Final

2017 Progress Report for the Banana River Lagoon Basin Management Action Plan

Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection

August 2017

2600 Blair Stone Road
Tallahassee, FL 32399
www.dep.state.fl.us

Acknowledgments

This *2017 Progress Report for the Banana River Lagoon (BRL) Basin Management Action Plan (BMAP)* was developed 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 BRL stakeholders.

Table 1. List of BRL BMAP participants

Type of Governmental or Private Entity	Participant
Counties	Brevard County
Municipalities	City of Cape Canaveral City of Cocoa Beach City of Indian Harbour Beach City of Satellite Beach
Agencies	Florida Department of Agriculture and Consumer Services Florida Department of Environmental Protection South Florida Water Management District St. Johns River Water Management District Florida Department of Transportation District 5 Cape Canaveral Air Force Station Kennedy Space Center Patrick Air Force Base
Other Interested Parties	Agriculture

For additional information on the watershed management approach in the BRL, contact:

Kevin Williams, Basin Coordinator
Florida Department of Environmental Protection
Water Quality Restoration Program
2600 Blair Stone Road, Mail Station 3565
Tallahassee, FL 32399-2400
Email: kevin.c.williams@dep.state.fl.us
Phone: (850) 245–8086

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List of Acronyms and Abbreviations

µg/L	Micrograms Per Liter
AFB	Air Force Base
AFS	Air Force Station
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BRL	Banana River Lagoon
CBHS	Cocoa Beach High School
CDS	Continuous Deflective Separation
DEO	Florida Department of Economic Opportunity
DEP	Florida Department of Environmental Protection
DO	Dissolved Oxygen
FDOT	Florida Department of Transportation
GIS	Geographic Information System
IRL	Indian River Lagoon
KSC	Kennedy Space Center
lbs/yr	Pounds Per Year
LID	Low-Impact Development
MAPS	Managed Aquatic Plant System
mL	Milliliter
N/A	Not Applicable
O&M	Operations and Maintenance
PCD	Pollution Control Device
SJRWMD	St. Johns River Water Management District
SR	State Road
TBD	To Be Determined
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
WBID	Waterbody Identification
WWTP	Wastewater Treatment Plant

Section 1: Introduction

1.1 Purpose of the Report

This is the fourth annual Progress Report for the Banana River Lagoon (BRL) Basin Management Action Plan (BMAP). **Section 2** describes the activities and projects implemented by stakeholders during the reporting period (March 1, 2016, through February 28, 2017). **Section 3** summarizes stakeholder compliance with the BMAP. **Section 4** summarizes the water quality monitoring and includes the results of a water quality evaluation conducted in the BRL. **Appendix A** contains a comprehensive list of stakeholder projects and activities that have been completed, continued (i.e., ongoing), or planned since BMAP adoption.

1.2 Total Maximum Daily Loads (TMDLs) for the BRL Subbasin

The Florida Department of Environmental Protection (DEP) verified the Indian River Lagoon (IRL) Basin as impaired because of excessive amounts of total nitrogen (TN) and total phosphorus (TP), as evidenced by a decrease in seagrass distribution and by low dissolved oxygen (DO). In March 2009, DEP adopted the nutrient and DO IRL Basin TMDLs, with a focus on the water quality conditions necessary for seagrass regrowth at the depth limits where seagrass historically grew in the basin, based on a multiyear composite of seagrass coverage. The median depth limits of seagrass coverage in the IRL Basin have decreased over the years because of changes in water quality conditions resulting from anthropogenic (human) influences. **Table 2** and **Table 3** list the TN and TP TMDLs and pollutant load allocations, respectively, adopted by rule for the segments with waterbody identification (WBID) numbers in the BRL Subbasin.

