting loads (lbs/yr) of TN and TP by entity are listed, respectively, in **Table 12** and **Table 13.**

Table 10. TN required reductions by basin

Category	Basins 4,5,6	C-23	C-24	C-44, S-153	North Fork	North Mid-Estuary	South Fork	South Mid-Estuary/ South Coastal	Ten Mile Creek
TN current concentration (mg/L)	0.86	1.74	1.71	0.92	1.08	0.92	0.99	0.68	1.00
TN target concentration (mg/L)	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
TN reduction required (%)	16%	59%	58%	22%	33%	22%	27%	0%	28%

Table 11. TP required reductions by basin

Category	Basins 4,5,6	C-23	C-24	C-44, S-153	North Fork	North Mid-Estuary	South Fork	South Mid-Estuary/ South Coastal	Ten Mile Creek
TP current concentration (mg/L)	0.180	0.352	0.279	0.111	0.233	0.178	0.167	0.117	0.201
TP target concentration (mg/L)	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081
TP reduction required (%)	55%	77%	71%	27%	65%	54%	51%	31%	60%

Table 12. TN starting loads by entity (lbs/year)

* The Village of Indiantown's starting loads are grouped with Martin County's loads but may be separated in a future phase of the BMAP.

Entity	Basins 4, 5, 6	C-23	C-24	C-44, S-153	North Fork	North Mid-Estuary	South Fork	South Mid-Estuary/ South Coastal	Ten Mile Creek	Total
Agriculture	23,272	586,882	492,844	592,295	51,513		165,321	386	216,175	2,128,687
City of Fort Pierce	N/A	N/A	N/A	N/A	48,611	N/A	N/A	N/A	7	48,617
City of Port St. Lucie	N/A	7,806	17,585	N/A	375,955	N/A	N/A	N/A	583	401,929
City of Stuart	N/A	N/A	N/A	N/A	911	2,836	18,635	14,511	N/A	36,893
Copper Creek CDD	N/A	N/A	2,591	N/A	N/A	N/A	N/A	N/A	N/A	2,591
Creekside CDD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,695	1,695
FDOT District 4	1,799	8,172	3,774	6,808	13,542	464	6,906	583	2,355	44,404
FDOT District 1	N/A	1,013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,013
Martin County*	88,436	12,022	N/A	46,586	25,425	25,113	122,195	85,420	N/A	405,198
Okeechobee County	N/A	7,701	5,934	N/A	N/A	N/A	N/A	N/A	N/A	13,635
Portofino Isles CDD	N/A	2,143	N/A	N/A	44	N/A	N/A	N/A	N/A	2,186
River Place CDD	N/A	N/A	N/A	N/A	1,166	N/A	N/A	N/A	N/A	1,166
St. Lucie County	N/A	6,436	31,092	N/A	110,015	N/A	N/A	N/A	32,978	180,521
St. Lucie West Service District	N/A	N/A	N/A	N/A	40,406	N/A	N/A	N/A	N/A	40,406
Tesoro CDD	N/A	N/A	N/A	N/A	7,756	N/A	N/A	N/A	N/A	7,756
Town of Sewall's Point	N/A	N/A	N/A	N/A	N/A	1,919	N/A	N/A	N/A	1,919
Tradition CDD	N/A	2	14,340	N/A	279	N/A	N/A	N/A	N/A	14,621
Turnpike	1,808	19	N/A	N/A	9,594	N/A	2,382	N/A	37	13,839
Veranda CDD	N/A	N/A	N/A	N/A	558	N/A	N/A	N/A	N/A	558
Verano CDD	N/A	N/A	1,778	N/A	N/A	N/A	N/A	N/A	N/A	1,778
Villa Vizcaya CDD	N/A	N/A	N/A	N/A	357	N/A	N/A	N/A	N/A	357
Natural Lands	29,016	127,211	101,061	191,269	187,259	7,683	120,195	16,535	17,933	798,161
WCD Canals	N/A	N/A	5	7,836	5,422	N/A	869	N/A	9,357	23,489
Total	**144,331**	**759,407**	**671,004**	**844,794**	**878,811**	**38,015**	**436,502**	**117,436**	**281,120**	**4,171,420**

Table 13. TP starting loads by entity (lbs/year)

* The Village of Indiantown's starting loads are grouped with Martin County's loads but may be separated in a future phase of the BMAP.

Entity	Basins 4, 5, 6	C-23	C-24	C-44, S-153	North Fork	North Mid-Estuary	South Fork	South Mid-Estuary/ South Coastal	Ten Mile Creek	Total
Agriculture	4,971	158,997	109,204	106,968	10,842	N/A	35,890	65	45,486	472,423
City of Fort Pierce	N/A	N/A	N/A	N/A	8,071	N/A	N/A	N/A	1	8,071
City of Port St. Lucie	N/A	1,331	3,073	N/A	63,694	N/A	N/A	N/A	93	68,190
City of Stuart	N/A	N/A	N/A	N/A	151	450	3,140	2,402	N/A	6,142
Copper Creek CDD	N/A	N/A	431	N/A	N/A	N/A	N/A	N/A	N/A	431
Creekside CDD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	293	293
FDOT District 4	308	1,929	714	1,239	2,169	71	1,056	95	466	8,047
FDOT District 1	N/A	283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	283
Martin County*	15,100	2,351	N/A	7,954	4,088	4,197	21,071	14,521	N/A	69,281
Okeechobee County	N/A	1,661	968	N/A	N/A	N/A	N/A	N/A	N/A	2,629
Portofino Isles CDD	N/A	363	N/A	N/A	7	N/A	N/A	N/A	N/A	371
River Place CDD	N/A	N/A	N/A	N/A	195	N/A	N/A	N/A	N/A	195
St. Lucie County	N/A	1,353	5,502	N/A	19,417	N/A	N/A	N/A	6,340	32,612
St. Lucie West Service District	N/A	N/A	N/A	N/A	6,967	N/A	N/A	N/A	N/A	6,967
Tesoro CDD	N/A	N/A	N/A	N/A	1,271	N/A	N/A	N/A	N/A	1,271
Town of Sewall's Point	N/A	N/A	N/A	N/A	N/A	319	N/A	N/A	N/A	319
Tradition CDD	N/A	1	2,517	N/A	44	N/A	N/A	N/A	N/A	2,562
Turnpike	306	4	N/A	N/A	1,564	N/A	399	N/A	8	2,281
Veranda CDD	N/A	N/A	N/A	N/A	63	N/A	N/A	N/A	N/A	63
Verano CDD	N/A	N/A	366	N/A	N/A	N/A	N/A	N/A	N/A	366
Villa Vizcaya CDD	N/A	N/A	N/A	N/A	60	N/A	N/A	N/A	N/A	60
Natural Lands	4,645	33,213	20,736	33,657	30,977	1,204	20,931	2,800	3,715	151,878
WCD Canals	N/A	N/A	1	1,315	966	N/A	164	N/A	1,944	4,389
Total	**25,329**	**201,487**	**143,513**	**151,132**	**150,546**	**6,242**	**82,650**	**19,881**	**58,345**	**839,126**

2.2.2. Allocation of Load Reductions

The allocation boundary for each entity is divided into each basin where the entity is located, so that starting loads for each entity by basin can be calculated. The required load reduction needed to meet the TMDLs was calculated by multiplying the TN and TP starting loads for each entity in each basin (**Table 12** and **Table 13**) by the percent required reduction for TN and TP by basin (**Table 10** and **Table 11**). If a stakeholder is located in more than one basin, the required load reductions by basin were summed to determine one total load reduction for TN and TP. The required TN and TP reductions (lbs/yr) for TN and TP by entity and within each basin are listed in **Table 16** for TN and **Table 17** for TP.

LOW PRIORITY RANKING DETERMINATION

Several stakeholders contribute less than 0.1 % of both the TN and TP loading from the watershed to the St. Lucie River and Estuary. The contribution to the overall nutrient loading from these stakeholders is low enough that reductions from these areas would have essentially no impact on the required reductions for the BMAP at this time; therefore, these entities are currently considered a low priority for implementing reductions.

Table 14 and **Table 15** summarize the priority evaluation, and those stakeholders meeting the classification requirements for low priority are highlighted in grey. Stakeholders that met the low-priority classification include the Town of Sewall's Point, Copper Creek CDD, Portofino Isles CDD, Verano CDD, Creekside CDD, River Place CDD, FDOT District 1, Veranda CDD, and Villa Vizcaya CDD. These entities are not required to meet the 10-year reduction target for TN and TP but must continue to adhere to all requirements of their MS4 permit or other permits.

BMAP progress will be reviewed over time, and reduction requirements, including for those stakeholders with this low-priority status, will be updated in a future BMAP update as needed. TN and TP reductions may be needed from the low-priority entities in the future. Therefore, although they do not currently have a reduction responsibility, this does not exempt these stakeholders from such requirements in future BMAP updates. Any actions taken by these entities that result in TN and TP reductions will be documented for credit against any reduction requirements allocated in subsequent BMAP updates.

Table 14. Entity contributions to total TN starting load with low priority ranking cutoff

Note: Grey highlighting and boldface type indicate jurisdictions meeting the classification requirements for low priority.

Entity	TN Starting Load (lbs/yr)	% of Total TN Starting Load
Agriculture	2,128,687	63.55
City of Port St. Lucie	401,929	12.00
Martin County	388,638	11.60
St. Lucie County	180,521	5.39
City of Fort Pierce	48,617	1.45
FDOT District 4	44,404	1.33
St. Lucie West Service District	40,406	1.21
City of Stuart	36,893	1.10
Village of Indiantown	16,560	0.49
Tradition CDD	14,621	0.44
Turnpike	13,839	0.41
Okeechobee County	13,635	0.41
Tesoro CDD	7,756	0.23
Copper Creek CDD	2,591	**0.08**
Portofino Isles CDD	2,186	**0.07**
Town of Sewall's Point	1,919	**0.06**
Verano CDD	1,778	**0.05**
Creekside CDD	1,695	**0.05**
River Place CDD	1,166	**0.03**
FDOT District 1	1,013	**0.03**
Veranda CDD	558	**0.02**
Villa Vizcaya CDD	357	**0.01**
Total for Allocated Entities	**3,349,770**	**100.0**
Natural Lands	798,161	**N/A**
WCD Canals	23,489	**N/A**
Total	**4,171,420**	**N/A**

Table 15. Entity contributions to total TP starting load with low priority ranking cutoff

Note: Grey highlighting and boldface type indicate jurisdictions meeting the classification requirements for low priority.

Entity	TP Starting Load (lbs/yr)	% of Total Starting TP Load
Agriculture	472,423	69.18
City of Port St. Lucie	68,190	9.99
Martin County	66,501	9.74
St. Lucie County	32,612	4.78
FDOT District 4	8,047	1.18
City of Fort Pierce	8,071	1.18
St. Lucie West Service District	6,967	1.02
City of Stuart	6,142	0.90
Village of Indiantown	2,780	0.41
Okeechobee County	2,629	0.39
Tradition CDD	2,562	0.38
Turnpike	2,281	0.33
Tesoro CDD	1,271	0.19
Copper Creek CDD	431	**0.06**
Portofino Isles CDD	371	**0.05**
Verano CDD	366	**0.05**
Town of Sewall's Point	319	**0.05**
Creekside CDD	293	**0.04**
FDOT District 1	283	**0.04**
River Place CDD	195	**0.03**
Veranda CDD	63	**0.01**
Villa Vizcaya CDD	60	**0.01**
Total for Allocated Entities	**682,858**	**100.0**
Natural Lands	151,878	**N/A**
WCD Canals	4,389	**N/A**
Total	**839,126**	**N/A**

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

* The Village of Indiantown's starting loads are grouped with Martin County's loads but may be separated in a future phase of the BMAP.

Entity	Basins 4,5,6	C-23	C-24	C-44, S-153	North Fork	North Mid-Estuary	South Fork	South Mid-Estuary/ South Coastal	Ten Mile Creek	Total
Agriculture	3,789	344,034	285,331	128,760	17,171	0	45,088	0	60,529	884,700
City of Fort Pierce	0	0	0	0	16,204	0	0	0	2	16,205
City of Port St. Lucie	0	4,576	10,181	0	125,318	0	0	0	163	140,239
City of Stuart	0	0	0	0	304	617	5,082	0	0	6,003
Copper Creek CDD	0	0	1,500	0	0	0	0	0	0	1,500
Creekside CDD	0	0	0	0	0	0	0	0	475	475
FDOT District 4	293	4,791	2,185	1,480	4,514	101	1,883	0	660	15,907
FDOT District 1	0	594	0	0	0	0	0	0	0	594
Martin County*	14,397	7,047	0	10,127	8,475	5,459	33,326	0	0	78,831
Okeechobee County	0	4,515	3,435	0	0	0	0	0	0	7,950
Portofino Isles CDD	0	1,256	0	0	15	0	0	0	0	1,271
River Place CDD	0	0	0	0	389	0	0	0	0	389
St. Lucie County	0	3,773	18,001	0	36,672	0	0	0	9,234	67,679
St. Lucie West Service District	0	0	0	0	13,469	0	0	0	0	13,469
Tesoro CDD	0	0	0	0	2,585	0	0	0	0	2,585
Town of Sewall's Point	0	0	0	0	0	417	0	0	0	417
Tradition CDD	0	1	8,302	0	93	0	0	0	0	8,396
Turnpike	294	11	0	0	3,198	0	650	0	10	4,163
Veranda CDD	0	0	0	0	186	0	0	0	0	186
Verano CDD	0	0	1,030	0	0	0	0	0	0	1,030
Villa Vizcaya CDD	0	0	0	0	119	0	0	0	0	119
Total	**18,772**	**370,598**	**329,964**	**140,367**	**228,710**	**6,594**	**86,029**	**0**	**71,072**	**1,252,107**

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

* The Village of Indiantown's starting loads are grouped with Martin County's loads but may be separated in a future phase of the BMAP.

Entity	Basins 4,5,6	C-23	C-24	C-44, S-153	North Fork	North Mid-Estuary	South Fork	South Mid-Estuary/ South Coastal	Ten Mile Creek	Total
Agriculture	2,734	122,410	77,500	28,910	7,073	0	18,482	20	27,156	284,285
City of Fort Pierce	0	0	0	0	5,265	0	0	0	1	5,266
City of Port St. Lucie	0	1,024	2,181	0	41,551	0	0	0	55	44,812
City of Stuart	0	0	0	0	98	245	1,617	739	0	2,700
Copper Creek CDD	0	0	306	0	0	0	0	0	0	306
Creekside CDD	0	0	0	0	0	0	0	0	175	175
FDOT District 4	169	1,485	507	335	1,415	39	544	29	278	4,801
FDOT District 1	0	218	0	0	0	0	0	0	0	218
Martin County*	8,305	1,810	0	2,150	2,667	2,287	10,851	4,468	0	32,537
Okeechobee County	0	1,279	687	0	0	0	0	0	0	1,966
Portofino Isles CDD	0	280	0	0	5	0	0	0	0	285
River Place CDD	0	0	0	0	127	0	0	0	0	127
St. Lucie County	0	1,041	3,905	0	12,667	0	0	0	3,785	21,398
St. Lucie West Service District	0	0	0	0	4,545	0	0	0	0	4,545
Tesoro CDD	0	0	0	0	829	0	0	0	0	829
Town of Sewall's Point	0	0	0	0	0	174	0	0	0	174
Tradition CDD	0	0	1,786	0	29	0	0	0	0	1,815
Turnpike	168	3	0	0	1,020	0	205	0	5	1,402
Veranda CDD	0	0	0	0	41	0	0	0	0	41
Verano CDD	0	0	260	0	0	0	0	0	0	260
Villa Vizcaya CDD	0	0	0	0	39	0	0	0	0	39
Total	**11,376**	**129,551**	**87,131**	**31,395**	**77,372**	**2,745**	**31,699**	**5,256**	**31,455**	**407,980**

2.3. Basinwide Sources Approach

2.3.1. Agriculture

When DEP adopts a BMAP that includes agriculture, it is the agricultural landowner's responsibility to implement BMPs adopted by FDACS to help achieve load reductions or demonstrate through monitoring that they are already meeting water quality standards. FDACS is responsible for verifying that all eligible landowners are enrolled in appropriate BMP programs, and within one year of the adoption of this BMAP, DEP needs FDACS to provide a list of all unenrolled landowners in the SLREW with their enrollment status. DEP also needs FDACS to perform regular onsite inspections of all agricultural operations enrolled under a BMP manual to ensure that these practices are being properly implemented. Ideally, these inspections would occur at least every two years. From these inspections, FDACS will provide DEP and SFWMD an annual summary of aggregated fertilizer use in the BMAP area, quantifying total applications and providing information on application reductions by basin. FDACS has requested funding for additional positions to enable it to undertake these activities at least every two years.

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. As such, pursuant to Subsection 373.4595(3), F.S., FDACS has committed to updating its existing BMP manuals to incorporate updated BMPs based on the latest scientific and technical research. To expedite further reductions, DEP needs these updates to occur no more than five years from adoption of this BMAP.

Further nutrient reductions can be achieved through implementation of additional agricultural projects or activities. The Coordinating Agencies will continue to collaborate 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 targeted restoration areas (TRAs).

SFWMD is implementing projects that encourage low-input agriculture and water quality improvement technologies. FDACS also provides funding to some agricultural operations to add other practices beyond owner-implemented BMPs. Examples include drainage improvements, fencing, water control structures, precision agriculture technology, and fertigation. The Coordinating Agencies will also investigate the possibility of implementing other incentive-based programs—such as providing incentives for producers to transition to less-intensive crops, changing land use to fallow or native landscape, or changing the type of cropping system–that would reduce nutrient loading in the BMAP area.

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.

2.3.2. Septic Systems

In U.S. Census–designated urbanized areas and urban clusters, local governments and utilities will develop master wastewater treatment feasibility analyses that include provisions to address loads from existing and new septic systems (e.g., sewering, advanced septic system retrofits, prohibiting the installation of new conventional septic systems). The analyses must identify specific areas to be sewered within 15 years of BMAP adoption. Sources of funding to address nutrient loading from septic systems will also be identified in the analyses. The feasibility analyses will be completed and submitted to DEP within 3 years of the adoption of this BMAP, so that the analyses can inform the selection of management strategies and projects as part of future BMAP updates.

Based on data from FDOH, there are 46,269 known and likely septic systems located throughout the SLREW. Of these, 39,859 are located in U.S. Census (2010)–designated urbanized areas or urban clusters. **Table 18** summarizes the TN and TP estimated loads from septic systems in urbanized areas. These loads were calculated based on 2014-2018 U.S. Census Bureau data for the average number of people per household for each county in the SLREW, with an estimated wastewater flow of 70 gallons per day per person and TN and TP nutrient concentrations in the effluent from the EPA *Onsite Wastewater Treatment Systems Manual* (2002). This resulted in an average effluent load leaving the septic system of 15 lbs/yr of TN and 1.5 lbs/yr of TP per septic system.

The reductions from addressing these septic systems will be less than the estimated load depending on how they are addressed (i.e., connecting to central sewer sends the wastewater to a treatment facility, which does not remove 100 % of the nutrient load). This effluent load will also attenuate as it travels through the watershed to the St. Lucie River and Estuary; thus the benefits in the estuary from addressing these septic systems will be based on attenuated loads, which have not been calculated. Furthermore, stakeholders will submit projects describing how septic loads are addressed as part of BMAP reporting.

Table 18. Septic system counts by basin, and estimated effluent loads

Basin	Total Number of Septic Systems	Number of Septic Systems in the Urbanized Areas and Urban Clusters	Estimated TN Load from Urbanized Septic Systems (lbs/yr)	Estimated TP Load from Urbanized Septic Systems (lbs/yr)
North Fork	26,350	25,193	371,356	35,914
Ten Mile Creek	823	0	0	0
C-24	1,320	1,093	16,217	1,568
C-23	737	5	74	7
C-44/S-153	900	108	1,424	138
Basin 4/5	1,815	1,392	18,350	1,775
Basin 6	679	335	4,416	427

Basin	Total Number of Septic Systems	Number of Septic Systems in the Urbanized Areas and Urban Clusters	Estimated TN Load from Urbanized Septic Systems (lbs/yr)	Estimated TP Load from Urbanized Septic Systems (lbs/yr)
South Fork	4,739	3,869	51,003	4,933
South Coastal	5,071	4,803	63,315	6,123
South Mid-Estuary	1,124	921	12,141	1,174
North Mid-Estuary	2,711	2,140	28,210	2,728
Total	**46,269**	**39,859**	**566,505**	**54,788**

2.3.3. Stormwater

Stormwater from urban areas is a considerable source of nutrient loading to the St. Lucie River and Estuary, and many of these areas are already regulated under the NPDES Stormwater Program. MS4 permittees are required to develop and implement a stormwater management program. Urban areas located in the BMAP area that are not currently covered by an MS4 permit also significantly contribute, individually or in aggregate, to nutrient loading. Therefore, 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 are not currently covered by an MS4 permit and designate eligible entities as regulated MS4s, in accordance with Chapter 62-624, F.A.C.

DEP and the water management districts are planning to update the stormwater design and operation requirements in Environmental Resource Permit rules. These revisions will incorporate the most recent scientific information available to improve nutrient reduction benefits.

2.3.4. Wastewater Treatment

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 under state statutes and rules. These wastewater discharge permits establish specific limitations and requirements based on the location and type of facility or activity releasing industrial or domestic wastewaters from a point source.

New and existing domestic wastewater facilities and their associated rapid-rate land applications (RRLAs) and reuse activities, must meet the stringent nutrient wastewater limitations set forth in this BMAP. Any such new facilities, their RRLAs, and reuse activities (those commencing after the adoption of this BMAP) must be capable of meeting the requirements of this BMAP at the time of permit issuance. For existing domestic wastewater facilities and their associated RRLAs and reuse activities, DEP shall modify the permit limitations and requirements to be consistent with this BMAP at the time of the next permit renewal. In some cases, the owner or operator may require additional time to meet the modified limitations in the renewed permit, in which case, the permit may also establish a compliance schedule not to exceed four and half years after the effective date of the permit.

In areas where there is anticipated growth in human population, adequate treatment capacity of domestic wastewater is essential. Domestic wastewater is treated through either WWTFs or onsite sewage treatment and disposal systems (OSTDS), commonly referred to as septic systems. Where sewer lines are available, Florida law (Section 381.00655, F.S.) requires a development or property owner to abandon the use of OSTDS and connect to sanitary sewer lines.

This BMAP requires all individually permitted domestic wastewater facilities and their associated RRLAs and reuse activities to meet the effluent limits listed in **Table 19** and **Table 20**, unless the owner or operator can demonstrate reasonable assurance that the effluent would not cause or contribute to an exceedance of the TMDLs or water quality standards. To demonstrate reasonable assurance, the owner or operator must provide relevant water quality data, physical circumstances, or other site-specific credible information needed to show the facility would not cause or contribute to the nutrient loading to the BMAP area. This demonstration may include factors such as dilution; site-specific geological conditions; research/studies, including dye tracer tests; and modeling. Should DEP concur with the reasonable assurance demonstration request, the effluent requirements established here may be modified for the owner or operator or waived. New effluent standards will take effect at the time of permit issuance.

Table 19 and **Table 20** list the TP and TN effluent limits, respectively, adopted for this BMAP that apply to domestic wastewater facilities and their RRLAs and reuse activities, unless the owner or operator can demonstrate reasonable assurance as listed above. The limits for direct surface discharges apply to individually NPDES-permitted facilities. The limits for RRLA effluent disposal systems apply at the compliance well located at the edge of the zone of discharge for domestic wastewater facilities, RRLAs, or reuse activities having sites such as rapid infiltration basins and absorption fields. The limits for all domestic wastewater discharges not addressed by the direct surface discharge and RRLA limits are specified in the last column of the tables. These limits are applied as an annual average.

Short-term or intermittent discharges are not significant sources of TN or TP in the SLREW and are not subject to the limits in **Table 19** and **Table 20.** Intermittent, rainfall-driven, diffuse overflow releases of wastewater from ponds or basins designed to hold precipitation from a 25-year, 24-hour rainfall event or less frequent rainfall event and that infrequently reaches surface waters are considered insignificant sources of TN and TP. The owners or operators of cooling pond reservoirs must operate each spillway gate either during regular operation or on a test basis to protect the structural integrity of the reservoir. Because of the short duration and low volume of wastewater released during spillway gate testing, releases either on an annual or semi-annual basis are considered insignificant sources of TN and TP.

As of December 2019, there were 37 individually permitted wastewater facilities or activities in the SLREW. Of these, 7 hold NPDES permits and therefore are authorized, within the limitations of their permits, to discharge directly to surface waters within the SLREW. The remaining 30 do not have authorization to discharge directly to surface waters.

Additionally, new or renewed wastewater permits in the BMAP area must require at least quarterly sampling of the effluent discharge at the point of discharge or edge of mixing zone for TN and TP and the reporting of sampling results in the discharge monitoring reports submitted to DEP.

Table 19. TN effluent limits

mgd = Million gallons per day

Permitted Average Daily Flow (mgd)	TN Concentration Limits for Direct Surface Discharge (mg/L)	TN Concentration Limits for RRLA Effluent Disposal System (mg/L)	TN Concentration Limits for All Other Disposal Methods, Including Reuse (mg/L)
Greater than or equal to 0.5	3	3	10
Less than 0.5 and greater than or equal to 0.01	3	6	10
Less than 0.01	10	10	10

Table 20. TP effluent limits

Permitted Average Daily Flow (mgd)	TP Concentration Limits for Direct Surface Discharge (mg/L)	TP Concentration Limits for RRLA Effluent Disposal System (mg/L)	TP Concentration Limits for All Other Disposal Methods, Including Reuse (mg/L)
Greater than or equal to 0.5	1	1	6
Less than 0.5 and greater than or equal to 0.01	1	3	6
Less than 0.01	6	6	6

2.4. TRA Approach

2.4.1. Overview

To better prioritize and focus resources to most efficiently achieve restoration in the SLREW, DEP developed the TRA approach. This approach used measured data collected throughout the watershed to evaluate TN and TP concentrations in each of the SLREW basins. Flow data currently exist at the four structure stations; however, the TRA approach does not currently include an assessment of water quantity since a flow evaluation has not yet been completed. Once a complete flow evaluation is available, it will be reviewed for inclusion in future BMAP annual updates. The measured nutrient concentrations were compared with selected benchmarks to identify those basins that should be the highest priority for restoration. This advisory 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; they were only used to prioritize resources. The overall approach implemented the following steps:

1. **Identify smaller areas (e.g., basins) for focused restoration.**

2. **Delineate each area and locate relevant water quality stations:**
    a. Obtain existing data for TN, TP, and flow.
    b. Recommend additional monitoring where data are lacking.
    c. Supplement with information from water quality models where appropriate.
3. **Determine benchmarks for evaluating water quality and water storage:**
    a. Consider the applicable TMDL target (e.g., TN or TP), and consult the SLRWPP for indications of water quality and/or flow issues.
    b. Rely on existing SFWMD information for water storage needs.
4. **Review measured data:**
    a. Calculate most recent 5-year average TN and TP concentrations (using available data from WY2014–WY2018).
    b. Compare concentrations with established benchmarks.
    c. Consult flow weighted mean (FWM) concentrations and unit area loads (UALs), where available, to better understand conditions.
5. **Identify criteria for implementation and funding, and describe restoration types (e.g., water quality, flow) recommended for each TRA:**
    a. Calculate expected reductions from existing and recommended projects using measured data wherever possible.
    b. Identify where additional projects are necessary.
6. **Prioritize areas where new projects would have the most impact to overall restoration:**
    a. Use water quality (TN and TP) and flow data (where available).
    b. Compare with benchmarks for each basin.
7. **Publish an RFI to solicit additional projects and evaluate responses based on benchmarks established for each TRA.**

Chapter 3 includes the results of the TRA approach for each of the SLREW basins. **Table D-1** in **Appendix D** lists the projects received from the RFI.

Future steps in this approach include the following:

- Evaluate progress in TRAs annually by comparing measured data with benchmarks and TMDL targets for the basins.

- Use responses from RFIs and existing project lists, combined with the prioritized areas and recommended restoration needs, to inform future budget requests for DEP.

- Update existing water quality models based on expanded monitoring efforts.

2.4.2. Evaluation

Chapter 3 summarizes the results of the TRA evaluation process for the basins in the SLREW. For each basin, a priority was assigned based on the TN concentration, TP concentration, and flows (where available). These priorities were set to help focus resources and projects in the basins most in need of improvement. Basins were assessed and prioritized as follows (**Figure 7**):

1. **Assess the five-year average concentration at representative stations and compare with the TMDL benchmark:**
    a. Priority 1: Concentration is two times greater than the TMDL benchmark.
    b. Priority 2: Concentration is greater than the TMDL benchmark but less than two times the TMDL benchmark.
    c. Priority 3: Concentration is less than or equal to the TMDL benchmark.
2. **Assess the five-year average FWM concentration and compare with the TMDL benchmark. This step is weighted above Step 1; therefore, the results for the FWM concentrations would supersede the priorities from Step 1.**
    a. Priority 1: FWM concentration is greater than twice TMDL benchmark.
    b. Priority 2: FWM concentration is greater than TMDL benchmark, but less than twice TMDL benchmark.
    c. Priority 3: FWM concentration is equal to or less than TMDL benchmark.
3. **Assess the UAL, which is the average load per acre in each basin from the WaSh model. Compare with the basin UAL target calculated with loading data from the SFWMD 2019 *South Florida Environmental Report* (SFER). This step is weighted above Step 2 where data are available; therefore, results would increase or decrease the priority accordingly:**
    a. Priority increases: UAL is greater than 50 % above the basin target UAL.
    b. Priority decreases: UAL is less than the basin target UAL.
    c. Priority remains unchanged: UAL is above the basin target UAL, but less than 50 %.
4. **Assess the water quality trends from the SLRWPP for statistical significance (as described in the 5-Year Review). This step is weighted**

above Step 3 where data are available; therefore, results would increase or decrease the priority accordingly:

a. Priority increases: Trend is significantly increasing.

b. Priority decreases: Trend is significantly decreasing.

c. Priority remains unchanged: No significant trend detected.

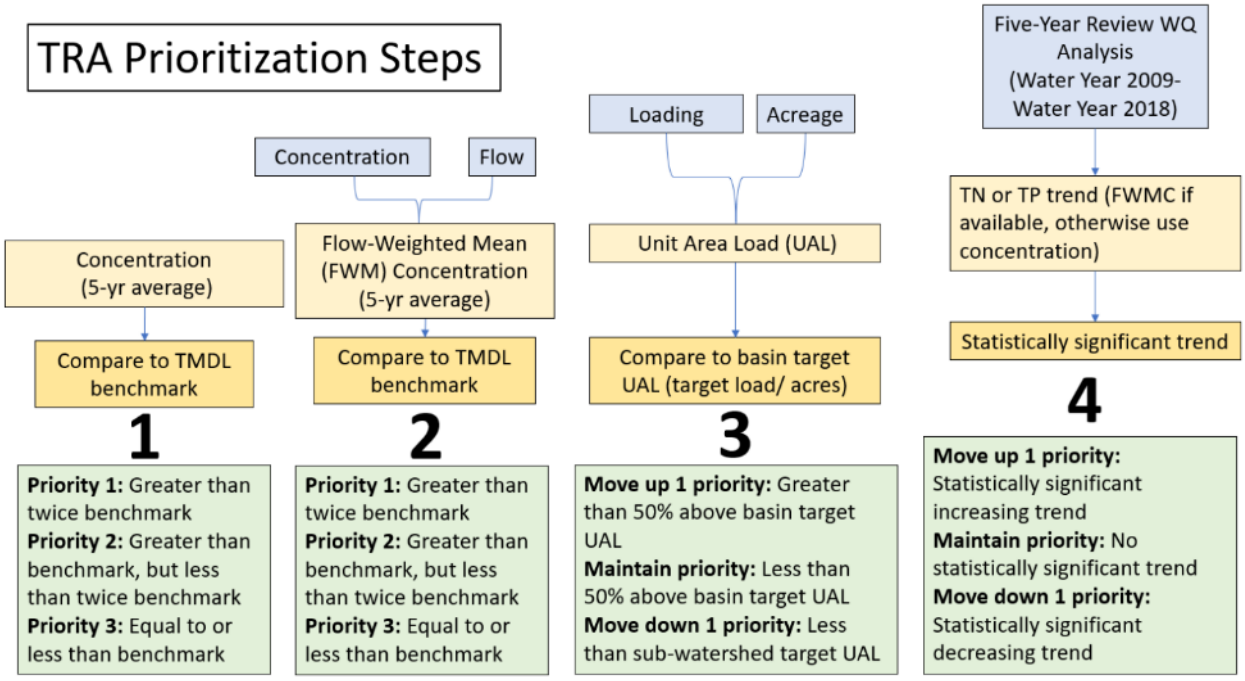


Figure 7. Summary of the TRA prioritization process

2.5. Water Quality Monitoring Plan

To help prioritize monitoring and track BMAP progress, the BMAP monitoring network is being revised, as discussed below, to implement a new tiered system for the sampling stations, remove some stations from the network, and add new monitoring locations.

2.5.1. Objectives and Parameters

The St. Lucie River and Estuary BMAP monitoring plan was designed to enhance the understanding of basin loads, identify areas with high nutrient concentrations, and track water quality trends. The information gathered through the monitoring plan measures progress toward achieving the TMDLs and provides a better understanding of watershed loading. The BMAP monitoring plan consists of ambient water quality sampling, sampling at discharge structures, and flow monitoring. In addition, information on water quality throughout the watershed and

within the estuary can be found in the latest South Florida Environmental Report, published annually by SFWMD.

Focused objectives are critical for a monitoring strategy to provide the information needed to evaluate implementation success. The primary objective of the monitoring strategy for the SLREW, described below, is to evaluate the success of the BMAP, help interpret the data collected, and provide information for potential future refinements of the BMAP.

Primary Objective

- To track trends in TN and TP loads in the major canals and tributaries, as well as the St. Lucie River and Estuary.

To achieve this objective, the monitoring strategy focuses on the following parameters:

- Alkalinity.
- Ammonia (N).
- BOD.
- Carbon – Organic.
- Carbon – Total.
- Chlorophyll *a.*
- Color.
- DO.
- DO Saturation.
- Flow.
- Nitrate/Nitrite (N).
- Nitrogen – Total Kjeldahl.
- Nitrogen – Total.
- Orthophosphate (P)
- pH.
- Phosphorus – Total.
- Specific Conductance/Salinity.
- Temperature, Water.
- Total Suspended Solids.
- Turbidity.

2.5.2. Monitoring Network

The monitoring network comprises a tiered system for the sampling stations, as follows:

- **Tier 1** stations are the primary/priority stations used in periodic water quality analyses to track BMAP progress and water quality trends over the long term in the basin. Tier 1 stations include both estuary and structure ambient monitoring stations. Several of these stations have autosamplers with more frequent data collection. Structure stations also have flow data, while the estuary stations do not collect flow data. If at any point it is necessary to reduce efforts in the basin, these stations should be the last stations impacted.

- **Tier 2** stations will provide secondary information that can be used to help focus and adaptively manage implementation efforts. 15 proposed stations will provide additional information about concentrations in previously unmonitored basin areas.

Figure 8 shows the stations included in each of these tiers. In addition to SFWMD and U.S. Geological Survey (USGS) monitoring stations in the SLREW, various agencies also sample stations in the SLREW. **Chapter 3** includes additional information about the BMAP monitoring network and stations used in the TRA process.

2.5.3. Data Management and Quality Assurance/Quality Control (QA/QC)

The STOrage and RETrieval (STORET) Database served as the primary repository of ambient water quality data for the state until DEP transitioned to the Watershed Information Network (WIN) in 2017. BMAP data providers have agreed to upload ambient water quality data at least once every six months on the completion of the appropriate QA/QC checks and have begun uploading data to WIN instead of STORET. Data must be collected following DEP standard operating procedures, and the results must be analyzed by a National Environmental Laboratory Accreditation Program–certified laboratory.

In addition to ambient water quality data, flow data are used to track loading trends for the BMAP. Data collected by USGS are available through its website, and some flow data are also available through the SFWMD corporate environmental database, DBHYDRO.

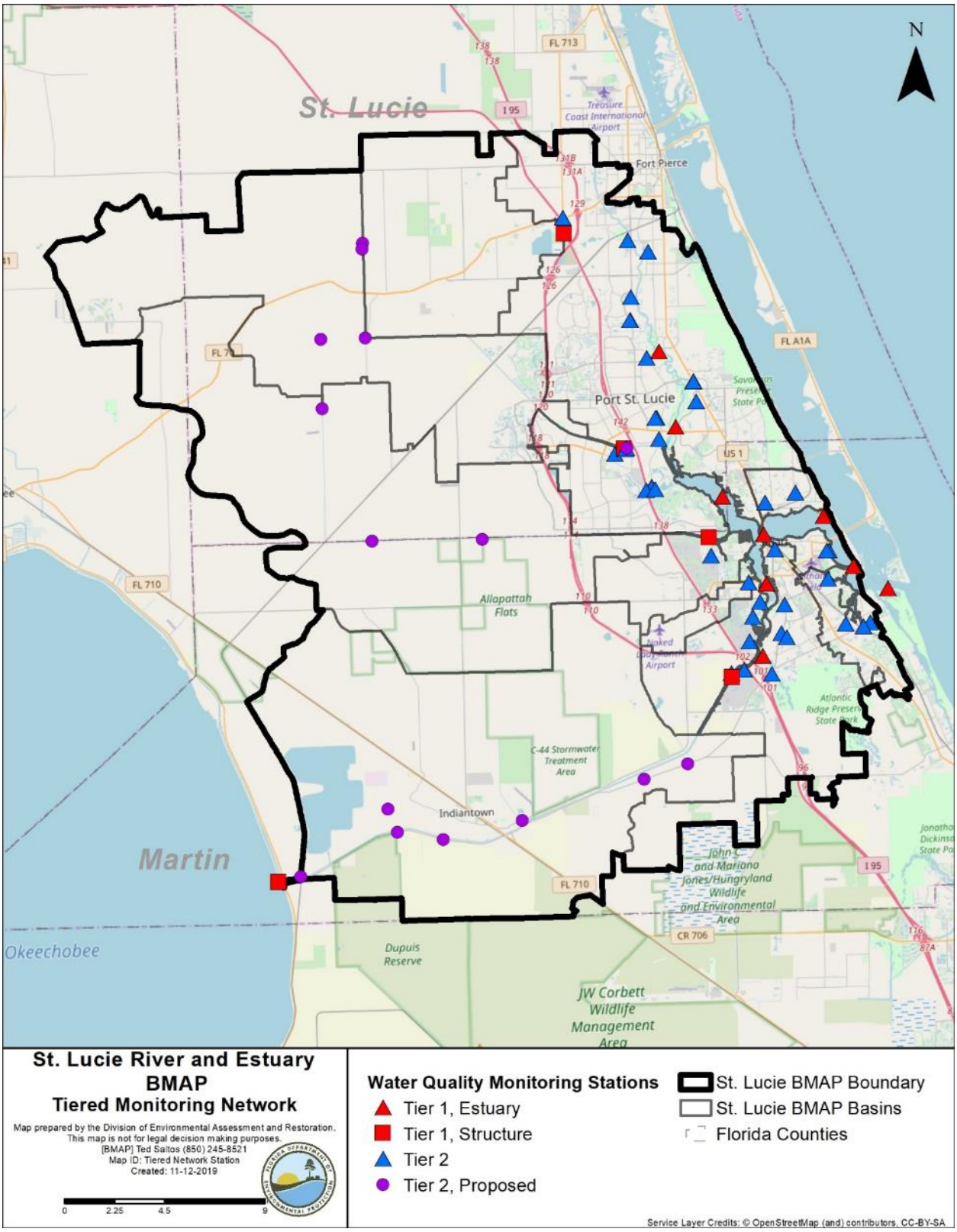


Figure 8. St. Lucie River and Estuary BMAP monitoring stations

Chapter 3. Basins

Section 3.1 through **Section 3.11** provide specific information on the 11 basins in the SLREW. The land use summaries are based on the 2012 land use in WaSh, and **Appendix B** provides additional details on agricultural land uses. Monitoring network stations in the basin are provided, along with designations for the basin where the station is located, monitoring entity, BMAP monitoring network tier, and whether the station is a representative site for the TRA approach discussed in **Section 2.4**. In basins with multiple representative sites, the 5-year average TN and TP concentrations for the basin were calculated using a weighted average of the areas that drain into each site. The TN and TP priority results of the TRA evaluation are provided for each basin.

Finally, all projects identified as part of this BMAP are listed by basin. For projects that treat lands in multiple basins (indicated in the "Basin" column), the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin. The table of existing and planned projects lists those projects submitted by stakeholders to help meet their obligations under the BMAP. Stakeholders have identified future projects to help achieve the remaining reductions needed; however, many of these projects are conceptual or in early design stages, or have not been fully funded. Information in the tables was provided by the lead entity and is subject to change as the project develops and more information becomes available. **Appendix D** lists projects and technologies submitted as part of the RFI.

3.1. North Fork Basin

The North Fork Basin covers 89,902 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 21**, the most common land uses in this basin are urban and built-up as well as upland forests. Stakeholders in the basin include FDOT, City of Fort Pierce, Martin County, North St. Lucie River WCD, City of Stuart, and St. Lucie County.

Table 21. Summary of land uses in the North Fork Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	52,893	58.8
2000	Agriculture	6,502	7.2
3000	Upland Nonforested	3,485	3.9
4000	Upland Forests	10,743	11.9
5000	Water	4,164	4.6
6000	Wetlands	7,921	8.8
7000	Barren Land	257	0.3
8000	Transportation, Communication, and Utilities	3,937	4.4
	Total	**89,902**	**100**

3.1.1. Water Quality Monitoring

Table 22 summarizes the water quality monitoring stations in the North Fork Basin, and **Figure 9** shows the station locations. The SLT-41 station is new and is intended to provide better resolution of water quality trends in the North Fork Basin.

Table 22. Water quality monitoring stations in the North Fork Basin

* Stations denoted by an asterisk are proposed/new stations.

Basin	Representative Site?	Entity	Station ID	Tier
North Fork	Yes	SFWMD	SLT-10A	2
North Fork	Yes	SFWMD	SLT-10B	2
North Fork	Yes	SFWMD	SLT-11	2
North Fork	Yes	SFWMD	SLT-17	2
North Fork	Yes	SFWMD	SLT-19	2
North Fork	Yes	SFWMD	SLT-21	2
North Fork	Yes	SFWMD	SLT-22A	2
North Fork	Yes	SFWMD	SLT-26	2
North Fork	Yes	SFWMD	SLT-39	2
North Fork	Yes	SFWMD	SLT-42B	2
North Fork	N/A	SFWMD	SLT-41*	2
North Fork	No	SFWMD	SE-06	1
North Fork	No	SFWMD	SE-12	1
North Fork	No	SFWMD	HR1	1
North Fork	No	Port St. Lucie	C-107	2
North Fork	No	Port St. Lucie	Elcam Spillway	2
North Fork	No	Port St. Lucie	Kingsway WW	2
North Fork	No	Port St. Lucie	E8	2
North Fork	No	Port St. Lucie	Monterey WW	2
North Fork	No	Port St. Lucie	U16-D016	2
North Fork	No	Port St. Lucie	H-16	2
North Fork	No	Port St. Lucie	A18	2
North Fork	No	Port St. Lucie	A-22	2

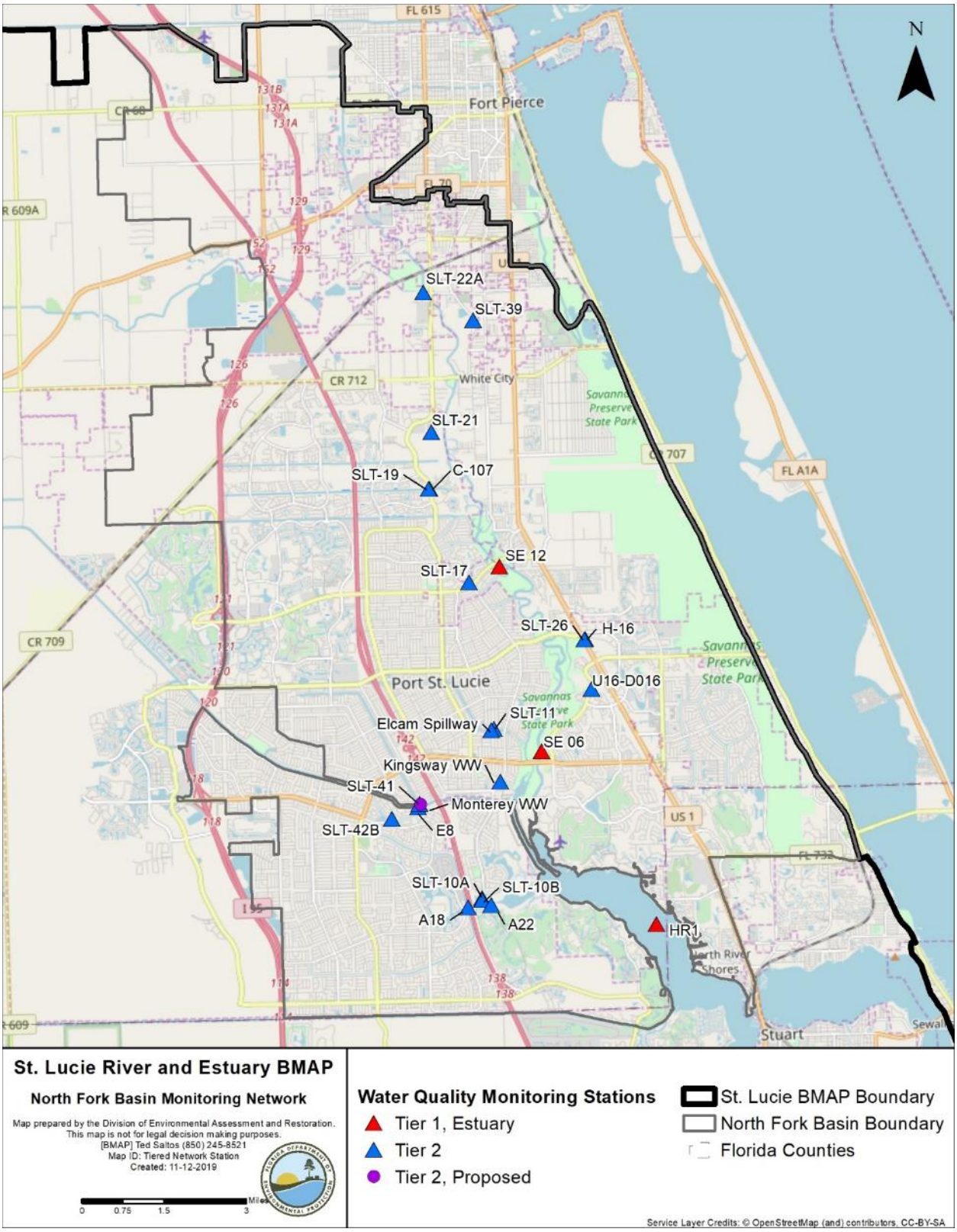


Figure 9. North Fork Basin monitoring stations

3.1.2. Basin Evaluation Results

Table 23 summarizes the basin evaluation results based on data from WY2014–WY2018 for the North Fork Basin. The current TN concentration is 0.86 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.101 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. Significant decreasing trends were observed for both TN and TP.

The TRA prioritization results for the North Fork Basin are shown in **Table 24,** with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 23. Basin evaluation results for the North Fork Basin

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL, pounds per acre (lbs/ac)]	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
1	North Fork	0.86	N/A	N/A	Significant decreasing trend	0.101	N/A	N/A	Significant decreasing trend

Table 24. TRA evaluation results for the North Fork Basin

Basin	Stations	TN Priority	TP Priority
North Fork	SLT-10A, SLT-10B, SLT-11, SLT-17, SLT-19, SLT-21, SLT-22A, SLT-26, SLT-39, SLT-42B	3	3

3.1.3. Projects

The tables below summarize the existing and planned and future projects for the North Fork Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.1.3.1 Existing and Planned Projects

Table 25 summarizes the existing and planned projects provided by the stakeholders for the North Fork Basin.

Table 25. Existing and planned projects in the North Fork Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.
Projects FDOT-32, FDOT-33, FDOT-34, FDOT-35, FDOT-36, FDOT-37, FDOT-38, FDOT-39, FDOT-40, FP-01, FP-02, FP-06, FP-07, FP-08, FP-09, FP-10, FP-12, and FP-13 no longer fall within the BMAP area because of drainage evaluations and/or boundary changes.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDACS	Agricultural Producers	FDACS-01	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Reductions based on WaSh model. Acres treated based on FDACS OAWP June 2019 Enrollment and FSAID VI.	Agricultural BMPs	Completed	N/A	3,513	800	North Fork	1,928	TBD	TBD	FDACS	TBD	N/A
FDACS	Agricultural Producers	FDACS-09	Cost-share Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP June 2019 Enrollment. Reductions based on WaSh model.	Agricultural BMPs	Completed	N/A	52	19	North Fork	45	TBD	TBD	FDACS	TBD	N/A
FDACS	N/A	FDACS-15	Credit for Changes in Land Use	Acreages and reductions based on a portion of differences between modeled agricultural land use coverage identified in Table B-13. DEP will estimate final numbers by next BMAP update.	Land Use Change	Completed	N/A	439	88	North Fork	58	N/A	N/A	N/A	N/A	N/A
FDOT District 4	N/A	FDOT-01	FM# 230108-1 (Ponds 2 & 3)	Widening and new late construction on State Road (SR) 68 from SR 9 to east of County Road (CR)-607A (40 % credit, remaining 60 % to Central Indian River Lagoon (CIRL).	Wet Detention Pond	Completed	2013	MC	0	North Fork	18	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-02	FM# 230108-1	Combined with FDOT-01.	Wet Detention Pond	Completed	2013	N/A	N/A	North Fork	18	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-07	FM# 230295-1	Road widening of SR 716 from Westmoreland Bridge to SR 5.	Dry Detention Pond	Completed	2003	17	3	North Fork	17	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDOT District 4	N/A	FDOT-08	SPN 99004-1585	Road widening of SR 5 from Jensen Beach Blvd. to Port St. Lucie Blvd.	Dry Detention Pond	Completed	2003	30	5	North Fork	31	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-09	SPN 99004-1585 (Lake 3)	Road widening of SR A1A from Sewall's Point Rd. to west of MacArthur Blvd.	Wet Detention Pond	Completed	2003	34	10	North Fork	13	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-16	FM# 230288-2	Road widening of SR 5 from Rio Mar Dr. to Midway Rd.	Wet Detention Pond	Completed	2009	123	38	North Fork	44	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	City of Port St. Lucie	FDOT-17	FM# 419890-1	Construction of interchange at SR 9 and Becker Rd.	BMP Treatment Train	Completed	2010	3	2	North Fork, C-23	42	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-22	State Road 615 Midway Rd. to Edwards Rd. (Basin B-1)	Not provided.	Wet Detention Pond	Completed	2009	15	4	North Fork	8	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-23	State Road 615 Midway Rd. to Edwards Rd. (Basin E)	Not provided.	Wet Detention Pond	Completed	2009	20	6	North Fork	9	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-24	FM# 410717-1 SR 70 Widening Kings Highway (Hwy.) to Jenkins Rd. (West Basin)	Road widening on SR 70 from Kings Hwy. to Jenkins Rd.	Dry Detention Pond	Completed	2012	6	1	North Fork	6	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-25	SR 713 (King's Hwy.) Turn Lanes	Not provided.	Grass Swales without Swale Blocks or	Completed	2013	0	0	North Fork	1	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
					Raised Culverts											
FDOT District 4	N/A	FDOT-43	FM# 413046-1 SR 9 Widening	Road widening on SR 9 from Okeechobee Rd. to south of Indrio Rd.	Online Retention BMPs	Completed	2015	145	24	North Fork	152	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-44	FM# 423022-1 CR 68 Orange Ave.	County to provide GIS data for county road; proposed split of 25 % to FDOT and 75 % to St. Lucie County.	Dry Detention Pond	Completed	2015	TBD	TBD	North Fork	6	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-45	FM# 230108-1 SR 68 Orange Ave. (40 % credit)	Combined with FDOT-1.	Wet Detention Pond	Completed	2005	N/A	N/A	North Fork	18	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	St. Lucie County	FDOT-46	231440-2 Midway Rd. Widening, 25th St. to US 1 (Pond 1 and 2)	Road widening on Midway Rd. from SR 68 to SR 5.	Wet Detention Pond	Underway	2020	1.3	1.3	North Fork	17	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	St. Lucie County	FDOT-47	231440-2 Midway Rd. Widening, 25th St. to US 1 (Pond 3 and 4)	Road widening on Midway Rd. from SR 68 to SR 5.	Wet Detention Pond	Underway	2020	1.1	5.1	North Fork	14	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	St. Lucie County	FDOT-48	231440-2 Midway Rd. Widening, 25th St. to US 1 (Pond 5)	Road widening on Midway Rd. from SR 68 to SR 5.	Wet Detention Pond	Underway	2020	0.8	2.5	North Fork	11	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-61	FM# 230256-6	Road widening of King's Hwy.; Phase I South	Wet Detention Pond	Underway	2021	0	0	North Fork	39	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-62	FM# 230256-7	Road widening of King's Hwy.; Phase II	Wet Detention Pond	Underway	2022	0	0	North Fork	25	Not provided	Not provided	Florida Legislature	Not provided	N/A
City of Fort Pierce	N/A	FP-03	Street Sweeping	City removes cubic yards of debris by street sweeping activities.	Street Sweeping	Completed	N/A	2,020	1,295	North Fork	N/A	Not provided	$89,617	City's stormwater utility	Not provided	N/A
City of Fort Pierce	N/A	FP-04	Inlet Cleaning	City cleans storm inlets citywide and disposes of waste.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	65	40	North Fork	N/A	Not provided	Not provided	Not provided	Not provided	N/A
City of Fort Pierce	N/A	FP-05	Education Program	City delivers educational programs to public	Education Efforts	Completed	N/A	1,804	304	North Fork	N/A	Not provided	Not provided	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				through trade associations, homeowner associations (HOAs), or other means. Educates on hazards associated with illicit discharge, fertilizer use, the importance of water quality, and stormwater pollution protection.												
City of Fort Pierce	DEP	FP-11	Indian Hills Recreation Area (Phase II) Stormwater Improvements	Reestablishment of wetlands and pervious paver parking areas.	Wetland Restoration	Completed	2016	TBD	TBD	North Fork	61	$2,337,485	Not provided	DEP	$1,410,000	S0579
Martin County	SFWMD/ DEP	MC-13	North River Shores Baffle Boxes	Installation of +20 baffle boxes	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2002	11	9	North Fork	187	$1,310,000	Not provided	DEP	$500,000	SP557
Martin County	SFWMD/ DEP	MC-14	Palm Lake Park Water Quality Retrofit	7.7 ac-ft of water quality treatment (1.16 inches).	BMP Treatment Train	Completed	2003	387	117	North Fork	80	$1,741,098	Not provided	DEP	$1,480,936	WAP026
Martin County	N/A	MC-16	Septic to Central Sewer Conversions	1,121 single-family and multifamily residential and commercial units in 5 neighborhoods.	OSTDS Phase Out	Completed	2014	15,386	N/A	North Fork, Basin 4/5, North Mid-Estuary	N/A	$28,678,946	Not provided	NEEPP – North River Shores neighborhood	Not provided	N/A
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	108	69	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	Florida Yards and Neighborhoods (FYN); landscaping, irrigation, fertilizer, and pet waste ordinances; public service announcements (PSAs), pamphlets, website, illicit discharge program.	Education Efforts	Completed	N/A	16,644	2,831	North Fork, C-23, C-44/ S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A
Martin County	N/A	MC-33	Hoke Library Rain Garden	Not provided.	Low Impact Development (LID) – Rain Gardens	Completed	2015	Not provided	Not provided	North Fork	Not provided	$4,372	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-42	South Savannas Weir	Not provided.	Control Structure	Planned	2020	TBD	TBD	North Fork	TBD	TBD	TBD	TBD	TBD	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
North St. Lucie River WCD	St. Lucie River Issues Team (SLRIT)	NSLRWCD-01	SLRIT Grant 2000–2001: Vegetation Control & Bank Restoration	Installation of C-25 diversion structure, which regulates flow from NSLRWCD C-44/ North Emergency Relief Canal to SFWMD C-25. In addition, installation of 3 risers with adjustable gates.	Control Structure	Completed	2003	1,548	0	North Fork, Ten Mile Creek	4,173	$929,000	Not provided	NSLRWCD/ SLRIT 50/50 contribution match	Not provided	N/A
North St. Lucie River WCD	St. Lucie County/ FDOT	NSLRWCD-03	Canals 23 and 28 Retrofit for Stormwater Treatment and Attenuation	Construction of ponds and installation of water control structure (WCS) for area retrofit. Inclusion of water management district canals into pond footprints.	Control Structure	Completed	2009	22	0	North Fork	44	Not provided	Not provided	FDOT/ St. Lucie County/ NSLRWCD	Not provided	N/A
North St. Lucie River WCD	N/A	NSLRWCD-04	Canal Maintenance Program	Maintenance program on over 200 miles of canal, now included in NSLRWCD water quality activities.	Aquatic Vegetation Harvesting	Canceled	2013	N/A	N/A	North Fork, Ten Mile Creek	66,225	$4,200,000	Not provided	NSLRWCD	Not provided	N/A
North St. Lucie River WCD	N/A	NSLRWCD-05	Changes in Agricultural Land Uses	All land uses updated with new model.	Land Use Change	Canceled	2013	N/A	N/A	North Fork, Ten Mile Creek	1,055	N/A	N/A	N/A	N/A	N/A
North St. Lucie River WCD	N/A	NSLRWCD-06	90% Implementation Agricultural BMPs	All agricultural BMP enrollment now included in FDACS-01.	Agricultural BMPs	Canceled	N/A	N/A	N/A	North Fork, Ten Mile Creek	N/A	N/A	N/A	N/A	N/A	N/A
North St. Lucie River WCD	N/A	NSLRWCD-07	Change from Agricultural to Urban	All land uses updated with new model.	Land Use Change	Canceled	N/A	N/A	N/A	North Fork, Ten Mile Creek	N/A	N/A	N/A	N/A	N/A	N/A
City of Port St. Lucie	DEP/ SFWMD/ St. Lucie County (SLC)/ American Greenways/ Tax-Increment Financing (TIF)	PSL-01	Woodstork Trail Design Districts 7, 8, and 9	4.6 acres of new filter marsh, 7.21 acres of new uplands, and installation of baffle box.	BMP Treatment Train	Completed	2007	12	10	North Fork	229	$3,300,000	$1,122,000	DEP/ SFWMD/ SLC/ American Greenways/ TIF	Not provided	G0140
City of Port St. Lucie	DEP/ City Center Special Assessments	PSL-02	Wood Stork Trail Design District 6	7.74-acre wet detention area, 62-acre STA, and 3 baffle boxes.	BMP Treatment Train	Completed	2008	4	3	North Fork	81	$825,500	N/A	DEP/ City Center Special Assessments	Not provided	G0178
City of Port St. Lucie	DEP/ SFWMD	PSL-03	Howard Creek STA	Construction of weir, 45-acre STA, littoral shelves, and new plantings.	BMP Treatment Train	Completed	2010	1,266	439	North Fork	436	N/A	N/A	DEP/ SFWMD	Not provided	S0507

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
City of Port St. Lucie	N/A	PSL-04	Eastern Watershed Improvement Project	Flood control, water quality, environmental restoration project consisting of 27 acres of wet detention ponds, littoral shelves, and created wetlands.	BMP Treatment Train	Completed	2011	1,378	795	North Fork	850	$36,000,000	N/A	City	Not provided	N/A
City of Port St. Lucie	Natural Resources Conservation Service (NRCS)/ SFWMD	PSL-05	B-1 and B-2 WCS	WCS B-1 and B-2 protected North Fork of St. Lucie River (NFSLR) from receiving uncontrolled E-8 Canal discharges. System will stage appropriate discharge levels based on volume, retaining maximum flows.	Control Structure	Completed	2007	6,737	2,088	North Fork, C-24, C-23	1,748	$1,800,000	$621,000	City/ NRCS/ SFWMD	Not provided	N/A
City of Port St. Lucie	NRCS/ SFWMD	PSL-06	B-3 WCS	B-3 protected NFSLR from receiving uncontrolled E-8 Canal discharges. System will stage appropriate discharge levels based on volume, retaining maximum flows.	Control Structure	Completed	2007	7,027	2,177	North Fork	1,641	N/A	N/A	City/ NRCS/ SFWMD	Not provided	N/A
City of Port St. Lucie	DEP	PSL-07	E-8 Waterway Phase 1 Water Quality Retrofit	Control structure improvements, weirs, sediment removal, and construction of 2 STAs totaling 24.36 acres. Improvements will enhance stormwater drainage and flood protection capacity, improve water quality, and restore native vegetation and habitat.	BMP Treatment Train	Completed	2010	1,532	1,513	North Fork	1,610	$400,000	N/A	DEP	Not provided	S0239
City of Port St. Lucie	SFWMD	PSL-08	E-17 Canal WCS	New WCS added to retain maximum flows in emergencies only.	Control Structure	Completed	2008	N/A	N/A	North Fork	984	$437,000	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-09	Water and Wastewater Expansion	Multiple phase outs of septic tanks from 2013 to 2019.	OSTDS Phase Out	Completed	2019	44,921	N/A	North Fork, C-24, C-23	N/A	$91,075,666	$3,700,000	City	N/A	N/A
City of Port St. Lucie	N/A	PSL-10	Street Sweeping	Materials are collected from roadways and the gutters using street sweeper truck.	Street Sweeping	Completed	N/A	676	434	North Fork	N/A	Not provided	$448,000	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-11	Swale Maintenance	Removal and proper disposal of sediment captured in swale liner.	BMP Cleanout	Completed	N/A	7,649	3,097	North Fork	N/A	Not provided	$780,000	City	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
City of Port St. Lucie	N/A	PSL-12	Catch Basin Cleaning	Removal and proper disposal of sediment captured by catch basins.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	21	13	North Fork	N/A	Not provided	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-13	Education Program	FYN Program; fertilizer, landscape, irrigation, and pet waste ordinances; PSAs; stormwater educational shows; website; outreach programs; Stencil Program; and stormwater pollution hotline.	Education Efforts	Completed	N/A	21,978	3,722	North Fork, C-24, C-23	N/A	Not provided	Not provided	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-14	Tiffany Channel	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	56	10	North Fork	N/A	N/A	$1,900,000	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-15	Patio STA	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	19	3	North Fork	N/A	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-16	Mary STA	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	13	2	North Fork	N/A	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-17	Leithgow STA	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	13	2	North Fork	N/A	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-18	Cane Slough 1/ Elks STA	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	61	11	North Fork	N/A	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-19	Cane Slough 2/ Azzi STA	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	45	8	North Fork	N/A	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-20	Loutus STA	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	41	7	North Fork	N/A	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-21	Howard Creek STA	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	65	11	North Fork	N/A	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-22	Bur St. STA	Landscape irrigation is drawn from stormwater in channel.	Stormwater Reuse	Completed	Prior to 2013	0	0	North Fork	N/A	N/A	N/A	City	Not provided	N/A
St. Lucie West Services District	N/A	PSL-23	St. Lucie West Services District (SLWSD) Aquatic Harvesting	Project moved to new entity (SLWSD)	Aquatic Vegetation Harvesting	Canceled	N/A	N/A	N/A	North Fork	N/A	N/A	N/A	N/A	N/A	N/A
St. Lucie West Services District	SLWSD	PSL-24	SLWSD Catch Basin Cleaning	Project moved to new entity (SLWSD)	Catch Basin Inserts/Inlet Filter Cleanout	Canceled	N/A	N/A	N/A	North Fork	N/A	N/A	N/A	N/A	N/A	N/A
City of Port St. Lucie	N/A	PSL-25	Atlantis Basin	Installation of 2nd-generation baffle box.	Baffle Boxes – Second Generation	Completed	2015	259	36	North Fork	116	$628,000	N/A	City	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
City of Port St. Lucie	N/A	PSL-26	Evergreen Basin	Installation of 2nd-generation baffle box.	Baffle Boxes – Second Generation	Completed	2015	539	74	North Fork	241	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-27	Lansdown Basin	Installation of 2nd-generation baffle box.	Baffle Boxes – Second Generation	Completed	2015	254	35	North Fork	189	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-28	Streamlet/ Manth Basin	Installation of 2nd-generation baffle box.	Baffle Boxes – Second Generation	Completed	2015	94	13	North Fork	89	N/A	N/A	City	Not provided	N/A
City of Port St. Lucie	N/A	PSL-29	Walters Basin	Installation of 2nd-generation baffle box.	Baffle Boxes – Second Generation	Completed	2015	404	56	North Fork	32	N/A	N/A	City	Not provided	N/A
St. Lucie West Services District	DEP/ SLWSD	PSL-30	SLWSD Water Management Improvement Project	Project moved to new entity (SLWSD).	Wet Detention Pond	Canceled	2016	N/A	N/A	North Fork	N/A	N/A	N/A	N/A	N/A	N/A
City of Port St. Lucie	N/A	PSL-32	Veterans Memorial Water Quality Retrofit. Project 1 and 2 out of 6.	Installing control structures, digging ponds, and increasing storage.	BMP Treatment Train	Underway	2025	5,087	1,556	North Fork	1,065	$3,834,193	N/A	City/ SFWMD	SFWMD – $125,000	N/A
St. Lucie West Services District	SLWSD	PSL-33	Lake Harvey	Project moved to new entity (SLWSD).	Hydrologic Restoration	Canceled	2017	N/A	N/A	North Fork	N/A	N/A	N/A	N/A	N/A	N/A
City of Stuart	N/A	S-05	Street Sweeping	Pavement cleaning by sweeping, vacuum, or washing.	Street Sweeping	Completed	N/A	275	176	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$33,000	Not provided	City	Not provided	N/A
City of Stuart	N/A	S-06	Sediment Removal from Storm Systems	Removal and proper disposal of sediment captured by catch basin inserts.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	54	33	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	N/A	$75,000	City	Not provided	N/A
City of Stuart	N/A	S-07	Education Program	FYN Program. City ordinances for landscaping, irrigation, fertilizer, and pet waste management. City stormwater website. Stormwater calendars. Pollution prevention information posted on electronic billboards 365 days/yr from 12 PM to 1 PM.	Education Efforts	Completed	N/A	2,202	371	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$30,150	Not provided	City	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
City of Stuart	SFWMD/ Healthy Rivers	S-08	North Point CRA Drainage Basin	There is 1 existing 1st-generation baffle box and street sweeping in basin, existing FDOT swale along basin's east boundary, and 2 FDOT retention/detention ponds near Roosevelt Bridge.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2002	4	3	North Fork, North Mid-Estuary	1,084	$1,339,000	Not provided	City/ SFWMD/ Healthy Rivers	Not provided	N/A
City of Stuart	DEP	S-19	Baffle Boxes (22) throughout City	Concrete structures containing series of sediment settling chambers separated by baffles. Boxes are vacuum cleaned base on sediment depth inspection by city stormwater staff.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2014	27	21	North Fork, South Fork, South Mid-Estuary, North Mid-Estuary	475	N/A	Not provided	City/ DEP	Not provided	G0083
St. Lucie County	N/A	SLC-001a	Platt's Creek Stormwater Treatment Facility	Wet detention with alum injection.	Wet Detention Pond	Completed	2008	1,655	537	North Fork	311	$3,539,475	Not provided	County	Not provided	N/A
St. Lucie County	N/A	SLC-001b	Platt's Creek Stormwater Treatment Facility	Not provided.	Wet Detention Pond	Completed	2008	2,808	875	North Fork	564	N/A	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-002	Indian River Estates Stormwater Improvements (Phases I and II)	Wet detention with alum injection.	Wet Detention Pond	Completed	2009	5,585	1,689	North Fork	1,004	$4,471,114	Not provided	County	Not provided	N/A
St. Lucie County	N/A	SLC-003	Prima Vista	Not provided.	Baffle Boxes – Second Generation	Completed	2006	218	30	North Fork	97	$323,483	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-004	Bay Street	Not provided.	Baffle Boxes – Second Generation	Completed	2006	100	14	North Fork	44	N/A	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-005	Education Program	FYN; pet waste, landscape, irrigation, and fertilizer ordinances; PSAs; website; Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program. St. Lucie Water Champions.	Education Efforts	Completed	N/A	2,597	454	North Fork, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-006	Street Sweeping	Materials are collected from roadways and gutters using street sweeper truck.	Street Sweeping	Completed	N/A	211	135	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
St. Lucie County	N/A	SLC-007	Catch Basin Cleanout	Catch basins are cleaned out on rotational basis using vactruck.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	170	105	North Fork, Ten Mile Creek, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-008	Platt's Creek Sump Cleanout	Not provided.	BMP Cleanout	Completed	N/A	1,182	512	North Fork	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	DEP	SLC-009	White City – Citrus/Seager Stormwater Improvement	Wet detention with polyacrylamide logs.	Wet Detention Pond	Completed	2016	180	56	North Fork	39	$1,862,859	Not provided	DEP/ County	Not provided	G0382
St. Lucie County	N/A	SLC-010	Education Program	FYN; pet waste, landscape, irrigation, and fertilizer ordinances; PSAs; website; Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program, St. Lucie Water Champions.	Education Efforts	Completed	N/A	8,821	1,594	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-011	Street Sweeping	Materials are collected from roadways and the gutters using street sweeper truck.	Street Sweeping	Completed	N/A	113	73	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-012	Catch Basin Cleanout	Catch basins are cleaned out on rotational basis using vactruck.	BMP Cleanout	Completed	N/A	92	56	North Fork, Ten Mile Creek, C-24	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-013	Platt's Creek Sump Cleanout	Not provided.	BMP Cleanout	Completed	N/A	1,566	601	North Fork	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	City of Port St. Lucie	SLC-014	Platt's Creek Compensatory Mitigation Project	Not provided.	Floodplain Restoration	Completed	2015	Not provided	Not provided	North Fork	311	$2,600,000	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-015	IRL South C23/C24 CERP Buffer – Teague Preserve Re-watering Project	Not provided.	Hydrologic Restoration	Underway	Not provided	TBD	TBD	North Fork, C-24, C-23	TBD	$400,000	TBD	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-016	Melville Rd. Master Drainage Plan	Not provided.	Stormwater System Rehabilitation	Underway	2024	TBD	TBD	North Fork	175	$5,000,000	TBD	County	Not provided	N/A
St. Lucie County	N/A	SLC-017	Swales Material Collection	Roadside swale cleanout and retrofitting in MS4 area and non-MS4 area.	BMP Cleanout	Completed	N/A	TBD	TBD	North Fork, Ten Mile Creek, C-23	Not provided	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-018	Swales Material Collection	Roadside swale cleanout and retrofitting. Project rolled into SLC-017.	BMP Cleanout	Canceled	N/A	TBD	TBD	North Fork, Ten Mile Creek, C-23	Not provided	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-019	Becker Preserve Ten-Mile Creek	Oxbow reconnection with muck dredging.	Floodplain Restoration	Underway	Not provided	TBD	TBD	North Fork	TBD	Not provided	Not provided	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
			Oxbow Reconnection													
Turnpike Enterprise	N/A	T-01	Project 420735-1 Port St. Lucie Interchange Pond A	Not provided.	Dry Detention Pond	Completed	2013	4	1	North Fork	4	Not provided	N/A	Not provided	Not provided	N/A
Turnpike Enterprise	N/A	T-02	Project 420735-1 Port St. Lucie Interchange Pond B	Not provided.	Wet Detention Pond	Completed	2013	33	4	North Fork	21	Not provided	N/A	Not provided	Not provided	N/A
Turnpike Enterprise	N/A	T-04	Education Program	No fertilizer on rights-of-way, educational signage, illicit discharge training.	Education Efforts	Completed	N/A	268	45	North Fork, Basin 4/5, South Fork	N/A	Not provided	N/A	Not provided	Not provided	N/A
Turnpike Enterprise	N/A	T-05	Street Sweeping	1,944 lane miles swept and 28,323 lbs (or 12,847 kg) of debris collected.	Street Sweeping	Completed	N/A	144	10	North Fork, Basin 4/5, South Fork	N/A	Not provided	N/A	Not provided	Not provided	N/A
St. Lucie West Services District	N/A	SLWSD-01	SLWSD Aquatic Harvesting	Not provided.	Aquatic Vegetation Harvesting	Canceled	N/A	N/A	N/A	North Fork	N/A	N/A	N/A	N/A	N/A	N/A
St. Lucie West Services District	SLWSD	SLWSD-02	SLWSD Catch Basin Cleaning	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	84	52	North Fork	N/A	$185,600	$10,450	SLWSD	Not provided	N/A
St. Lucie West Services District	DEP/ SLWSD	SLWSD-03	SLWSD Water Management Improvement Project	Increase storage of existing wetland.	Wet Detention Pond	Completed	2016	1,196	695	North Fork	140	$360,704	$8,200	DEP/ SLWSD	DEP – $159,658 / SLWSD – $201,046	S0812
St. Lucie West Services District	SLWSD	SLWSD-04	Lake Harvey	Construction of 4.41-acre wetland area and 2.25-acre flow-way to enhance water quality, storage, and hydraulic connectivity in SLWSD Basin 4E.	Hydrologic Restoration	Completed	2017	726	269	North Fork	333	$534,000	$15,500	SLWSD	Not provided	N/A
Coordinating Agency	N/A	CA-01	Ten Mile Creek Water Preserve Area	Control quantity and timing of water delivery to NFSLR by capturing and storing stormwater flows that originated in Ten Mile Creek Basin.	Hydrologic Restoration	Completed	2017	TBD	8,789	North Fork, Ten Mile Creek	658					

3.1.3.2. Future Projects

Table 26 lists the future projects provided by the stakeholders for the North Fork Basin.

Table 26. Future projects in the North Fork Basin

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Cost Estimate	Cost Annual O&M
St. Lucie County	N/A	F-01	Sunland Gardens Neighborhood Improvement Project	Project will include construction of stormwater collection system to include roadside swales, dry detention areas, and paved roadways for older unimproved subdivision currently with outfalls directly to waterways.	Dry Detention Pond	Future	423	TBD	TBD	North Fork	$25,000,000	TBD
City of Port St. Lucie	N/A	F-04	Veterans Memorial Water Quality Retrofit Projects 3-6	Digging ponds, increasing storage.	Wet Detention Pond	Designed	1,065 for all 6 projects	See PSL-32	See PSL-32	North Fork	$1,600,000	TBD
City of Port St. Lucie	N/A	F-05	Sagamore Basin STA East	Design and construct STA with control structure and associated piping.	STA	100 % Designed	TBD	TBD	TBD	North Fork	$1,100,000	TBD
City of Port St. Lucie	N/A	F-06	Sagamore Basin STA West	Design and construct STA with control structure and associated piping.	STA	100 % Designed	TBD	TBD	TBD	North Fork	$1,200,000	TBD
City of Fort Pierce	N/A	F-07	Georgia Avenue Basin Water Quality Improvements	Construction of control structure and 2 nutrient separating baffle boxes are proposed for this stormwater outfall, which is currently uncontrolled and discharging directly into IRL.	Baffle Boxes – Second Generation	Future	217	N/A	N/A	North Fork	$980,000	TBD
City of Fort Pierce	N/A	F-08	Moore's Creek Linear Park – Phase 2	Continuation of linear park concept from 15th St. west to 29th St. Project includes canal enlargement as continued effort to provide better water quality to IRL.	TBD	Future	TBD	N/A	N/A	North Fork	$9,813,800	TBD

3.2. Ten Mile Creek Basin

The Ten Mile Creek Basin covers 41,736 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 27**, the predominant land use in this basin is agriculture, which accounts for 79 % of land use. Stakeholders in the basin include FDOT, NSLRWCD, and St. Lucie County.

Table 27. Summary of land uses in the Ten Mile Creek Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	4,736	11.3
2000	Agriculture	32,966	79.0
3000	Upland Nonforested	1,533	3.7
4000	Upland Forests	528	1.3
5000	Water	525	1.3
6000	Wetlands	710	1.7
7000	Barren Land	210	0.5
8000	Transportation, Communication, and Utilities	528	1.3
	Total	**41,736**	**100**

3.2.1. Water Quality Monitoring

Table 28 summarizes the water quality monitoring stations in the Ten Mile Creek Basin, and **Figure 10** shows the station locations.

Table 28. Water quality monitoring stations in the Ten Mile Creek Basin

Basin	Representative Site?	Entity	Station ID	Tier
Ten Mile Creek	Yes	SFWMD	Gordy	1

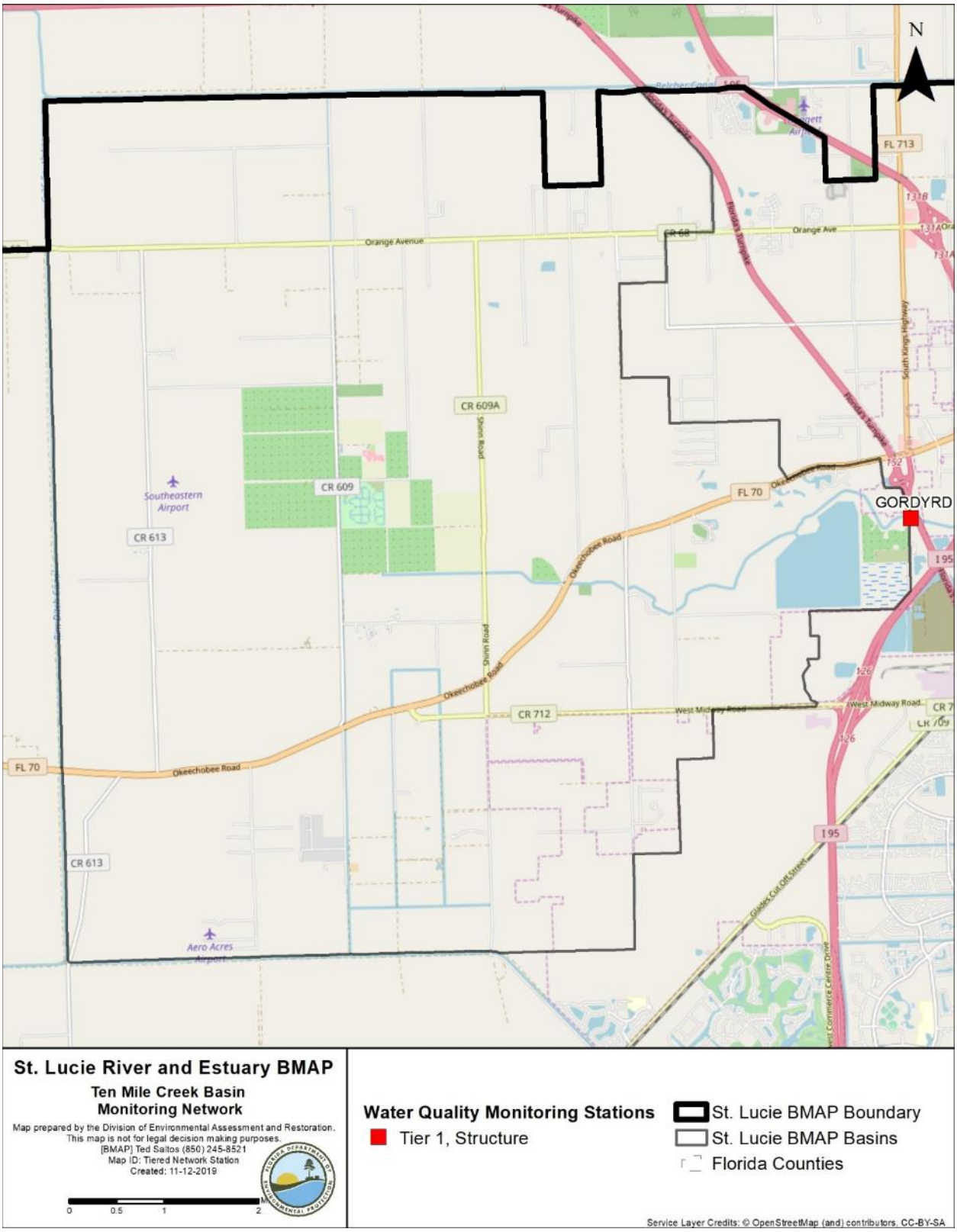


Figure 10. Ten Mile Creek Basin monitoring stations

3.2.2. Basin Evaluation Results

Table 29 summarizes the basin evaluation results based on data from WY2014–WY2018 for the Ten Mile Creek Basin. The current TN concentration is 0.88 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.218 mg/L, which is above the benchmark of 0.081 mg/L required to meet the TMDL. The FWM concentrations are 0.92 mg/L and 0.232 mg/L for TN and TP, respectively.

For these assessments, FWM concentrations were used because flow data were available at the Gordy structure. The TN UAL is 8.24 lbs/ac, which is 56 % above the target UAL of 5.28 lbs/ac, and the TP UAL is 2.33 lbs/ac, which is 240 % above the target UAL of 0.68 lbs/ac. No significant trend was observed for TN or TP.

The TRA prioritization results for the Ten Mile Creek Basin are shown in **Table 30,** with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 29. Basin evaluation results for the Ten Mile Creek Basin

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
2	Ten Mile Creek	0.88	0.92	8.24	No significant trend	0.218	0.232	2.33	No significant trend

Table 30. TRA evaluation results for the Ten Mile Creek Basin

Basin	Station	TN Priority	TP Priority
Ten Mile Creek	Gordy	1	1

3.2.3. Projects

The tables below summarize the existing and planned and future projects for the Ten Mile Creek Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.2.3.1. Existing Projects

Table 31 summarizes the existing and planned projects provided by the stakeholders for the Ten Mile Creek Basin.

Table 31. Existing and planned projects in the Ten Mile Creek Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDACS	Agricultural Producers	FDACS-02	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Reductions based on WaSh model. Acres treated based on FDACS OAWP June 2019 Enrollment and FSAID VI.	Agricultural BMPs	Completed	N/A	8,397	1,436	Ten Mile Creek	11,877	TBD	TBD	FDACS	TBD	N/A
FDACS	Agricultural Producers	FDACS-10	Cost-share Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP June 2019 Enrollment. Reductions based on WaSh model.	Agricultural BMPs	Completed	N/A	525	146	Ten Mile Creek	955	TBD	TBD	FDACS	TBD	N/A
FDACS	N/A	FDACS-16	Credit for Changes in Land Use	Acreages and reductions based on a portion of differences between modeled agricultural land use coverage identified in Table B-13. DEP will estimate final numbers by next BMAP update.	Land Use Change	Completed	N/A	501	101	Ten Mile Creek	74	N/A	N/A	N/A	N/A	N/A
FDOT District 4	N/A	FDOT-03	FM# 230262-4	Road widening of SR 70 from west of Rim Ditch Canal to west of Header Canal.	Dry Detention Pond	Completed	2008	77	15	Ten Mile Creek, C-24	102	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-04	FM# 230262-5	Road widening of SR 70 from Turnpike to Berman Rd.	Dry Detention Pond	Completed	2010	92	18	Ten Mile Creek	124	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
										Estuary, North Mid-Estuary						
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
North St. Lucie River WCD	SLRIT	NSLRWCD-01	SLRIT Grant 2000–2001: Vegetation Control & Bank Restoration	Installation of C-25 diversion structure, which regulates flow from NSLRWCD C-44/ North Emergency Relief Canal to SFWMD C-25. In addition, installation of 3 risers with adjustable gates.	Control Structure	Completed	2003	1,548	0	North Fork, Ten Mile Creek	4,173	$929,000	Not provided	NSLRWCD/ SLRIT 50/50 contribution match	Not provided	N/A
North St. Lucie River WCD	SLRIT	NSLRWCD-02	SLRIT Grant 2007–2008: WCS Retrofits	Installation of adjustable gates on WCS to improve efficiency of water levels and better manage sediment transport downstream.	Control Structure	Completed	2010	1,558	0	Ten Mile Creek, C-24	4,701	$77,000	Not provided	NSLRWCD/ SLRIT 50/50 contribution match	Not provided	N/A
North St. Lucie River WCD	N/A	NSLRWCD-04	Canal Maintenance Program	Maintenance program on over 200 miles of canal, now included in NSLRWCD water quality activities.	Aquatic Vegetation Harvesting	Canceled	2013	N/A	N/A	North Fork, Ten Mile Creek	66,225	$4,200,000	Not provided	NSLRWCD	Not provided	N/A
North St. Lucie River WCD	N/A	NSLRWCD-05	Changes in Agricultural Land Uses	All land uses updated with new model.	Land Use Change	Canceled	2013	N/A	N/A	North Fork, Ten Mile Creek	1,055	N/A	N/A	N/A	N/A	N/A
North St. Lucie River WCD	N/A	NSLRWCD-06	90% Implementation Agricultural BMPs	All agricultural BMP enrollment now included in FDACS-01.	Agricultural BMPs	Canceled	N/A	N/A	N/A	North Fork, Ten Mile Creek	N/A	N/A	N/A	N/A	N/A	N/A
North St. Lucie River WCD	N/A	NSLRWCD-07	Change from Agricultural to Urban	All land uses updated with new model.	Land Use Change	Canceled	N/A	N/A	N/A	North Fork, Ten Mile Creek	N/A	N/A	N/A	N/A	N/A	N/A
North St. Lucie River WCD	N/A	NSLRWCD-08	Ideal Grove Hybrid Wetland Treatment Technology (HWTT)	Not provided.	HWTT	Completed	2013	433	132	Ten Mile Creek, C-24	238	$217,929	Not provided	Not provided	Not provided	N/A
North St. Lucie River WCD	Not provided	NSLRWCD-09	Structure 81-1-2	Installation of new control structure as part of Okeechobee Rd. improvements project.	Control Structure	Completed	2010	124	124	Ten Mile Creek	2,582	Not provided	Not provided	Not provided	Not provided	N/A
North St. Lucie River WCD	Not provided	NSLRWCD-10	Structure 82-2-2	Installation of new control structure as part of Okeechobee Rd. improvements project.	Control Structure	Completed	2010	23	23	Ten Mile Creek	674	Not provided	Not provided	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
North St. Lucie River WCD	Not provided	NSLRWCD-11	Structure 83-2-2	Installation of new control structure as part of Okeechobee Rd. improvements project.	Control Structure	Completed	2010	27	27	Ten Mile Creek	484	Not provided	Not provided	Not provided	Not provided	N/A
North St. Lucie River WCD	Not provided	NSLRWCD-12	Structure 85-1-2	Installation of new control structure as part of Okeechobee Rd. improvements project.	Control Structure	Completed	2010	64	64	Ten Mile Creek	961	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-006	Street Sweeping	Materials are collected from roadways and gutters using street sweeper truck.	Street Sweeping	Completed	N/A	211	135	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-007	Catch Basin Cleanout	Catch basins are cleaned out on rotational basis using vactruck.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	170	105	North Fork, Ten Mile Creek, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-010	Education Program	FYN; pet waste, landscape, irrigation, and fertilizer ordinances; PSAs; website; Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program, St. Lucie Water Champions.	Education Efforts	Completed	N/A	8,821	1,594	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-011	Street Sweeping	Materials are collected from roadways and gutters using street sweeper truck.	Street Sweeping	Completed	N/A	113	73	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-012	Catch Basin Cleanout	Catch basins are cleaned out on rotational basis using a vactruck.	BMP Cleanout	Completed	N/A	92	56	North Fork, Ten Mile Creek, C-24	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-017	Swales Material Collection	Roadside swale cleanout and retrofitting in MS4 area and non-MS4 area.	BMP Cleanout	Completed	N/A	TBD	TBD	North Fork, Ten Mile Creek, C-23	Not provided	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-018	Swales Material Collection	Roadside swale cleanout and retrofitting. Project rolled into SLC-017.	BMP Cleanout	Canceled	N/A	TBD	TBD	North Fork, Ten Mile Creek, C-23	Not provided	Not provided	Not provided	Not provided	Not provided	N/A
Coordinating Agency	N/A	CA-01	Ten Mile Creek Water Preserve Area	Control quantity and timing of water delivery to NFSLR by capturing and storing stormwater flows that originated in Ten Mile Creek Basin.	Hydrologic Restoration	Completed	2017	TBD	8,789	North Fork, Ten Mile Creek	658					
Coordinating Agency	N/A	CA-02	IRL-South	C-44 Reservoir/STA will capture, store and treat runoff from C-44/S-153 Basin prior to discharge to estuary. Reservoir will provide 50,600 ac-ft of water storage. Two reservoirs and STA in C-23/C-24 Basins also planned to treat 92,000 ac-ft of runoff. The	Regional Stormwater Treatment	Underway	2022	187,393	74,957	Ten Mile Creek, C-24, C-23, C-44/ S-153	10,700					

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				STA will be completed in 2020, and the reservoir in 2022.												

3.2.3.2. Future Projects

No future projects were provided by the stakeholders for the Ten Mile Creek Basin.

3.3. C-24 Basin

The C-24 Basin covers 83,300 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 32**, agriculture is the primary land use, comprising 73.6 % of the basin. Stakeholders in the basin include FDOT, NSLRWCD, Port St. Lucie, and St. Lucie County.

Table 32. Summary of land uses in the C-24 Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	6,253	7.5
2000	Agriculture and 3300 (Rangeland)	61,352	73.6
3000	Upland Nonforested	1,252	1.5
4000	Upland Forests	936	1.1
5000	Water	1,339	1.6
6000	Wetlands	11,062	13.3
7000	Barren Land	363	0.4
8000	Transportation, Communication, and Utilities	821	1.0
	Total	**83,378**	**100**

3.3.1. Water Quality Monitoring

Table 33 summarizes the water quality monitoring stations in the C-24 Basin, and **Figure 11** shows the station locations. Four new stations were added in the C-24 Basin: G79, PC38C24, PC39C24, and PC54C23. These stations were added to increase data collection in this basin.

Table 33. Water quality monitoring stations in the C-24 Basin

*Stations denoted by an asterisk are proposed/new stations.