Table 2. TN TMDLs in the BRL Subbasin

lbs/yr = Pounds per year; N/A = Not applicable

WBID Number	WBID Name	Project Zone	Parameter	TMDL (lbs/yr)	Wastewater Facilities Allocation (lbs/yr)	Stormwater Allocation (lbs/yr)	Atmospheric Deposition Allocation (lbs/yr)
3057C	Banana River above Barge Canal	BRL A	TN	116,314	1,214	41,614	73,486
3057A and 3057B	Banana River below State Road (SR) 520 Causeway and Banana River above SR 520 Causeway	BRL B	TN	144,780	6,173	47,539	91,069
3044A	Newfound Harbor	BRL B	TN	30,661	N/A	15,489	15,172
Total			**TN**	**291,755**	**7,387**	**104,642**	**179,727**

Table 3. TP TMDLs in the BRL Subbasin

lbs/yr = pounds per year; N/A = Not applicable

WBID Number	WBID Name	Project Zone	Parameter	TMDL (lbs/yr)	Wastewater Facilities Allocation (lbs/yr)	Stormwater Allocation (lbs/yr)	Atmospheric Deposition Allocation (lbs/yr)
3057C	Banana River above Barge Canal	BRL A	TP	7,825	302	5,874	1,649
3057A and 3057B	Banana River below SR 520 Causeway and Banana River above SR 520 Causeway	BRL B	TP	12,181	1221	8,916	2,044
3044A	Newfound Harbor	BRL B	TP	3,247	N/A	2,907	340
Total			**TP**	**23,253**	**1,523**	**17,697**	**4,033**

1.3 BRL Subbasin

Because of the large size of the IRL Basin and its hydrologic diversity, DEP divided the watershed into three subbasins: (1) BRL, (2) North IRL, and (3) Central IRL. Separate BMAPs were developed for each subbasin; this report focuses solely on the BRL subbasin.

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

- **BRL A** – The area north of and including the SR 520 Causeway.
- **BRL B** – The area south of the SR 520 Causeway.

Figure 1 and **Figure 2** show the stakeholders in each of these project zones.

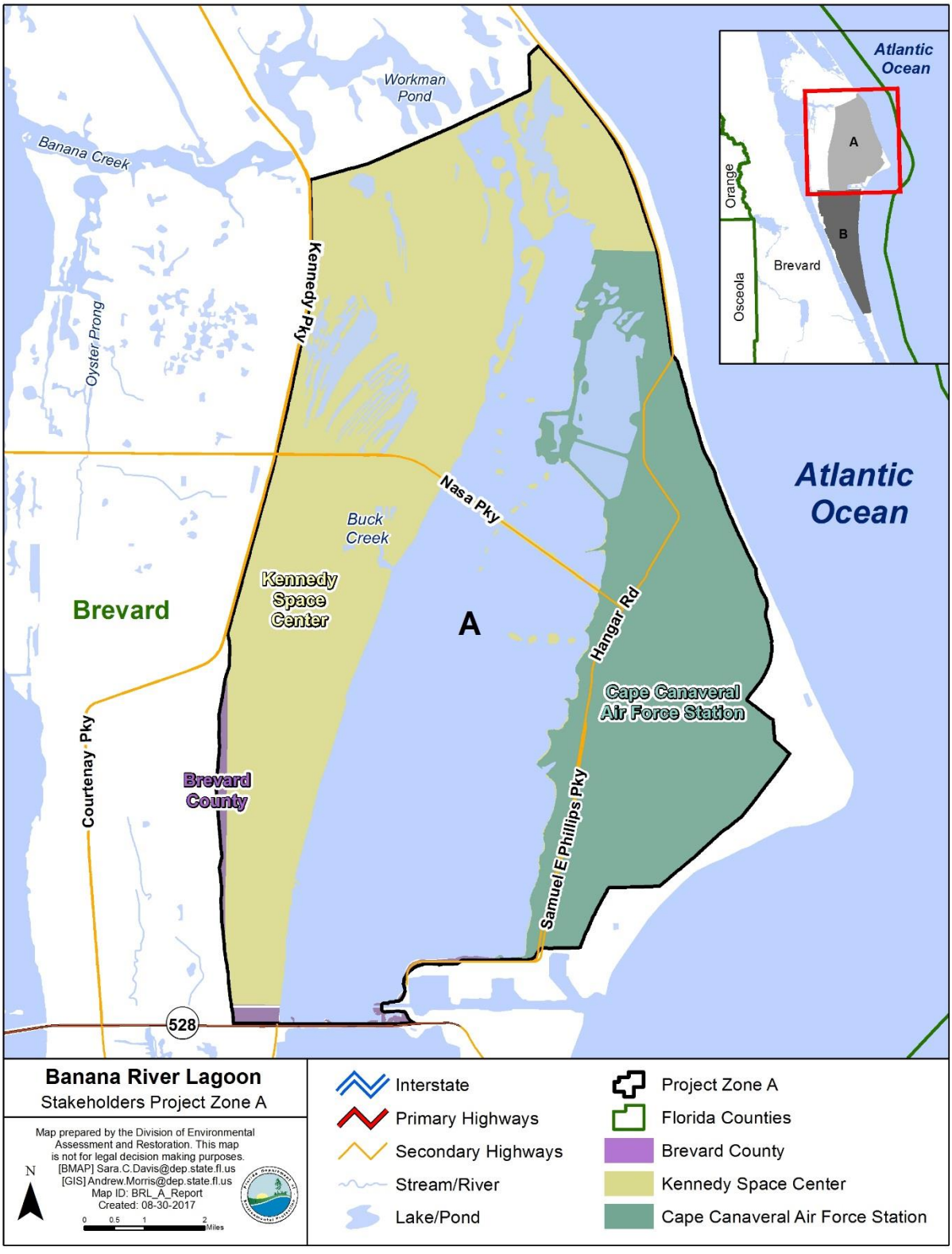

Figure 1. BRL Project Zone A stakeholders

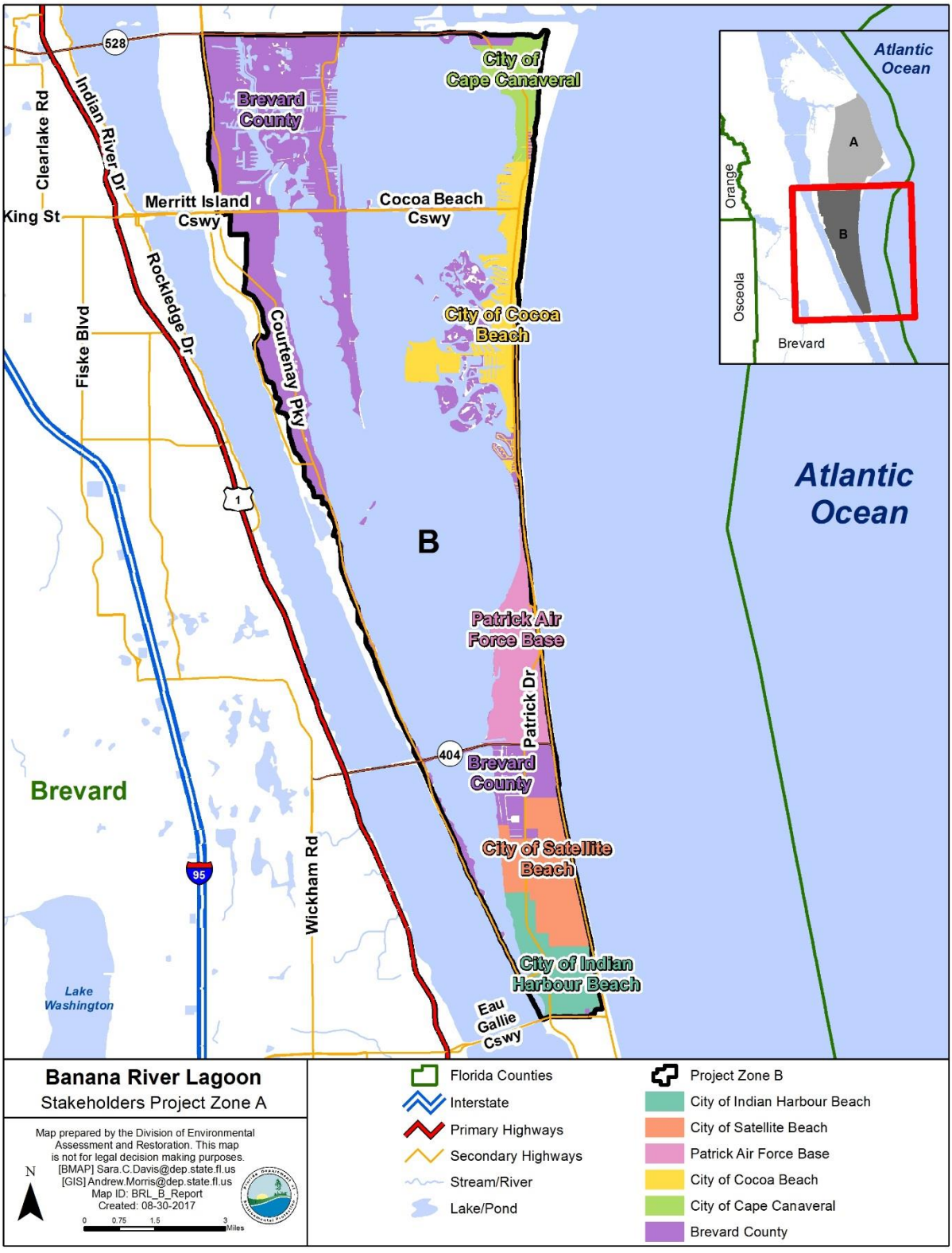

Figure 2. BRL Project Zone B stakeholders

Section 2: Activities During the Reporting Period

Section 2.1 and **Section 2.2** describe the accomplishments in the BRL during the reporting period (March 1, 2016, through February 28, 2017). New projects added to the individual project tables are described below, as well as individual projects completed during the reporting period. Ongoing efforts such as street sweeping, ordinances, and public education efforts are not specifically described below but must continue each year for the project credit to remain effective. **Appendix A** contains the individual project tables.

2.1 Activities by Entity

2.1.1 Brevard County

In 2016, the county passed a half-cent sales tax to support IRL restoration efforts and implement projects to reduce nutrient loading from stormwater runoff and groundwater discharges to the IRL. The county secured legislative appropriation funding to increase muck dredging projects in five priority areas: Mims boat ramp on Jones Road, Sykes Creek, Cocoa Beach, Grand Canal, and Turkey Creek.

The Cocoa Beach Canal Dredging Project (BC-32) removed 84,000 cubic yards of muck material in this reporting period. Estimated reductions are still being verified for this project. The county received a grant (S0714) of $20 million from DEP to complete all five priority muck dredging projects.

The county initiated the development of a Shoreline Management Plan. The plan will be used to identify opportunities and implement environmental enhancement and erosion protection along the IRL shoreline in Brevard County. The goals of the shoreline management plan are as follows:

- Stabilize shorelines.
- Prevent erosion.
- Maintain, enhance, and restore estuary habitat along the IRL shoreline.
- Protect water quality.

Brevard County, in partnership with the University of Central Florida, began conducting surveys of the IRL shoreline in Brevard County to create geographic information system (GIS) data layers that spatially represent shoreline conditions and features. Grant funding from the Florida Coastal Management Program Coastal Partnership Initiative was used to complete the process.

2.1.2 Cape Canaveral Air Force Station (AFS)

Cape Canaveral AFS reviewed current ponds to evaluate the treatment and storage capacity for dry ponds (CCAFS-03) and on-line wet retention ponds (CCAFS-04) after 2000. Estimated load reductions for these projects are still being determined.

2.1.3 City of Cape Canaveral

In February 2017, the city completed the construction of a stormwater exfiltration project (CC-14) beneath Canaveral City Park. The project included the installation of 4,015 linear feet of stormwater chambers beneath 2 outfield areas and 1 infield area, treating approximately 30 acres of the city and totaling 1 inch of storage retention treatment. Adjacent curb inlets to the park were retrofitted to include internal manhole weirs to redirect stormwater into the exfiltration system. After the installation of the stormwater chambers was completed, the park surface was returned to its original use. Load reductions to the BRL for this project are 324 lbs/yr TN and 76 lbs/yr TP. Some of the total project costs were paid by a Section 319 grant (LP05052) of $1.2 million and legislative appropriations.