Basin	Representative Site?	Entity	Station ID	Tier
C-24	Yes	SFWMD	S-49	1
C-24	N/A	SFWMD	G79*	2
C-24	N/A	SFWMD	PC38C24*	2
C-24	N/A	SFWMD	PC39C24*	2
C-24	N/A	SFWMD	PC54C23*	2

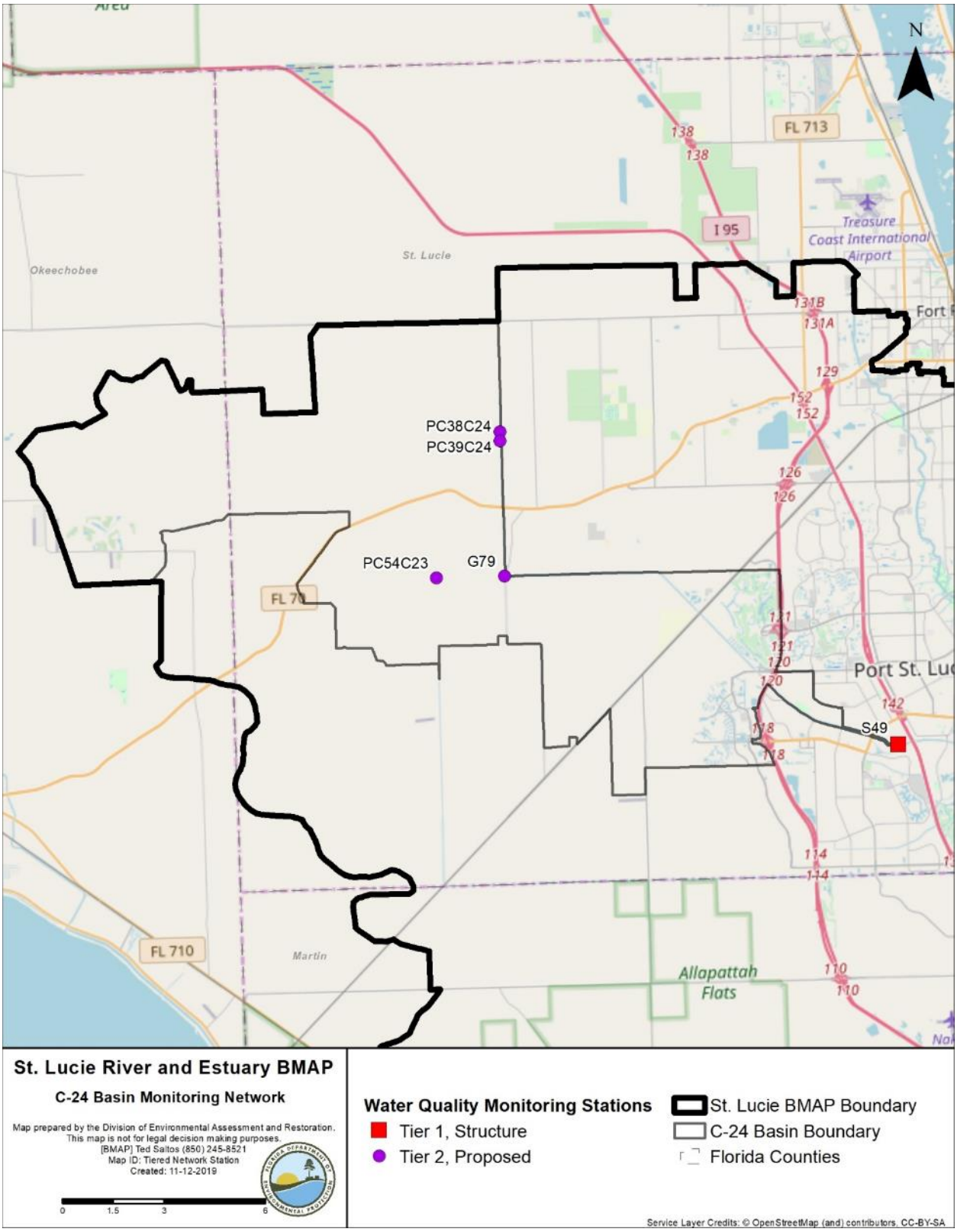


Figure 11. C-24 Basin monitoring stations

3.3.2. Basin Evaluation Results

Table 34 summarizes the basin evaluation results based on data from WY2014–-2018 for the C-24 Basin. The current TN concentration is 1.30 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.237 mg/L, which is above the benchmark of 0.081 mg/L required to meet the TMDL. The FWM concentrations are 1.33 and 0.254 mg/L for TN and TP, respectively. For these assessments, FWM concentrations were used because flow data were available at the S-49 structure. The TN UAL is 6.84 lbs/ac, which is 63 % above the target UAL of 4.19 lbs/ac, and the TP UAL is 1.51 lbs/ac, which is 118 % above the target UAL of 0.69 lbs/ac. No significant trends were observed for either TN or TP.

The TRA prioritization results for the C-24 Basin are shown in **Table 35,** with 1 as the highest priority, 2 as the next highest priority, and 3 a priority as resources allow.

Table 34. Basin evaluation results for the C-24 Basin

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
3	C-24	1.30	1.33	6.84	No significant trend	0.237	0.254	1.51	No significant trend

Table 35. TRA evaluation results for the C-24 Basin

Basin	Station	TN Priority	TP Priority
C-24	S-49	1	1

3.3.3. Projects

The tables below summarize the existing and planned and future projects for the C-24 Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.3.3.1. Existing and Planned Projects

Table 36 summarizes the existing and planned projects provided by the stakeholders for the C-24 Basin.

Table 36. Existing and planned projects in the C-24 Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDACS	Agricultural Producers	FDACS-03	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Reductions based on WaSh model. Acres treated based on FDACS OAWP June 2019 Enrollment and FSAID VI.	Agricultural BMPs	Completed	N/A	50,877	8,218	C-24	42,785	TBD	TBD	FDACS	TBD	N/A
FDACS	Agricultural Producers	FDACS-11	Cost-share Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP June 2019 Enrollment. Reductions based on WaSh model.	Agricultural BMPs	Completed	N/A	89,627	26,668	C-24	3,062	TBD	TBD	FDACS	TBD	N/A
FDACS	N/A	FDACS-17	Credit for Changes in Land Use	Acreages and reductions based on a portion of differences between modeled agricultural land use coverage identified in Table B-13. DEP will estimate final numbers by next BMAP update.	Land Use Change	Completed	N/A	TBD	TBD	C-24	TBD	N/A	N/A	N/A	N/A	N/A
FDOT District 4	N/A	FDOT-03	FM# 230262-4	Road widening of SR 70 from west of Rim Ditch Canal to west of Header Canal	Dry Detention Pond	Completed	2008	77	15	Ten Mile Creek, C-24	102	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-05	FM# 230262-3	Road widening of SR 70 from Okeechobee County line, east 10.2 miles.	Dry Detention Pond	Completed	2012	160	36	C-24	195	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDOT District 4	N/A	FDOT-06	FM# 230262-2	Road widening of SR 70 from Okeechobee County line, east 10.2 miles.	Dry Detention Pond	Completed	2012	160	36	C-24	195	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
North St. Lucie River WCD	SLRIT	NSLRWCD -02	SLRIT Grant 2007-2008: WCS Retrofits	Installation of adjustable gates on WCS to improve efficiency of water levels and better manage sediment transport downstream.	Control Structure	Completed	2010	1,558	0	Ten Mile Creek, C-24	4,701	$77,000	Not provided	NSLRWCD/SLRIT 50/50 contribution match	Not provided	N/A
North St. Lucie River WCD	N/A	NSLRWCD -08	Ideal Grove HWTT	Not provided.	HWTT	Completed	2013	433	132	Ten Mile Creek, C-24	238	$217,929	Not provided	Not provided	Not provided	N/A
City of Port St. Lucie	NRCS/ SFWMD	PSL-05	B-1 and B-2 WCS	WCS B-1 and B-2 protected NFSLR from receiving uncontrolled E-8 Canal discharges. System will stage appropriate discharge	Control Structure	Completed	2007	6,737	2,088	North Fork, C-24, C-23	1,748	$1,800,000	$621,000	City/ NRCS/ SFWMD	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				levels based on volume, retaining maximum flows.												
City of Port St. Lucie	NRCS/ SFWMD	PSL-06	B-3 WCS	B-3 protected NFSLR from receiving uncontrolled E-8 Canal discharges. System will stage appropriate discharge levels based on volume, retaining maximum flows.	Control Structure	Completed	2007	7,027	2,177	North Fork	1,641	N/A	N/A	City/ NRCS/ SFWMD	Not provided	N/A
City of Port St. Lucie	N/A	PSL-09	Water and Wastewater Expansion	Multiple phase-outs of septic tanks from 2013 to 2019.	OSTDS Phase Out	Completed	2019	44,921	N/A	North Fork, C-24, C-23	N/A	$91,075,666	$3,700,000	City	N/A	N/A
City of Port St. Lucie	N/A	PSL-13	Education Program	FYN Program; fertilizer, landscape, irrigation, and pet waste ordinances; PSAs; stormwater educational shows; website; outreach programs; Stencil Program; and stormwater pollution hotline.	Education Efforts	Completed	N/A	21,978	3,722	North Fork, C-24, C-23	N/A	Not provided	Not provided	City	Not provided	N/A
St. Lucie County	N/A	SLC-005	Education Program	FYN; pet waste, landscape, irrigation, and fertilizer ordinances; PSAs; website; Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program. St. Lucie Water Champions.	Education Efforts	Completed	N/A	2,597	454	North Fork, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-006	Street Sweeping	Materials are collected from roadways and gutters using street sweeper truck.	Street Sweeping	Completed	N/A	211	135	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-010	Education Program	FYN; pet waste, landscape, irrigation, and fertilizer ordinances; PSAs; website; Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program, St.	Education Efforts	Completed	N/A	8,821	1,594	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				Lucie Water Champions.												
St. Lucie County	N/A	SLC-011	Street Sweeping	Materials are collected from roadways and gutters using street sweeper truck.	Street Sweeping	Completed	N/A	113	73	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-012	Catch Basin Cleanout	Catch basins are cleaned out on rotational basis using vactruck.	BMP Cleanout	Completed	N/A	92	56	North Fork, Ten Mile Creek, C-24	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-015	IRL-South C-23/C-24 CERP Buffer – Teague Preserve Re-watering Project	Not provided.	Hydrologic Restoration	Underway	Not provided	TBD	TBD	North Fork, C-24, C-23	TBD	$400,000	TBD	Not provided	Not provided	N/A
Coordinating Agency	N/A	CA-02	IRL-South	C-44 Reservoir/STA will capture, store and treat runoff from C-44/S-153 Basin prior to discharge to estuary. Reservoir will provide 50,600 ac-ft of water storage. Two reservoirs and an STA in C-23/C-24 Basins also planned to treat 92,000 ac-ft of runoff. The STA will be completed in 2020, and the reservoir in 2022.	Regional Stormwater Treatment	Underway	2022	187,393	74,957	Ten Mile Creek, C-24, C-23, C-44/S-153	10,700					
Coordinating Agency	N/A	CA-03	Adams-Russakis Ranch Water Management Area (WMA)	1,000-acre project area, which has estimated water storage benefit of 536 ac-ft/yr.	DWM	Underway	2020	N/A	N/A	C-24	1,000					
Coordinating Agency	N/A	CA-04	C-23/24 Interim Storage Section C Water Farm	297-acre project area, which has estimated water storage benefit of 2,887 ac-ft/yr.	DWM	Completed	2017	N/A	N/A	C-24	297					
Coordinating Agency	N/A	CA-09	Alderman-Deloney Ranch	170-acre project area, which has estimated water storage benefit of 147 ac-ft/yr.	DWM	Completed	2012	N/A	N/A	C-24	170					
Coordinating Agency	N/A	CA-10	C-23/24 Interim Storage Parcel B	320-acre project area to provide shallow storage in C-24 Basin.	DWM	Planned	TBD	N/A	N/A	C-24	320					

3.3.3.2. Future Projects

No future projects were provided by stakeholders in the C-24 Basin.

3.4. C-23 Basin

The C-23 Basin covers 110,883 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 37,** the most common land use is agriculture, which comprises 74.2 % of the basin. Stakeholders in the basin include FDOT, Martin County, Port St. Lucie, and St. Lucie County.

Table 37. Summary of land uses in the C-23 Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	3,237	2.9
2000	Agriculture	82,273	74.2
3000	Upland Nonforested	2,157	1.9
4000	Upland Forests	2,710	2.4
5000	Water	1,554	1.4
6000	Wetlands	15,967	14.4
7000	Barren Land	1,201	1.1
8000	Transportation, Communication, and Utilities	1,784	1.6
	Total	**110,883**	**100**

3.4.1. Water Quality Monitoring

Table 38 summarizes the water quality monitoring stations in the C-23 Basin, and **Figure 12** shows the station locations. Three new stations were added in the C-23 Basin: ACRA1, PC32C23, and PC49C23. Data collected at these stations will allow for a better understanding of water quality trends in the basin.

Table 38. Water quality monitoring stations in the C-23 Basin

* Stations denoted by an asterisk are proposed/new stations.

Basin	Representative Site?	Entity	Station ID	Tier
C-23	Yes	SFWMD	S-48	1
C-23	Yes	SFWMD	ACRA1*	2
C-23	Yes	SFWMD	PC32C23*	2
C-23	Yes	SFWMD	PC49C23*	2

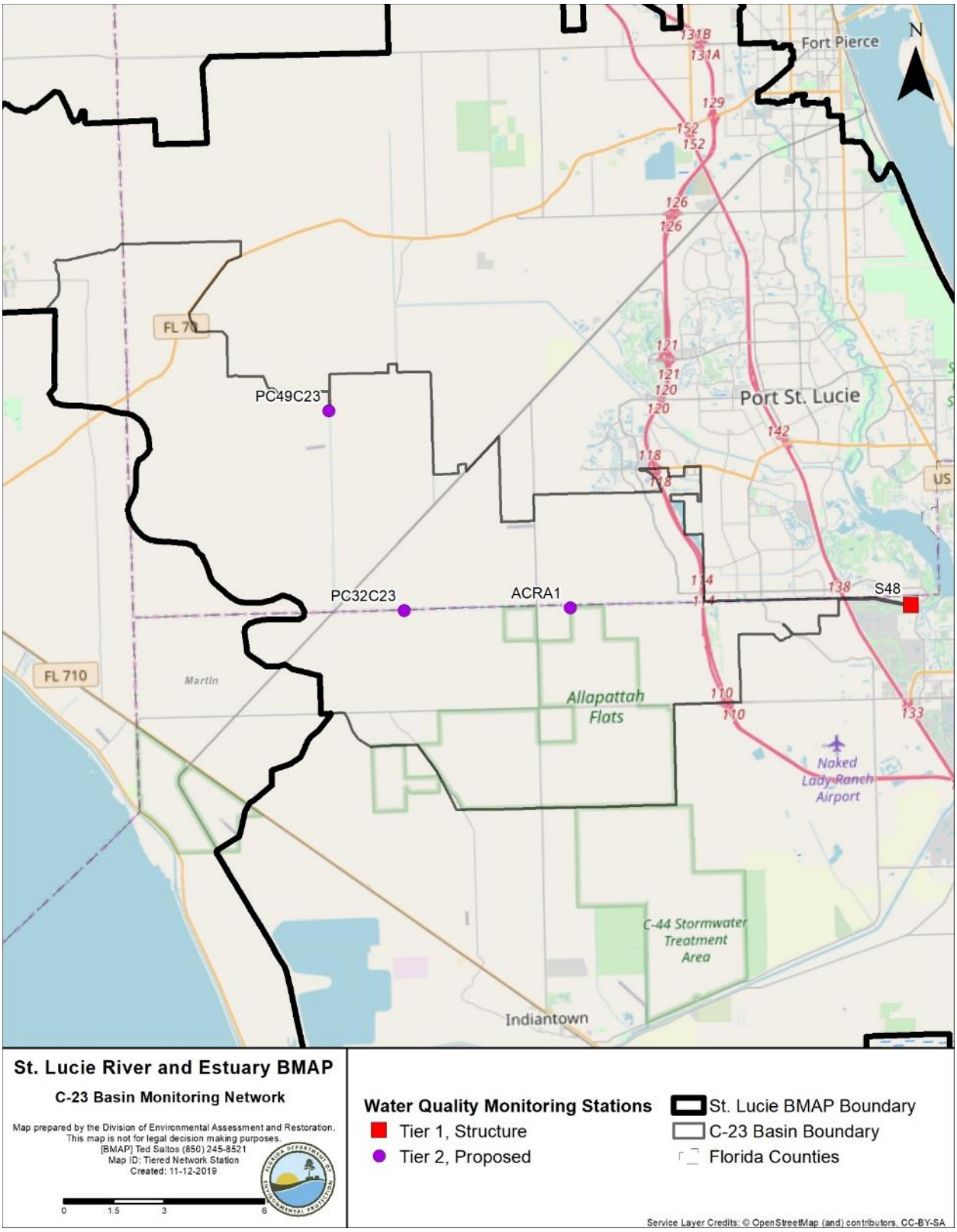


Figure 12. C-23 Basin monitoring stations

3.4.2. Basin Evaluation Results

Table 39 summarizes the basin evaluation results based on data from WY2014–WY2018 for the C-23 Basin. The current TN concentration is 1.36 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.326 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. The FWM concentrations are 1.50 and 0.371 mg/L for TN and TP, respectively. For these assessments, FWM concentrations were used because flow data were available at the S-48 structure. The TN UAL is 5.57 lbs/ac, which is 40 % above the target UAL of 3.96 lbs/ac, and the TP UAL is 1.46 lbs/ac, which is 85 % above the target UAL of 0.79 lbs/ac. No significant trends were observed for either TN or TP.

Table 40 lists the TRA prioritization results for the C-23 Basin, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 39. Basin evaluation results for the C-23 Basin

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
4	C-23	1.36	1.50	5.57	No significant trend	0.326	0.371	1.46	No significant trend

Table 40. TRA evaluation results for the C-23 Basin

Basin	Station	TN Priority	TP Priority
C-23	S-48	1	1

3.4.3. Projects

The tables below summarize the existing and planned and future projects for the C-23 Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.4.3.1. Existing Projects

Table 41 summarizes the existing and planned projects provided by the stakeholders for the C-23 Basin.

Table 41. Existing and planned projects in the C-23 Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDACS	Agricultural Producers	FDACS-04	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Reductions based on WaSh model. Acres treated based on FDACS OAWP June 2019 Enrollment and FSAID VI.	Agricultural BMPs	Completed	N/A	68,159	12,479	C-23	60,127	TBD	TBD	FDACS	TBD	N/A
FDACS	Agricultural Producers	FDACS-12	Cost-share Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP June 2019 Enrollment. Reductions based on WaSh model.	Agricultural BMPs	Completed	N/A	65,137	29,777	C-23	17,563	TBD	TBD	FDACS	TBD	N/A
FDACS	N/A	FDACS-18	Credit for Changes in Land Use	Acreages and reductions based on a portion of differences between modeled agricultural land use coverage identified in Table B-13. DEP will estimate final numbers by next BMAP update.	Land Use Change	Completed	N/A	2,428	521	C-23	475	N/A	N/A	N/A	N/A	N/A
FDOT District 4	N/A	FDOT-06	FM# 230262-2	Road widening of SR 70 from Okeechobee County line, east 10.2 miles.	Dry Detention Pond	Completed	2015	317	91	C-24, C-23	238	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	City of Port St. Lucie	FDOT-17	FM# 419890-1	Construction of interchange at SR 9 and Becker Rd.	BMP Treatment Train	Completed	2010	3	2	North Fork, C-23	42	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/ S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	108	69	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Completed	N/A	16,644	2,831	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A
Martin County	FDACS	MC-31	Bessey Creek HWTT	Not provided.	HWTT	Completed	2015	6,081	1,473	C-23, Basin 4/5	2,675	$3,000,000	Not provided	FDACS	$3,000,000	N/A
City of Port St. Lucie	N/A	PSL-09	Water and Wastewater Expansion	Multiple phase-outs of septic tanks from 2013 to 2019.	OSTDS Phase-Out	Completed	2019	44,921	N/A	North Fork, C-24, C-23	N/A	$91,075,666	$3,700,000	City	N/A	N/A
City of Port St. Lucie	N/A	PSL-13	Education Program	FYN Program; fertilizer, landscape, irrigation, and pet waste ordinances; PSAs; stormwater educational shows; website; outreach programs; Stencil Program; and	Education Efforts	Completed	N/A	21,978	3,722	North Fork, C-24, C-23	N/A	Not provided	Not provided	City	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				stormwater pollution hotline.												
City of Port St. Lucie	DEP/ SFWMD	PSL-31	St. Lucie River/C-23 Water Quality Project Phases I – VI	Water Farming Project – Pumps water from SFWMD C-23 Canal onto property for storage and retains rainfall on multiple phases of project.	DWM	Underway	2023	TBD	TBD	C-23	TBD	$3,663,383	$180,640	City/ DEP/ SFWMD	Not provided	NF028
St. Lucie County	N/A	SLC-005	Education Program	FYN; pet waste, landscape, irrigation, and fertilizer ordinances; PSAs; website; Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program. St. Lucie Water Champions.	Education Efforts	Completed	N/A	2,597	454	North Fork, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-006	Street Sweeping	Materials are collected from roadways and gutters using street sweeper truck.	Street Sweeping	Completed	N/A	211	135	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-007	Catch Basin Cleanout	Catch basins are cleaned out on rotational basis using vactruck.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	170	105	North Fork, Ten Mile Creek, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-010	Education Program	FYN; pet waste, landscape, irrigation, and fertilizer ordinances; PSAs; website; Illicit Discharge Program, Eco-Center, Clean Stormwater–Clean River Program, St. Lucie Water Champions.	Education Efforts	Completed	N/A	8,821	1,594	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-011	Street Sweeping	Materials are collected from roadways and gutters using street sweeper truck.	Street Sweeping	Completed	N/A	113	73	North Fork, Ten Mile Creek, C-24, C-23	N/A	Not provided	Not provided	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
St. Lucie County	N/A	SLC-015	IRL-South C-23/C-24 CERP Buffer – Teague Preserve Rewatering Project	Not provided.	Hydrologic Restoration	Underway	Not provided	TBD	TBD	North Fork, C-24, C-23	TBD	$400,000	TBD	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-017	Swales Material Collection	Roadside swale cleanout and retrofitting in MS4 area and non-MS4 area.	BMP Cleanout	Completed	N/A	TBD	TBD	North Fork, Ten Mile Creek, C-23	Not provided	Not provided	Not provided	Not provided	Not provided	N/A
St. Lucie County	N/A	SLC-018	Swales Material Collection	Roadside swale cleanout and retrofitting. Project rolled into SLC-017.	BMP Cleanout	Canceled	N/A	TBD	TBD	North Fork, Ten Mile Creek, C-23	Not provided	Not provided	Not provided	Not provided	Not provided	N/A
Coordinating Agency	N/A	CA-02	IRL-South	C-44 Reservoir/STA will capture, store and treat runoff from C-44/S-153 Basin prior to discharge to estuary. Reservoir will provide 50,600 ac-ft of water storage. Two reservoirs and an STA in C-23/C-24 Basins also planned to treat 92,000 ac-ft of runoff. The STA will be completed in 2020, and the reservoir in 2022.	Regional Stormwater Treatment	Underway	2022	187,393	74,957	Ten Mile Creek, C-24, C-23, C-44/S-153	10,700					
Coordinating Agency	N/A	CA-05	Bluefield Grove Water Farm	A Public-private partnership project actively stores local stormwater runoff on 6,100 acres in C-23 Basin in St. Lucie County. Project is estimated to provide net annual average water storage benefit of 28,360 ac-ft/yr.	DWM	Underway	2020	26,896	6,173	C-23	6,100					
Coordinating Agency	N/A	CA-06	Bull Hammock Ranch WMA	608-acre project area, which has estimated water storage benefit of 228 ac-ft/yr.	DWM	Completed	2015	N/A	N/A	C-23	608					

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Coordinating Agency	N/A	CA-07	Spur Land and Cattle Water Farm	210-acre project area, which has estimated water storage benefit of 1,500 ac-ft/yr.	DWM	Completed	2014	N/A	N/A	C-23	210					

3.4.3.2. Future Projects

Table 42 lists the future projects provided by the stakeholders for the C-23 Basin.

Table 42. Future projects in the C-23 Basin

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Cost Estimate	Cost Annual O&M
City of Port St. Lucie	N/A	F-03	St. Lucie River/C-23 Water Quality Project Future Phase	Water Farming Project – Pumps water from SFWMD C-23 Canal onto property for storage and retains rainfall in future phases.	Online Retention BMPs	Future	7,641 ac-ft	35,320	7,272	C-23	$1,476,111	$180,640
Martin County	N/A	F-15	AgTEC Regional STA	Design and construct 1,300-acre STA on 1,700-acre property adjacent to C-23 Canal.	STA	Future	1,300	TBD	39,683	C-23	TBD	TBD

3.5. C-44/S-153 Basin

The C-44/S-153 Basin covers 129,301 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 43**, agriculture is the primary land use, comprising 63.5 % of the basin followed by wetlands (10.5 %). Stakeholders in the basin include FDOT, Hobe St. Lucie Conservancy District, Martin County, Pal Mar WCD, and Troup-Indiantown WCD.

Table 43. Summary of land uses in the C-44/S-153 Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	4,001	3.1
2000	Agriculture	82,059	63.5
3000	Upland Nonforested	6,958	5.4
4000	Upland Forests	11,301	8.7
5000	Water	8,077	6.2
6000	Wetlands	13,538	10.5
7000	Barren Land	1,036	0.8
8000	Transportation, Communication, and Utilities	2,331	1.8
	Total	**129,301**	**100**

3.5.1. Water Quality Monitoring

Table 44 summarizes the water quality monitoring stations in the C-44/S-153 Basin, and **Figure 13** shows the station locations. Seven stations were added to the basin: C44SC14, S-153, C44SC19, C44SC23, C44SC24, C44SC5, and C44SC2. Data collected from these stations will be used to better understand water quality trends in the C-44/S-153 Basin.

Table 44. Water quality monitoring stations in the C-44/S-153 Basin

* Stations denoted by an asterisk are proposed/new stations.

Basin	Representative Site?	Entity	Station ID	Tier
C-44/S-153	Yes	SFWMD	S-80	1
C-44/S-153	N/A	SFWMD	C44SC2*	2
C-44/S-153	N/A	SFWMD	C44SC5*	2
C-44/S-153	N/A	SFWMD	C44SC14*	2
C-44/S-153	N/A	SFWMD	S-308C	1
C-44/S-153	N/A	SFWMD	S-153*	2
C-44/S-153	N/A	SFWMD	C44SC19*	2
C-44/S-153	N/A	SFWMD	C44SC23*	2
C-44/S-153	N/A	SFWMD	C44SC24*	2

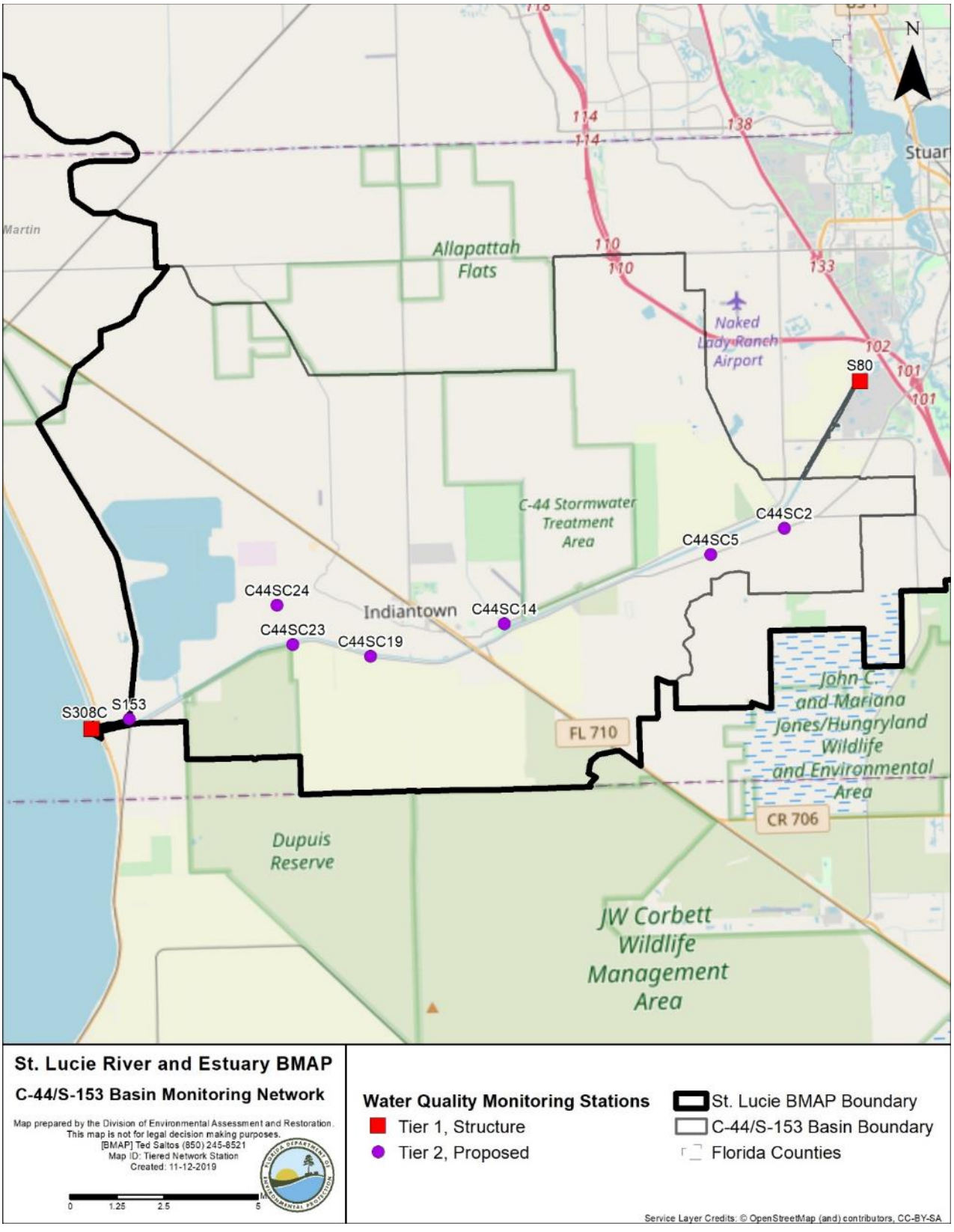


Figure 13. C-44/S-153 Basin monitoring stations

3.5.2. Basin Evaluation Results

Table 45 summarizes the basin evaluation results based on data from WY2014–WY2018 for the C-44/S-153 Basin. The current TN concentration is 1.432 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.214 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. For these assessments, FWM concentrations were used because flow data were available at the S-80 structure. The FWM concentrations are 1.57 and 0.252 mg/L for TN and TP, respectively. The TN UAL is 16.74 lbs/ac, which is 172 % above the target UAL of 6.14 lbs/ac, and the TP UAL is 2.34 lbs/ac, which is 118 % above the target UAL of 1.07 lbs/ac. No significant trend was observed for TN or TP.

Table 46 lists the TRA prioritization results for the C-44/S-153 Basin, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 45. Basin evaluation results for the C-44/S-153 Basin

Note: TN and TP loads from Lake Okeechobee are included as part of the evaluation for the C-44/S-153 basin. For future TRA analyses, DEP will evaluate alternatives to calculating these parameters to account for loading from Lake Okeechobee.

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
5	C-44/ S-153	1.43	1.57	16.74	No significant trend	0.214	0.252	2.34	No significant trend

Table 46. TRA evaluation results for the C-44/S-153 Basin

Basin	Station	TN Priority	TP Priority
C-44/S-153	S-80	1	1

3.5.3. Projects

The tables below summarize the existing and planned and future projects for the C-44/S-153 Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.5.3.1. Existing and Planned Projects

Table 47 summarizes the existing and planned projects provided by the stakeholders for the C-44/S-153 Basin.

Table 47. Existing and planned projects in the C-44/S-153 Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDACS	Agricultural Producers	FDACS-05	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Reductions based on WaSh model. Acres treated based on FDACS OAWP June 2019 Enrollment and FSAID VI.	Agricultural BMPs	Completed	N/A	60,076	11,994	C-44/S-153	48,803	TBD	TBD	FDACS	TBD	N/A
FDACS	Agricultural Producers	FDACS-13	Cost-share Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP June 2019 Enrollment. Reductions based on WaSh model.	Agricultural BMPs	Completed	N/A	47,585	9,641	C-44/S-153	9,017	TBD	TBD	FDACS	TBD	N/A
FDACS	N/A	FDACS-19	Credit for Changes in Land Use	Acreages and reductions based on a portion of differences between modeled agricultural land use coverage identified in Table B-13. DEP will estimate final numbers by next BMAP update.	Land Use Change	Completed	N/A	188	1,106	C-44/S-153	138	N/A	N/A	N/A	N/A	N/A
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-41	FM# 419250-2 SR 710 Bridge	Big John Monahan Bridge replacement on	Dry Detention Pond	Completed	2015	8	1	C-44/S-153	17	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
			Replacement – 100A, 100B, and 200	SR 710 from SW Trail Dr. to east of SR 76 connector ramps.												
FDOT District 4	N/A	FDOT-42	FM# 419250-2 SR 710 Bridge Replacement – 300 and 500	Big John Monahan Bridge replacement on SR 710 from SW Trail Dr. to east of SR 76 connector ramps.	Dry Detention Pond	Completed	2015	16	3	C-44/S-153	28	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-58	FM# 432705-1	Road widening of SR 710 from north of Indiantown Rd to just south of bridge over C-44 Canal.	Grass swales without swale blocks or raised culverts	Underway	2020	8	0	C-44/S-153	121	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-59	FM# 432705-1	Road widening of SR 710 from north of Indiantown Rd to just south of C-44 Canal bridge.	Grass swales without swale blocks or raised culverts	Underway	2020	3	1	C-44/S-153	38	Not provided	Not provided	Florida Legislature	Not provided	N/A
Hobe St. Lucie Conservancy District	Not provided	HSL-02	Changes in Agricultural Land Uses	All land uses updated with new model.	Land Use Change	Canceled	2013	N/A	N/A	C-44/S-153, South Fork	N/A	N/A	N/A	N/A	N/A	N/A
Hobe St. Lucie Conservancy District	Not provided	HSL-03	90% Implementation Agricultural BMPs	All agricultural BMP enrollment now included in FDACS-01.	Agricultural BMPs	Canceled	2013	N/A	N/A	C-44/S-153, South Fork	N/A	N/A	N/A	N/A	N/A	N/A
Martin County	SFWMD	MC-17	Danforth Creek – Phase 1	8.1-acre wet detention pond with littoral plantings and control structure.	Regional Stormwater Treatment	Completed	2014	6,132	2,266	C-44/S-153, Basin 4/5, Basin 6, South Fork	2,459	$1,869,255	Not provided	SFWMD	$1,035,515	N/A
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	108	69	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Completed	N/A	16,644	2,831	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A
Martin County	FDACS	MC-32	Danforth Creek HWTT	Not provided.	HWTT	Completed	2016	5,312	1,287	C-44/S-153, Basin 4/5, Basin 6, South Fork	2,419	$3,000,000	Not provided	FDACS	$3,000,000	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Pal Mar WCD	Not provided	PM-01	90% Implementation Agricultural BMPs	All agricultural BMP enrollment now included in FDACS-01.	Agricultural BMPs	Canceled	N/A	N/A	N/A	C-44/S-153	N/A	N/A	N/A	N/A	N/A	N/A
Troup-Indiantown WCD	N/A	TI-01	C-44 Conservation Area	Not provided.	Land Preservation	Completed	2013	23,199	7,497	C-44/S-153	9,135	N/A	N/A	Not provided	Not provided	N/A
Troup-Indiantown WCD	N/A	TI-02	90% Implementation Agricultural BMPs	All agricultural BMP enrollment now included in FDACS-01.	Agricultural BMPs	Canceled	2013	N/A	N/A	C-44/S-153	N/A	N/A	N/A	N/A	N/A	N/A
Troup-Indiantown WCD	N/A	TI-03	Removal of Drainage Areas	Minute Maid Rd. drainage improvements.	100% On-Site Retention	Completed	2013	TBD	TBD	C-44/S-153	73	$124,000	N/A	WCD	Not provided	N/A
Troup-Indiantown WCD	SFWMD/ USACE	TI-04	C-44 Reservoir Area	Converting from conservation area to reservoir.	Land Use Change	Underway	2018	N/A	N/A	C-44/S-153, Basin 4/5, Basin 6	3,485	N/A	N/A	USACE	Not provided	N/A
Troup-Indiantown WCD	SFWMD/ USACE	TI-05	C-44 STA Area	Converting from conservation area to STA.	Land Use Change	Underway	2018	N/A	N/A	C-44/S-153, Basin 4/5, Basin 6	6,100	N/A	N/A	SFMWD	Not provided	N/A
Coordinating Agency	N/A	CA-02	IRL-South	C-44 Reservoir/STA will capture, store and treat runoff from C-44/S-153 Basin prior to discharge to estuary. Reservoir will provide 50,600 ac-ft of water storage. Two reservoirs and STA in C-23/C-24 Basins also planned to treat 92,000 ac-ft of runoff. The STA will be completed in 2020, and the reservoir in 2022.	Regional Stormwater Treatment	Underway	2022	187,393	74,957	Ten Mile Creek, C-24, C-23, C-44/S-153	10,700					
Coordinating Agency	N/A	CA-08	Caulkins Water Farm Expansion	Public-private partnership that actively stores local stormwater runoff as well as water from Lake Okeechobee regulatory releases on 3,275 acres of privately-owned land along C-44 Canal. Project is estimated to provide net annual average water storage benefit of 60,000 ac-ft/yr.	DWM	Completed	2017	123,238	16,755	C-44/S-153	3,275					

3.5.3.2. Future Projects

No future projects were provided by the stakeholders for the C-44/S-153 Basin.

3.6. Basin 4/5

Basin 4/5 covers 12,009 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 48**, urban and built up land uses are the primary land use in the basin, comprising 48.6 % of the land, followed by agriculture, which represents 18.2 % of the basin. Stakeholders in the basin include FDOT, Martin County, and Florida Turnpike Authority.

Table 48. Summary of land uses in Basin 4/5

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	5,834	48.6
2000	Agriculture	2,190	18.2
3000	Upland Nonforested	239	2.0
4000	Upland Forests	1,794	14.9
5000	Water	394	3.3
6000	Wetlands	1,066	8.9
7000	Barren Land	47	0.4%
8000	Transportation, Communication, and Utilities	445	3.7
	Total	**12,009**	**100**

3.6.1. Water Quality Monitoring

Table 49 summarizes the water quality monitoring stations in Basin 4/5, and **Figure 1** shows the station locations.

Table 49. Water quality monitoring stations in Basin 4/5

Basin	Representative Site?	Entity	Station ID	Tier
Basin 4/5	Yes	SFWMD	SLT-9	2

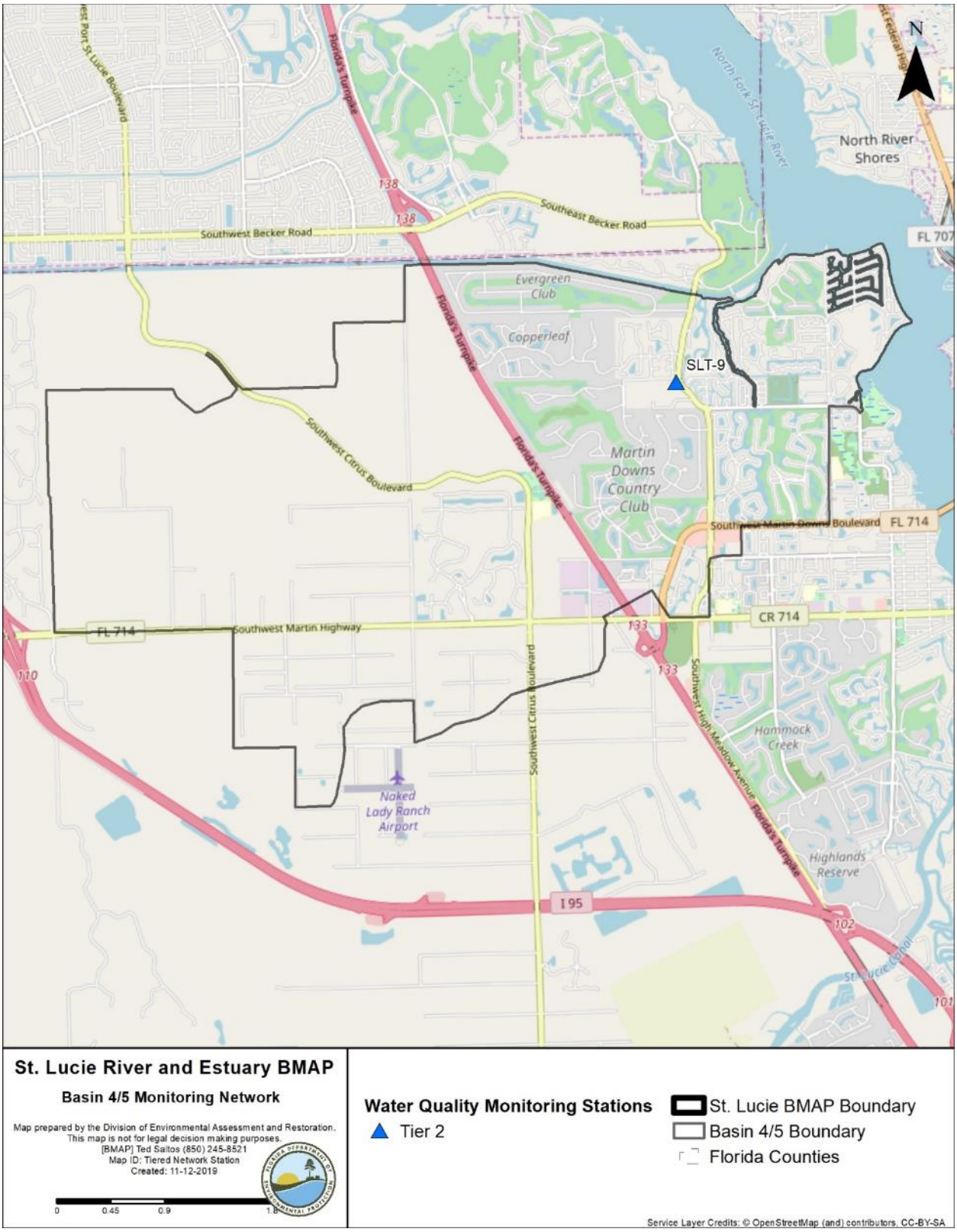


Figure 14. Basin 4/5 monitoring stations

3.6.2. Basin Evaluation Results

Table 50 summarizes the basin evaluation results based on data from WY2014–WY2018 for Basin 4/5. The current TN concentration is 1.02 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.197 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. No FWM concentrations were calculated for this basin. No significant trend was detected for TN or TP concentration changes over time.

Table 51 lists the TRA prioritization results for Basin 4/5, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 50. Basin evaluation results for Basin 4/5

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
6	Basin 4/5	1.02	N/A	N/A	No significant trend	0.197	N/A	N/A	No significant trend

Table 51. TRA evaluation results for Basin 4/5

Basin	Station	TN Priority	TP Priority
Basin 4/5	SLT-9	2	1

3.6.3. Projects

The tables below summarize the existing and planned and future projects for Basin 4/5 that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.6.3.1. Existing and Planned Projects

Table 52 summarizes the existing and planned projects provided by the stakeholders for Basin 4/5.

Table 52. Existing and planned projects in the Basin 4/5 Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDACS	Agricultural Producers	FDACS-06	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Reductions based on WaSh model. Acres treated based on FDACS OAWP June 2019 Enrollment and FSAID VI.	Agricultural BMPs	Completed	N/A	159	40	Basin 4/5	78	TBD	TBD	FDACS	TBD	N/A
FDOT District 4	N/A	FDOT-13	FM# 228831-1	Bridge replacement at SR 714 crossing over Florida's Turnpike.	Dry Detention Pond	Completed	2000	7	1	Basin 4/5, Basin 6	9	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-49	230978-2 CR 714 Martin Highway Widening – Danforth Basin	Road widening on CR 714 (Martin Hwy.) from east of Turnpike to just west of Mapp Rd.	Wet Detention Pond	Completed	2016	15	5	Basin 4/5, Basin 6	17	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
Martin County	N/A	MC-16	Septic to Central Sewer Conversions	1,121 single-family and multifamily residential and	OSTDS Phase Out	Completed	2014	15,386	N/A	North Fork, Basin 4/5, North Mid-Estuary	N/A	$28,678,946	Not provided	NEEPP – North River	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				commercial units in 5 neighborhoods.										Shores neighborhood		
Martin County	SFWMD	MC-17	Danforth Creek – Phase 1	8.1-acre wet detention pond with littoral plantings and control structure.	Regional Stormwater Treatment	Completed	2014	6,132	2,266	C-44/S-153, Basin 4/5, Basin 6, South Fork	2,459	$1,869,255	Not provided	SFWMD	$1,035,515	N/A
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	108	69	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-19	Baffle Box and Structure Cleanout	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	397	161	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Completed	N/A	16,644	2,831	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A
Martin County	N/A	MC-30	Old Palm City Beemats	Not provided.	Floating Islands/ Managed Aquatic Plant System (MAPS)	Completed	2013	TBD	TBD	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$21,996	Not provided	Not provided	Not provided	N/A
Martin County	FDACS	MC-31	Bessey Creek HWTT	Not provided.	HWTT	Completed	2015	6,081	1,473	C-23, Basin 4/5	2,675	$3,000,000	Not provided	FDACS	$3,000,000	N/A
Martin County	FDACS	MC-32	Danforth Creek HWTT	Not provided.	HWTT	Completed	2016	5,312	1,287	C-44/S-153, Basin 4/5, Basin 6, South Fork	2,419	$3,000,000	Not provided	FDACS	$3,000,000	N/A
Turnpike Enterprise	N/A	T-04	Education Program	No fertilizer on rights-of-way, educational signage, illicit discharge training.	Education Efforts	Completed	N/A	268	45	North Fork, Basin 4/5, South Fork	N/A	Not provided	N/A	Not provided	Not provided	N/A
Turnpike Enterprise	N/A	T-05	Street Sweeping	1,944 lane miles swept and 28,323 lbs (or 12,847 kg) of debris collected.	Street Sweeping	Completed	N/A	144	10	North Fork, Basin 4/5, South Fork	N/A	Not provided	N/A	Not provided	Not provided	N/A
Troup-Indiantown WCD	SFWMD/ USACE	TI-04	C-44 Reservoir Area	Converting from conservation area to reservoir.	Land Use Change	Underway	2018	N/A	N/A	C-44/S-153, Basin 4/5, Basin 6	3,485	N/A	N/A	USACE	Not provided	N/A
Troup-Indiantown WCD	SFWMD/ USACE	TI-05	C-44 STA Area	Converting from conservation area to STA.	Land Use Change	Underway	2018	N/A	N/A	C-44/S-153, Basin 4/5, Basin 6	6,100	N/A	N/A	SFMWD	Not provided	N/A

3.6.3.2. Future Projects

No future projects were provided by the stakeholders for Basin 4/5.