The city also completed the North Atlantic Avenue Streetscape Project (CC-13) in December 2016. The project included the construction of stormwater swales along the roadway, which previously had no stormwater system along most of its length. Prior to streetscape construction, stormwater flowed from the roadway and sidewalks onto private properties, into stormwater inlets, and ultimately into the BRL. Load reductions for this project are 102 lbs/yr TN and 24 lbs/yr TP.

2.1.4 City of Cocoa Beach

Cocoa Beach is assessing public/private pond partnerships to assist with retrofitting existing stormwater ponds with low-impact development (LID)/chemical treatment to provide active treatment for a larger volume of stormwater runoff. The city will provide additional data to DEP, and verified nutrient reduction credits for this project will be included in future reports.

2.1.5 Kennedy Space Center (KSC)

During November 2016, KSC evaluated sediments in the "Cut 13" segment of the Banana River navigational channel to determine potential nutrient reduction credits for the planned maintenance dredging of this segment. The 12 core samples collected confirmed that sediments in the planned dredging area conform to muck requirements, as described in the 2012 DEP document, *IRL BMAPs, Muck Removal Credit Guidance.* The dredging of 216,790 cubic yards of sediment is expected to be complete by summer 2017, and KSC anticipates the removal of 353 tons of TN and 40 tons of TP. KSC will provide additional data to DEP in 2017, and verified nutrient reduction credits for this project will be included in future reports.

2.1.6 Patrick Air Force Base (AFB)

Patrick AFB completed an evaluation of three dry retention ponds and provided documentation showing that they are closed basins (PAFB-12), and reviewed current dry ponds to evaluate the treatment and storage capacity constructed after 2000 (PAFB-13). Estimated load reductions for these projects are still being determined.

2.1.7 City of Indian Harbour Beach

The city completed the dry detention pond in Indian Harbour Condo (IHB-10), a public-private partnership that treats a 2-acre area. Load reductions for the project are 48 lbs/yr TN and 8 lbs/yr TP.

2.2 Summary of Accomplishments

In the BRL, the projects completed during the reporting period (**Table 4**) resulted in a reduction of 474 lbs/yr of TN and 108 lbs/yr of TP. These reductions are in addition to those projects given credit at BMAP adoption and in previous annual reports. Therefore, the total reductions to date are 42,449 lbs/yr of TN and 8,709 lbs/yr of TP, which are 44 % of the TN and 39 % of the TP reductions needed to meet the TMDLs for the BRL. **Figure 3** and **Figure 4** show the load reductions for TN and TP, respectively, compared with the starting load and allocations.

Table 4. Summary of projects completed during the reporting period in the BRL Subbasin

TBD = To be determined

Stakeholders	Project Zone	Project Number	Project Name	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)
Patrick AFB	B	PAFB-09	Fuel Farm (2nd generation baffle box)	TBD	TBD
Patrick AFB	B	PAFB-12	Ponds without Discharge	TBD	TBD
Patrick AFB	B	PAFB-13	Dry Retention Ponds after 2000	TBD	TBD
Indian Harbour Beach	B	IHB-10	Indian Harbour Beach Condo Pond	48	8
City of Cape Canaveral	B	CC-13	Stormwater Exfiltration on North Atlantic Ave.	102	24
City of Cape Canaveral	B	CC-14	Stormwater Exfiltration at Canaveral City Park	324	76
Brevard County	B	BC-32	Cocoa Beach Canal Dredging	TBD	TBD
Cape Canaveral AFS	A	TBD	Dry Retention Ponds after 2000	TBD	TBD
Cape Canaveral AFS	A	TBD	Online Wet Retention Ponds after 2000	TBD	TBD
Total			**Total Reductions in Reporting Period**	**474**	**108**

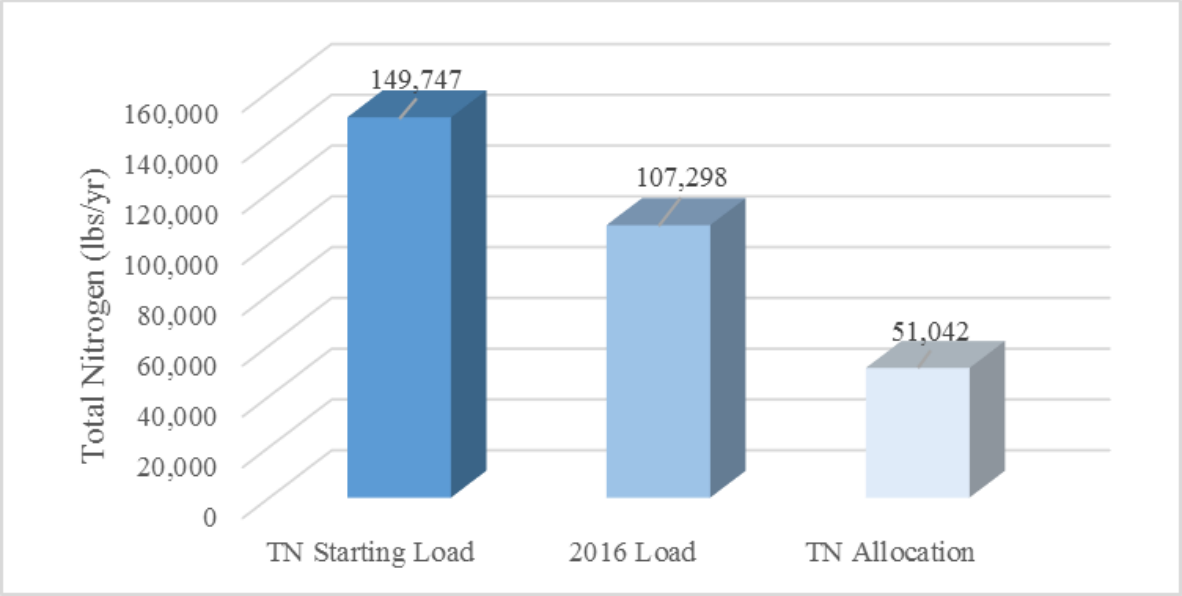

Figure 3. Progress towards the BRL TN TMDL through February 28, 2017

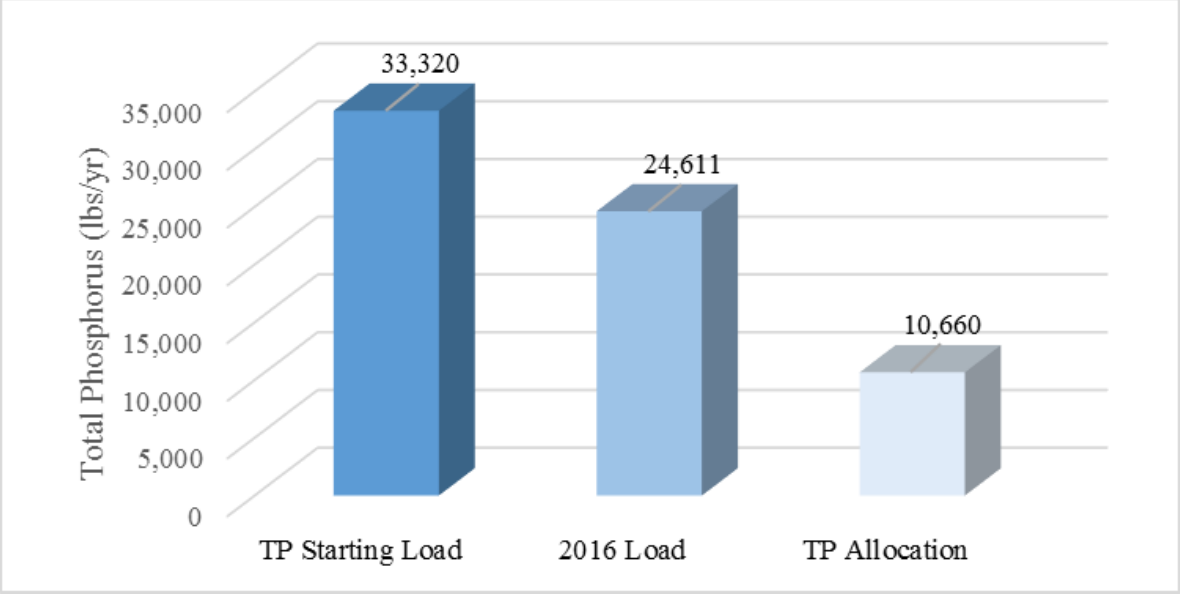

Figure 4. Progress towards the BRL TP TMDL through February 28, 2017

Section 3: Compliance

DEP annually reviews each entity's progress towards completing projects in the BMAP and achieving the assigned allocations. **Table 5** outlines the number of projects that each entity has committed to in the BMAP and annual reports, along with the status of those projects. **Table 6** summarizes the reductions achieved and required reductions for each entity in the BMAP.

Table 5. Projects to achieve the TMDL

Entity	Projects	Completed	Underway	Cancelled
Brevard County	28	24	3	1
Cape Canaveral AFS	4	4	0	0
City of Cape Canaveral	32	16	14	2
City of Cocoa Beach	37	34	2	1
City of Indian Harbour Beach	36	17	18	1
City of Satellite Beach	40	40	0	0
Florida Department of Transportation (FDOT) District 5	16	16	0	0
Kennedy Space Center	28	27	1	0
Patrick AFB	13	12	1	0
Total	**236**	**192**	**39**	**5**

Table 6. Summary of reductions by entity

N/A = Not applicable; no reductions required.

Project Zone	Entity	Total TN Required Reduction (lbs/yr)	Total TP Required Reduction (lbs/yr)	Current TN Reduction (lbs/yr)	Current TP Reduction (lbs/yr)	% of Required TN Reductions Achieved	% of Required TP Reductions Achieved
A	Brevard County	No required reductions	No required reductions	764	452	N/A	N/A
A	Cape Canaveral AFS	No required reductions	No required reductions	402	124	N/A	N/A
A	FDOT District 5	No required reductions	No required reductions	152	32	N/A	N/A
A	KSC	No required reductions	No required reductions	18,348	2,800	N/A	N/A
B	Brevard County	42,287	9,193	6,063	1,573	14	17
B	Cape Canaveral	5,907	1,467	3,717	542	62	36
B	Cocoa Beach	11,347	2,360	2,471	715	21	30