3.7. Basin 6

Basin 6 covers 3,927 acres of the St. Lucie River and Estuary Watershed. Most of the basin is urban and built-up land, followed by urban forest and agriculture. As shown in **Table 53**, urban and built-up land uses make up much of the acreage in the basin. Stakeholders in the basin include FDOT, Martin County, and Florida Turnpike Authority.

Table 53. Summary of land uses in Basin 6

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	2,540	64.7
2000	Agriculture	456	11.6
3000	Upland Nonforested	47	1.2
4000	Upland Forests	512	13.0
5000	Water	34	0.9
6000	Wetlands	184	4.7
7000	Barren Land	12	0.3
8000	Transportation, Communication, and Utilities	142	3.6
	Total	**3,927**	**100**

3.7.1. Water Quality Monitoring

Table 54 summarizes the water quality monitoring stations in Basin 6, and **Figure 15** shows the station locations.

Table 54. Water quality monitoring stations in Basin 6

Basin	Representative Site?	Entity	Station ID	Tier
Basin 6	Yes	SFWMD	SLT-7	2

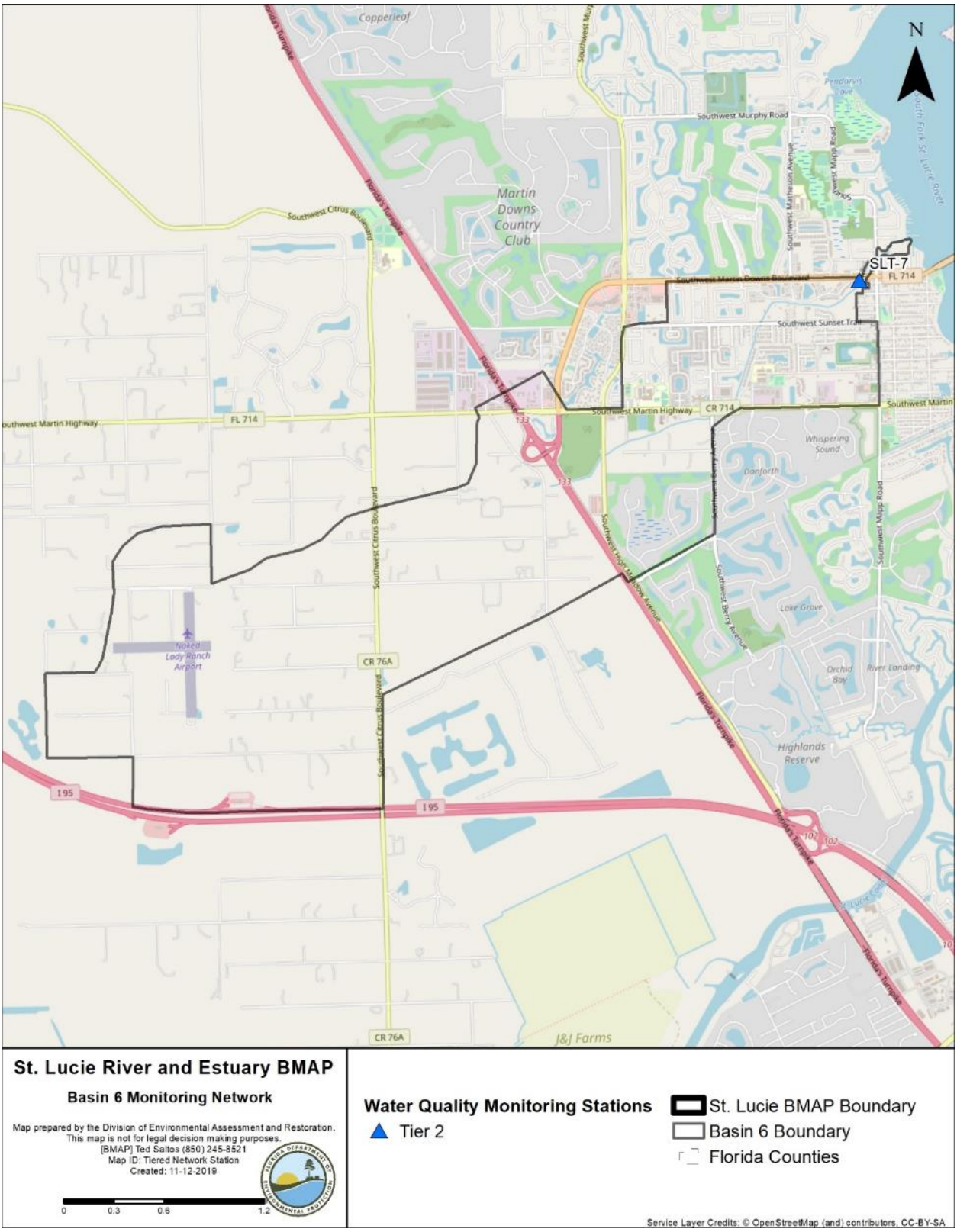


Figure 15. Basin 6 monitoring stations

3.7.2. Basin Evaluation Results

Table 55 summarizes the basin evaluation results based on data from WY2014–WY2018 for Basin 6. The current TN concentration is 1.02 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.151 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. No FWM concentrations were calculated for this basin. No significant trend was detected for changes in TN or TP concentrations over time.

Table 56 lists the TRA prioritization results for Basin 6, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 55. Basin evaluation results for Basin 6

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
7	Basin 6	1.02	N/A	N/A	No significant trend	0.151	N/A	N/A	No significant trend

Table 56. TRA evaluation results for Basin 6

Basin	Station	TN Priority	TP Priority
Basin 6	SLT-7	2	2

3.7.3. Projects

The tables below summarize the existing and planned and future projects for Basin 6 that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.7.3.1 Existing and Planned Projects

Table 57 summarizes the existing and planned projects provided by the stakeholders for Basin 6.

Table 57. Existing and planned projects in Basin 6

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDACS	Agricultural Producers	FDACS-07	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Reductions based on WaSh model. Acres treated based on FDACS OAWP June 2019 Enrollment and FSAID VI.	Agricultural BMPs	Completed	N/A	10	3	Basin 6	19	TBD	TBD	FDACS	TBD	N/A
FDOT	N/A	FDOT-13	FM# 228831-1	Bridge replacement at SR 714 crossing over Florida's Turnpike.	Dry Detention Pond	Completed	2000	3.0	1.0	Basin 4/5, Basin 6	9.00	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-15	FM# 405504-1	SR 9 rest area improvements.	Dry Detention Pond	Completed	2005	24.0	5.0	Basin 6, South Fork	54.00	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419.0	910.0	North Fork, Ten Mile Creek, C-24, C-23, C-44/ S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	31.0	6.0	North Fork, Ten Mile Creek, C-24, C-23, C-44/ S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-21	FM# 230978-1 Indian St. Bridge (Pond West)	New bridge crossing on CR 714 from west of Mapp Rd. to east of SR 76 on Indian St.	Wet Detention Pond	Completed	2014	0.1		Basin 6, South Fork	34.00	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-49	230978-2 CR 714 Martin Highway Widening – Danforth Basin	Road widening on CR 714 (Martin Hwy.) from east of Turnpike to just west of Mapp Rd.	Wet Detention Pond	Completed	2016	3.0	4.0	Basin 4/5, Basin 6	17.00	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-50	230978-2 CR 714 Martin Hwy.	Road widening on CR 714 (Martin Hwy.) from	Wet Detention Pond	Completed	2016	2.0	2.0	Basin 6, South Fork	12.00	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
			Widening – Wetlands Basin	east of Turnpike to just west of Mapp Rd.												
FDOT	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	TBD	TBD	North Fork, Ten Mile Creek, C-24, C-23, C-44/ S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
Martin County	SFWMD/ DEP/ FEMA	MC-12	Old Palm City Water Quality Retrofit Phases I, II, and III	8.1 ac-ft of water quality treatment (0.51 inches).	BMP Treatment Train	Completed	2004	244.0	96.0	Basin 6, South Fork	141.00	$4,576,473.00	Not provided	DEP/ SFWMD/ FEMA	DEP – $851,156/ SFWMD – $1,200,000/ FEMA – $593,553	G0034/ OT060148
Martin County	SFWMD	MC-17	Danforth Creek – Phase 1	8.1-acre wet detention pond with littoral plantings and control structure.	Regional Stormwater Treatment	Completed	2014	2,435.0	1,011.0	C-44/S-153, Basin 4/5, Basin 6, South Fork	2,459.00	$1,869,255.00	Not provided	SFWMD	$1,035,515	N/A
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	119.0	76.0	North Fork, C-23, C-44/ S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-19	Baffle Box and Structure Cleanout	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	266.0	163.0	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Completed	N/A	6,049.0	1,342.0	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A
Martin County	FDOT	MC-22	FM# 230978-1 Indian St. Bridge (Pond West)	Not provided.	Wet Detention Pond	Completed	2014	TBD	TBD	Basin 6, South Fork	34.00	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-30	Old Palm City Beemats	Not provided.	MAPS	Completed	2013	TBD	TBD	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$21,996.00	Not provided	Not provided	Not provided	N/A
Martin County	FDACS	MC-32	Danforth Creek HWTT	Not provided.	HWTT	Completed	2016	5,274.0	1,281.0	C-44/S-153, Basin 4/5, Basin 6, South Fork	2,419.00	$3,000,000.00	Not provided	FDACS	$3,000,000	N/A
Martin County	DEP	MC-37	All American Ditch	Not provided.	Regional Stormwater Treatment	Completed	2016	428.0	169.3	Basin 6, South Fork	268.00	$5,165,376.00	Not provided	DEP	$3,000,000	S0758/ G0414
Turnpike Authority	N/A	T-04	Education Program	No fertilizer on rights-of-way, educational signage, illicit discharge training.	Education Efforts	Completed	N/A	TBD	TBD	North Fork, C-44/S-153, Basin 4/5, Basin 6	N/A	Not provided	N/A	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Turnpike Authority	N/A	T-05	Street Sweeping	1,944 lane miles swept and 28,323 lbs (or 12,847 kg) of debris collected.	Street Sweeping	Completed	N/A	144.0	10.0	North Fork, C-44/S-153, Basin 4/5, Basin 6	N/A	Not provided	N/A	Not provided	Not provided	N/A

3.7.3.2. Future Projects

No future projects were provided by the stakeholders for Basin 6.

3.8. South Fork Basin

The South Fork Basin covers 48,155 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 58**, most of the land use comprises urban and built-up as well as agriculture. Stakeholders in the basin include FDOT, Hobe St. Lucie Conservancy District, Martin County, City of Stuart, and Florida Turnpike Authority.

Table 58. Summary of land uses in the South Fork Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	12,857	26.7
2000	Agriculture	16,826	34.9
3000	Upland Nonforested	2,003	4.2
4000	Upland Forests	7,550	15.7
5000	Water	1,333	2.8
6000	Wetlands	6,360	13.2
7000	Barren Land	153	0.3
8000	Transportation, Communication, and Utilities	1,073	2.2
	Total	**48,155**	**100**

3.8.1. Water Quality Monitoring

Table 59 summarizes the water quality monitoring stations in the South Fork Basin, and **Figure 16** shows the station locations.

Table 59. Water quality monitoring stations in the South Fork Basin

Basin	Representative Site?	Entity	Station ID	Tier
South Fork	Yes	SFWMD	SLT-31	2
South Fork	Yes	SFWMD	SLT-34A	2
South Fork	Yes	SFWMD	SLT-6	2
South Fork	Yes	SFWMD	SLT-5	2
South Fork	Yes	SFWMD	SLT-4	2
South Fork	Yes	SFWMD	SLT-3	2
South Fork	Yes	SFWMD	SLT-40, 40A	2
South Fork	Yes	SFWMD	SLT-2A	2
South Fork	Yes	SFWMD	SLT-1	2
South Fork	No	SFWMD	SE-08B	1
South Fork	No	SFWMD	SE-09	1

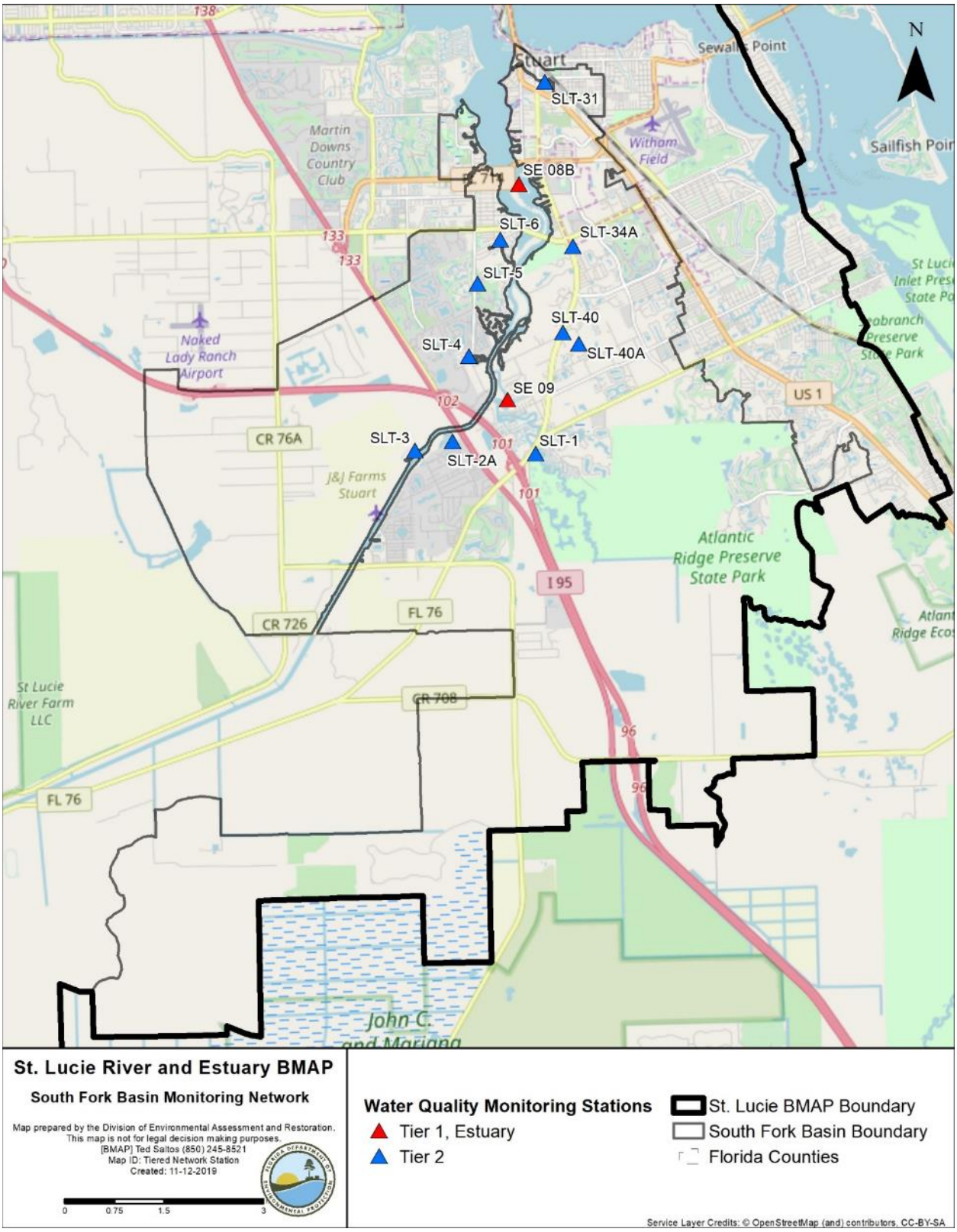


Figure 16. South Fork Basin monitoring stations

3.8.2. Basin Evaluation Results

Table 60 summarizes the basin evaluation results based on data from WY2014–WY2018 for the South Fork Basin. The current TN concentration is 1.07 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.131 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. No FWM concentrations were calculated for this basin. No significant trend was detected for TN or TP concentration changes over time.

Table 61 lists the TRA prioritization results for the South Fork Basin, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 60. Basin evaluation results for the South Fork Basin

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
8	South Fork	1.07	N/A	N/A	No significant trend	0.131	N/A	N/A	No significant trend

Table 61. TRA evaluation results for the South Fork Basin

Basin	Stations	TN Priority	TP Priority
South Fork	SLT-1, SLT-2A, SLT-3, SLT-4, SLT-5, SLT-6, SLT-31, SLT-34A, SLT-40, SLT-40A	2	2

3.8.3. Projects

The tables below summarize the existing and planned and future projects for South Fork Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.8.3.1 Existing and Planned Projects

Table 62 summarizes the existing and planned projects provided by the stakeholders for the South Fork Basin.

Table 62. Existing and planned projects in the South Fork Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDACS	Agricultural Producers	FDACS-08	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Reductions based on WaSh model. Acres treated based on FDACS OAWP June 2019 enrollment and FSAID VI.	Agricultural BMPs	Completed	N/A	10,839	2,057	South Fork	8,550	TBD	TBD	FDACS	TBD	N/A
FDACS	Agricultural Producers	FDACS-14	Cost-share Projects	Cost-share projects paid for by FDACS. Acres treated based on FDACS OAWP June 2019 Enrollment. Reductions based on WaSh model.	Agricultural BMPs	Completed	N/A	11,934	2,678	South Fork	1,947	TBD	TBD	FDACS	TBD	N/A
FDACS	N/A	FDACS-20	Credit for Changes in Land Use	Acreages and reductions based on a portion of differences between modeled agricultural land use coverage identified in Table B-13. DEP will estimate final numbers by next BMAP update.	Land Use Change	Completed	N/A	1,827	346	South Fork	294	N/A	N/A	N/A	N/A	N/A
FDOT District 4	N/A	FDOT-15	FM# 405504-1	SR 9 rest area improvements.	Dry Detention Pond	Completed	2005	40	6	Basin 6, South Fork	54	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal,	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
										South Mid-Estuary, North Mid-Estuary						
FDOT District 4	Martin County	FDOT-20	FM# 230978-1 Indian St. Bridge (Pond East)	New bridge crossing on CR 714 from west of Mapp Rd. to east of SR 76 on Indian St.	Dry Detention Pond	Completed	2014	4	1	South Fork	21	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-21	FM# 230978-1 Indian St. Bridge (Pond West)	New bridge crossing on CR 714 from west of Mapp Rd. to east of SR 76 on Indian St.	Wet Detention Pond	Completed	2014	0.2	0.0	Basin 6, South Fork	34	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-26	Johnson Honda of Stuart Turn Lane (Basin A and B)	Not provided.	Exfiltration Trench	Completed	2010	0.2	0.0	South Fork	0	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-27	FM# 228852-1 SR 76 Drainage Improvements at Cabana Point (Pond 9A)	SR 76 drainage improvements at Cabana Point.	Wet Detention Pond	Completed	2006	14	4	South Fork	5	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-28	FM# 228852-1 Osprey Ridge Planned Unit Development (PUD) – SR 76 Improvements	SR 76 Osprey Ridge PUD drainage improvements.	Exfiltration Trench	Completed	2007	0.1	0.0	South Fork	0	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-29	FM# 228852-1 SR 76 Improvements – Kanner Professional Center.	SR 76 improvements – Kanner Professional Center.	Exfiltration Trench	Completed	2009	0.5	0.1	South Fork	0	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-50	230978-2 CR 714 Martin Hwy. widening – Wetlands Basin	Road widening on CR 714 (Martin Hwy.) from east of Turnpike to just west of Mapp Rd.	Wet Detention Pond	Completed	2016	9	3	Basin 6, South Fork	12	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-51	422641-3 SR 76 widening from I-95 to Monterey Rd. Pond 1	Road widening on SR 76 from I-95 to Monterey Rd.	Dry Detention Pond	Underway	2019	4	1	South Fork	5	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-52	422641-3 SR 76 widening from I-95 to Monterey Rd. Pond 2A	Road widening on SR 76 from I-95 to Monterey Rd.	Wet Detention Pond	Underway	2019	5	1	South Fork	7	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-53	422641-3 SR 76 widening from I-95 to Monterey Rd. Pond 2B	Road widening on SR 76 from I-95 to Monterey Rd.	Wet Detention Pond	Underway	2019	9	2	South Fork	15	Not provided	Not provided	Florida Legislature	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDOT District 4	N/A	FDOT-54	422641-3 SR 76 widening from I-95 to Monterey Rd. Pond 3	Road widening on SR 76 from I-95 to Monterey Rd.	Wet Detention Pond	Underway	2019	16	4	South Fork	25	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-55	422641-3 SR 76 widening from I-95 to Monterey Rd. Pond 4	Road widening on SR 76 from I-95 to Monterey Rd.	Wet Detention Pond	Underway	2019	8	2	South Fork	12	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-56	422641-3 SR 76 widening from I-95 to Monterey Rd. Pond 8	Road widening on SR 76 from I-95 to Monterey Rd.	Wet Detention Pond	Underway	2019	8	2	South Fork	11	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-60	FM# 422641-2	Road widening on SR 76 from I-95 to Monterey Rd.	BMP Treatment Train	Underway	2019	1	0	South Fork	40	Not provided	Not provided	Florida Legislature	Not provided	N/A
Hobe St. Lucie Conservancy District	Not provided	HSL-01	Hobe Sound Polo Club	Not provided.	BMP Treatment Train	Completed	2013	2,915	718	South Fork	1,736	Not provided	Not provided	Not provided	Not provided	N/A
Hobe St. Lucie Conservancy District	Not provided	HSL-02	Changes in Agricultural Land Uses	All land uses updated with new model.	Land Use Change	Canceled	2013	N/A	N/A	C-44/S-153, South Fork	N/A	N/A	N/A	N/A	N/A	N/A
Hobe St. Lucie Conservancy District	Not provided	HSL-03	90 % Implementation Agricultural BMPs	All agricultural BMP enrollment now included in FDACS-01.	Agricultural BMPs	Canceled	2013	N/A	N/A	C-44/S-153, South Fork	N/A	N/A	N/A	N/A	N/A	N/A
Martin County	SFWMD/ DEP	MC-06	Manatee Creek Water Quality Retrofit Phases I, II, and III	30.4 ac-ft of water quality treatment (0.44 inches).	BMP Treatment Train	Completed	2012	54	21	South Fork, South Coastal	16	$7,026,439	Not provided	DEP/ SFWMD	DEP – $1,833,992/ SFWMD – $2,591,205	OT040740/ SO0257
Martin County	SFWMD/ DEP	MC-09	Salerno Creek Water Quality Retrofit	54.5 ac-ft of water quality treatment (1.03 inches).	BMP Treatment Train	Completed	2003	1,110	338	South Fork, South Coastal	208	$4,715,074	Not provided	DEP	$1,541,568	OT060149/ WAP068/ WM800/ SP379
Martin County	SFWMD/ DEP	MC-10	Coral Gardens Water Quality Retrofit	8.5 ac-ft of water quality treatment (0.05 inches).	BMP Treatment Train	Completed	2005	2,512	1,725	South Fork, South Coastal	2,008	$2,321,860	Not provided	DEP	$2,009,741	OT040741/ SO116
Martin County	SFWMD/ DEP	MC-11	Fern Creek Water Quality Retrofit	29.8 ac-ft of water quality treatment (0.81 inches).	BMP Treatment Train	Completed	2005	1,828	590	South Fork	607	$2,660,200	Not provided	DEP	$761,141	SO078/ WAP027

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Martin County	SFWMD/ DEP/ Federal Emergency Management Agency (FEMA)	MC-12	Old Palm City Water Quality Retrofit Phases I, II, and III	8.1 ac-ft of water quality treatment (0.51 inches).	BMP Treatment Train	Completed	2004	597	177	Basin 6, South Fork	141	$4,576,473	Not provided	DEP/ SFWMD/ FEMA	DEP – $851,156/ SFWMD – $1,200,000/ FEMA – $593,553	G0034/ OT060148
Martin County	SFWMD/ DEP	MC-15	Tropical Farms Water Quality Retrofit	43.2 ac-ft of water quality treatment (1.11 inches).	BMP Treatment Train	Completed	2010	2,845	826	South Fork	470	$4,047,219	Not provided	DEP/ SFWMD	SFWMD – $1,412,000/ DEP – $1,180,589	OT060152/ SO361
Martin County	SFWMD	MC-17	Danforth Creek – Phase 1	8.1-acre wet detention pond with littoral plantings and control structure.	Regional Stormwater Treatment	Completed	2014	6,132	2,266	C-44/S-153, Basin 4/5, Basin 6, South Fork	2,459	$1,869,255	Not provided	SFWMD	$1,035,515	N/A
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	108	69	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-19	Baffle Box and Structure Cleanout	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	397	161	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Completed	N/A	16,644	2,831	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A
Martin County	FDOT	MC-21	FM# 230978-1 Indian St. Bridge (Pond East)	Not provided.	Dry Detention Pond	Completed	2014	12	2	South Fork	21	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	FDOT	MC-22	FM# 230978-1 Indian St. Bridge (Pond West)	Not provided.	Wet Detention Pond	Completed	2014	109	33	Basin 6, South Fork	34	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	DEP	MC-26	Poinciana Gardens Water Quality Retrofit Phases I and II	Treatment train system, 87.36 ac-ft of wet detention and baffle box.	BMP Treatment Train	Completed	2003	983.8	284.4	South Fork, South Coastal	188	$2,960,547	Not provided	DEP	$2,235,091	WAP025
Martin County	N/A	MC-30	Old Palm City Beemats	Not provided.	Floating Islands/ MAPS	Completed	2013	TBD	TBD	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$21,996	Not provided	Not provided	Not provided	N/A
Martin County	FDACS	MC-32	Danforth Creek HWTT	Not provided.	HWTT	Completed	2016	5,312	1,287	C-44/S-153, Basin 4/5, Basin 6, South Fork	2,419	$3,000,000	Not provided	FDACS	$3,000,000	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Martin County	N/A	MC-34	Halpatiokee Park Rain Garden	Not provided.	LID- Rain Gardens	Completed	2015	Not provided	Not provided	South Fork	Not provided	$1,500	Not provided	Not provided	Not provided	N/A
Martin County	DEP	MC-37	All American Ditch	Not provided.	Regional Stormwater Treatment	Completed	2016	980	298	Basin 6, South Fork	268	$5,165,376	Not provided	DEP	$3,000,000	S0758/ G0414
Martin County	N/A	MC-41	Old Palm City Phase IV	Not provided.	BMP Treatment Train	Planned	2021	80	29	South Fork	TBD	TBD	TBD	N/A	N/A	N/A
Martin County	DEP	MC-43	East Fork Creek STA	700-foot-long STA and 1,500-foot-long lake in unopened right-of-way and FDOT Lateral Ditch to provide stormwater treatment.	Regional Stormwater Treatment	Planned	2021	TBD	TBD	South Fork, South Coastal	TBD	TBD	TBD	DEP	$1,200,000	LPQ0004
City of Stuart	DEP/ SFWMD/ Healthy Rivers/ FCT	S-01	Poppleton Creek – Phase II and III	Muck sediment removal, creation of 6.5-acre retention pond, and 160-foot weir. Habitat reconstruction; passive recreational improvements. 4 continuous deflective separation (CDS) baffle box units and street sweeping in basin.	BMP Treatment Train	Completed	2008	2,184	748	South Fork, South Coastal, South Mid-Estuary	629	$4,371,250	Not provided	DEP/ SFWMD/ Healthy Rivers/ FCT	Not provided	S0278/ G0083
City of Stuart	SFWMD/ FEMA/Martin County	S-02	Airport Ditch Project	Conversion of 2 uncontrolled drainage ditches to tide into retention/detention facilities controlled by "v" notch weirs.	Online Retention BMPs	Completed	2003	815	421	South Fork, South Mid-Estuary	894	$766,756	Not provided	SFWMD/ FEMA/ Martin County	Not provided	N/A
City of Stuart	SFWMD	S-03	Crescent Basin Project	Stormwater retention through 3 first-generation baffle boxes.	Online Retention BMPs	Completed	2003	502	83	South Fork	59	$180,000	Not provided	City/ SFWMD	Not provided	N/A
City of Stuart	DEP/ SFWMD	S-04	Krueger Creek Project	Removal of "ooze" sediments and installation of 4 baffle boxes plus 2 CDS units in 2010.	Baffle Boxes-First Generation (hydrodynamic separator)	Completed	2001	18	14	South Fork, South Mid-Estuary	310	$432,000	Not provided	City/ SFWMD/ DEP	Not provided	WAP015/ G0083
City of Stuart	N/A	S-05	Street Sweeping	Pavement cleaning by sweeping, vacuum, or washing.	Street Sweeping	Completed	N/A	275	176	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$33,000	Not provided	City	Not provided	N/A
City of Stuart	N/A	S-06	Sediment Removal from Storm Systems	Removal and proper disposal of sediment captured by catch basin inserts.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	54	33	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	N/A	$75,000	City	Not provided	N/A
City of Stuart	N/A	S-07	Education Program	FYN Program. City ordinances for landscaping, irrigation, fertilizer, and pet waste	Education Efforts	Completed	N/A	2,202	371	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$30,150	Not provided	City	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				management. City stormwater website. Stormwater calendars. Pollution prevention information posted on electronic billboards 365 days/yr from 12 PM to 1 PM.												
City of Stuart	DEP/ Florida Inland Navigation District (FIND)/ Healthy Rivers	S-09	Anchorage Drainage Basin	There is 1 existing first-generation baffle box and 3 FDOT dry detention ponds in basin. Ponds receive runoff from roadways and portion of Roosevelt Bridge. Street swept in basin.	Baffle Boxes- First Generation (hydrodynamic separator)	Completed	2002	1	1	South Fork, South Mid-Estuary	21	$766,500	Not provided	City/ DEP/ FIND/ Healthy Rivers	Not provided	Not provided
City of Stuart	DEP	S-10	Downtown Drainage Basin	Drainage basin contains 4 first-generation baffle boxes and 4 CDS units installed between 2000 and 2012; 3 catch basin filter baskets installed in 2010–11. Streets swept 12 times per month.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2002	7	5	South Fork, South Mid-Estuary	117	$275,000	Not provided	City/ DEP	Not provided	G0083
City of Stuart	N/A	S-12	Landfill Basin	Landfill closed; ongoing groundwater monitoring, zero discharge. Closed basin with no outfall.	100% On-site Retention	Completed	2013	539	95	South Fork	71	$29,144	Not provided	City	Not provided	N/A
City of Stuart	N/A	S-13	South Fork Drainage Basin	There are 2 first-generation baffle boxes in northwest portion of basin and 1 unimproved ditch along south side of SE Ruhnke St. that flows to wooded area on west side of basin boundary within city jurisdiction.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2002	15	12	South Fork	663	Not provided	Not provided	City	Not provided	N/A
City of Stuart	DEP	S-14	Neighborhood Initiated Sewer Expansion Program	Sewer expansion program to phase out septic tanks by expanding sewer service into areas of city using low pressure sewer system piping along road rights-of-way and individual residential grinder	OSTDS Phase Out	Completed	2013	1,341	N/A	South Fork, South Mid-Estuary	N/A	$3,200,000	Not provided	City/ DEP	Not provided	S0793/ S0821

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				pump station at each home.												
City of Stuart	N/A	S-15	Eldorado Heights	Area of land within south-central area of Stuart city limits that does not discharge to surface waterbody or adjacent basin.	Closed Basin	Completed	2012	342	59	South Fork	30	$779,000	Not provided	City	Not provided	N/A
City of Stuart	N/A	S-18	Nondischarge Areas	Area within eastern city limits with no stormwater infrastructure and no outfalls discharging to adjacent basin.	Noncontributing Basin	Completed	2014	2,386	412	South Fork, South Mid-Estuary	218	N/A	N/A	City	Not provided	N/A
City of Stuart	DEP	S-19	Baffle Boxes (22) Throughout City	Concrete structures containing series of sediment settling chambers separated by baffles. Boxes are vacuum cleaned base on sediment depth inspection by city stormwater staff.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2014	27	21	North Fork, South Fork, South Mid-Estuary, North Mid-Estuary	475	N/A	Not provided	City/ DEP	Not provided	G0083
City of Stuart	DEP	S-20	CDS Units Throughout City	Hydrodynamic separators that capture, sediment, trap debris, and separate floating oils from runoff. CDS units are vacuum cleaned based on sediment depth inspections by city stormwater staff.	Hydrodynamic Separators	Completed	2014	0	13	South Fork, South Mid-Estuary	66	N/A	Not provided	City/ DEP	Not provided	G0083
City of Stuart	N/A	S-21	SW South Carolina Dr. Drainage Project	Installation of stormwater conveyance system and first-generation baffle box in residential area to eliminate unrestricted sheet flow to St. Lucie River.	Stormwater System Rehabilitation	Completed	2016	0	0	South Fork	3	$100,936	Not provided	City	Not provided	N/A
City of Stuart	DEP	S-22	Poppleton Creek Tidal Wetlands Creation and Restoration	Construct tidal red mangrove wetlands on 4.3 acres of city-owned property south of and adjacent to Poppleton Creek east of Palm City Rd. Project will clear exotic vegetation and create tidal wetlands.	Wetland Restoration	Completed	2018	152	0	South Fork	500	$270,200	TBD	City/ DEP	Not provided	G0363

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
City of Stuart	DEP/ Healthy Rivers	S-24	Frazier Creek Pond	Construction of wet detention pond to eliminate unrestricted flow from ditch to tide.	Wet Detention Pond	Completed	2002	898	377	South Fork, South Mid-Estuary	379	$1,702,000	Not provided	City/ DEP/ Healthy Rivers	Not provided	WAP016
Turnpike Enterprise	N/A	T-03	Thomas B. Manuel Bridge North Pond	Not provided.	Dry Detention Pond	Completed	2013	8	1	South Fork	10	Not provided	N/A	Not provided	Not provided	N/A
Turnpike Enterprise	N/A	T-04	Education Program	No fertilizer on rights-of-way, educational signage, illicit discharge training.	Education Efforts	Completed	N/A	268	45	North Fork, Basin 4/5, South Fork	N/A	Not provided	N/A	Not provided	Not provided	N/A
Turnpike Enterprise	N/A	T-05	Street Sweeping	1,944 lane miles swept and 28,323 lbs (or 12,847 kg) of debris collected.	Street Sweeping	Completed	N/A	144	10	North Fork, Basin 4/5, South Fork	N/A	Not provided	N/A	Not provided	Not provided	N/A

3.8.3.2. Future Projects

Table 63 lists the future projects provided by the stakeholders for the South Fork Basin.

Table 63. Future projects in the South Fork Basin

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Cost Estimate	Cost Annual O&M
Martin County	N/A	F-09	East Fork Creek STA	Design and construct STA with control structure and associated piping.	Wet Detention Pond	Future	TBD	TBD	TBD	South Fork, South Coastal	$2,350,000	TBD
Martin County	N/A	F-10	East Hansen Grant Retrofit-Phase III	Design and construct retention/detention facilities to treat water from commercial/ industrial area of Stuart.	TBD	Future	TBD	TBD	TBD	South Fork	$2,275,000	TBD

3.9. South Coastal Basin

The South Coastal Basin covers 7,992 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 64**, the primary land use is urban and built-up. Stakeholders in the basin include FDOT, Martin County, and the City of Stuart.

Table 64. Summary of land uses in the South Coastal Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	6,053	75.7
2000	Agriculture	29	0.4
3000	Upland Nonforested	142	1.8
4000	Upland Forests	804	10.1
5000	Water	229	2.9
6000	Wetlands	273	3.4
7000	Barren Land	9	0.1
8000	Transportation, Communication, and Utilities	453	5.7
	Total	**7,992**	**100**

3.9.1. Water Quality Monitoring

Table 65 summarizes the water quality monitoring stations in the South Coastal Basin, and **Figure 17** shows the station locations.

Table 65. Water quality monitoring stations in the South Coastal Basin

Basin	Representative Site?	Entity	Station ID	Tier
South Coastal	Yes	SFWMD	SLT-37A	2
South Coastal	Yes	SFWMD	SLT-44	2
South Coastal	Yes	SFWMD	SLT-36	2
South Coastal	Yes	SFWMD	SLT-35	2
South Coastal	No	SFWMD	SLE-11	1

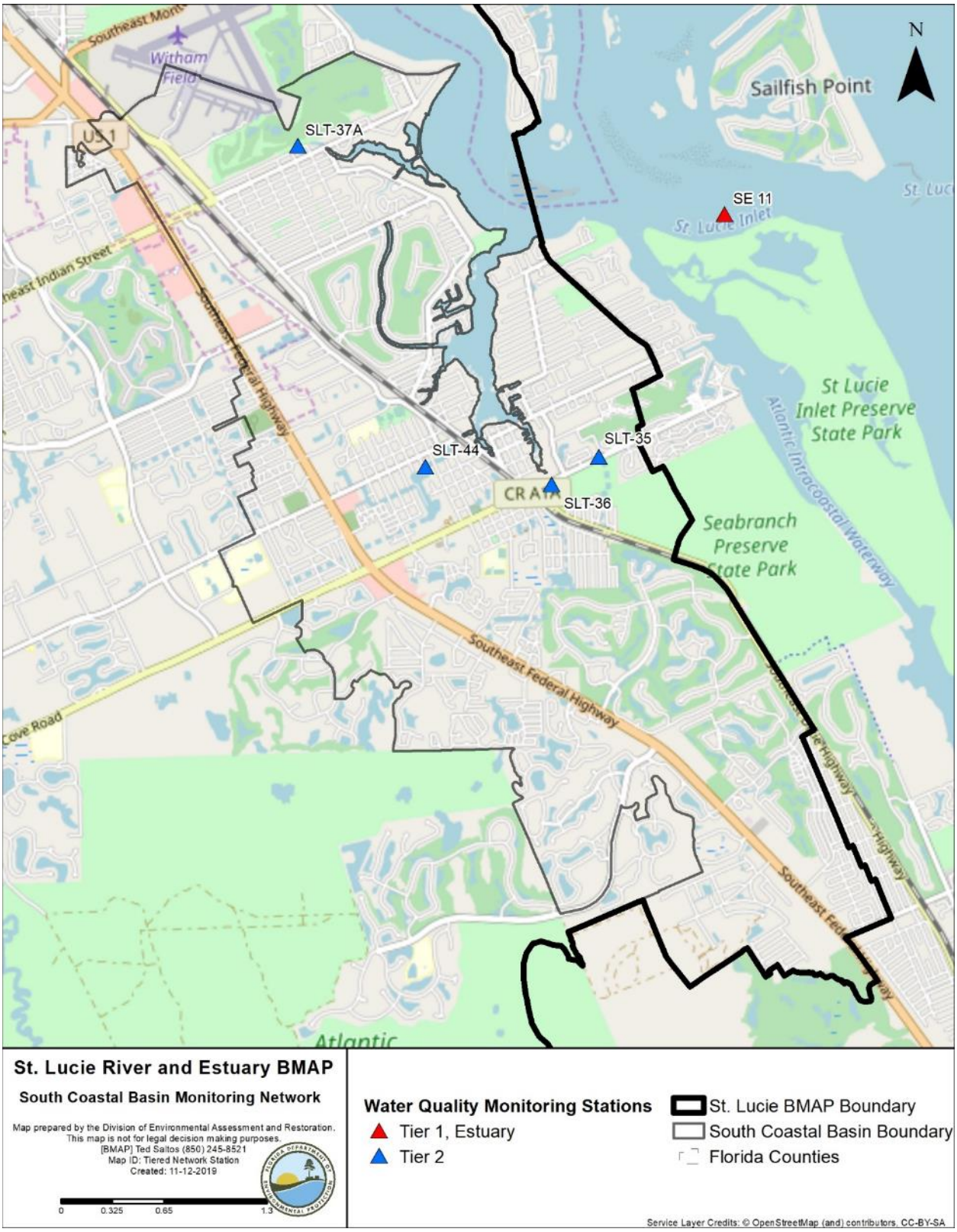


Figure 17. South Coastal Basin monitoring stations

3.9.2. Basin Evaluation Results

Table 66 summarizes the basin evaluation results based on data from WY2014–WY2018 for the South Coastal Basin. The current TN concentration is 0.96 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.096 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. No FWM concentrations were calculated for this basin. No significant trend was detected for TN or TP concentration changes over time.

Table 67 lists the TRA prioritization results for the South Coastal Basin, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 66. Basin evaluation results for the South Coastal Basin

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
9	South Coastal	0.96	N/A	N/A	No significant trend	0.096	N/A	N/A	No significant trend

Table 67. TRA evaluation results for the South Coastal Basin

Basin	Stations	TN Priority	TP Priority
South Coastal	SLT-37A, SLT-35, SLT-36, SLT-44	2	2

3.9.3. Projects

The tables below summarize the existing and planned and future projects for the South Coastal Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.9.3.1. Existing and Planned Projects

Table 68 summarizes the existing and planned projects provided by the stakeholders for the South Coastal Basin.

Table 68. Existing and planned projects in the South Coastal Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDOT	N/A	FDOT-14	FM# 228801-1	Road widening of SR 5 from Seabranch Blvd to north of Salerno Rd.	Dry Detention Pond	Completed	2003	1		South Coastal	2.00	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	31	6	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	TBD	TBD	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
Martin County	SFWMD/ DEP	MC-06	Manatee Creek Water Quality Retrofit Phases I, II, and III	30.4 ac-ft of water quality treatment (0.44 inches).	BMP Treatment Train	Completed	2012	6	4	South Fork, South Coastal	16.00	$7,026,439.00	Not provided	DEP/ SFWMD	DEP – $1,833,992/ SFWMD – $2,591,205	OT040740/ SO0257
Martin County	SFWMD/ DEP	MC-09	Salerno Creek Water Quality Retrofit	54.5 ac-ft of water quality treatment (1.03 inches).	BMP Treatment Train	Completed	2003	408	134	South Fork, South Coastal	208.00	$4,715,074.00	Not provided	DEP	$1,541,568	OT060149/ WAP068/ WM800/ SP379
Martin County	SFWMD/ DEP	MC-10	Coral Gardens Water Quality Retrofit	8.5 ac-ft of water quality treatment (0.05 inches).	BMP Treatment Train	Completed	2005	1,376	936	South Fork, South Coastal	2,008.00	$2,321,860.00	Not provided	DEP	$2,009,741	OT040741/ SO116
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	119	76	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork,	N/A	Not provided	Not provided	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
										South Coastal, South Mid-Estuary, North Mid-Estuary						
Martin County	N/A	MC-19	Baffle Box and Structure Cleanout	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	266	163	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Completed	N/A	6,049	1,342	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A
Martin County	DEP	MC-23	Golden Gate Water Quality Retrofit Phases I, II	Treatment train system, baffle boxes, dry detention, and 5.61 ac-ft of wet detention.	BMP Treatment Train	Completed	2003	1,150	280	South Coastal	202.00	$2,046,145.00	Not provided	DEP	$1,322,772	WAP030/ G0012
Martin County	DEP	MC-24	Golden Gate Water Quality Retrofit Phase III	Treatment train system, baffle boxes, and 2.26 ac-ft of wet detention	BMP Treatment Train	Completed	2004	123	37	South Coastal	27.00	$584,371.00	Not provided	DEP	$313,060	SO105
Martin County	DEP	MC-25	Hibiscus Park Water Quality Retrofit Phases I and II	1.24 ac-ft of wet detention volume.	Wet Detention Pond	Completed	2007	24	7	South Coastal	5.00	$1,390,574.00	Not provided	DEP	$687,715	OT050696
Martin County	DEP	MC-26	Poinciana Gardens Water Quality Retrofit Phases I and II	Treatment train system, 87.36 ac-ft of wet detention and baffle box.	BMP Treatment Train	Completed	2003	TBD	TBD	South Fork, South Coastal	188.00	$2,960,547.00	Not provided	DEP	$2,235,091	WAP025
Martin County	N/A	MC-27	Willoughby Creek Muck Dredging	Not provided.	Muck Removal/ Restoration Dredging	Completed	2012	TBD	TBD	South Coastal	N/A	$13,200,000.00	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-28	Manatee Pocket Dredging	Not provided.	Muck Removal/Restoration Dredging	Completed	2012	TBD	TBD	South Coastal	N/A	$1,000,000.00	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-30	Old Palm City Beemats	Not provided.	Floating Islands/ MAPS	Completed	2013	TBD	TBD	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$ 21,996.00	Not provided	Not provided	Not provided	N/A
Martin County	DEP	MC-35	Manatee Pocket SW Prong Baffle Box	Not provided.	Baffle Boxes – Second Generation	Completed	2016	255	46	South Coastal	236.00	$232,505.00	Not provided	DEP	$100,000	S0759

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Martin County	DEP	MC-36	Martin County Golf Course WQ	Not provided.	Wet Detention Pond	Completed	2016	548	205	South Coastal, South Mid-Estuary	207.00	$156,255.00	Not provided	DEP	$50,000	S0765
Martin County	N/A	MC-39	Willoughby Creek STA	Not provided.	BMP Treatment Train	Underway	2019	1,554	411	South Coastal	TBD	Not provided	Not provided	Not provided	Not provided	N/A
City of Stuart	DEP/ SFWMD/ Healthy Rivers/ FCT	S-01	Poppleton Creek – Phase II and III	Muck sediment removal, creation of 6.5-acre retention pond, and 160-foot weir. Habitat reconstruction; passive recreational improvements. 4 CDS baffle box units and street sweeping in basin.	BMP Treatment Train	Completed	2008	1,299	576	South Fork, South Coastal, South Mid-Estuary	629.00	$4,371,250.00	Not provided	DEP/ SFWMD/ Healthy Rivers/ FCT	Not provided	S0278/ G0083
City of Stuart	N/A	S-05	Street Sweeping	Pavement cleaning by sweeping, vacuum, or washing.	Street Sweeping	Completed	N/A	111	71	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$33,000.00	Not provided	City	Not provided	N/A
City of Stuart	N/A	S-06	Sediment Removal from Storm Systems	Removal and proper disposal of sediment captured by catch basin inserts.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	97	59	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	N/A	$75,000.00	City	Not provided	N/A
City of Stuart	N/A	S-07	Education Program	FYN Program. City ordinances for landscaping, irrigation, fertilizer, and pet waste management. City stormwater website. Stormwater calendars. Pollution prevention information posted on electronic billboards 365 days/yr from 12 PM to 1 PM.	Education Efforts	Completed	N/A	840	186	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$30,150.00	Not provided	City	Not provided	N/A

3.9.3.2. Future Projects

Table 69 lists the future projects provided by the stakeholders for the South Coastal Basin.

Table 69. Future projects in the South Coastal Basin

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Cost Estimate	Cost Annual O&M
Martin County	N/A	F-09	East Fork Creek STA	Design and construct STA with control structure and associated piping.	Wet Detention Pond	Future	TBD	TBD	TBD	South Fork, South Coastal	$2,350,000	TBD
Martin County	N/A	F-11	Horseshoe Point Road Exfiltration	Design and construct exfiltration trenches and roadway swales.	Exfiltration	Future	TBD	TBD	TBD	South Coastal	$250,000	TBD
Martin County	N/A	F-12	Manatee Pocket SW Prong STA	Design and construct STA with control structure and associated piping.	Wet Detention Pond	Future	TBD	TBD	TBD	South Coastal	$1,725,000	TBD
Martin County	N/A	F-13	Rocky Point Exfiltration and Baffle Boxes	Design and construct exfiltration trenches, roadway swales, and baffle boxes.	Exfiltration and Baffle Boxes	Future	TBD	TBD	TBD	South Coastal	$1,000,000	TBD
Martin County	N/A	F-14	Golden Gate Rehabilitation	Design and construct deep-water lake in STA and recontour entire facility.	Wet Detention Pond	Planning	TBD	TBD	TBD	South Coastal	$1,000.000	TBD

3.10. South Mid-Estuary Basin

The South Mid-Estuary Basin covers 2,080 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 70**, urban and built-up is the largest land use category in the basin. Stakeholders in the basin include FDOT, Martin County, and the City of Stuart.

Table 70. Summary of land uses in the South Mid-Estuary Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	1,417	68.1
2000	Agriculture	-	-
3000	Upland Nonforested	7	0.3
4000	Upland Forests	212	10.2
5000	Water	33	1.6
6000	Wetlands	-	-
7000	Barren Land	-	-
8000	Transportation, Communication, and Utilities	411	19.8
	Total	**2,080**	**100**

3.10.1. Water Quality Monitoring

Table 71 summarizes the water quality monitoring stations in the South Mid-Estuary Basin, and **Figure 18** shows the station locations.

Table 71. Water quality monitoring stations in the South Mid-Estuary Basin

Basin	Representative Site?	Entity	Station ID	Tier
South Mid-Estuary	Yes	SFWMD	SLT-38, 38A	2
South Mid-Estuary	No	SFWMD	SE-01	1

Figure 18. South Mid-Estuary Basin monitoring stations

3.10.2. Basin Evaluation Results

Table 72 summarizes the basin evaluation results based on data from WY2014–WY2018 for the South Mid-Estuary Basin. The current TN concentration is 0.62 mg/L, which is below the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.032 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. No FWM concentrations were calculated for this basin. No significant trend was detected for TN or TP concentration changes over time.

Table 73 lists the TRA prioritization results for the South Mid-Estuary Basin, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 72. Basin evaluation results for the South Mid-Estuary Basin

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	TP Trend Analysis
10	South Mid-Estuary	0.62	N/A	N/A	No significant trend	0.032	N/A	N/A	No significant trend

Table 73. TRA evaluation results for the South Mid-Estuary Basin

Basin	Station	TN Priority	TP Priority
South Mid-Estuary	SLT-38, SLT-38A	3	3

3.10.3. Projects

The tables below summarize the existing and planned and future projects for the South Mid-Estuary Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.10.3.1. Existing and Planned Projects

Table 74 summarizes the existing and planned projects provided by the stakeholders for the South Mid-Estuary Basin.

Table 74. Existing and planned projects in the South Mid-Estuary Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDOT District 4	N/A	FDOT-11	FM# 228821-1 (West 1 A)	SR A1A Evans Crary Senior Bridge replacement.	Exfiltration Trench	Completed	2001	11	2	South Mid-Estuary	2	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
Martin County	SFWMD/ DEP	MC-01	Cedar Point Water Quality Retrofit	1.7 ac-ft of water quality treatment (0.36 inches).	BMP Treatment Train	Completed	2004	106	39	South Mid-Estuary	31	$398,027	Not provided	DEP	$127,000	SO101
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	108	69	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Martin County	N/A	MC-19	Baffle Box and Structure Cleanout	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	397	161	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, illicit discharge program.	Education Efforts	Completed	N/A	16,644	2,831	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A
Martin County	N/A	MC-30	Old Palm City Beemats	Not provided.	Floating Islands/ MAPS	Completed	2013	TBD	TBD	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$21,996	Not provided	Not provided	Not provided	N/A
Martin County	DEP	MC-36	Martin County Golf Course WQ	Not provided.	Wet Detention Pond	Completed	2016	873	253	South Coastal, South Mid-Estuary	207	$156,255	Not provided	DEP	$50,000	S0765
City of Stuart	DEP/ SFWMD/ Healthy Rivers/ FCT	S-01	Poppleton Creek – Phase II and III	Muck sediment removal, creation of 6.5-acre retention pond and 160-foot weir. Habitat reconstruction; passive recreational improvements. 4 CDS baffle box units and street sweeping in basin.	BMP Treatment Train	Completed	2008	2,184	748	South Fork, South Coastal, South Mid-Estuary	629	$4,371,250	Not provided	DEP/ SFWMD/ Healthy Rivers/ FCT	Not provided	S0278/ G0083
City of Stuart	SFWMD/ FEMA/Martin County	S-02	Airport Ditch Project	Conversion of 2 uncontrolled drainage ditches to tide into retention/detention facilities controlled by "v" notch weirs.	On-line Retention BMPs	Completed	2003	815	421	South Fork, South Mid-Estuary	894	$766,756	Not provided	SFWMD/ FEMA/ Martin County	Not provided	N/A
City of Stuart	DEP/ SFWMD	S-04	Krueger Creek Project	Removal of "ooze" sediments and installation of 4 baffle boxes plus 2 CDS units in 2010.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2001	18	14	South Fork, South Mid-Estuary	310	$432,000	Not provided	City/ SFWMD/ DEP	Not provided	WAP015/ G0083
City of Stuart	N/A	S-05	Street Sweeping	Pavement cleaning by sweeping, vacuum, or washing.	Street Sweeping	Completed	N/A	275	176	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$33,000	Not provided	City	Not provided	N/A
City of Stuart	N/A	S-06	Sediment Removal from Storm Systems	Removal and proper disposal of sediment captured by catch basin inserts.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	54	33	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	N/A	$75,000	City	Not provided	N/A
City of Stuart	N/A	S-07	Education Program	FYN Program. City ordinances for landscaping, irrigation, fertilizer, and pet	Education Efforts	Completed	N/A	2,202	371	North Fork, South Fork, South Coastal, South	N/A	$30,150	Not provided	City	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				waste management. City stormwater website. Stormwater calendars. Pollution prevention information posted on electronic billboards 365 days/yr from 12 PM to 1 PM.						Mid-Estuary, North Mid-Estuary						
City of Stuart	DEP/ FIND/ Healthy Rivers	S-09	Anchorage Drainage Basin	There is 1 existing first-generation baffle box and 3 FDOT dry detention ponds in basin. Ponds receive runoff from roadways and portion of Roosevelt Bridge. Street swept in basin.	Baffle Boxes-First Generation (hydrodynamic separator)	Completed	2002	1	1	South Fork, South Mid-Estuary	21	$766,500	Not provided	City/ DEP/ FIND/ Healthy Rivers	Not provided	Not provided
City of Stuart	DEP	S-10	Downtown Drainage Basin	Drainage basin contains 4 first-generation baffle boxes and 4 CDS units installed between 2000 and 2012; 3 catch basin filter baskets installed in 2010–11. Streets swept 12 times per month.	Baffle Boxes-First Generation (hydrodynamic separator)	Completed	2002	7	5	South Fork, South Mid-Estuary	117	$275,000	Not provided	City/ DEP	Not provided	G0083
City of Stuart	DEP	S-11	Hildebrad Basin	1 CDS unit and 7 catch basin filter baskets installed in 2010–11; includes street sweeping in basin.	Hydrodynamic Separators	Completed	2009	0	13	South Mid-Estuary	67	$388,480	Not provided	City/ DEP	Not provided	G0083
City of Stuart	DEP	S-14	Neighborhood Initiated Sewer Expansion Program	Sewer expansion program to phase out septic tanks by expanding sewer service into areas of city using low pressure sewer system piping along road rights-of-way, and individual residential grinder pump station at each home.	OSTDS Phase Out	Completed	2013	1,341	N/A	South Fork, South Mid-Estuary	N/A	$3,200,000	Not provided	City/ DEP	Not provided	S0793/ S0821
City of Stuart	Martin Memorial Health Systems/ SFWMD	S-16	Amerigo Avenue Drainage Improvements	Construction of dry retention areas to eliminate street flooding, provide water quality treatment, and TMDL reductions.	Dry Detention Pond	Completed	2014	70	11	South Mid-Estuary	10	$679,557	Not provided	City/ Martin Memorial Health Systems/ SFWMD	Not provided	N/A
City of Stuart	N/A	S-18	Nondischarge Areas	Area within eastern city limits with no stormwater infrastructure and no outfalls discharging to adjacent basin.	Non-contributing Basin	Completed	2014	2,386	412	South Fork, South Mid-Estuary	218	N/A	N/A	City	Not provided	N/A
City of Stuart	DEP	S-19	Baffle Boxes (22) Throughout City	Concrete structures containing series of sediment settling chambers separated by baffles. Boxes	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2014	27	21	North Fork, South Fork, South Mid-Estuary, North Mid-Estuary	475	N/A	Not provided	City/ DEP	Not provided	G0083

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				are vacuum cleaned base on sediment depth inspection by city stormwater staff.												
City of Stuart	DEP	S-20	CDS Units Throughout City	Hydrodynamic separators that capture, sediment, trap debris, and separate floating oils from runoff. CDS units are vacuum cleaned based on sediment depth inspections by city stormwater staff.	Hydrodynamic Separators	Completed	2014	0	13	South Fork, South Mid-Estuary	66	N/A	Not provided	City/ DEP	Not provided	G0083
City of Stuart	DEP/ Healthy Rivers	S-24	Frazier Creek Pond	Construction of wet detention pond to eliminate unrestricted flow from ditch to tide.	Wet Detention Pond	Completed	2002	898	377	South Fork, South Mid-Estuary	379	$1,702,000	Not provided	City/ DEP/ Healthy Rivers	Not provided	WAP016

3.10.3.2. Future Projects

No future projects were provided by the stakeholders for the South Mid-Estuary Basin.

3.11. North Mid-Estuary Basin

The North Mid-Estuary Basin covers 3,957 acres of the St. Lucie River and Estuary Watershed. As shown in **Table 75**, the major land use is urban and built-up. Stakeholders in the basin include FDOT, Martin County, City of Stuart, and Town of Sewall's Point.

Table 75. Summary of land uses in the North Mid-Estuary Basin

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban and Built-Up	2,861	72.3
2000	Agriculture	-	-
3000	Upland Nonforested	193	4.9
4000	Upland Forests	473	12.0
5000	Water	111	2.8
6000	Wetlands	249	6.3
7000	Barren Land	-	-
8000	Transportation, Communication, and Utilities	70	1.8
	Total	**3,957**	**100**

3.11.1. Water Quality Monitoring

Table 76 summarizes the water quality monitoring stations in the North Mid-Estuary Basin, and **Figure 19** shows the station locations.

Table 76. Water quality monitoring stations in the North Mid-Estuary Basin

Basin	Representative Site?	Entity	Station ID	Tier
North Mid-Estuary	Yes	SFWMD	SLT-30A	2
North Mid-Estuary	Yes	SFWMD	SLT-29	2
North Mid-Estuary	No	SFWMD	SE-02	1

Figure 19. North Mid-Estuary Basin monitoring stations

3.11.2. Basin Evaluation Results

Table 77 summarizes the basin evaluation results based on data from WY2014–WY2018 for the North Mid-Estuary Basin. The current TN concentration is 0.93 mg/L, which is above the benchmark of 0.72 mg/L required to meet the TMDL. The current TP concentration is 0.023 mg/L, which is below the benchmark of 0.081 mg/L required to meet the TMDL. No FWM concentrations were calculated for this basin. No significant trend was detected for TN or TP concentration changes over time.

Table 78 lists the TRA prioritization results for the North Mid-Estuary Basin, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 77. Basin evaluation results for the North Mid-Estuary Basin

TRA ID	Basin Name	TN (mg/L) (Benchmark – 0.72)	TN FWM Concentration (mg/L)	TN UAL (lbs/ac)	TN Trend Analysis	TP (mg/L) (Benchmark – 0.081)	TP FWM Concentration (mg/L)	TP UAL (lbs/ac)	Trend Analysis
11	North Mid-Estuary	0.93	N/A	N/A	No significant trend	0.023	N/A	N/A	No significant trend

Table 78. TRA evaluation results for the North Mid-Estuary Basin

Basin	Stations	TN Priority	TP Priority
North Mid-Estuary	SLT-29, SLT-30A	2	3

3.11.3. Projects

The tables below summarize the existing and planned and future projects for the North Mid-Estuary Basin that were provided for the BMAP. The existing and planned projects are a BMAP requirement, while future projects will be implemented as funding becomes available for project implementation. **Appendix A** provides additional details about the projects and the terms used in these tables.

3.11.3.1. Existing and Planned Projects

Table 79 summarizes the existing and planned projects provided by the stakeholders for the North Mid-Estuary Basin.

Table 79. Existing and planned projects in the North Mid-Estuary Basin

Notes: For projects with multiple basins listed in the "Basin" column, the nutrient reductions provided in the table are the total estimated for the project and not applicable to a specific basin.
Projects SP-03, SP-04, SP-06, SP-11, SP-14, SP-15, SP-16, SP-20, SP-21, SP-22, SP-23, SP-24, SP-25, SP-26, SP-27, SP-28, SP-29, and SP-31 no longer fall within the BMAP area because of drainage evaluations and/or boundary changes.

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
FDOT District 4	N/A	FDOT-10	FM# 228819-1 (Basin A and B)	SR A1A Ernest Lyons Bridge replacement.	Wet Detention Pond	Completed	2007	0.4	0.1	North Mid-Estuary	0	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-12	FM# 228821-1 (East)	SR A1A Evans Crary Senior Bridge replacement.	Exfiltration Trench	Completed	2001	5	1	North Mid-Estuary	1	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	1,419	910	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-19	Public Education	Pamphlets.	Education Efforts	Completed	N/A	109	20	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
FDOT District 4	N/A	FDOT-57	Fertilizer Application Cessation	No longer routinely applying fertilizer.	Fertilizer Cessation	Completed	2016	23,881	5,970	North Fork, Ten Mile Creek, C-24, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Florida Legislature	Not provided	N/A
Martin County	SFWMD/ DEP	MC-02	Indian River Drive Baffle Boxes	6 second-generation baffle boxes.	Baffle Boxes – Second Generation	Completed	2010	77	11	North Mid-Estuary	39	$741,827	Not provided	DEP/ SFWMD	SFWMD – $187,000/ DEP – $208,137	SO363

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Martin County	SFWMD/ DEP	MC-03	Warner Creek/Leilani Heights Water Quality Retrofit Phase I	8.0 ac-ft of water quality treatment (0.14 inches).	BMP Treatment Train	Completed	2011	539	90	North Mid-Estuary	70	$541,854	Not provided	DEP/ SFWMD	DEP – $558,625/ SFWMD – $825,000/ SFWMD – $704,375	G0264
Martin County	SFWMD/ DEP	MC-04	Warner Creek Phase II	0.36-acre dry detention area with control structure	Dry Detention Pond	Completed	2012	16	3	North Mid-Estuary	15	$1,750,338	Not provided	DEP/ SFWMD	N/A	G0265
Martin County	SFWMD/ DEP	MC-05	Warner Creek Phase III –Beacon 21	2.96-acre wet detention area with control structure weir.	Wet Detention Pond	Completed	2012	3,103	1,218	North Mid-Estuary	1,354	$2,122,935	Not provided	DEP/ SFWMD	N/A	G0266
Martin County	SFWMD/ DEP	MC-07	Rio/St. Lucie – Water Quality Retrofit -Phase 1	3.0 ac-ft of water quality treatment (0.35 inches).	BMP Treatment Train	Completed	2006	71	12	North Mid-Estuary	8	$354,161	Not provided	DEP	$300,179	SO100
Martin County	SFWMD/ DEP	MC-08	Rio/St. Lucie – Water Quality Retrofit -Phase 2	5.1 ac-ft of additional water quality treatment and control structures on existing lakes (0.7 inches).	Wet Detention Pond	Completed	2008	428	124	North Mid-Estuary	120	$998,170	Not provided	DEP	$776,170	OT050685
Martin County	N/A	MC-16	Septic to Central Sewer Conversions	1,121 single-family and multifamily residential and commercial units in 5 neighborhoods.	OSTDS Phase Out	Completed	2014	15,386	N/A	North Fork, Basin 4/5, North Mid-Estuary	N/A	$28,678,946	Not provided	NEEPP – North River Shores neighborhood	Not provided	N/A
Martin County	N/A	MC-18	Street Sweeping	Not provided.	Street Sweeping	Completed	N/A	108	69	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-19	Baffle Box and Structure Cleanout	Not provided.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	397	161	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	Not provided	Not provided	N/A
Martin County	N/A	MC-20	Education Program	FYN; landscaping, irrigation, fertilizer, and pet waste ordinances; PSAs, pamphlets, website, illicit	Education Efforts	Completed	N/A	16,644	2,831	North Fork, C-23, C-44/S-153, Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	Not provided	Not provided	County	$60,000	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				discharge program.												
Martin County	SFWMD/ DEP	MC-29	Rio Water Quality Retrofit	Exfiltration trenches and baffle boxes	BMP Treatment Train	Completed	2014	420	69	North Mid-Estuary	50	$696,800	Not provided	DEP/ SFWMD	DEP – $240,000/ SFWMD – $310,000	SO642
Martin County	N/A	MC-30	Old Palm City Beemats	Not provided.	Floating Islands/ MAPS	Completed	2013	TBD	TBD	Basin 4/5, Basin 6, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$21,996	Not provided	Not provided	Not provided	N/A
Martin County	SFWMD	MC-38	Hilltop Street Exfiltration Trench	Not provided.	Exfiltration Trench	Completed	2016	123	20	North Mid-Estuary	15	$264,774	Not provided	SFWMD	$100,000	N/A
Martin County	N/A	MC-40	Savannah Road Exfiltration Trench	N/A	BMP Treatment Train	Canceled	N/A	N/A	N/A	North Mid-Estuary	N/A	N/A	N/A	N/A	N/A	N/A
City of Stuart	N/A	S-05	Street Sweeping	Pavement cleaning by sweeping, vacuuming, or washing.	Street Sweeping	Completed	N/A	275	176	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$33,000	Not provided	City	Not provided	N/A
City of Stuart	N/A	S-06	Sediment Removal from Storm Systems	Removal and proper disposal of sediment captured by catch basin inserts.	Catch Basin Inserts/Inlet Filter Cleanout	Completed	N/A	54	33	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	N/A	$75,000	City	Not provided	N/A
City of Stuart	N/A	S-07	Education Program	FYN Program. City ordinances for landscaping, irrigation, fertilizer, and pet waste management. City stormwater website. Stormwater calendars. Pollution prevention information posted on electronic billboards 365 days/yr from 12 PM to 1 PM.	Education Efforts	Completed	N/A	2,202	371	North Fork, South Fork, South Coastal, South Mid-Estuary, North Mid-Estuary	N/A	$30,150	Not provided	City	Not provided	N/A
City of Stuart	SFWMD/ Healthy Rivers	S-08	North Point CRA Drainage Basin	There is 1 existing first-generation baffle box and street sweeping in	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2002	4	3	North Fork, North Mid-Estuary	1,084	$1,339,000	Not provided	City/ SFWMD/ Healthy Rivers	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
				basin, existing FDOT swale along basin's east boundary, and 2 FDOT retention/ detention ponds near Roosevelt Bridge.												
City of Stuart	Martin County/ Healthy Rivers/ FCT/ DEP	S-17	Haney Creek Project – Phase I – IV	Creation of flow-through marsh and multiple wetlands and control structures to address stormwater quality, environmental restoration and preservation, greenways, passive recreation, and environmental education.	Filter Marsh	Completed	2016	737	224	North Mid-Estuary	626	$4,831,411	$9,600	Martin County/ Healthy Rivers/ FCT/ DEP	Not provided	WAP031
City of Stuart	DEP	S-19	Baffle Boxes (22) Throughout City	Concrete structures containing series of sediment settling chambers separated by baffles. Boxes are vacuum cleaned base on sediment depth inspection by city stormwater staff.	Baffle Boxes – First-Generation (hydrodynamic separator)	Completed	2014	27	21	North Fork, South Fork, South Mid-Estuary, North Mid-Estuary	475	N/A	Not provided	City/ DEP	Not provided	G0083
City of Stuart	DEP	S-23	East Heart of Haney Creek Wetlands Restoration	Restore eastern third of Heart of Haney Creek to wetlands by creating system of berms and weirs within 6 acres of exotic cleared area.	Wetland Restoration	Underway	2019	TBD	TBD	North Mid-Estuary	395	$220,000	TBD	City/ DEP	DEP – $90,000/ City – $110,000	S0891
Town of Sewall's Point	SFWMD	SP-01	Ridgeland Court Retrofit	Installation of exfiltration/baffle box.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2002	0	0	North Mid-Estuary	6	Not provided	$300,000	Town/ SFWMD	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Town of Sewall's Point	SFWMD	SP-02	Palm Court/Knowles	Installation of baffle box.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2000	0	0	North Mid-Estuary	13	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-03	Captain Cove	Installation of baffle box.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2000	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	5	Not provided	N/A	Town /SFWMD	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-04	Quail Run Park	Installation of direct link to detention area prior to discharge to Indian River.	Dry Detention Pond	Completed	2000	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	0	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	N/A	SP-05	Heritage Park	Installation of stormwater retrofit area in developed subdivision.	Stormwater System Rehabilitation	Completed	2000	0	0	North Mid-Estuary	5	Not provided	N/A	Town	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-06	Via Lucindia	Installation of exfiltration pipe.	Exfiltration Trench	Completed	2000	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	3	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-07	Rio Vista Park	Installation of baffle boxes/ erosion control for outfall to Indian River.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2002	0	0	North Mid-Estuary	24	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	N/A	SP-08	India Lucie	Installation of retrofit of weir/ retention area with 2 baffle boxes in old subdivision without retention to directly discharge to Indian River.	Stormwater System Rehabilitation	Completed	2003	5	2	North Mid-Estuary	31	Not provided	N/A	Martin County	Not provided	N/A
Town of Sewall's Point	FEMA	SP-09	India Lucie	Installation of retrofit of weir/ retention area with 2 baffle boxes in old subdivision without retention to directly discharge to Indian River.	Stormwater System Rehabilitation	Completed	2006	0	0	North Mid-Estuary	6	Not provided	N/A	Town/ FEMA	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-10	Periwinkle	Installation of baffle box.	Baffle Boxes – First-Generation	Completed	2000	0	0	North Mid-Estuary	16	Not provided	N/A	Town/ SFWMD	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
					(hydrodynamic separator)											
Town of Sewall's Point	N/A	SP-11	Palm Road	Installation of grass swales.	Grass swales without swale blocks or raised culverts	Completed	2008	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	1	Not provided	N/A	Town	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-12	Riverview	Installation of baffle box.	Baffle Boxes – First-Generation (hydrodynamic separator)	Completed	2002	1	0	North Mid-Estuary	10	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	N/A	SP-13	Pineapple Lane	Installation of outfall exfiltration.	Exfiltration Trench	Completed	2002	0	0	North Mid-Estuary	6	Not provided	N/A	Town	Not provided	N/A
Town of Sewall's Point	Town of Sewall's Point (TOSP)	SP-14	Copaire	Installation of baffle box.	Baffle Boxes – First-Generation (hydrodynamic separator)	Completed	2002	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	2	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	TOSP	SP-15	Homewood Park/South Sewall's Point Road	Installation of retention area with pervious Flexi-Pave and exfiltration pipe.	Online Retention BMPs	Completed	2009	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	14	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	DEP/ SFWMD	SP-16	Pedway/ Greenway	Installation of exfiltration/ pervious paver sidewalk.	BMP Treatment Train	Completed	2014	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	2	Not provided	N/A	Town/ DEP/ SFWMD	Not provided	G0333
Town of Sewall's Point	FDOT	SP-17	State Road A1A	Installation of outfall exfiltration.	Exfiltration Trench	Completed	2012	102	15	North Mid-Estuary	12	Not provided	N/A	FDOT	Not provided	N/A
Town of Sewall's Point	N/A	SP-18	Education Program	Fertilizer ordinance.	Education Efforts	Completed	N/A	24	4	North Mid-Estuary	N/A	N/A	N/A	Town	N/A	N/A
Town of Sewall's Point	N/A	SP-19	Street Sweeping	19 cubic yards of debris collected through street sweeping.	Street Sweeping	Completed	N/A	25	16	North Mid-Estuary	N/A	Not provided	N/A	Town	N/A	N/A
Town of Sewall's Point	N/A	SP-20	Delano Lane	Installation of exfiltration system.	Exfiltration Trench	Completed	2000	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	1	Not provided	N/A	Town	Not provided	N/A
Town of Sewall's Point	N/A	SP-21	Town Commons Park	Installation of water quality treatment/dry detention.	Dry Detention Pond	Completed	2002	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	1	Not provided	N/A	Town	Not provided	N/A
Town of Sewall's Point	N/A	SP-22	Island Road	Installation of exfiltration pipe with baffle box.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2002	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	5	Not provided	N/A	Town	Not provided	N/A

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Town of Sewall's Point	SFWMD	SP-23	Highpoint West	Installation of baffle box.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2000	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	8	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-24	Mandalay (Marguerita)	Installation of baffle box.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2000	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	15	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-25	Highpoint East	Installation of baffle box.	Baffle Boxes – First Generation (hydrodynamic separator)	Completed	2000	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	16	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	SFWMD	SP-26	High Point Exfiltration	Installation of exfiltration/swale.	BMP Treatment Train	Completed	2014	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	6	Not provided	N/A	Town/ SFWMD	Not provided	N/A
Town of Sewall's Point	N/A	SP-27	Extend Pedway/Greenway	Extension of existing pervious pedway by 9,000 linear feet to include pervious pavers and exfiltration.	BMP Treatment Train	Completed	2016	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	28	$201,483	N/A	Town	Not provided	N/A
Town of Sewall's Point	DEP/ SFWMD	SP-28	South Sewell's Point Road – Phase 1 Mandalay (Marguerita)	Installation of exfiltration system/baffle boxes and STA.	BMP Treatment Train	Underway	TBD	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	21	$2,000,000	N/A	Town/ DEP/ SFWMD	Town – $1,400,000/ DEP – $600,000	NS029
Town of Sewall's Point	N/A	SP-29	Baffle Boxes	Installation of baffle boxes in various locations.	Baffle Boxes – First Generation (hydrodynamic separator)	Underway	TBD	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	18	$315,000	N/A	Town	TBD	N/A
Town of Sewall's Point	N/A	SP-30	Indialucie	Installation of exfiltration system in wet retention area.	Exfiltration Trench	Completed	2014	11	2	North Mid-Estuary	31	Not provided	N/A	Town	Not provided	N/A
Town of Sewall's Point	N/A	SP-31	Quail Run Subdivision	Installation of exfiltration/swale.	BMP Treatment Train	Completed	2015	N/A	N/A	North Mid-Estuary (no longer in BMAP area)	4	Not provided	N/A	Town	Not provided	N/A
Town of Sewall's Point	N/A	SP-32	Septic Tank Elimination – Phase I	Conversion of existing septic tanks to sanitary sewer.	OSTDS Phase Out	Planned	TBD	TBD	N/A	North Mid-Estuary	17	$500,000	N/A	Town/ Florida Legislature	Not provided	N/A
Town of Sewall's Point	TBD	SP-33	Outfall Control Structures	Add control structures	Stormwater System Rehabilitation	Underway	TBD	TBD	TBD	North Mid-Estuary	TBD	$500,000	N/A	Town	TBD	TBD

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Acres Treated	Cost Estimate	Cost Annual O&M	Funding Source	Funding Amount	DEP Contract Agreement Number
Town of Sewall's Point	TBD	SP-34	South Sewall's Point Road – Phase 2	Installation of exfiltration system/baffle boxes and STA.	BMP Treatment Train	Planned	TBD	TBD	TBD	North Mid-Estuary	64	TBD	N/A	Town	TBD	TBD
Town of Sewall's Point	TBD	SP-35	South Sewall's Point Road – Phase 3	Installation of exfiltration system/baffle boxes and STA.	BMP Treatment Train	Planned	TBD	TBD	TBD	North Mid-Estuary	TBD	TBD	N/A	Town	TBD	TBD
Town of Sewall's Point	TBD	SP-36	South Sewall's Point Road – Phase 4	Installation of exfiltration system/baffle boxes and STA.	BMP Treatment Train	Planned	TBD	TBD	TBD	North Mid-Estuary	TBD	TBD	N/A	Town	TBD	TBD

3.11.3.2. Future Projects

Table 80 lists the future projects provided by the stakeholders for the North Mid-Estuary Basin.

Table 80. Future projects in the North Mid-Estuary Basin

Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Basin	Cost Estimate	Cost Annual O&M
City of Stuart	N/A	F-02	West Heart of Haney	Wetland restoration to improve water quality of stormwater discharging into St. Lucie River.	Wetland Restoration/ Filter Marsh	Future	TBD	TBD	North Mid-Estuary	TBD	TBD	TBD

Chapter 4. Summary

4.1. TRA Evaluation Results

Table 81 summarizes the results of the TRA evaluation process presented by basin in **Chapter 3** for the basins in the SLREW. For each basin, a priority was assigned based on the TN and TP concentrations. The TRA evaluation does not currently include an assessment of water quantity since a flow evaluation has not yet been completed. Once a complete flow evaluation is available, it will be reviewed for inclusion in future BMAP reporting.

These priorities were set to help focus resources and projects in the basins that are in most need of improvement. Priorities were set, with 1 the highest priority, 2 the next highest priority, and 3 a priority as resources allow.

Table 81. Summary of the TRA evaluation results

*SFWMD determined that additional investigations are needed regarding whether water quantity is an issue.

Basin	TN Priority	TP Priority
North Fork	3	3
Ten Mile Creek	1	1
C-24	1	1
C-23	1	1
C-44/S-153	1	1
Basin 4/5	2	1
Basin 6	2	2
South Fork	2	2
South Coastal	2	2
South Mid-Estuary	3	3
North Mid-Estuary	2	3

4.2. RFI Responses

To further identify restoration projects for this BMAP, DEP implemented an RFI in October 2019 to generate additional restoration projects or activities from both the public and private sectors. The effort was open to any interested parties who could propose a viable project for restoration and could be considered for inclusion in the final St. Lucie River and Estuary BMAP for funding consideration.

Overall, the RFI process generated 37 responses, mainly from the private sector. Submittals ranged from on-the-ground projects, such as STAs, to technologies that could be implemented in both aquatic and terrestrial environments. All submittals were reviewed, and **Appendix D** provides a summary of the submittals. Resources will be needed to implement any of these projects throughout the watershed, and they are being considered for DEP funding. Additional details on all responses are on file with DEP.

4.3. Future Growth

To ensure that this BMAP effort can achieve and ultimately maintain the goal of meeting TMDL requirements, the overall restoration strategy must include actions and planning for future growth and development. New development primarily falls into two general source categories: (1) urban and (2) agriculture. Nutrient impacts from new development are addressed through a variety of mechanisms as well as other provisions of Florida law.

While the majority of the restoration projects and programs listed in this BMAP address current loading, the need to plan and implement sound management strategies to address additional population growth in the BMAP area must be considered. DEP has included in this BMAP specific elements to address all current and future WWTF effluent, septic systems, and stormwater sources. Broader laws—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 for protecting water resources and reducing the impact of new development and other land use changes as they occur.

The recommendations presented in **Chapter 2** should be considered by local governments during master planning and land use decision-making efforts. At the time of BMAP development and adoption, many of these recommendations are not required by statute, but it is anticipated that some, if not all, of the recommendations may be a part of future legislative mandates and future BMAP iterations.

It should also be noted that any additional loading, such as from land use changes from low to high density, or any increase in intensity of use (that may include additional nutrient loadings), will be evaluated during future BMAP review efforts. If an increase in loading has occurred, additional restoration actions will be required to remediate impacts. DEP recommends that all local governments revise their planning and land use ordinance(s) to adequately address all future growth, and consider limitations on growth in sensitive areas, such as lands with a direct hydrologic connection to impaired waterbodies, wetland areas, or coastal areas.

4.4. Compliance

The TMDL sets a TN concentration target of 0.72 mg/L and a TP concentration target of 0.081 mg/L, as measured at the Roosevelt Bridge (SE 03) compliance point. The TMDL also includes a BOD target of 2.0 mg/L. The TMDL does not address a compliance calculation; however, for the purposes of this BMAP, compliance with the TMDL will be assessed by a 5-year rolling average of concentration values measured on a monthly basis at the SE 03 monitoring station. The 5-year rolling average will use data from the latest five WYs.

The TMDL is attained when the 5-year rolling average concentration at the SE 03 monitoring station is less than the TMDL target concentration.

Chapter 5. References

Florida Department of Environmental Protection. 2008. TMDL report. *Nutrient and dissolved oxygen TMDL for the St. Lucie Basin.* Tallahassee, FL: Division of Water Resource Management, Bureau of Watershed Management.

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

Kimley-Horn and Associates, Inc. 2010. *City of Ft. Pierce citywide stormwater master plan*. Prepared for the City of Fort Pierce, FL.

South Florida Water Management District. Buzzelli, Christopher, Wachnicka, Anna, Zheng, Fawen, Chen, Zhiqiang, Baldwin, Lucia, and Kahn-Dickens, Amanda. Chapter 8C: St. Lucie and Caloosahatchee River watershed research and water quality monitoring results and activities. *2019 South Florida Environmental Report.*

South Florida Water Management District. 2017. Draft report. *St. Lucie River and Estuary Watershed water quality modeling. Part I: Model calibration and verification of baseline scenario for the St. Lucie River and Estuary Basin Management Action Plan*. West Palm Beach, FL.

South Florida Water Management District, Florida Department of Environmental Protection, and Florida Department of Agriculture and Consumer Services. 2009. *St. Lucie River Watershed Protection Plan*.

South Florida Water Management District, Florida Department of Environmental Protection, and Amec Foster Wheeler. 2018. Draft report. *St. Lucie River and Estuary Watershed water quality modeling for the St. Lucie River and Estuary Basin Management Action Plan*.

Soil and Water Engineering Technology (SWET), Inc. 2008. *Legacy phosphorus abatement plan for project entitled "Technical assistance in review and analysis of existing data for evaluation of legacy phosphorus in the Lake Okeechobee Watershed."* West Palm Beach, FL: South Florida Water Management District.

URS, Inc. 2008. *WaSh model configuration, calibration, and validation for the St. Lucie Estuary Watershed.* Prepared for the Florida Department of Environmental Protection.

Appendices

Appendix A. BMAP Projects Supporting Information

The project tables in this BMAP list the implementation status of the BMAP projects as of June 30, 2019. The tables list the TN and TP reductions in lbs/yr attributable to each individual project. These projects were submitted to DEP by responsible entities with the understanding that the projects and activities would be included in the BMAP, thus setting the expectation for each entity to implement the proposed projects and activities to achieve the assigned load reduction estimates in the specified time.

However, the list of projects is meant to be flexible enough to allow for changes that may occur over time. During the annual review of BMAP implementation efforts, project-specific information may be revised and updated, resulting in changes to the estimated reductions for those projects. The revisions may increase or decrease estimated reductions, and DEP will work with stakeholders to address revisions as they are identified.

The project status column is standardized into the following four categories:

- **Canceled:** Project or activity that was planned but will no longer take place. This category includes the cessation of ongoing activities.
- **Completed:** Project, activity, or task that is finished. This category includes fully implemented activities (i.e., ongoing activities) that must continue to maintain assigned credits indefinitely (such as street sweeping, BMP cleanout, catch basin cleanout, public education, fertilizer cessation/reduction, and vegetation harvesting).
- **Planned:** Project or activity that is conceptual or proposed.
- **Underway:** Project or activity that has commenced or initiated but is not completed and is not yet reducing nutrient loads from the treated area.

Prior to reporting project information, DEP contacts each lead entity to gather new information on projects and confirm previously reported information. The terms used throughout the project tables are defined as follows:

- **Not provided:** Denotes that information was requested by DEP but was not provided by the lead entity.
- **TBD:** To be determined. Denotes that information is not currently available but will be provided by the stakeholder when it is available.
- **N/A:** Not applicable. Denotes that information for that category is not relevant to that project.

- **0: Zero.** Denotes the numeric value for that category as zero.

The project tables are based on current information, and project details may be updated as further information becomes available.

This BMAP requires stakeholders to implement their projects to achieve reductions as soon as practicable. However, the full implementation of the BMAP will be a long-term process. While some of the projects and activities listed in the BMAP were recently completed or are currently ongoing, several projects require more time to design, secure funding, and construct. Unlike the existing and planned projects, these future projects are not yet considered commitments of the entities but rather are intended for future BMAP credit, pending the availability of funding and other resources.

Although BMAP implementation is a long-term process, the goal of this BMAP is to achieve the TMDLs within 15 years from BMAP adoption. It is understood that all waterbodies can respond differently to the implementation of reduced loadings to meet applicable water quality standards. Continued coordination and communication by the stakeholders will be essential to ensure that management strategies continue to meet the implementation milestones.

DEP requested information from stakeholders on future projects and also released an RFI to obtain proposals for restoration projects and technologies with the potential for additional load reductions in the basin. Funding has not yet been identified for many of these future and RFI projects, and the additional funding of projects is a key part of making reductions required to achieve the TMDLs. The future project tables in **Chapter 3** will be updated as project details are refined and funding is obtained.

Appendix B. Agricultural Enrollment and Reductions

(Language in this appendix was provided by FDACS.)

All agricultural nonpoint sources in the St. Lucie River and Estuary BMAP area are statutorily required either to implement FDACS-adopted BMPs or to conduct water quality monitoring prescribed by DEP or the applicable water management district. Under Paragraph 403.067(7)(c), F.S., the implementation of FDACS-adopted, DEP-verified BMPs, in accordance with FDACS rules, provides a presumption of compliance with state water quality standards for the pollutants addressed by the BMPs.

FDACS Role in BMP Implementation and Followup

When DEP adopts a BMAP that includes agriculture, it is the agricultural landowner's responsibility to implement BMPs adopted by FDACS to help achieve load reductions. To date, FDACS OAWP has adopted BMP manuals by rule[2] for cow/calf, citrus, vegetable and agronomic crops, nurseries, equine, sod, dairy, poultry, and specialty fruit and nut operations. All OAWP BMP manuals are periodically revised, updated, and subsequently reviewed and preliminarily verified by DEP before readoption. OAWP intends to update BMP manuals every five years.

To enroll in the BMP Program, landowners must meet with OAWP to determine the BMPs that are applicable to their operation. The landowner must submit a NOI to implement the BMPs on the checklist from the applicable BMP manual to OAWP. 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.

OAWP is required to verify that landowners are implementing BMPs identified in their NOIs. Procedures used to verify the implementation of agricultural BMPs are outlined in Rule 5M-1.008, F.A.C. BMP implementation is verified using annual surveys submitted by producers enrolled in the BMP program and site visits by OAWP. Producers not implementing BMPs according to the process outlined in Title 5M-1, F.A.C., are referred to DEP for enforcement action after attempts at remedial action are exhausted.

BMP verification site visits are conducted to verify that all BMPs are being implemented correctly and to review nutrient and irrigation management records. In addition, OAWP verifies that cost-share items are being implemented correctly. Site visits are prioritized based on the date the NOI was signed, the date of the last BMP verification site visit, whether a survey was completed by the producer for the most recent year, and whether the operation has received cost-share funding. FDACS is to conduct an onsite inspection of each producer implementing BMPs

[2] https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-Management-Practices

at least every two years and provide information it obtains to DEP, subject to any confidentiality restrictions.

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

Adopted BMAP Agricultural Land Use and Enrollment

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. The time of year when land use data are collected (through aerial photography) affects the accuracy of photo interpretation. Flights are often scheduled during the winter months because of better weather conditions and reduced leaf canopies. While these are favorable conditions for capturing aerial imagery, they make photo interpretation for determining agricultural land use more difficult. Agricultural lands are often fallow in the winter months and can lead to inappropriate analysis of the photo imagery.

There is also a significant variation in the frequency with which various sources of data are collected and compiled, and older data are less likely to capture the frequent changes that often typify agricultural land use. In addition, it is not always apparent that an agricultural activity is being conducted on the land. Consequently, DEP relies on local stakeholder knowledge and coordination with FDACS to verify agricultural acreage and BMP implementation.

FDACS uses the FSAID Geodatabase to estimate agricultural acreages statewide. FSAID is derived from water management district land use data, and is refined using 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 Department of Plant Industry citrus data, water management district water use and permitting data, as well as field verification performed by USGS, the water management districts, and OAWP. Ongoing mapping and ground-truthing efforts of the FSAID dataset provide the best available data on the status of irrigated and nonirrigated agricultural lands in Florida.

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. When crop types on a specific parcel change, additional NOIs may be required for any new commodities being produced on the parcel, which could result in a reduction in enrolled acreage. OAWP BMP enrollments are delineated in GIS using county property appraiser parcels. Nonproduction areas such as forest, roads, urban structures, and water features are often included within the parcel boundaries. Conversely, agricultural lands in the FSAID only include areas identified as agriculture. To estimate the agricultural acres enrolled in the BMP Program, OAWP

overlays FSAID and BMP enrollment data within GIS to calculate the acres of agricultural land in an enrolled parcel.

To address the greatest resource concerns, OAWP prioritizes the enrollment of agricultural land uses. The highest priority parcels comprise all intensive operations, including dairies and nurseries, parcels greater than 50 acres in size, and agricultural parcels adjacent to waterways. In the St. Lucie River and Estuary BMAP area, there are approximately 60,000 acres (FSAID VI) of fallow citrus, some of which has been, or is going to be, converted to water farms. Projects to convert 3,655 acres have been constructed and are operational. Projects comprising another 15,000 acres are under construction or design/permitting.

When considering agricultural land uses and associated nonpoint source loads, it is important to note that the St. Lucie River and Estuary BMAP boundary overlaps portions of the Lake Okeechobee BMAP area. The total agricultural area represented by the overlap between watersheds is 81,661 acres, which comprises 29 % of the agricultural acreage in the St. Lucie River and Estuary BMAP. **Table B-1** and **Table B-2** list the agricultural acreage based on FSAID VI that is enrolled in each OAWP BMP Program commodity or in Lake Okeechobee Protection Plan (LOPP) enrollments. LOPP enrollments were made before OAWP adopted commodity-specific BMP manuals. LOPP enrollments are being reincorporated over time under the appropriate manuals—mostly cow/calf.

Table B-3 shows the agricultural acreage enrolled in the various BMP programs in the SLREW. **Tables B-4** through **B-11** show the agricultural land use acreage enrolled in the BMP Program by basin. The South Coastal Basin, South Mid-Estuary Basin, and North Mid-Estuary Basin do not have individual tables because no agricultural land use acres are enrolled in the BMP Program. **Figure B-1** shows the parcels enrolled in the BMP Program by commodity in the St. Lucie River and Estuary BMAP area; however, compliance with Section 403.067, F.S. is based on the NOIs and site visits described in **Section 1.2.2.1**.

Table B-1. Agricultural land use acreage enrolled summary in the BMP Program in the St. Lucie River and Estuary BMAP area as of June 2019

Category	Acres
FSAID VI agricultural acres in the BMAP area	283,609
Total agricultural acres enrolled	173,448
% of FSAID VI agricultural acres enrolled	61%

Table B-2. Agricultural land use acreage enrolled in the BMP Program in the St. Lucie River and Estuary BMAP area by basin

Basin	Total Agricultural Acres	Agricultural Acres Enrolled	% of Agricultural Acreage Enrolled
North Fork	7,161	1,928	27
Ten Mile Creek	33,271	11,877	36
C-24	59,804	42,785	72
C-23	81,466	60,127	74
C-44/S-153	81,660	48,083	59
Basin 4/5	1,949	78	4
Basin 6	454	19	4
South Fork	17,814	8,550	48
South Coastal	28	0	0
South Mid-Estuary	0	0	N/A
North Mid-Estuary	2	0	0
Total	**283,609**	**173,448**	**61**

Table B-3. Agricultural land use acreage enrolled in the St. Lucie River and Estuary BMAP area by BMP Program

Related OAWP BMP Programs	Agricultural Acres Enrolled
Citrus	20,292
Conservation Plan	522
Cow/Calf	96,673
Dairy	4
Equine	117
LOPP	2,896
Multiple Commodities	21,606
Nursery	416
Poultry	39
Row/Field Crop	29,288
Specialty Fruit and Nut	43
Sod	1,554
Total	**173,448**

Table B-4. Agricultural land use acreage enrolled in the BMP Program in the North Fork Basin

Related OAWP BMP Programs	Agricultural Acres Enrolled
Citrus	170
Cow/Calf	665
Multiple Commodities	<1
Nursery	42
Row/Field Crops	1,052
Total	**1,928**

Table B-5. Agricultural land use acreage enrolled in the BMP Program in the Ten Mile Creek Basin

Related OAWP BMP Programs	Agricultural Acres Enrolled
Citrus	2,914
Cow/Calf	7,343
Multiple Commodities	1,049
Nursery	265
Row/Field Crops	268
Specialty Fruit and Nut	39
Total	**11,877**

Table B-6. Agricultural land use acreage enrolled in the BMP Program in the C-24 Basin

Related OAWP BMP Programs	Agricultural Acres Enrolled
Citrus	5,172
Cow/Calf	21,257
LOPP	686
Multiple Commodities	15,232
Poultry	39
Row/Field Crops	401
Total	**42,785**

Table B-7. Agricultural land use acreage enrolled in the BMP Program in the C-23 Basin

Related OAWP BMP Programs	Agricultural Acres Enrolled
Citrus	10,257
Conservation Plan	522
Cow/Calf	41,806
Dairy	4
LOPP	2
Multiple Commodities	2,766
Row/Field Crops	4,270
Sod	501
Total	**60,127**

Table B-8. Agricultural land use acreage enrolled in the BMP Program in the C-44/S-153 Basin

Related OAWP BMP Programs	Agricultural Acres Enrolled
Citrus	1,022
Cow/Calf	20,356
Equine	117
LOPP	2,208
Multiple Commodities	2,228
Nursery	35
Row/Field Crops	21,065
Sod	1,052
Total	**48,083**

Table B-9. Agricultural land use acreage enrolled in the BMP Program in Basin 4/5

Related OAWP BMP Programs	Agricultural Acres Enrolled
Cow/Calf	29
Nursery	5
Specialty Fruit and Nut	45
Total	**78**

Table B-10. Agricultural land use acreage enrolled in the BMP Program in Basin 6

Related OAWP BMP Programs	Agricultural Acres Enrolled
Nursery	19
Total	**19**

Table B-11. Agricultural land use acreage enrolled in the BMP Program in the South Fork Basin

Related OAWP BMP Programs	Agricultural Acres Enrolled
Citrus	757
Cow/Calf	5,218
Multiple Commodities	331
Nursery	11
Row/Field Crops	2,233
Total	**8,550**

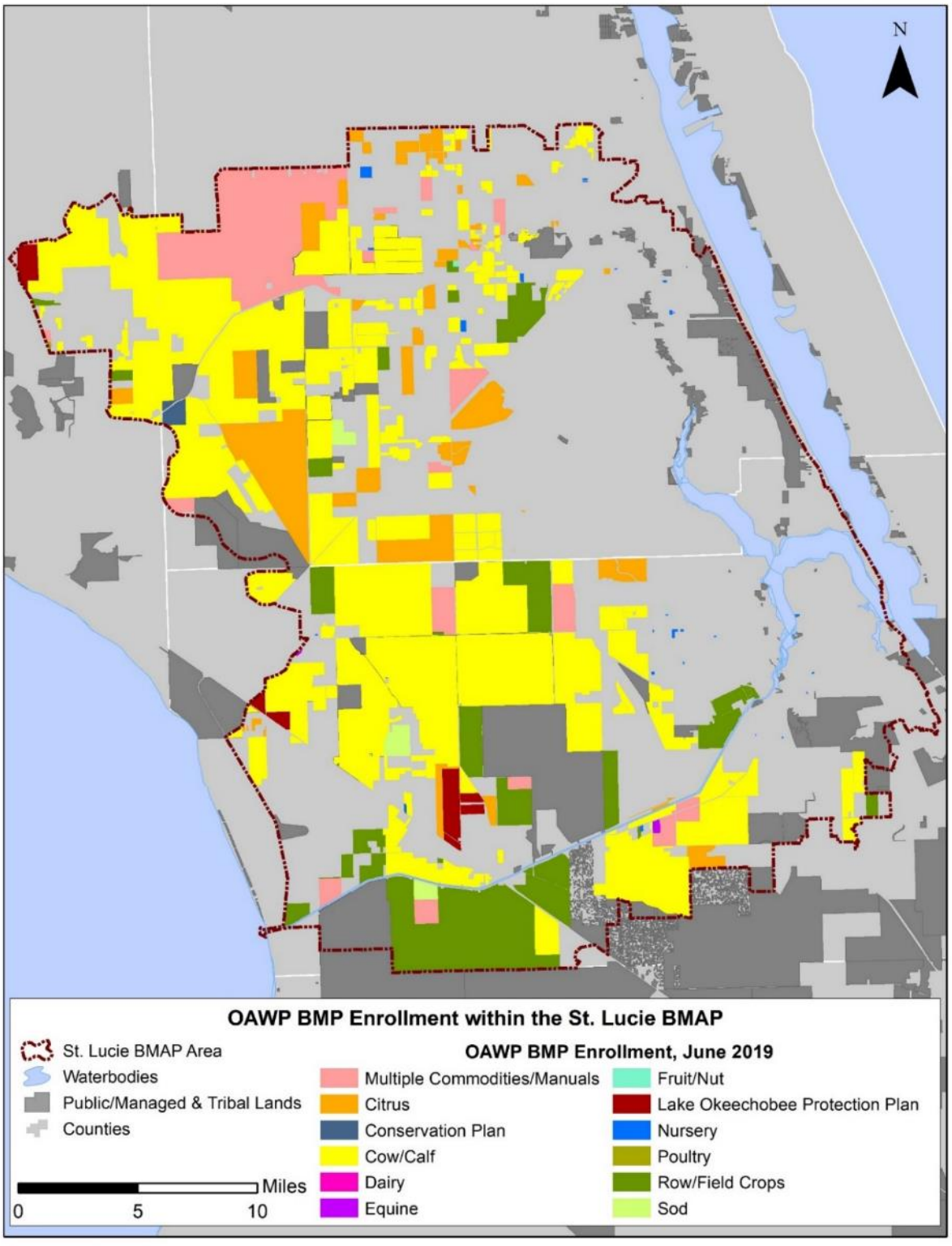


Figure B-1. BMP enrollment in the St. Lucie River and Estuary BMAP area as of June 2019

Unenrolled Agricultural Acreage

Since the adoption of NEEPP, FDACS' goal has been to enroll 100 % of the agricultural acres in the BMP Program. As of June 2019, 61 % of the agricultural acres in the St. Lucie River and Estuary BMAP area are enrolled in FDACS' BMP Program and are implementing practices designed to improve water quality. While achieving 100 % enrollment is a laudable goal, the analysis of various land use databases has identified land uses classified as agriculture that are difficult to enroll or where there is a limit to the BMPs that can effectively be implemented onsite. This has required the prioritization and specific identification of agricultural lands that can be enrolled in FDACS' BMP Program.

To address the greatest resource concerns, OAWP has prioritized BMP enrollment by focusing on more intensive operations, including irrigated acreage, dairies and nurseries, parcels greater than 50 acres in size, and agricultural parcels adjacent to waterways. As of June 2019, 81 % of irrigated agricultural acres in the St. Lucie River and Estuary BMAP area were enrolled in FDACS' BMP Program.

As these priorities are met, OAWP has identified additional enrollment priorities, typically comprising smaller irrigated agricultural operations ranging from 30 to 50 acres and other targeted areas. Those larger, more intensive operations that have not enrolled are being referred to DEP to either develop individual monitoring plans pursuant to Chapter 62-307, F.A.C., or be subject to enforcement actions under DEP's regulatory authority.

General Considerations

As new BMAPs are developed or existing BMAP areas are expanded, overlap among BMAPs is increasing. In the St. Lucie River and Estuary BMAP area, 29 % of the agricultural acres are also included in the Lake Okeechobee BMAP area. While calculations, allocations, and projects are specific to each BMAP, it should be noted that the number of acres from the individual BMAP reports, if added, exceeds the total acres in the three BMAP areas. The St. Lucie River and Estuary BMAP boundary encompasses 81,661 acres of agricultural land use that are also contained in the Lake Okeechobee BMAP area. Of the unenrolled agriculture identified in this BMAP, 19,632 acres are also identified in the Lake Okeechobee BMAP.

Although land use data have been used as the basis for prioritizing FDACS enrollment efforts, many land use issues not captured by these databases affect FDACS enrollment efforts. Many areas within the St. Lucie River and Estuary BMAP boundaries experience rapid land use changes, especially at the urban/rural boundary. Agricultural lands are regularly converted to residential, industrial, commercial, or multiuse properties, but still appear in various databases as pasture or other rural lands. While these lands are likely to be developed in the near future, the agricultural land use classifications require these properties to comply with the BMP enrollment requirements.

Additionally, the counties' methods of classifying small acreages as agricultural lands can affect the BMP enrollment process. Along with these changes, there are also large agricultural parcels

being subdivided but remaining classified as "agriculture." This "urban agriculture"—also called residential agriculture, rural residential, rural estates, equine communities, ranchettes, rural homesteads, and other descriptive names for homes with some acreage and agricultural zoning—present a particular challenge for FDACS, since the BMP manuals are not designed for the enrollment of these properties in BMPs targeted for bona fide agricultural production areas.

Further, thousands of acres of open land, scrubland, unimproved pasture, and grazing land exist without a readily identifiable agricultural production activity that will fit within the framework of existing FDACS BMP manuals. Also, these types of parcels are usually controlled by many different individuals. The increasing number of these smaller parcels with nontraditional agricultural production represents a growing component of unenrolled acreage. It will be necessary to develop a suite of options to apply to these properties or develop a new classification that may subject these types of areas to alternative methods to ensure their nutrient loading contribution is being appropriately identified and reduced.

Another challenging area includes those agricultural lands that are inactive or fallow—i.e., lands that, on the day the FDACS representative visits, display no enrollable agricultural activity. These lands may be part of a rotation implemented by a landowner, scheduled for development, listed for sale, etc. The land use information FDACS receives is consistently improving the classification of these areas, but policy options remain limited in scope to ensure the implementation of practices aimed at reducing nutrient inputs from these areas.

Characterization of Unenrolled Agricultural Lands

To characterize unenrolled agricultural acres, OAWP identified FSAID VI features outside the BMP enrollment areas within GIS. As previously mentioned, OAWP BMP enrollments are initially delineated based on county property appraiser parcel data, even if the entire parcel is not agriculture, to allow BMPs to be tied to the specific parcels where agricultural activities are occurring. FSAID agricultural lands are delineated based on land use features identified as agriculture and represent a more refined analysis of those areas actually in agricultural production.

Because of differences in their spatial geometries when they are combined or compared, the boundaries often do not align precisely, creating "slivers." Slivers are not enrollable because they are an artifact of the geospatial analysis and do not represent lands with active agricultural practices. For example, a sliver can represent the area between the boundary of a parcel and the beginning of a road, canal, easement, etc. Slivers are often associated with previously enrolled agricultural operations but because of the delineation differences, these slivers are not captured within the enrolled parcel during geoprocessing. When characterizing unenrolled agricultural lands, slivers are excluded. **Figure B-2** shows an example of a sliver created when performing geospatial analysis.

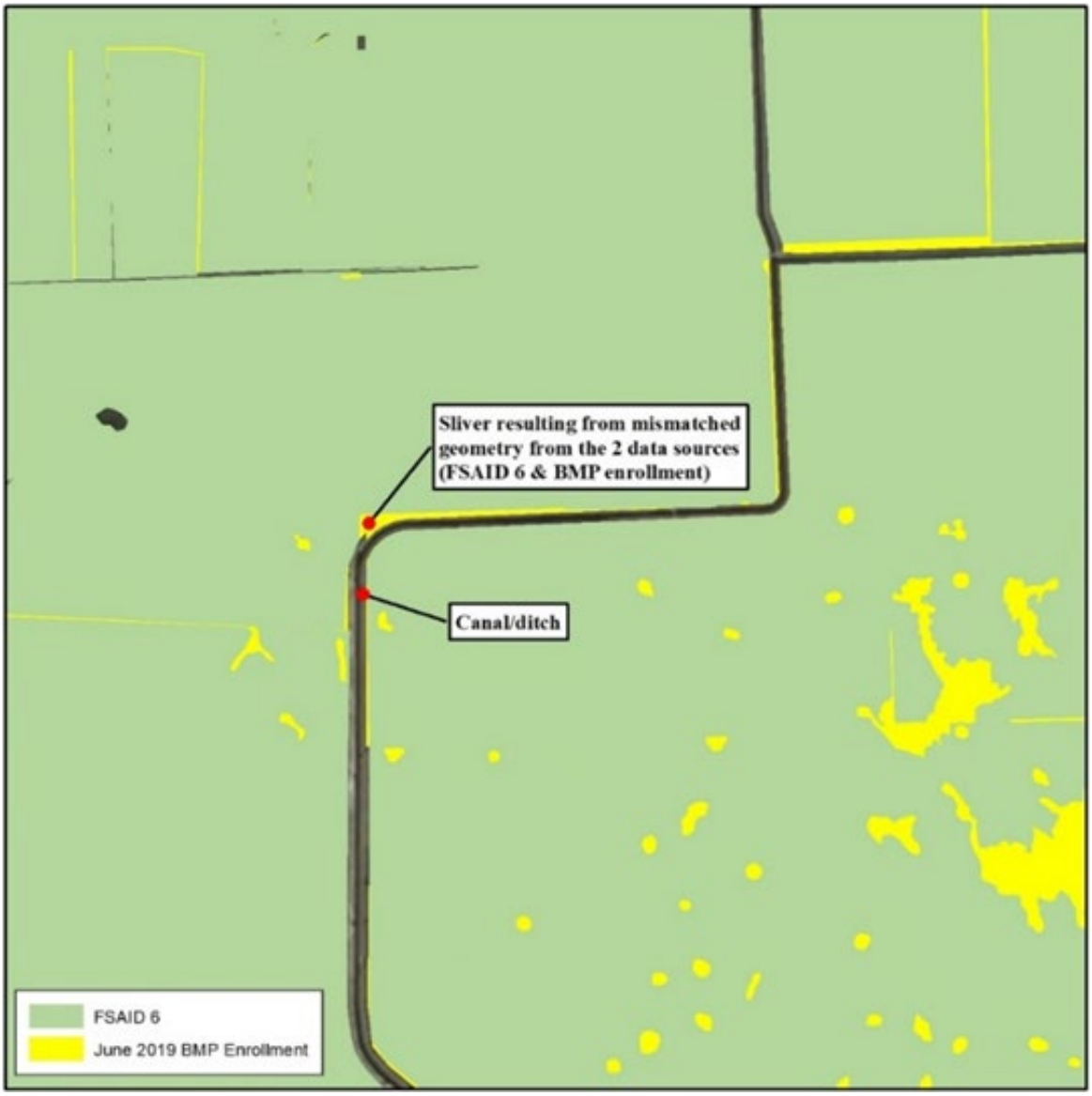


Figure B-1. GIS example of a sliver

OAWP used property appraiser data and manually reviewed aerial imagery to characterize unenrolled lands in the BMAP area. Lands under tribal ownership are not subject to the requirements of Section 403.067, F.S.; yet areas within the sovereign lands of the Seminole Tribe of Florida are identified as unenrolled agricultural lands. Other large areas that are identified as agricultural land use but are unlikely to have enrollable agricultural activities include lands owned by the state (Board of Trustees of the Internal Improvement Trust Fund) and SFWMD. It is possible that these lands, in whole or in part, may be leased to other entities that conduct agricultural activities, but such leasing is infrequent. If leasing occurs, the leasing entity will be required to enroll in the BMP Program. Ongoing coordination between FDACS, DEP's Division of State Lands, and SFWMD is needed to ensure that any public lands that are leased for the purposes of agricultural activities are required to implement and enroll in FDACS' BMP Program

as a condition of the lease. Other lands that may be classified as agriculture but are unlikely to have enrollable agricultural activities include lands that may be part of a SFWMD restoration project or water storage project. Future analysis and coordination with SFWMD will be needed to identify which areas may have enrollable agriculture in the areas identified for restoration and water storage projects.

Other smaller parcels that have been identified as nonagricultural, but have features that cause them to be identified as agricultural lands in various databases, include those lands associated with utilities, telecommunication companies, churches, FDOT rights-of-way, and airports. The Florida Department of Revenue (DOR) uses code numbers 70 through 98 to identify these types of lands.

Those agricultural lands that have been identified as "fallow," "former [ag]," and "abandoned," as well as brushland/scrubland/open land, comprise 38 % of the total unenrolled agricultural acres in the St. Lucie River and Estuary BMAP area. These acres are still classified as agricultural land for the purposes of the BMAP nutrient load assessment. There are a variety of potential options to account for these lands, such as enrollment as "temporarily inactive" operations—particularly those that were previously enrolled and are planned to resume production. Another option may be to note the inactive acres at the time of a field visit and perform periodic reassessment on a cyclical basis. The possibility for DEP and FDACS to calculate nutrient reduction credits or adjust nutrient loading rates may also provide opportunities to present more accurate estimates and establish priorities.

Another factor considered in the prioritization of BMP enrollment is the number of agricultural acres on the parcel. Analyzing the number of agricultural acreages on the parcel and commodity type can give an idea of the efforts that are needed to enroll these areas in FDACS' BMP Program and also identify the areas most in need of enrollment. **Figure B-3** summarizes the agricultural acres distributed by agricultural acreage found on each parcel.

Further analysis was done to characterize the parcels containing 50 acres of agriculture or greater and those parcels with less than 50 acres of agriculture; 58,178 acres of the 81,435 acres of land identified as having potential agricultural activity are found on parcels containing 50 acres of agriculture or greater. **Figure B-4** shows the types of agricultural land use based on FSAID VI found on parcels that contain 50 acres of agriculture or greater. Grazing land comprises 40 **%** of this acreage.

Of the land identified as agriculture, 23,257 acres are found on parcels with less than 50 acres of agriculture. **Figure B-5** shows the types of agricultural land use found on parcels with less than 50 acres of agriculture. Grazing land comprises 54 % of this acreage. For these parcels, OAWP will prioritize the more intensive agricultural operations, such as sugarcane, citrus, and other row crops, for enrollment.

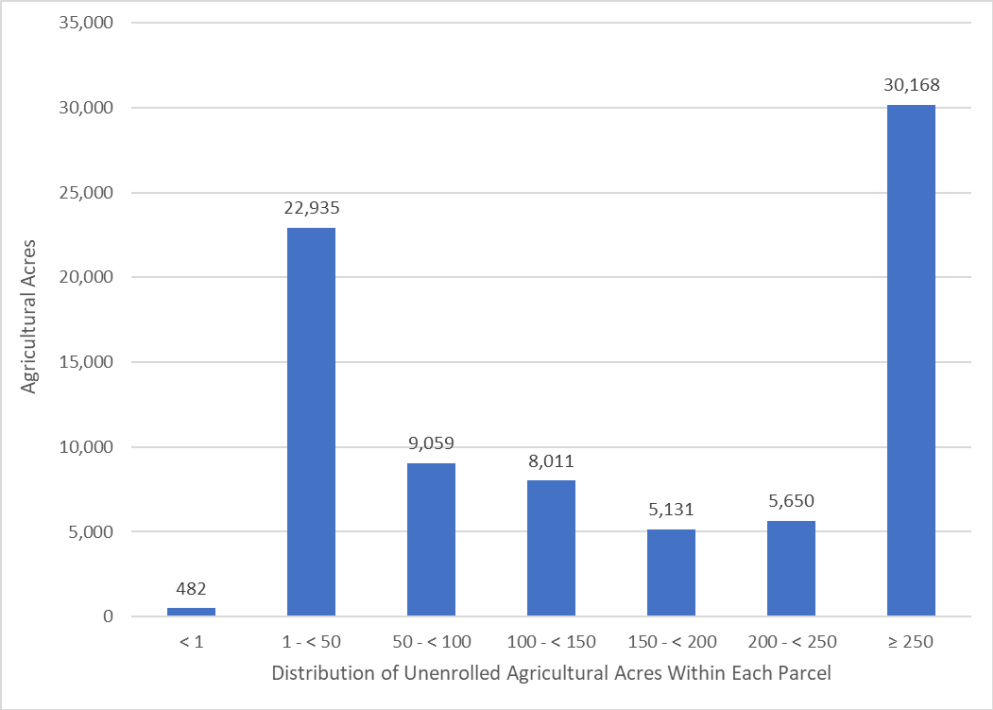


Figure B-2. Distribution of agricultural acreage on parcels with potential agricultural activity, St. Lucie River and Estuary BMAP area

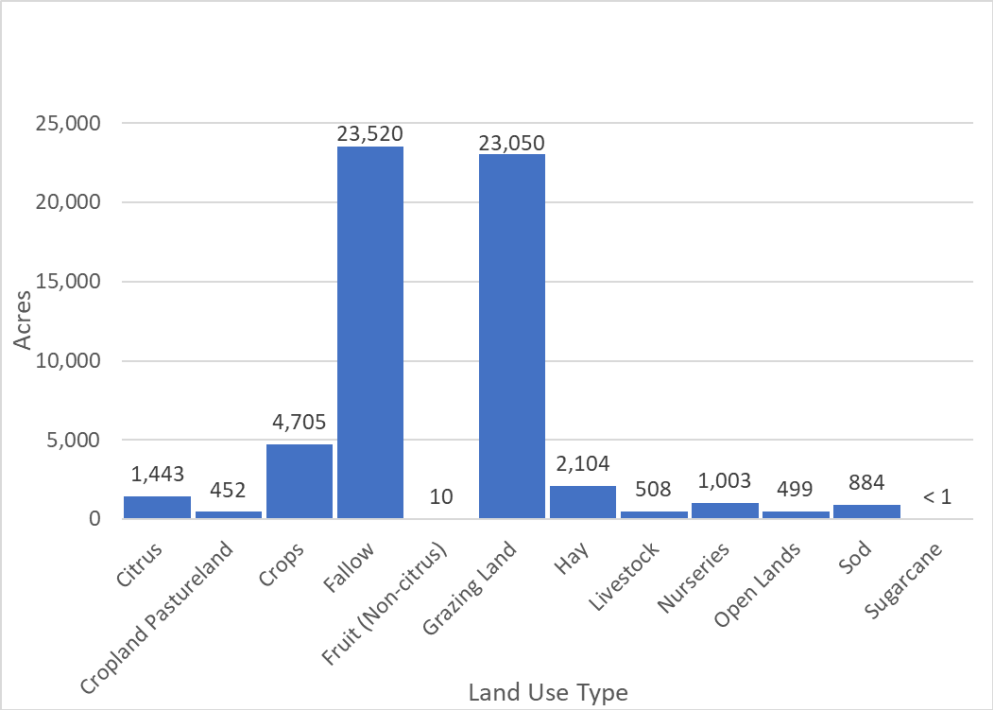


Figure B-3. Agricultural land uses on parcels with 50 acres of agriculture and greater, St. Lucie River and Estuary BMAP area

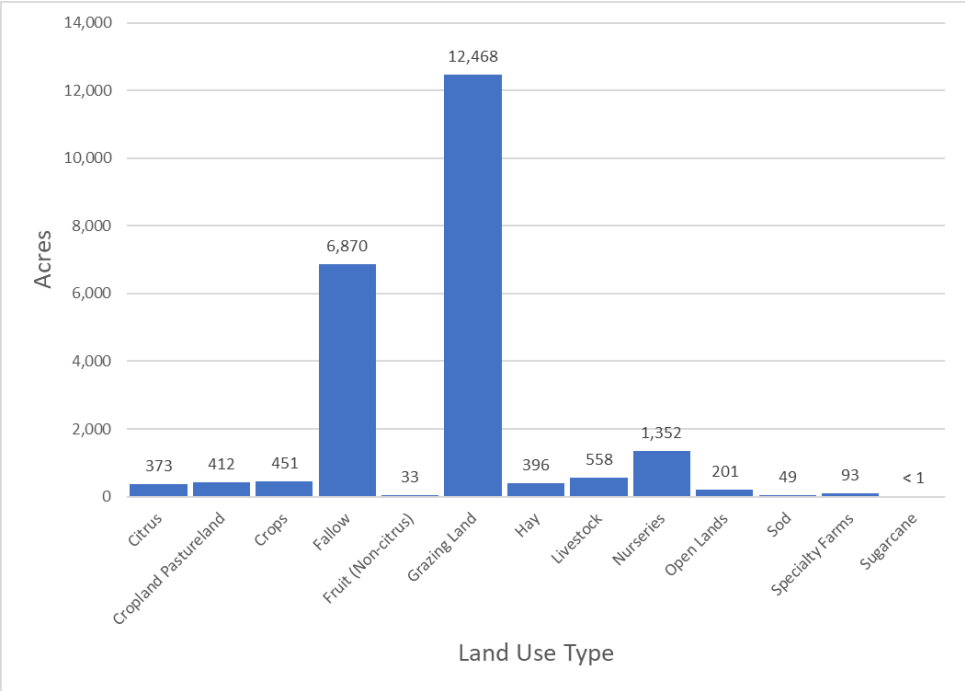


Figure B-4. Agricultural land uses on parcels with less than 50 acres of agriculture, St. Lucie River and Estuary BMAP area

Table B-12 lists the total acreage associated with the identified slivers and the lands that are not likely to have enrollable agricultural activities, along with the remaining total of unenrolled agricultural acres in the BMAP area. **Figure B-6** and **Figure B-7** summarize the unenrolled agricultural acres in the St. Lucie River and Estuary BMAP area by acres of agriculture within the parcels. However, they do not include acreages or parcels associated with slivers or lands that are not likely to have enrollable agricultural activities.

Table B-12. Summary of unenrolled agricultural land use acreage in the St. Lucie River and Estuary BMAP area

Note: Because of geometric variations between shapefiles used in the unenrolled agricultural lands analysis performed by OAWP, the unenrolled agricultural acres differ from subtraction of the FSAID VI Agricultural Acres in the BMAP and the Total Agricultural Acres Enrolled referenced in **Table B-2**.

Category	Acres
Unenrolled agricultural acres	110,195
Acres identified within slivers of unenrolled agricultural areas	3,227
Lands without enrollable agricultural activity (e.g., tribal lands, residential development, and parcels with DOR use codes 70-98)	25,533
Total lands with potentially enrollable agricultural activities	**81,435**

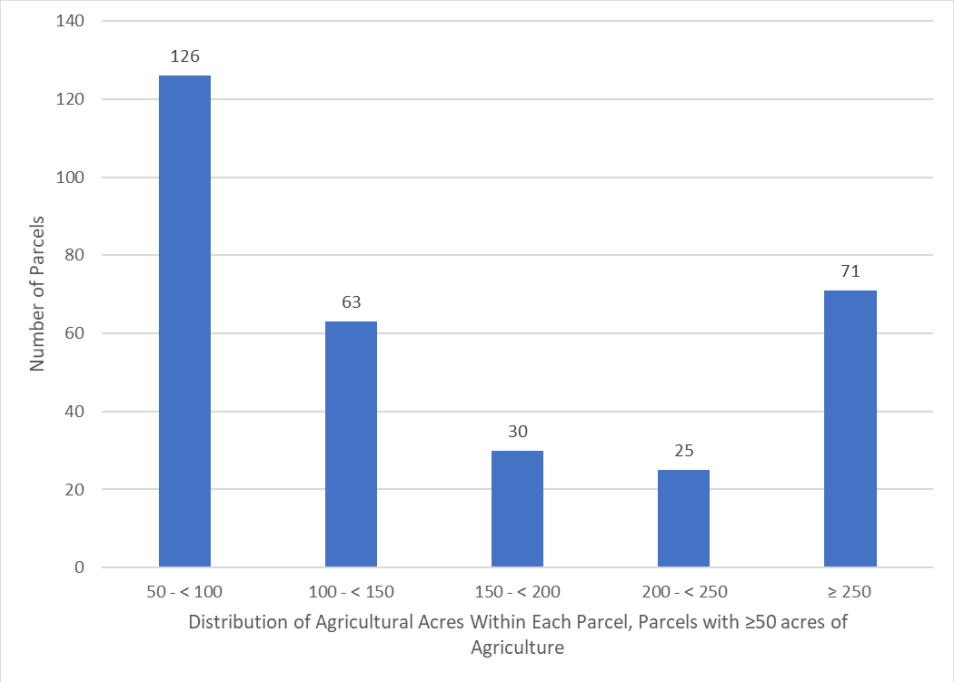


Figure B-5. Number of parcels with 50 acres of agriculture and greater, St. Lucie River and Estuary BMAP area

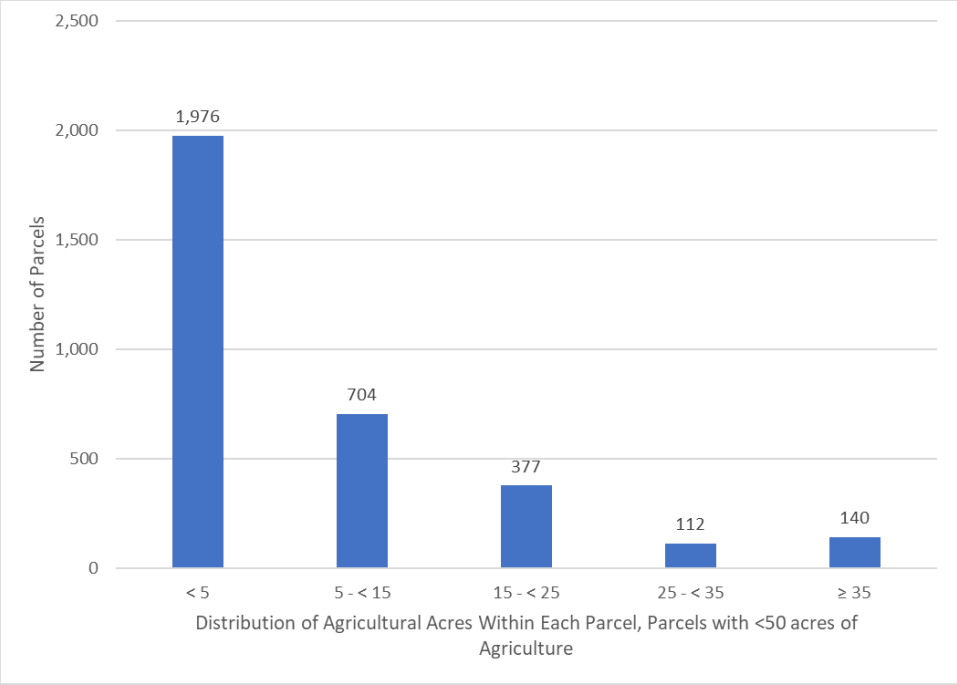


Figure B-6. Number of parcels with less than 50 acres of agriculture, St. Lucie River and Estuary BMAP area

Unenrolled agriculture characterization information for each individual basin, including the distribution of agricultural acres within each parcel and land use type, is presented in **Figure B-8** through **Figure B-27**.

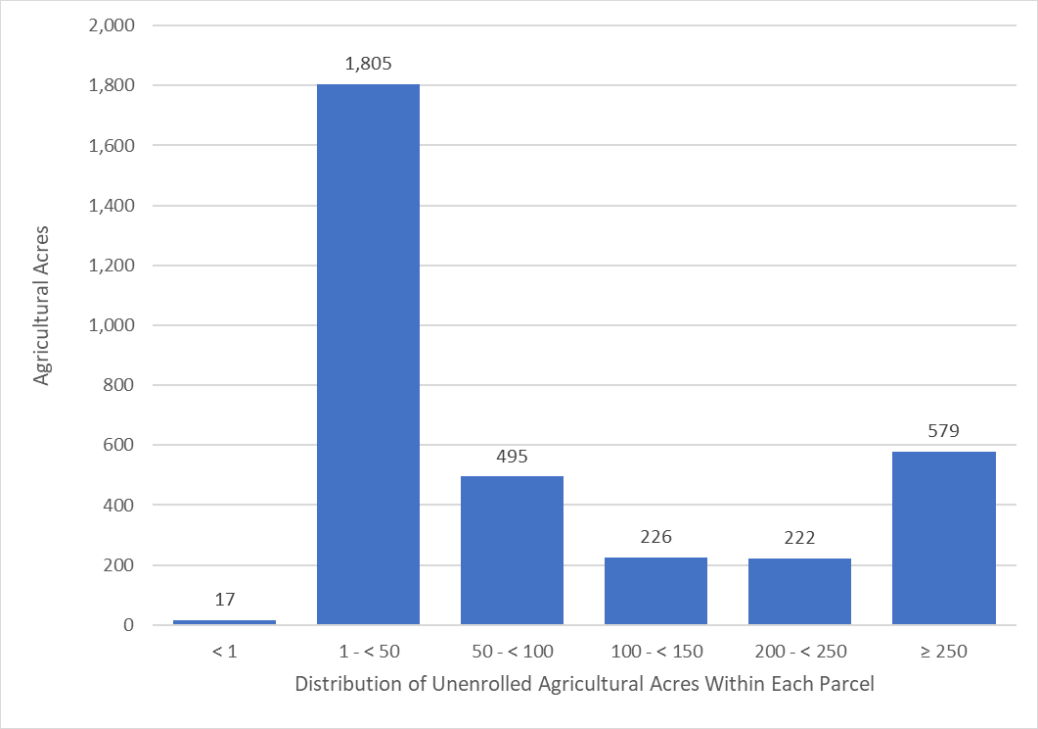


Figure B-8. Distribution of agricultural acreage on parcels with potential agricultural activity, North Fork Basin

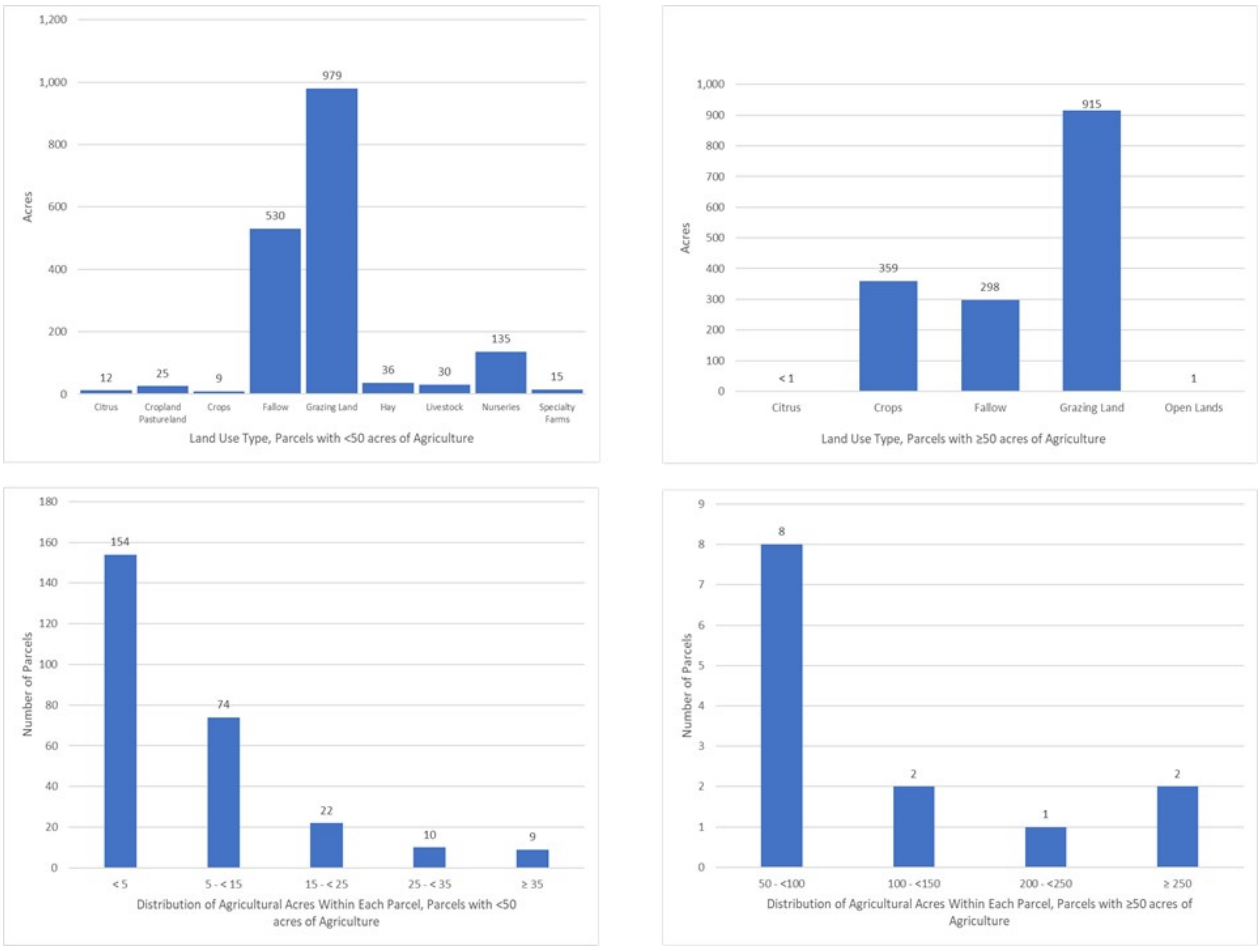


Figure B-9. Land use type and distribution of agricultural acreage, North Fork Basin

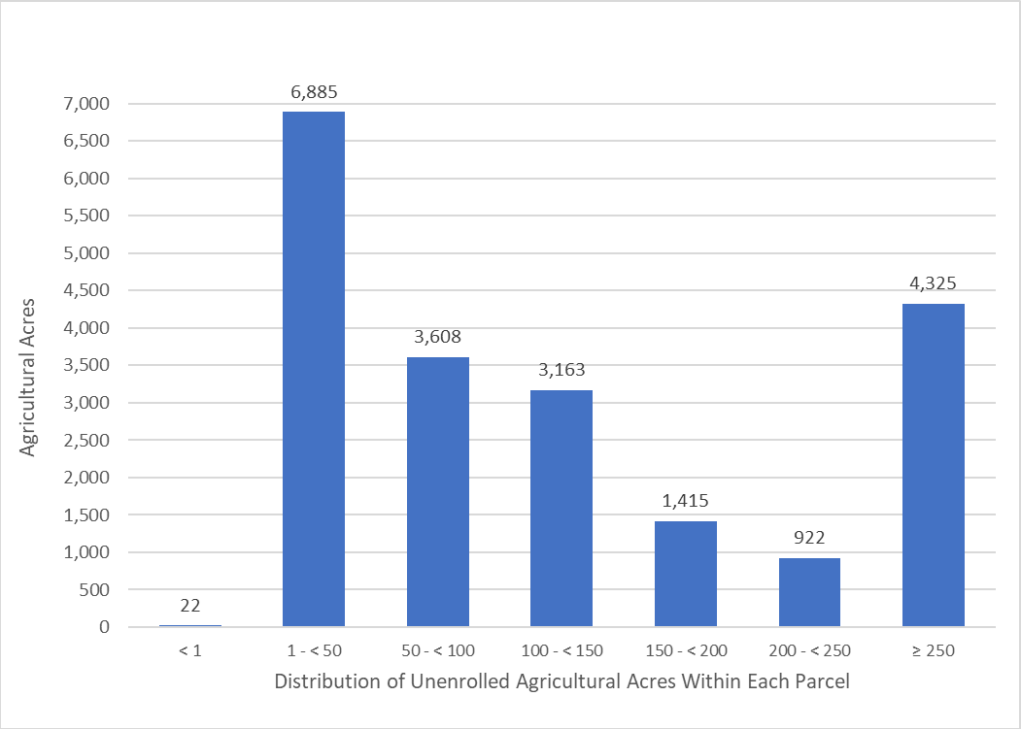


Figure B-10. Distribution of agricultural acreage on parcels with potential agricultural activity, Ten Mile Creek Basin

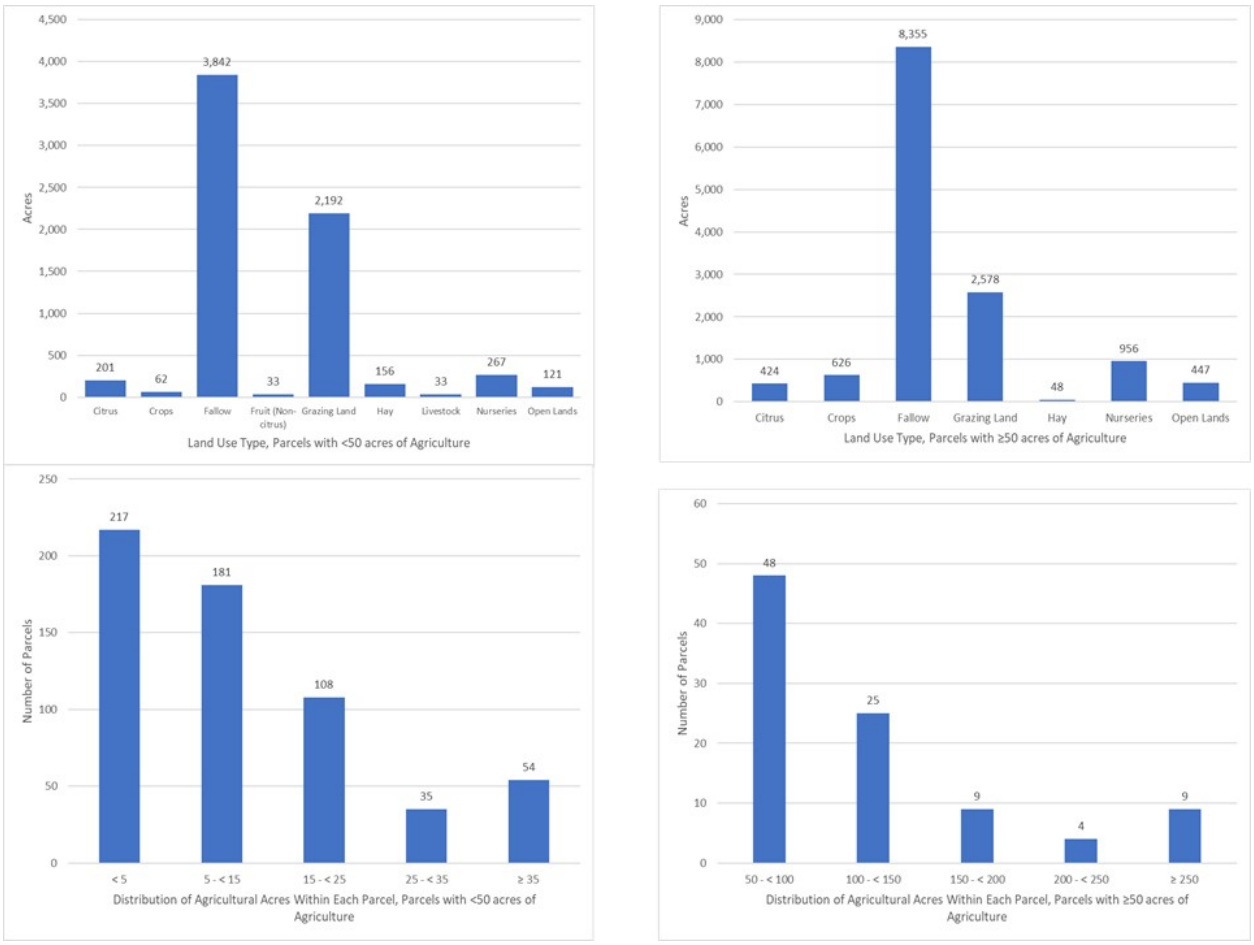


Figure B-11. Land use type and distribution of agricultural acreage by parcel size, Ten Mile Creek Basin

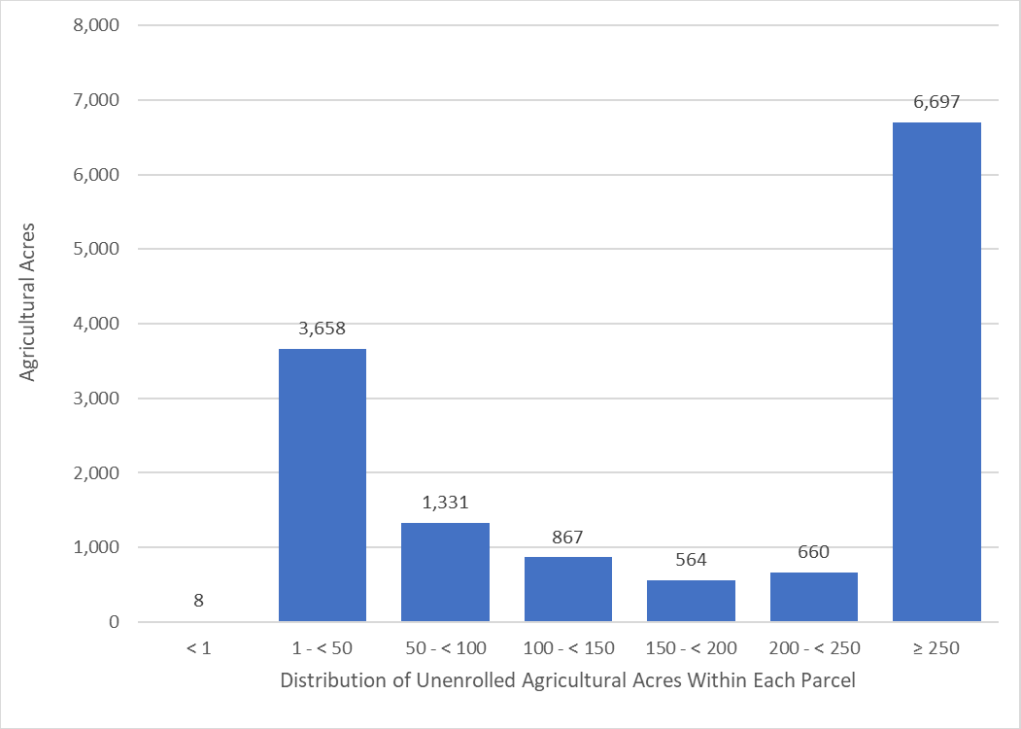


Figure B-12. Distribution of agricultural acreage on parcels with potential agricultural activity, C-24 Basin

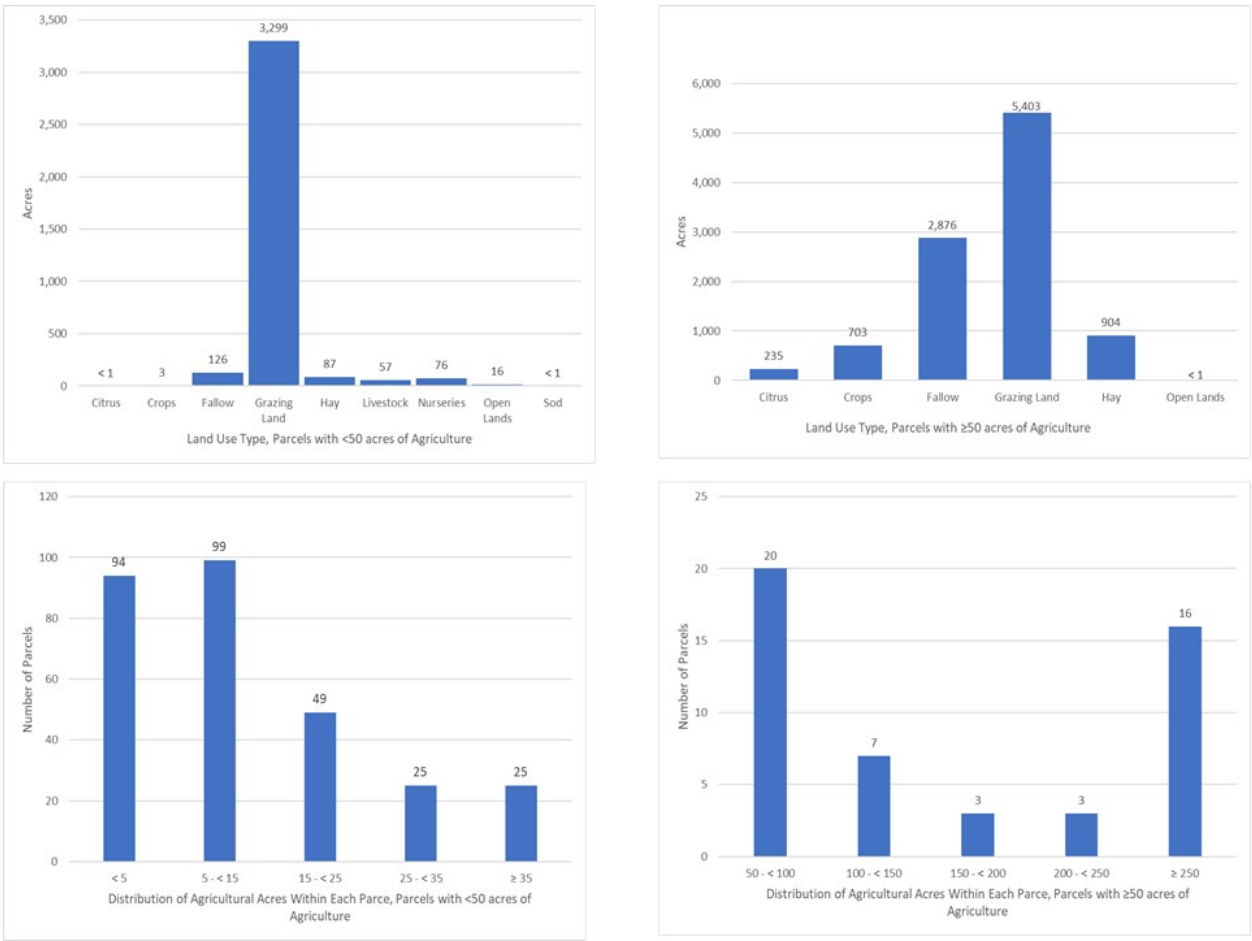


Figure B-13. Land use type and distribution of agricultural acreage by parcel size, C-24 Basin

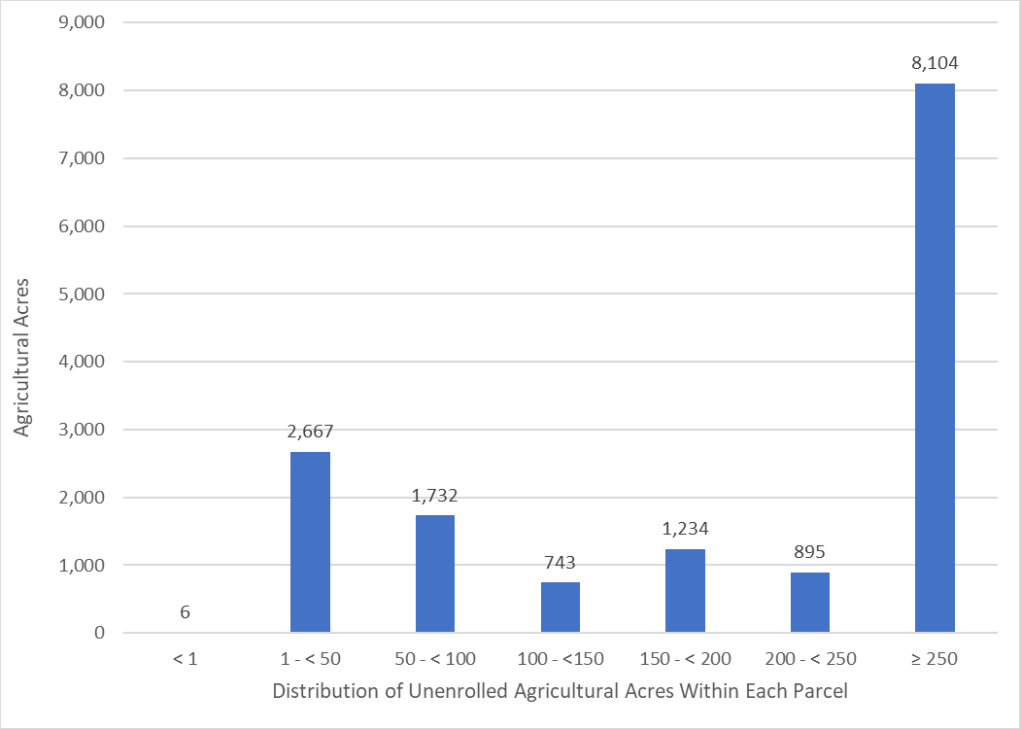


Figure B-14. Distribution of agricultural acreage on parcels with potential agricultural activity, C-23 Basin

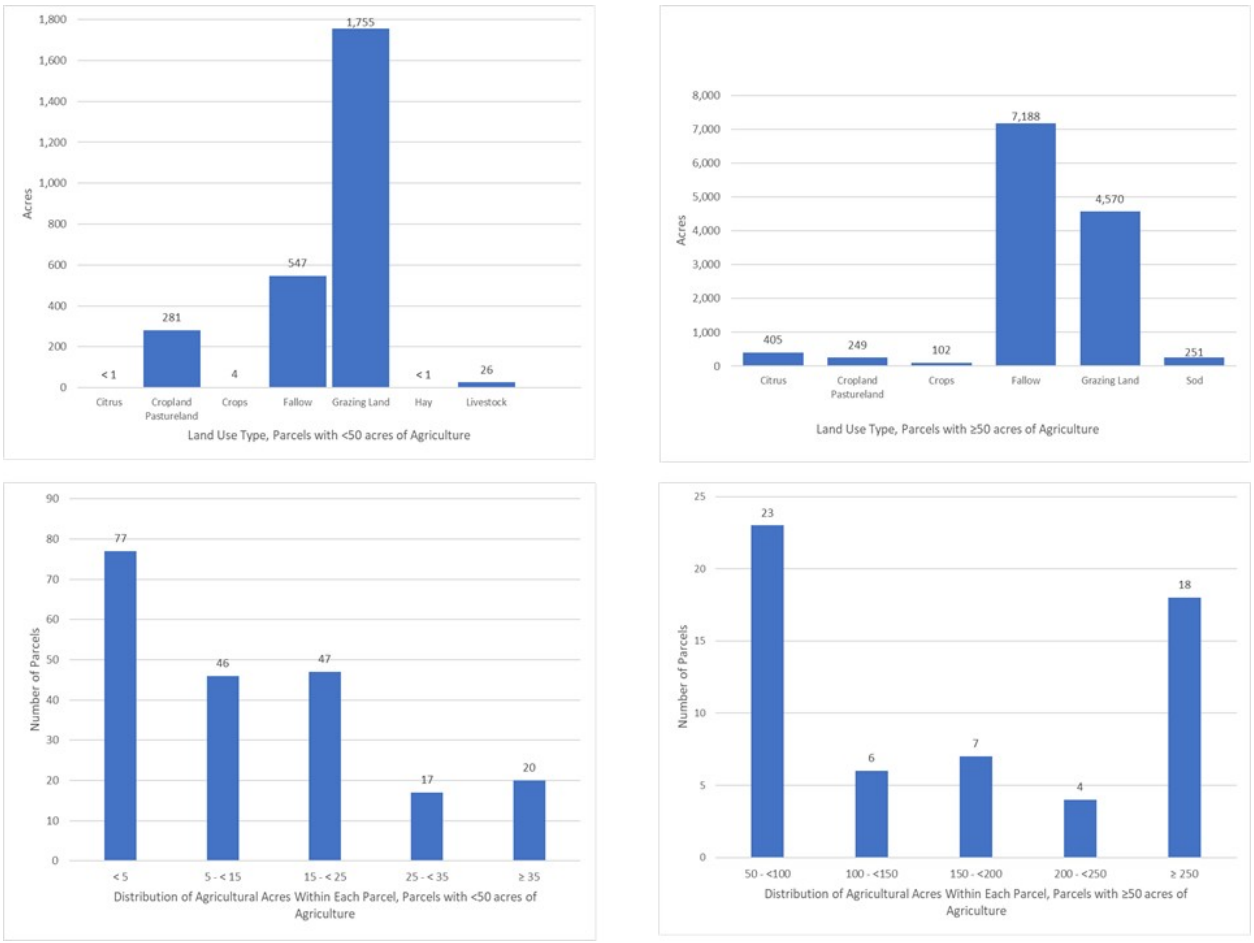


Figure B-15. Land use type and distribution of agricultural acreage by parcel size, C-23 Basin

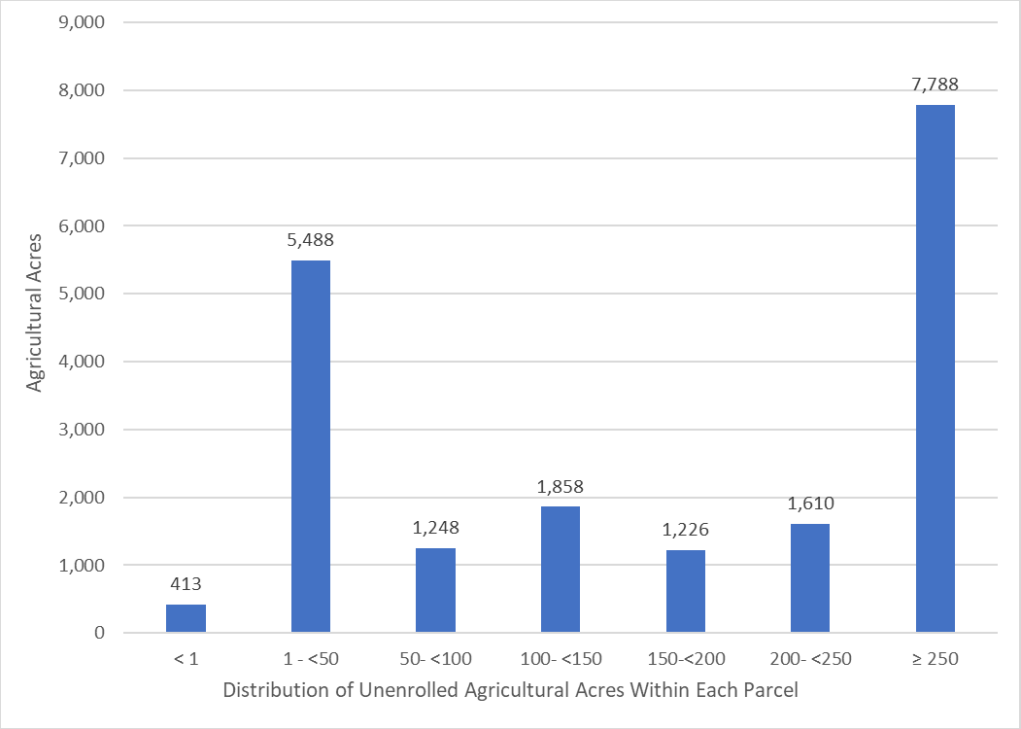


Figure B-16. Distribution of agricultural acreage on parcels with potential agricultural activity, C-44/S-153 Basin

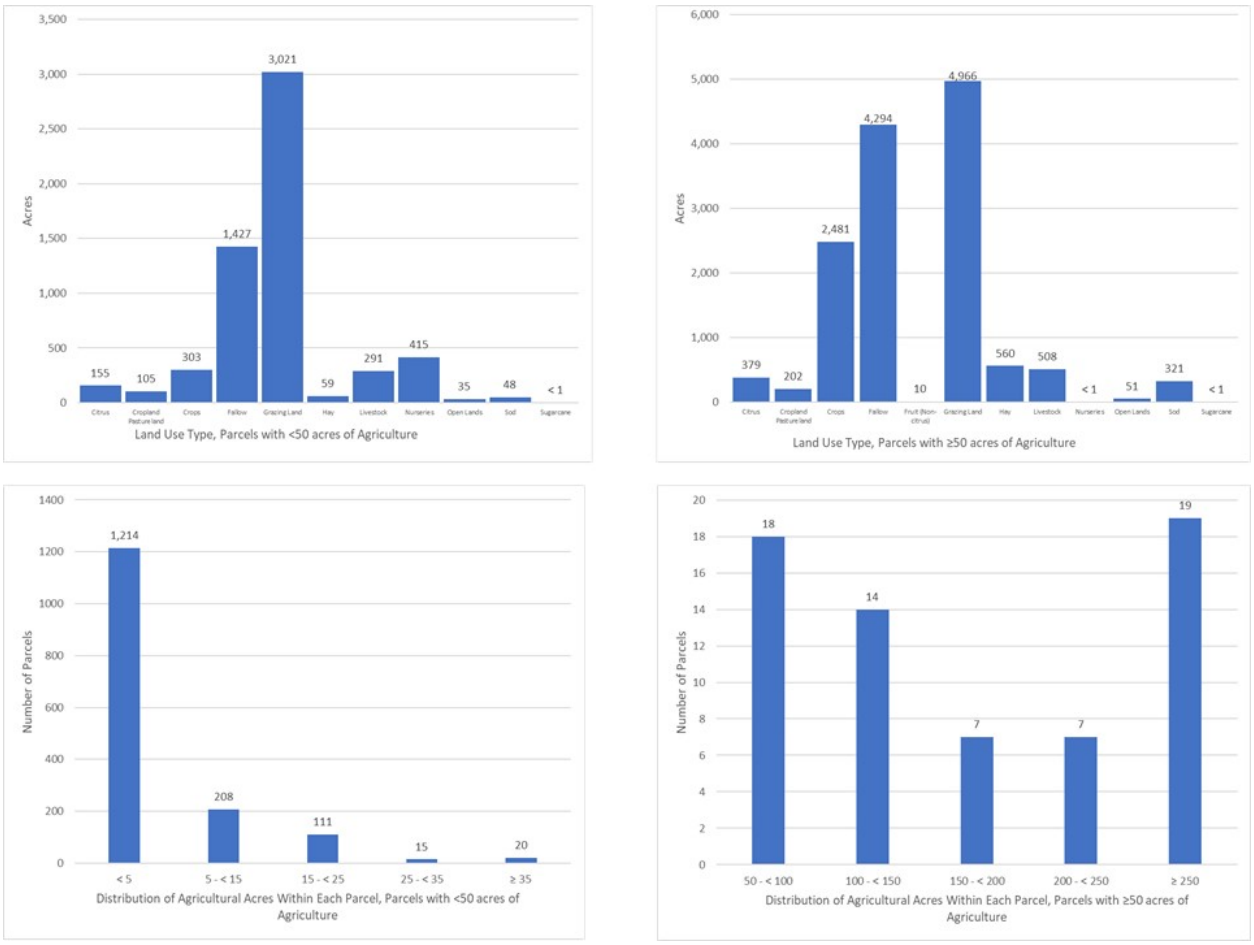


Figure B-17. Land use type and distribution of agricultural acreage by parcel size, C-44/ S-153 Basin

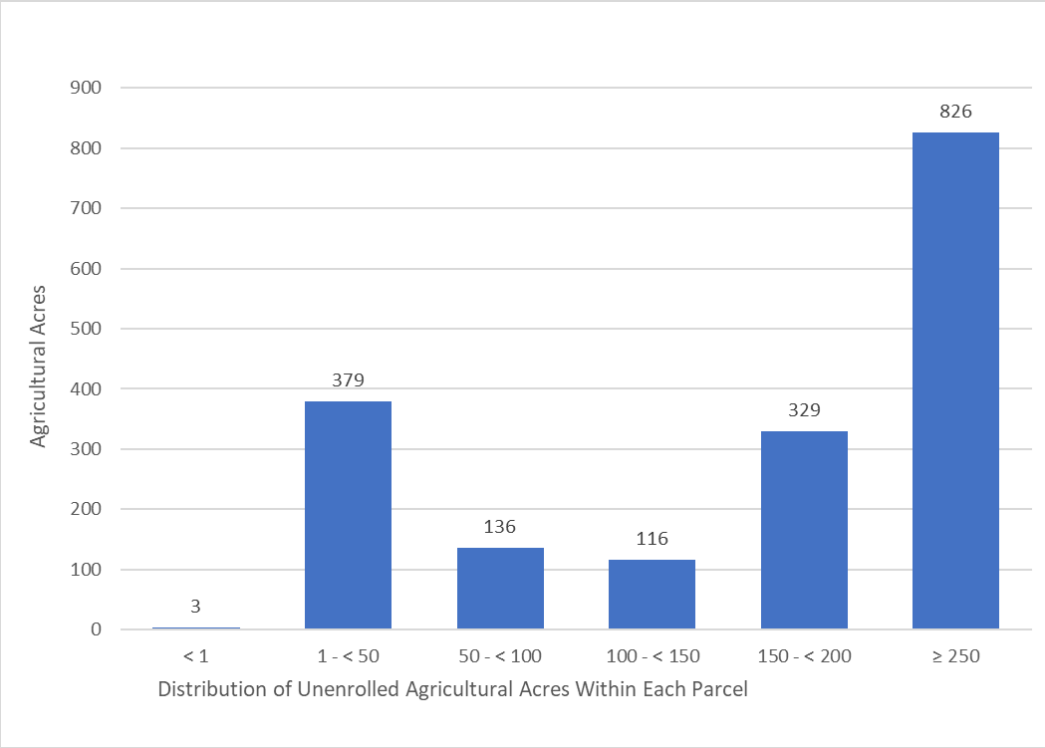


Figure B-18. Distribution of agricultural acreage on parcels with potential agricultural activity, Basin 4/5

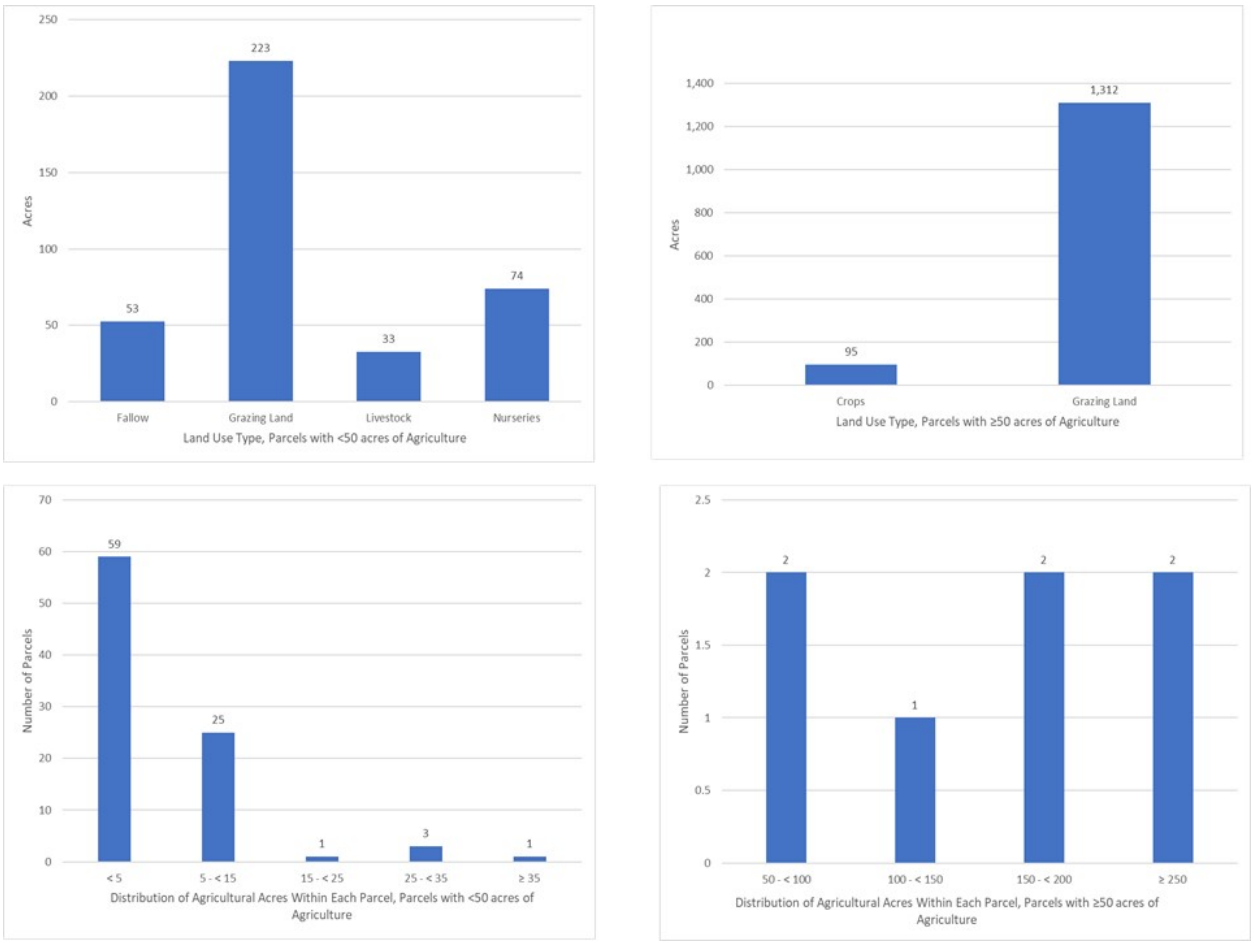


Figure B-19. Land use type and distribution of agricultural acreage by parcel size, Basin 4/5

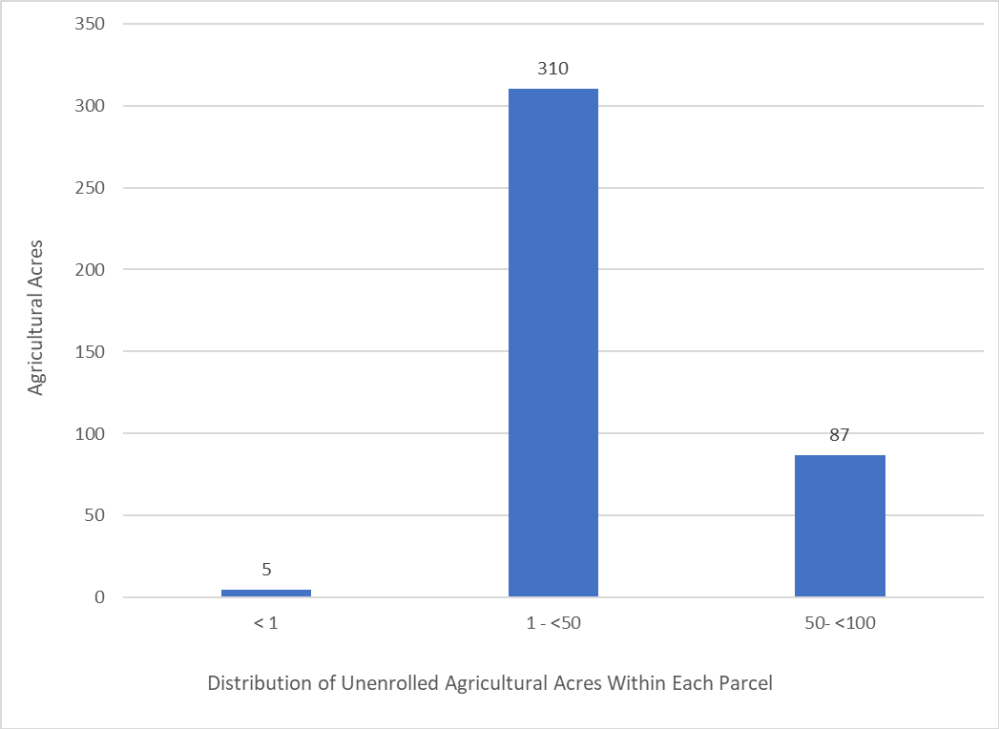


Figure B-20. Distribution of agricultural acreage on parcels with potential agricultural activity, Basin 6

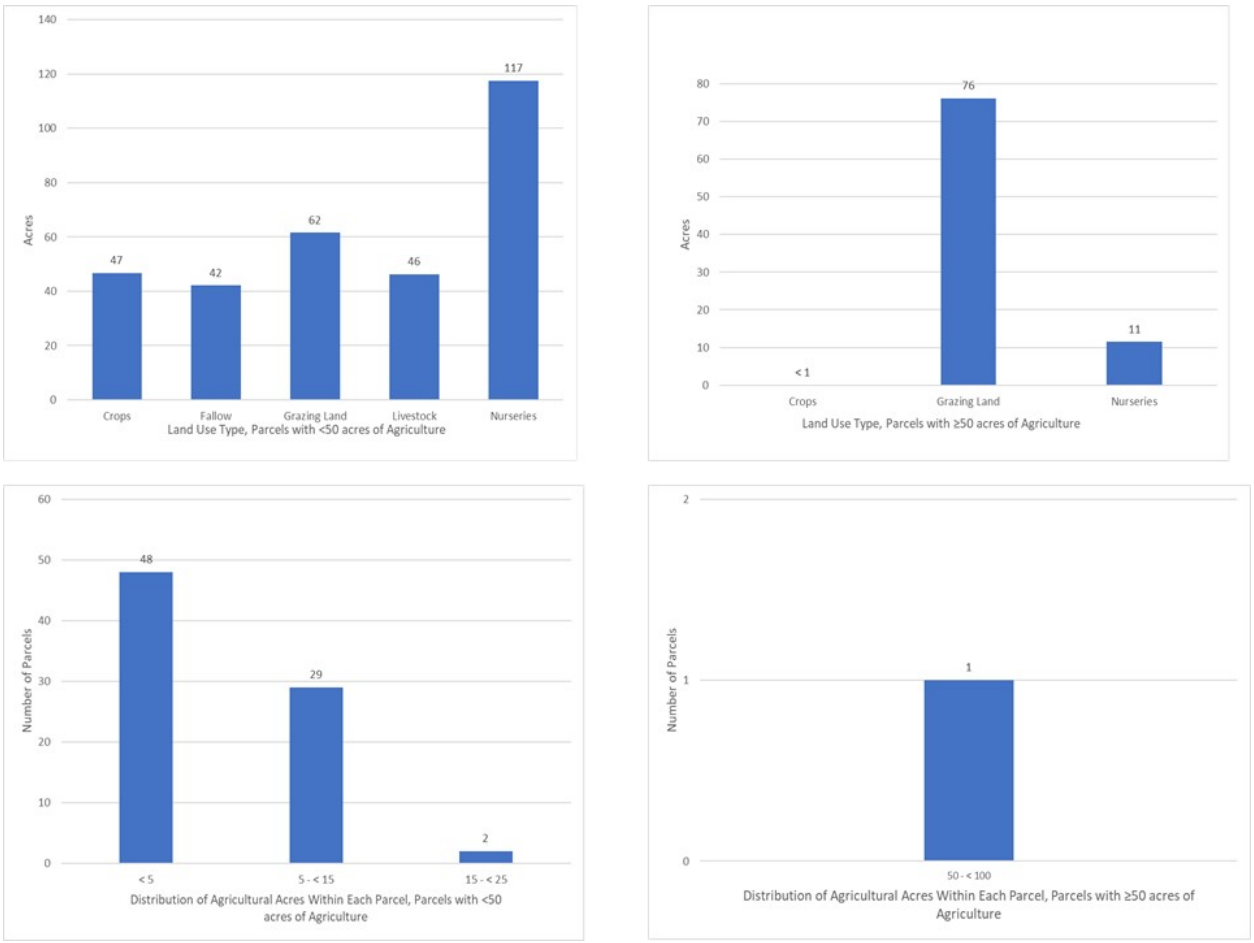


Figure B-21. Land use type and distribution of agricultural acreage by parcel size, Basin 6

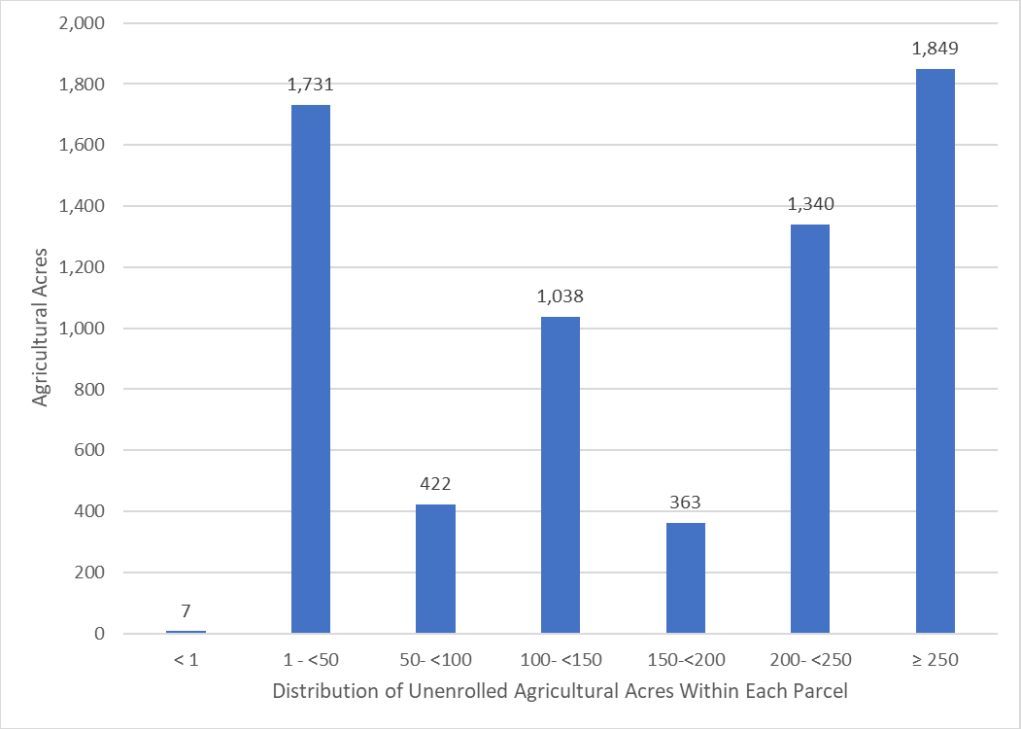


Figure B-22. Distribution of agricultural acreage on parcels with potential agricultural activity, South Fork Basin

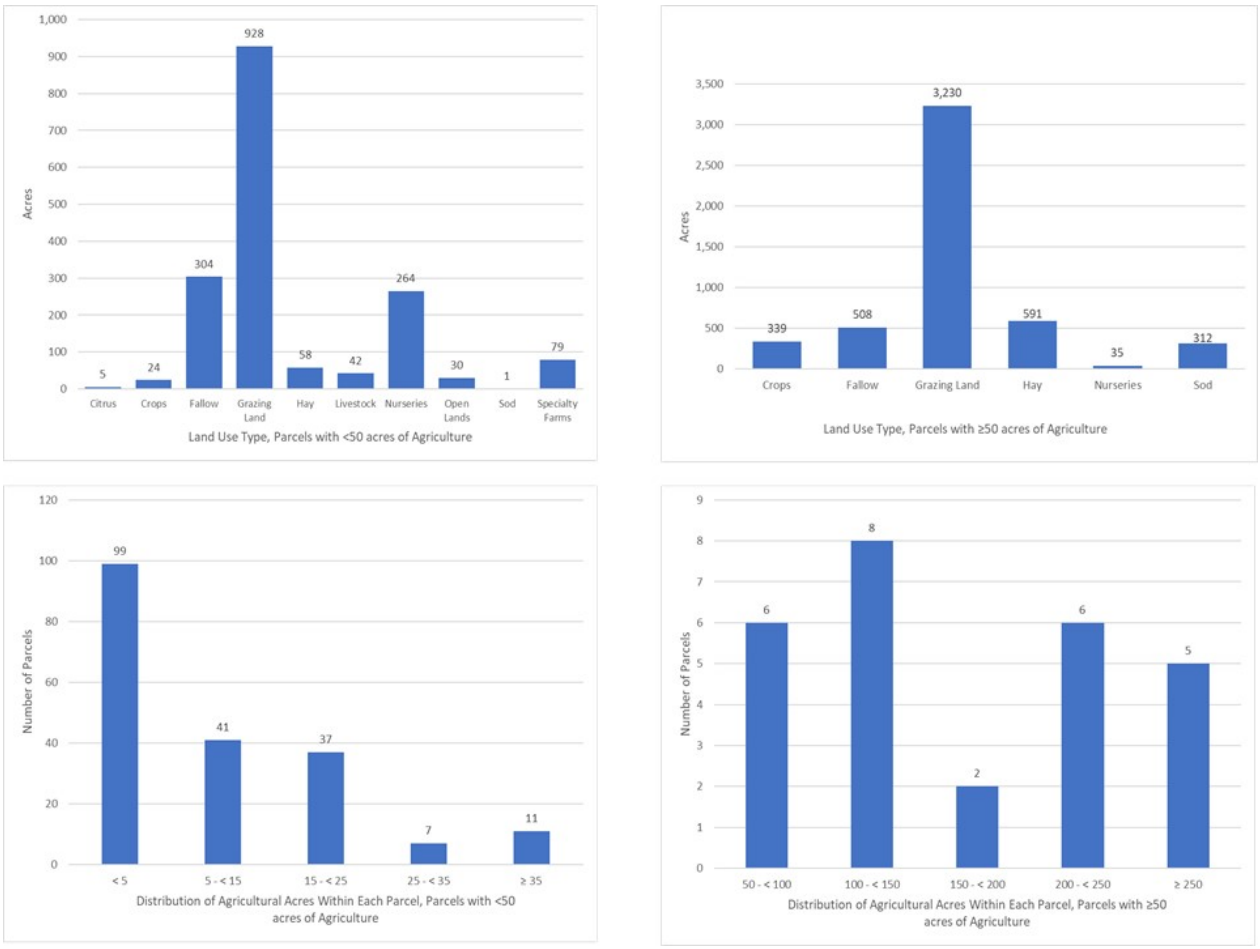


Figure B-23. Land use type and distribution of agricultural acreage by parcel size, South Fork Basin

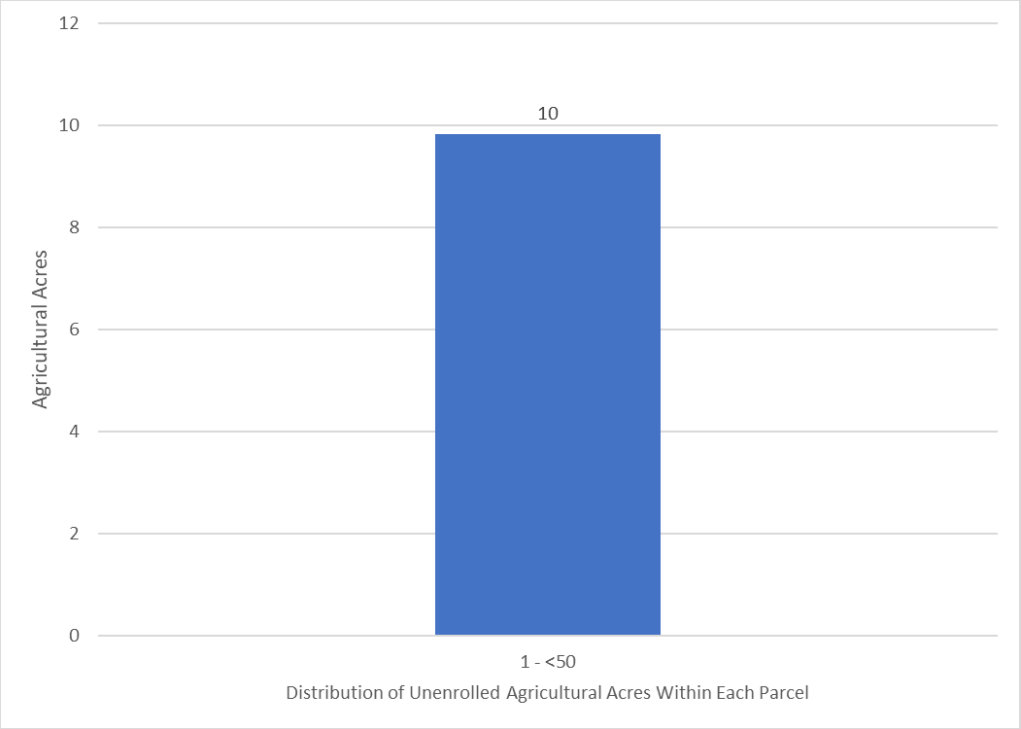
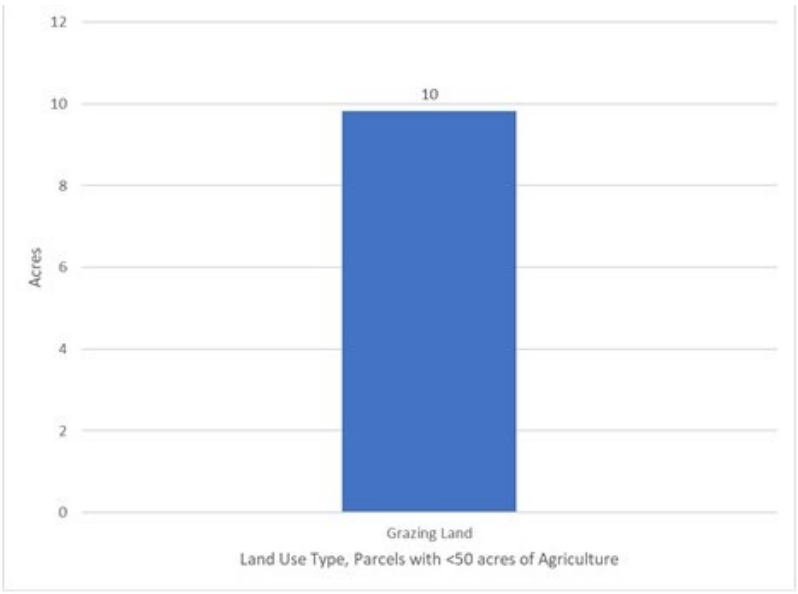


Figure B-24. Distribution of agricultural acreage on parcels with potential agricultural activity, South Coastal Basin



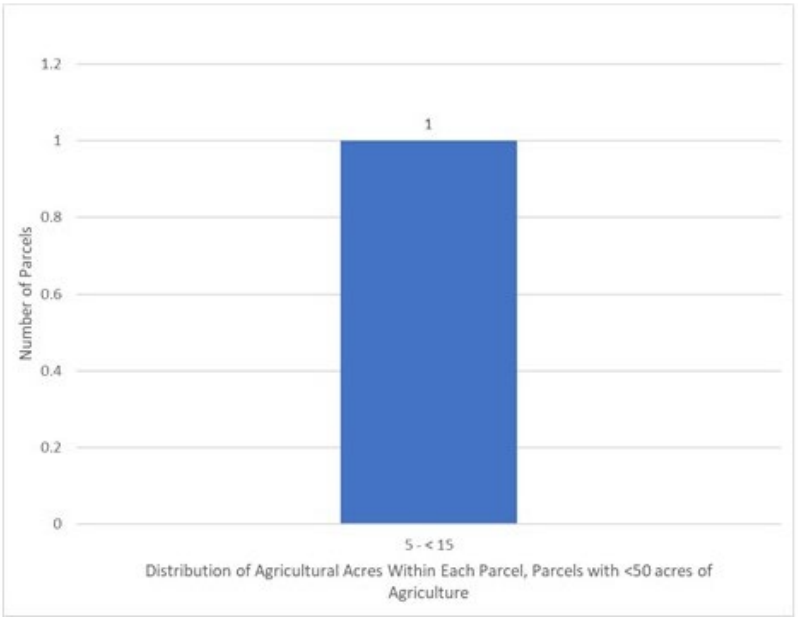


Figure B-25. Land use type and distribution of agricultural acreage by parcel size, South Coastal Basin

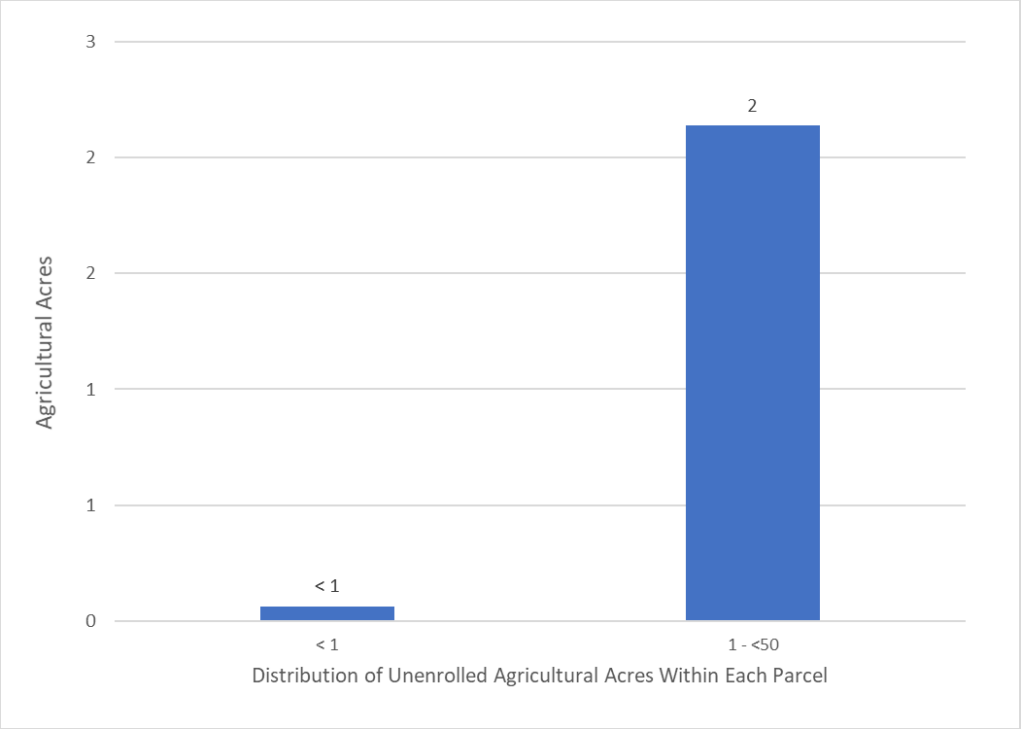


Figure B-26. Distribution of agricultural acreage on parcels with potential agricultural activity, North Mid-Estuary Basin

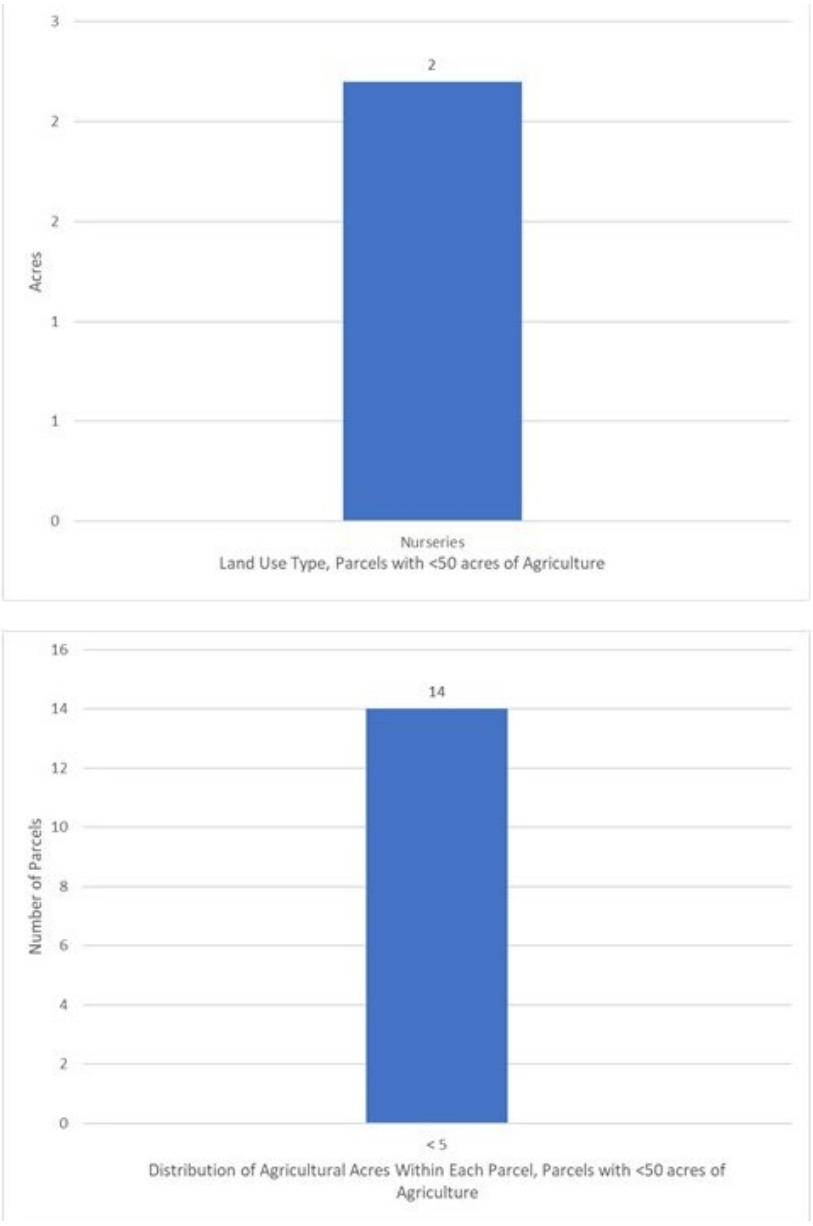


Figure B-27. Land use type and distribution of agricultural acreage by parcel size, North Mid-Estuary Basin

Future Efforts

BMAP loads and allocations, as well as water supply projections, are based primarily on land use data. Maintaining the most accurate agricultural land use dataset is critical to planning and policy decisions. Although crop changes, technology advances, and land ownership/lessee changes related to agricultural operations create dynamic environments and difficulties in estimating impacts from specific operations, FDACS and DEP continue to coordinate and develop ways to improve accuracy.

Additional characterizations of the agricultural land uses need to be conducted for each of the basins in the St. Lucie River and Estuary BMAP area. As the DEP analysis identifies the nutrient

loading estimates for each associated basin, FDACS will be able to better focus enrollment and cost-share efforts on those basins with the highest estimated loads and characterize the land uses with agricultural production that are consistent with FDACS' BMP Program.

Analyzing land use data and parcel data is a valuable first step in identifying the agricultural areas that provide the greatest net benefits to water resources for enrollment in FDACS' BMP Program, as well as to prioritize implementation verification visits in a given basin. The next step to refine the enrollment efforts will have the parcel loading information derived from the WaSh converted to a format that can easily be analyzed with the land use and parcel geodatabases. This effort will help FDACS identify specific parcels with the highest modeled nutrient loading. These parcels would then be prioritized for the enrollment and implementation of BMPs, as well as site visits to verify BMP implementation.

Additional Factors Related to Agricultural Lands and Measuring Progress

Legacy loading, including loading as a result of the operation of the regional water management system and associated infrastructure, can present an additional challenge to measuring progress in many of 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. Recognition that there is naturally occurring nitrogen and phosphorus in the system is important when evaluating solutions, as the ubiquity of the source, limitations for treatment, and uncertainty of proportion compared with anthropogenic sources may mask or overwhelm gains achieved through BMP implementation and other site-specific efforts.

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. Additional regional projects, precisely located and operated, will be needed to achieve the TMDLs for the SLREW.

Collaboration between DEP, 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 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 maintain the viability of agricultural operations.

Recommended Updates to Land Use

DEP and OAWP have identified land use–related issues that consistently occur during BMAP development and/or updates. One of these issues is the differentiation between what is classified

as agricultural land use in the TMDL or BMAP model and what is no longer agricultural land use.

OAWP has developed a methodology to identify agricultural land use changes. Using GIS, OAWP compared the 2012 SFWMD land use with the latest FSAID land use and OAWP BMP enrollment data. OAWP identified areas classified as agriculture by the BMAP modeled land use that do not overlap with the latest FSAID or OAWP BMP enrollment data. OAWP reviewed the output of this overlay analysis by using county appraiser data and aerial imagery to determine if the nonoverlapping areas were still in production. OAWP identified 2,310 acres, classified as agriculture in the 2012 SFWMD land use, that are now other land use types such as residential, industrial, or commercial (**see Table B-13)**. DEP will evaluate the land use changes identified by OAWP and apportion the associated acres and loads to the appropriate entities after a discussion with each entity. Following these determinations, the reallocated loads will be credited to FDACS as reductions. Land use change credits that have not yet been evaluated as of BMAP adoption will be reflected in the next BMAP update.

Often the analyses show changes that have occurred more rapidly than any land use data can capture, such as the transition to residential development. The land use changes are provided to DEP as a GIS shapefile with a description of the information in the county property appraiser database and aerial imagery reflected for the refinement of the acreage and loading allocated to agriculture in a BMAP area.

In addition to identifying land use changes in the BMAP area modeled land use, OAWP regularly reviews FSAID data, at times daily or weekly, as it performs other job functions. Any edits or changes are reviewed and considered for inclusion in the next iteration of the FSAID.

Table B-13. Agricultural land use change by basin

Basin	Acres
North Fork	149
Ten Mile Creek	146
C-24	345
C-23	642
C-44/S-153	734
South Fork	294
Total	**2,310**

Potential Site-Specific Nutrient Management Measures in Addition to BMPs

Beyond enrolling producers in the OAWP BMP Program and verifying implementation, OAWP will also work with producers to identify a suite of agricultural projects and research agricultural technologies that could be implemented on properties where they are deemed technically feasible and if funding is made available. FDACS executes contracts with Soil and Water Conservation Districts and other partners to administer cost-share funds and provide technical and

administrative support for these districts and other partners. Cost-share funding is being used to implement higher level BMPs, innovative technologies, and regional projects to provide the next added increment of improving and protecting water quality.

Table B-14 identifies the agricultural technologies that received cost-share assistance in the St. Lucie River and Estuary BMAP area and the associated nutrient reductions based on the 2016 Soil and Water Engineering Technology (SWET) report. Using the nutrient reductions from the report, OAWP developed 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 and created a workbook that provided the cost-share agricultural technologies and the formulas to estimate the nutrient reductions.

Table B-14. Cost-share project types and associated nutrient reductions recommended by OAWP

[1] Reductions for this measure not incorporated as part of this exercise
[2] Reductions for this measure are from Table 5. Estimated Edge of Farm Nutrient Load Reductions for the FDACS Okeechobee BMP Program in the 2016 SWET Report (Bottcher 2016) and is represented in pounds per year per unit (each project is 1 unit)

Project Types	TN Reductions (%)	TP Reductions (%)
Chemigation/fertigation	20	20
Composting and/or storage project	N/A	N/A
Crop implements	N/A	N/A
Dairy work	50	50
Drainage improvements, mole drain, ditch cleaning	10	15
Engineering, surveying, planning, modeling	N/A	N/A
Fence	10	10
Irrigation improvements, automation	20	20
Precision agriculture technology	30	10
Retention, detention, tailwater recovery, berms (vegetable and agronomic crops, citrus)	64	70
Retention, detention, tailwater recovery, berms (cow/calf)	25	18
Structure for water control/culvert	17	29
Weather station[1]	20	5
Well, pipeline, trough, pond, heavy use protection[2]	50	50

Appendix C. WCDs and Other Special Districts

In the 2013 BMAP, WCDs and other special districts were assigned 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 BMAP, there were concerns with this approach, because FDACS is the only entity that can enroll growers in BMPs, but the districts were responsible for loading from the agricultural areas.

In addition, the urban lands within the districts were permitted by cities or counties and not under each district's control. Therefore, this 2020 BMAP only assigns the canals and rights-of-way to the special districts, 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, as summarized below. The included BMP plans were prepared and submitted by each individual WCD listed below and reviewed by DEP.

- **Hobe St. Lucie Conservancy District**
- **North St. Lucie River WCD**
- **Pal Mar WCD**
- **Troup-Indiantown WCD**

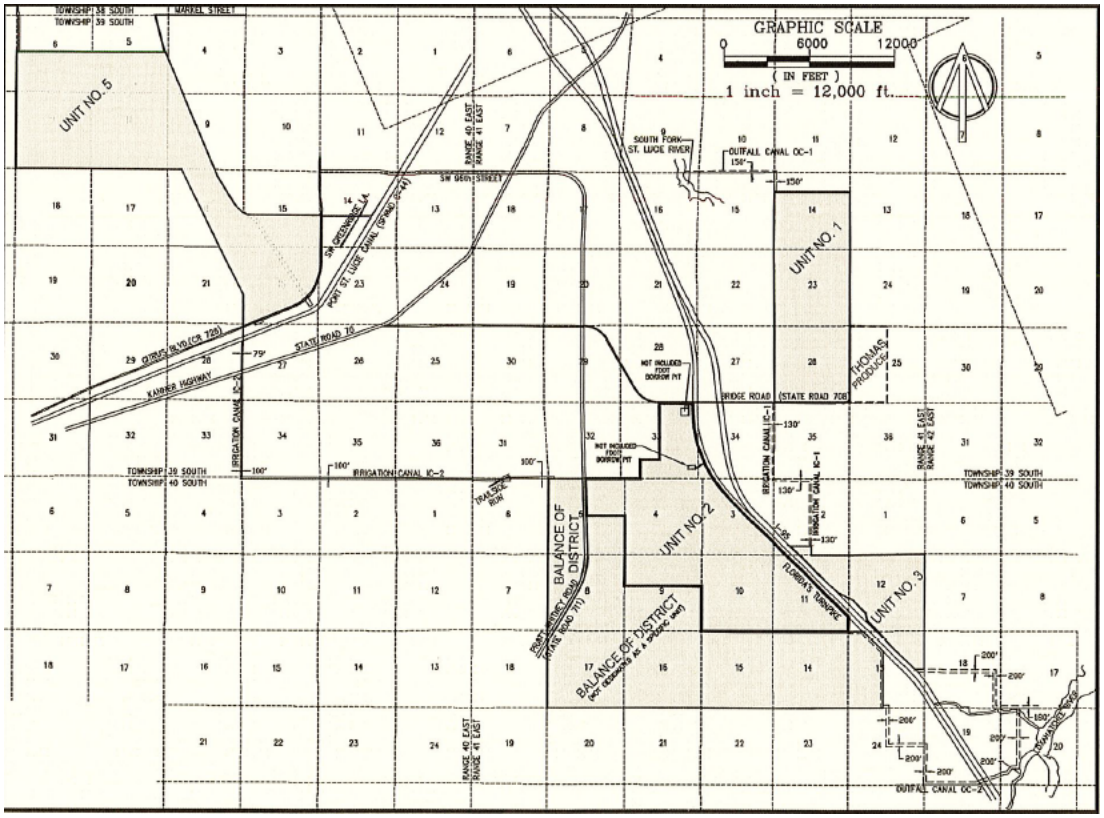
HIGGINS ENGINEERING, INC.

Hobe St. Lucie Conservancy District BMP Plan

for

St. Lucie Basin Management Action Plan December 2019

The Hobe St. Lucie Conservancy District (HSLCD) is a Chapter 298 District established in 1972, and presently codified pursuant to Chapter 2005-339. The HSLCD encompasses 13,034.3 acres of agricultural and suburban lands within Martin County. The HSLCD collects stormwater runoff and discharges the runoff into canals flowing to the South Fork of the St. Lucie River (Unit 1 outfall) and two outfalls discharge to the Loxahatchee River. Generally, lands north of Bridge Road drain to the South Fork of the St. Lucie River and lands south of Bridge Road drain to the Loxahatchee River. A map of the HSLCD drainage canals and associated rights of way is shown below. The canals and rights of way are maintained by the HSLCD.



A map generally depicting the agricultural producers enrolled within the HSLCD is on file with the Florida Department of Agriculture and Consumer Services (FDACS). All stormwater entering the HSLCD canals is subject to the FDACS program. The HSLCD receives runoff from the lands within the landowners and transmits the flow to discharge points. This practice does not increase the nutrient load in the runoff. The HSLCD is

proposing Best Management Practices (BMPs) to remove nutrients from vegetation and sediment during the transportation process.

The HSLCD 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. Rather the HSLCD's activities will serve to assist in the control of nutrients as part of the efforts described in the Basin Management Action Plan (BMAP). Implementation of the BMP's shall provide compliance with the BMAP and Chapters 373 and 403 F.S.

In selecting the BMPs, in coordination with the Florida Department of Environmental Protection (DEP), the function, operation and budget of the HSLCD 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. Each BMP includes a description and the required reporting.

The HSLCD will provide DEP an annual report confirming these activities are as identified below. Detailed records of same will be kept in the HSLCD's offices.

1. Regular sediment removal from the main canals.

Description: The HSLCD shall include as part of its annual maintenance program removing sediment while taking care to avoid creating steep banks that would erode and add sediments into the canals. Bank stabilization will be used where needed. Sediments removed will be disposed in a location where they will not be able to reenter the canals. Most maintenance is currently being done using chemical weed control versus mechanical harvesting.

Report: Regular maintenance activities - Dates when sediment removal activities occurred, volume of sediment removed, and sediment disposal location.

2. FDACS BMP Assistance

Description: The HSLCD will provide assistance to the FDACS, when requested. The HSLCD will identify any current landowner or producer and their contact information based on the HSLCD records that may qualify to participate in the FDACS BMP program. The HSLCD will contact landowners identified by FDACS to encourage the landowner or producer to participate in the FDACS BMP programs and recommend they contact FDACS to learn more about the program.

Report: Number of landowners/producer information requested by FDACS and responses provided.

3. Nutrient Controls

Description: No nutrients imported via direct land application for application on the HSLCD's rights of way.

Report: Annual verification by HSLCD.

4. Back-sloping of maintenance berms along the main canals.

Description: Minimize sediment transport by keeping direct runoff flows from entering the main canals directly without first being treated by the internal water control and treatment systems.

Report: Visual inspections of the sites.

5. Control Structures

Description: Maintain existing water control structures to regulate storm water discharges during storm events and to allow the slow movement of nutrients and sediments which will allow them to settle out in the canals where they can be removed. Evaluate the cost benefit impact of new structures as identified to improve water quality.

Report: Structure type, location, and operation. Identify proposed structures analyzed and the results.

North St. Lucie River Water Control District

14666 Orange Avenue
Fort Pierce, Florida 34945

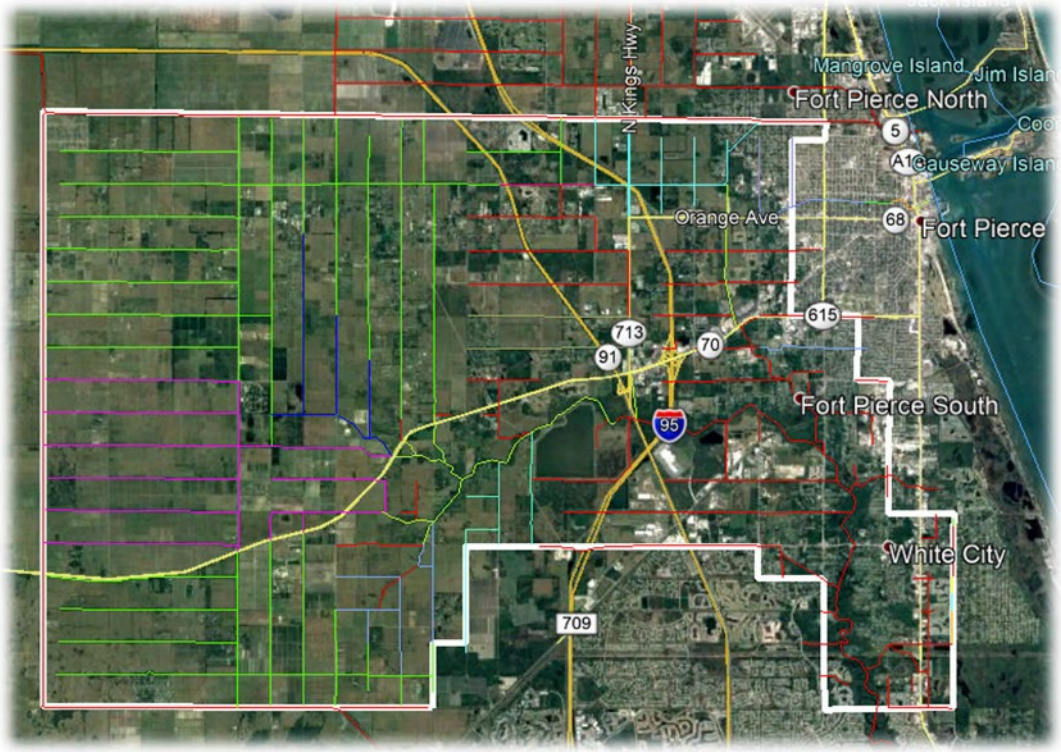
Best Management Practices (BMP) Plan for

St. Lucie Basin Management Action Plan (BMAP) Requirements

January 2020

The North St. Lucie River Water Control District (NSLRWCD) was originally created in 1918 under the provisions of Chapter 298, Florida Statutes, commonly referred to as the General Drainage Law of Florida. The NSLRWCD is responsible for drainage, flood control and protection, water management and reclamation of lands within NSLRWCD boundaries. The NSLRWCD owns, operates and maintains works for water management and regulates their use by others. The water management system generally includes a network of approximately 200 miles of canals, and associated pumps and water control structures. The NSLRWCD is located within St. Lucie County Florida, and current NSLRWCD boundaries encompass roughly 65,000 acres.

An aerial map of the NSLRWCD boundary (thick white line) and drainage canals is shown below. A more detailed map identifying the canal numbers and associated rights of way has been attached as Exhibit A to this document.



A map generally depicting the agricultural producers enrolled within the NSLRWCD is on file with the Florida Department of Agriculture and Consumer Services (FDACS). Significant stormwater entering the NSLRWCD canals is subject to the FDACS program. Additionally, stormwater entering the NSLRWCD canals are subject criteria imposed upon by other local, state and federal agencies including, but not limited to City of Fort Pierce, St. Lucie County, South Florida Water Management District (SFWMD), Florida Department of Environmental Protection (DEP) and United States Army Corps of Engineer (USACE).

The NSLRWCD developed the *Permit Information and Criteria Manual for Use of or Connection to Works of the District* (Permit Manual), 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 NSLRWCD. A copy of the Permit Manual and other information associated with NSLRWCD can be found on the District's website http://nslrwcd.org/.

The NSLRWCD proposes that the listed best management practices (BMPs) will be implemented and reported as active based strategies. A specific allocation or nutrient reduction target will not be established. Rather the NSLRWCD's activities will serve to assist in the control of nutrients as part of the efforts described in the MBAP. Implementation of the BMPs shall provide compliance with the BMAP and Chapters 373 and 403 of the Florida Statutes.

In selecting the BMPs, in coordination with DEP, the function, operation and budget of the NSLRWCD 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. Each BMP includes a description and the required records.

1. NSLRWCD shall harvest aquatic vegetation in the canals using mechanical processes to the extent practicable to reduce the need for herbicide treatment. Vegetation removed from the canals is typically disposed of within the canal right-of-way but is placed in a manner as to limit the possibility of the material reentering 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). In order to maintain rock riprap and other canal bank stabilization measures, NSLRWCD regularly utilizes herbicide treatments at locations where canal bank stabilization measures have been installed.

    - Report: The NSLRWCD is responsible for maintaining over 100 individual canals totaling approximately 200 miles and tracks canal maintenance using a spreadsheet, which can be provided to DEP. Disposal of material outside of the District's rights of ways is cost prohibitive at this time and will only be performed when deemed necessary by the District. The NSLRWCD shall report herbicide treatment locations and provide a justification for each location.

2. The NSLRWCD shall assist FDACS, where needed, with identifying and contacting landowners/ producers within the District boundaries for purposes of participating in the relevant FDACS BMP programs.

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

3. The NSLRWCD shall provide public education to residents of the District that provides 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.

4. Maintain existing water control structures and any adjustable gates on water control structures. The location and details associated with each water control structure can be found on Exhibits A and B (attached).

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

Exhibit A

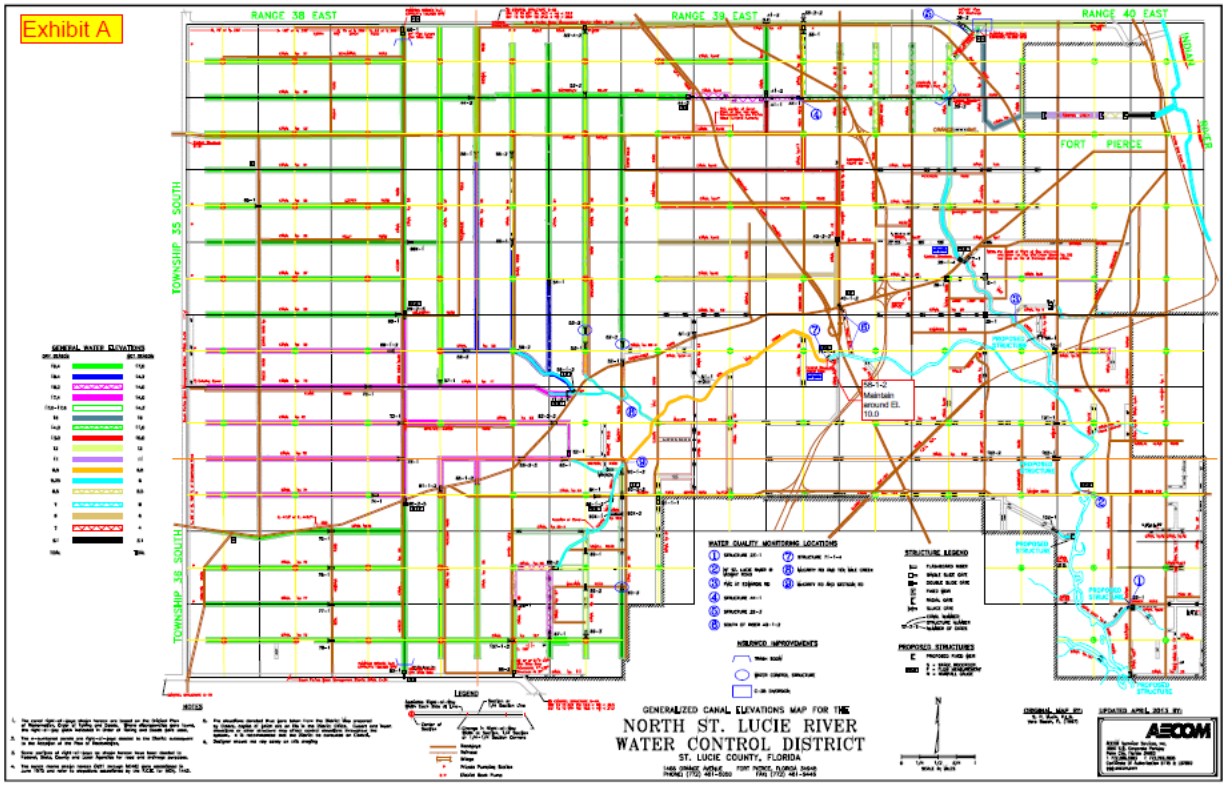


Exhibit B

STRUCTURE NUMBER	CONTROL Type	CONTROL Size	PIPE Dia.	PIPE Length	PIPE Type	INVERT EL (NGVD)	COMMENTS
7–1	Concrete Box	6' x 5'	84"	90'	CMP	W 1.0'; E 6.0'	
29–1–4	Double Slide Gate	2–12' Wide	12' x 12' Box	15'	Concrete Box	1.34'	Proposed
29–2	Flashboard Riser	96"	96"	38'	CMP	9.50'	Crest EL. 12.0;Control EL. 12.0;
33–1	Flapgate	72"	72"	60'	CMP	11.1'	
33–2–2	Sluice Gate		72"	93.5'	CMP	10.5'	
40–1–2	Flashboard	10' x 13'		40'	Concrete Box	3.63'	
41–1	Flashboard Riser	72"	72"	45'	CMP	13.5'	
41–2	Single Slide Gate	72"	72"	45'	CMP	13.5'	
41–3	FSR–CMP	36"	36"	80'	CMP	16.0'	
44–1	Single Slide Gate (2 Plate)		84"	53'	CMP	10.0'	Top of Gate EL 17.2; Full Down EL 13.5; Crest EL 14.0;Control EL 14.0
44–3	Flashboard Riser	72"	72"	45'	CMP	15.0'	
44–2	Single Slide Gate	84"	84"	53'	CMP	12.2'	
44–3	FSR	72"	72"	40'	CMP		
51–1	FSR	84"	84"	40'	CMP		Harold Williams
51–2	FSR/Concrete	84"		160'	CMP	12.0'	
52–1	FSR	84"	84"	200'	CMP	13.0'	
52–2	FSR	60"	60"	85'	CMP	13.0'	
53–1	FSR	84"	84"	40'	CMP		
53–2	FSR	66"	60"	85'	CMP		
53–3	FSR	72"	72"	58.5'	CMP		
53–4–2	Screw Gate/Sluice	60"	60"	235'	CMP	13.0'	
54–1	FSR	72"	72"	40'	CMP		
55–1	FSR	60"	60"	45'	CMP	15.0'	
55–2	FSR	72"	72"	40'	CMP		
56–1	FSR	72"	73"	40'	CMP	13.5'	
57–1	FSR	72"	72"	50'	CMP	9.5'	
58–1–4	FSR	13.5 x 10'		18'	Concrete Box	7.5'	
58–2	FSR – 3 Bay/Bridge	3–12'	72"	12'	Concrete	11.6'	
58–3	FSR		72"	43'	CMP	13.5'	
59–1	Sluice Gate		54"	100'	CMP	14.0'	
59–2–3	Double Slide Gate	3–100" x 102"	84"	56'	RCP	11.0'	Sill EL. 11.0; Top of gate EL. 19.5; Control EL. 19.2
65–1	FSR	60"	60"	35'	CMP		
66R–1	FSR	60"	60"	55'	CMP		
68–1	FSR	88" x 84"			Concrete	12.73'	
69–1–2	FSR	72"	72"	40'	AL–CMP	12.5'	
70–1	FSR	72"	72"	50'	CMP		
71–1–4	Radial Gate 4–7'x18'	7' x 18'		100' wide	Concrete	3.0'	Weir EL 9.0;Control EL 9.6
71–2–3	Radial Gate 3 each	8' x 14'			Concrete	9.56'	Sill EL 9.0; Weir EL 17.5
72–1	FSR	84"	84"	30.5'	CMP	13.5'	
73–1	FSR	2–72"	72"		AL		
74–1	FSR	66" concrete	None	None	None	12.65	
75–1	FSR	72"	72"	40'	CMP		
76–1	FSR	72"	72"	40'	CMP	17.5' (?)	
77–1	FSR	72"	72"	40'	AL–CMP		
78–1	FSR	72"	72"	40'	CMP		
80–1	Sluice	60"	60"	102' + 20'	RCP –CMP	12.12'	Control EL 17.5
80–2–5	Waterman GAPR–10 FF,V GAR–10F–RS–Y–K	68" x 84"	none			12.5'	2 pc Gate; Top of Gates EL 19.5 Full Down EL 16.0'
81–1–2	FSR Concrete	78" x 84"	78"x84"	75'	Concrete Box		
82–1	FSR	84"	84"	40'	CMP	12.8'	
82–2–2	FSR	6' x 10'		100'	Concrete Box		
83–1	FSR	84"	84"	50'	CMP		
83–2–2	FSR Concrete	2–84"	84" x 84"	75'	Concrete Box		
84–1	FSR	72"	72"	24'	CMP	12.0'	
85–1–2	FSR Concrete	2–40"	78"x84" Box	75'	Concrete		
86–1	FSR	72"	72"	40'	AL–CMP	14.5'	
87–1	FSR	72"	72"	40'	Aluminum		
88–1–2	Concrete	84" slide	2–72"	50'	RCP	9.67'	Slide gates (boards over); Top of gate EL 14.5
88–2	FSR	84"	84"	50'	Aluminum	12.0'	
89–1	FSR	72"	72"	50'	AL–CMP	13.0'	
89–2	Sluice Gate	24"	24"	31.5'	CMP	12.0'	Not in use
90–1–2	FSR/2	2–72"	72"	34.0'	CMP	7.0'	10 gauge; Top of flash board EL 15.69
90–2–2	Concrete (See Below)	2–84"	2–84"	80'	RCP	10.5	Aluminum slide gate: 1 pc Top EL 17.66; 2 pc Top EL 17.66; Full Down EL 14.33
90–3	FSR	2–72"	72"	50'	CMP	12.0'	
90x–1	FSR	72"	72"	40'	AL–CMP	11.0'	
90x–2	FSR	72"	72"	40'	AL–CMP	11.0'	
91–1–1	Single Slide (Below)	84"	84"	80'	RCP	10.5'	Concrete; Top Gate EL 17.66; Full Down EL 14.33
101–1	FSR		72"	77'	Concrete		
102–1	FSR	6x12'	72"		Concrete Box		
102–2	FSR						Proposed
103–1							Proposed
107–1–2	FSR	2–72"	72"	80'	CMP	13.0'	

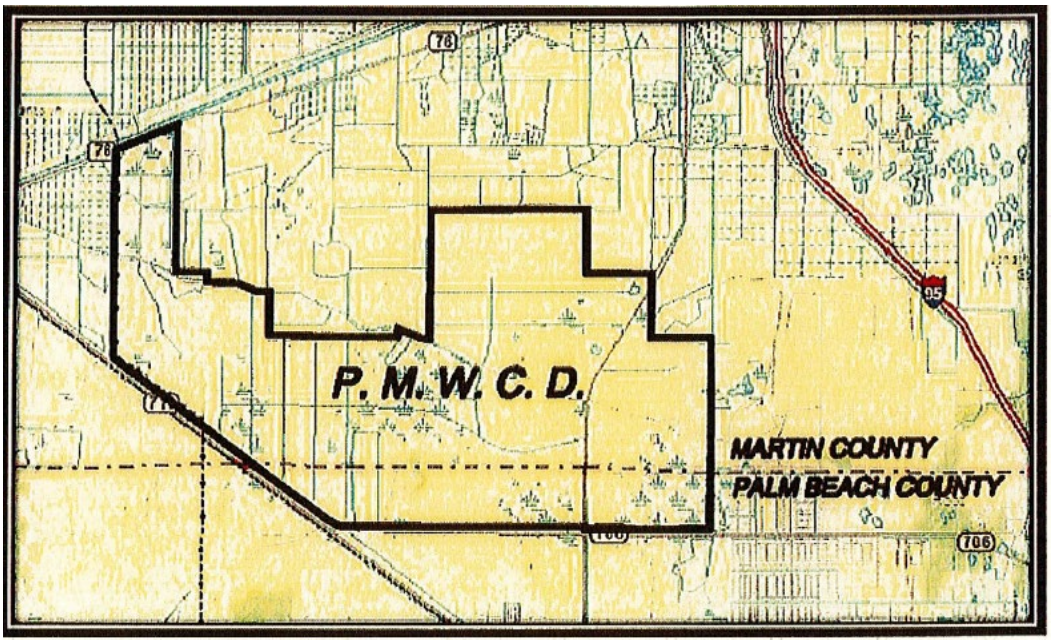
HIGGINS ENGINEERING, INC.

Pal Mar Water Control District BMP Plan

for
St. Lucie Basin Management Action Plan December 2019

The Pal Mar Water Control District (PMWCD) is a Chapter 298 District established in 1968, and presently codified pursuant to Chapter 2005-339. The PMWCD encompasses approximately 22,500 acres of agricultural and suburban lands within Palm Beach and Martin Counties. The PMWCD collects stormwater runoff and discharges the runoff into canals flowing to the St. Lucie Canal (C-44) via a natural slough system in Martin County. The canals and rights of way are maintained by the PMWCD.

Pal-Mar Water Control District



There are no known agricultural producers enrolled within the PMWCD on file with the Florida Department of Agriculture and Consumer Services (FDACS). All stormwater entering the PMWCD canals is likely to be subject to the FDACS program. The PMWCD receives runoff from the lands within the landowners and transmits the flow to discharge points. This practice does not increase the nutrient load in the runoff. The PMWCD is proposing Best Management Practices (BMP's) to remove nutrients from vegetation and sediment through the natural filtration process through natural vegetation.

The PMWCD 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. Rather the PMWCD's activities will serve to assist in the control of nutrients as part of the efforts described in the Basin Management Action Plan (BMAP). Implementation of the BMP's shall provide compliance with the BMAP and Chapters 373 and 403 F.S.

In selecting the BMP's, in coordination with the (Florida Department of Environmental Protection, DEP), the function, operation, and budget of the PMWCD has been considered and these listed BMP's should not be considered as cost-effective, technically practical or applicable to any other water control district within the BMAP. Each BMP includes a description and the required reporting.

The PMWCD will provide DEP an annual report confirming these activities are as identified below. Detailed records of same will be kept in the PMWCD's offices.

1. Regular sediment removal from the main canals.
Description: The PMWCD shall not include as part of its annual maintenance program the removal of sediment while taking care to avoid creating steep banks that would erode and add sediments into the canals. Since the lands within PMWCD are to be kept as natural and undeveloped, no sedimentation should occur or require to be removed.

Report: Regular maintenance activities - No significant maintenance is expected on an annual basis because of the "natural" conditions on-site and the inability of the PMWCD to fund such activities due to the non-payment of major property owners, such as the SFWMD, of their annual benefit assessments.

2. FDACS BMP Assistance
Description: The PMWCD will provide assistance to the FDACS, when requested. The PMWCD will identify any current landowner or producer and their contact information based on the PMWCD records of their possible enrollment in the FDACS BMP Program. The PMWCD will contact any landowners identified by FDACS to encourage the landowner or producer to participate in the FDACS BMP programs and recommend they contact FDACS to learn more about the program.

Report: Number of landowners/producer information requested by FDACS and responses provided.

3. Nutrient Controls
Description: No nutrients imp1ied via direct land application for application on the PMWCD rights of way is anticipated.

Report: Annual verification by PMWCD.

4. Control Structures

Description: Maintain existing water control structures to regulate storm water discharges during storm events and to allow the slow movement of nutrients and sediments which will allow them to settle out in the canals where they can be removed. Evaluate the cost benefit impact of new structures as identified to improve water quality.

Report: Structure type, location, and operation. Identify proposed structures analyzed and the results.

Troup-Indiantown Water Control District BMP Plan

for

St. Lucie River and Estuary Basin Management Action Plan (BMAP)

November 15, 2019

The Troup-Indiantown Water Control District (TIWCD or District) is a Chapter 298 District established in 1962, and presently codified pursuant to Chapter 2002-366. The District boundary encompasses approximately 13,780 acres of agricultural lands within Martin County.

Stormwater runoff from its landowners is collected into a drainage canal, which ultimately discharges into the South Florida Water Management District's (SFWMD) C-44 canal. The discharge utilizes the Army Corp of Engineers' (ACOE) Allapattah No. 1 Weir.

A map of the TIWCD is shown in Exhibit A. There are approximately 7.5 miles of drainage canal (± 138 acres), 9.0 miles of irrigation canal (±100 acres), and 7.5 miles of roadway (± 73 acres) that are maintained by the TIWCD. In addition, there is a drainage canal that collects stormwater from lands located outside the District boundary as pass through drainage. This canal is approximately 3 miles and is maintained by TIWCD (± 38 acres).

A map generally depicting the agricultural producers enrolled within the TIWCD is on file with the Florida Department of Agriculture and Consumer Services (FDACS). All stormwater entering the TIWCD canals is subject to the FDACS program.

TIWCD receives runoff from the lands within the landowners and transmits the flow to discharge points. This practice does not increase the nutrient load in the runoff.

TIWCD proposed that the listed best management practices will be implemented and reported as activity-based strategies. A specific allocation or nutrient reduction target will not be established. Rather TIWCD's activities will serve to assist in the control of nutrients as part of the efforts described in the Basin Management Action Plan. Implementation of the best management practices shall provide compliance with the BMAP and Chapters 373 and 403 F.S.

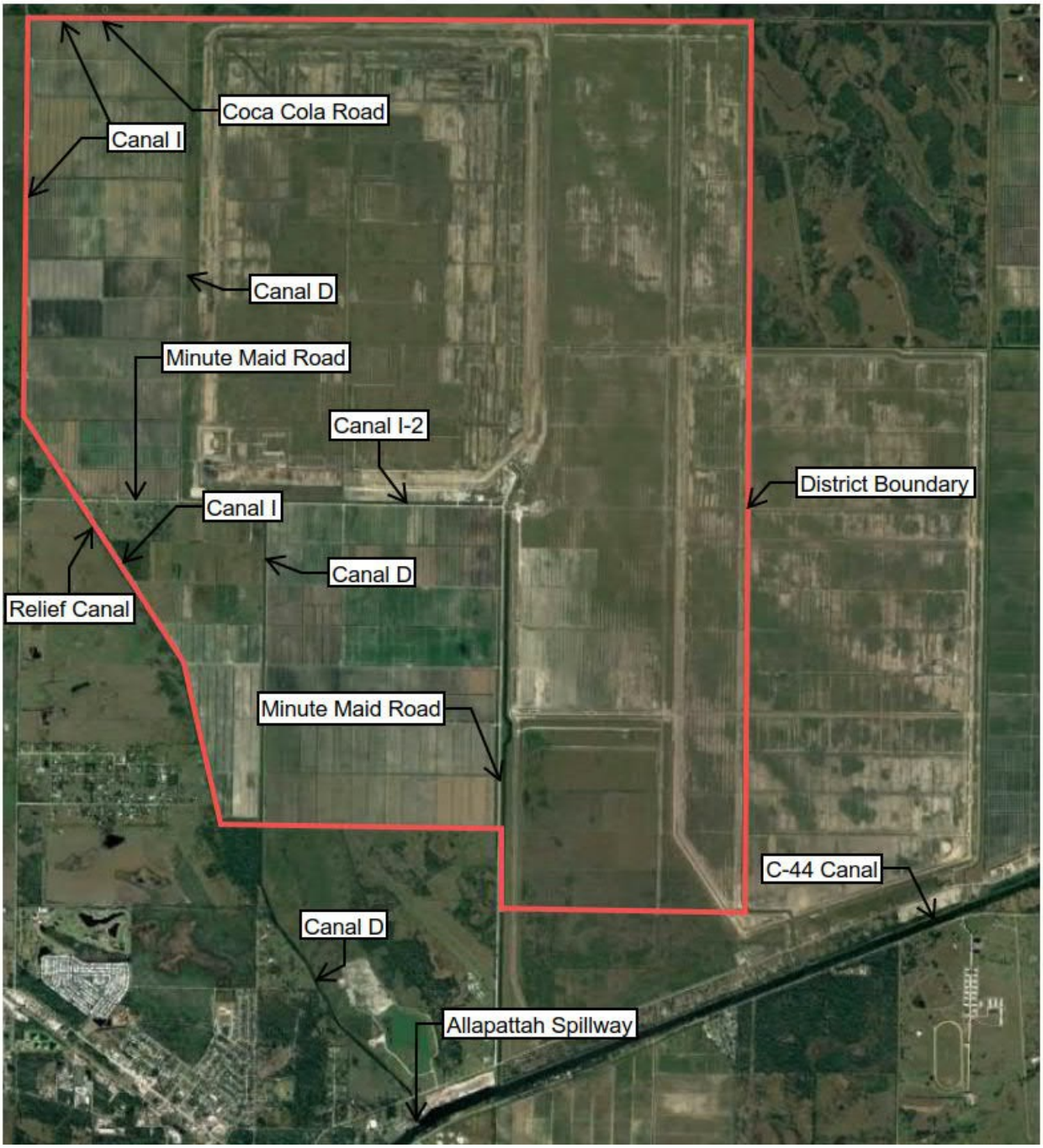


Exhibit A: Troup Aerial View

In selecting the best management practices, in coordination with Florida Department of Environmental Protection (DEP), the function, operation, and budget of the TIWCD has been considered and these listed best management practices should not be considered as cost- effective, technically practical or applicable to any other water control district within the BMAP. Each best management practice (BMP) includes a description and the required records.

TIWCD will provide DEP an annual report confirming these activities are as identified. Detailed records of same will be kept by the TIWCD secretary.

1. Public Education and Outreach

Description: TIWCD shall include as part of its annual landowner meeting, an agenda item to alert its landowners of the existence of the BMAP and requirements for agricultural landowners. DEP and FDACS will assist with the preparation of the agenda materials.

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

2. Canal Buffer

Description: Create a canal buffer to help reduce loading from stormwater runoff to the canals. This area is sloped away from the canal to minimize sheet flow runoff from entering the canal. The slope also provides an area to prevent grass clippings from flowing directly into the canal where they can decompose and add nutrients. Mowing and maintenance activities will be done in such a way to minimize grass clippings from getting into the canal.

Report: With 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. Assisting FDACS

Description: 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 contact to assist FDACS, and the names of landowners.

4. Control Structures

Description: Maintain existing water control structures and the Minute Maid Road drainage improvements project.

Report: Structure type, location (shapefile), and operation. Operation and any maintenance for the Minute Maid Road project.

Appendix D. RFI Responses

To further identify restoration projects for this BMAP, DEP released an RFI in October 2019 to generate additional restoration projects or activities from both the public and private sectors. The effort was open to any interested parties who could propose a viable project for restoration and could be considered for inclusion in the final St. Lucie River and Estuary BMAP for funding consideration.

Overall, the RFI process generated 37 responses, mainly from the private sector. Submittals ranged from structural projects to new and emerging technologies. All submittals were reviewed; **Table D-1** summarizes the submittals. The TRA IDs and basin names reference the maps for each basin in **Chapter 3**. Resources will be needed to implement any of these projects throughout the watershed., and they are being considered for DEP funding. Additional details on all responses are on file with DEP.

Table D-1. Summary of responses received for RFI 2020018

Location Information	Submitted by	Project Name	Project Type
TRA IDs: 1,2,3,4,5	AECOM Technical Services, Inc.	Nutrient Inceptor Removal System (NIRS)	Algae-harvesting technology
TRA ID: 3	AquaFiber Technologies Corporation	AquaLutions	Algae-harvesting technology
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	Aquatic Vegetation Control, Inc.	Bio-Zyme	Technology
TRA IDs: 8,9,10,11	Beta Analytic, Inc.	Dissolved Nitrate Isotopic Monitoring	Monitoring
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	C.B. Smith Company, Inc.	ADS Canal/River Treatment	Technology
TRA ID: 5	Caulkins-Troup Water Farm	Water Storage	Storage/STA
TRA ID: 1,2,3	City of Port St. Lucie – Septic2Sewer	Utility Expansion Project	Septic to Sewer
TRA ID: 4	Cypress Creek – Ru-Mar Inc. Bluefield Ranch	Rehydration of Cypress Creek	Structure
TRA IDs: 1-27	Eco Librium	Water Cleanser	Technology
TRA IDs: 1-11	ECS	Bold & Gold Filtration Media	Biosorption activated media
Not provided	Equilibrium Sciences, LLC	ExtraGro$_{TM}$	Bioremediation/land application technology
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	Ferrate Solutions, Inc.	Ferrate Treatment Systems	Technology
Not provided	Freytech	Environmental Balance Device (EBD)	Technology
Not provided	Galene Water Treatment LLC	OSTDs Septic to Sewer	Septic to Sewer

Location Information	Submitted by	Project Name	Project Type
TRA IDs: 1,5	Green Water Solutions, LLC	NBOT Technology	Technology
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	Higgins	A-Pod	Technology
TRA IDs: 1-11	LatAm Services	LatAm Services Technology	Bioremediation/land application technology
Not provided	Liventa	LWT, PWC, SOS and Soil-Pro	Bioremediation and Land Application
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	Aquamon	Water Quality Monitoring Station Construction and Deployment	Monitoring
Not provided	McDonald International Consulting Corporation	Bioremediation Treatment Technology	STA structure
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	Nanopure, Tech.	NanoBOT N50	STA/DWM structure
TRA IDs:1-11	OnSyte Performance, LLC	Septic to Sewer Program	Technology
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	OptiRTC, Inc.	Continuous Monitoring and Adaptive Control (CMAC)	Monitoring
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	Peace USA	Nualgi	Algae-harvesting technology
TRA IDs: 2,3,4	Phosphorus Free	Phosphorus Free Water Solutions	Technology
TRA IDs: 1,2	South Florida Engineering and Consulting	Performance Improvement of Ten Mile Creek Water Preserve Area	Storage
TRA ID 8 (South Fork Basin)	Sustainable Water Investment Group, LLC (SWIG)	Organic Nitrogen Elimination (ONE) System	Storage/STA
TRA IDs: 2,3,4,5	Soil and Water Engineering Tech Inc.	Stormwater Retention and Reuse with Chemical Treatment System	STA/Storage
TRA ID: 5	The Caulkins-Greenridge Water Farm	Water Storage	Storage/STA
TRA ID: 8	The MilCor Group, Inc. – Winemiller Water Farm	Winemiller Water Farm	Storage/STA
TRA ID: 11	Town of Sewalls Point – Septic2Sewer	Septic to Sewer Program	Storage
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	UltraTech International, Inc.	Ultra-Archaea and Ultra-PhosFilter	Technology

Location Information	Submitted by	Project Name	Project Type
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	Universal Engineering Sciences, Inc.	Universal Engineering Sciences Bioremediation	Technology
TRA IDs: 1,2,3,4,5,6,7,8,9, 10,11	Water Warriors	Poseidon™ Carbonate Pellets	Technology