B	Indian Harbour Beach	6,787	1,167	1,442	385	21	33
B	Satellite Beach	10,487	1,987	2,818	592	27	30
B	FDOT District 5	3,147	1,193	2,017	350	64	29
B	Patrick AFB	17,433	4,987	4,208	1,138	24	23

Section 4: Water Quality

4.1 Water Quality Monitoring

The BRL 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 will measure progress toward achieving the TMDL and provide a better understanding of watershed loading. The BMAP monitoring plan consists of ambient water quality sampling and biological monitoring.

The St. Johns River Water Management District (SJRWMD) monitors six stations in the BRL. These stations were sampled monthly during the reporting period, and **Section 4.2** includes the results of a water quality evaluation at these stations.

4.2 SJRWMD Water Quality Analysis

Data from six stations were used to illustrate representative water quality conditions in the BRL (IRLB04), North IRL Project Zone A (IRLI06), North IRL Project Zone B (IRLI13), and Central IRL Project Zone A (IRLI23) between January 2016 and April 2017 (**Figure 5**). Concentrations of four forms of nitrogen, three forms of phosphorus, and chlorophyll a varied in space and through time (**Figure 6**, **Figure 7**, and **Figure 8**). Concentrations of chlorophyll *a* were high at all stations from IRLI23 north in early 2016, with particularly elevated concentrations evident in the BRL (IRLB04; 126 micrograms per liter [µg/L]). *Aureoumbra lagunensis*, or brown tide, was dominant in many of these samples, and the "crash" of the bloom in March 2016 led to a massive fish kill in the BRL. Other peaks in chlorophyll *a* tended to follow or coincide with increases in nitrogen or phosphorus. In early 2017, chlorophyll *a* concentrations fell below 10 µg/L at all stations except IRLI06 and IRLI23, where concentrations fell between 10 and 15 µg/L.

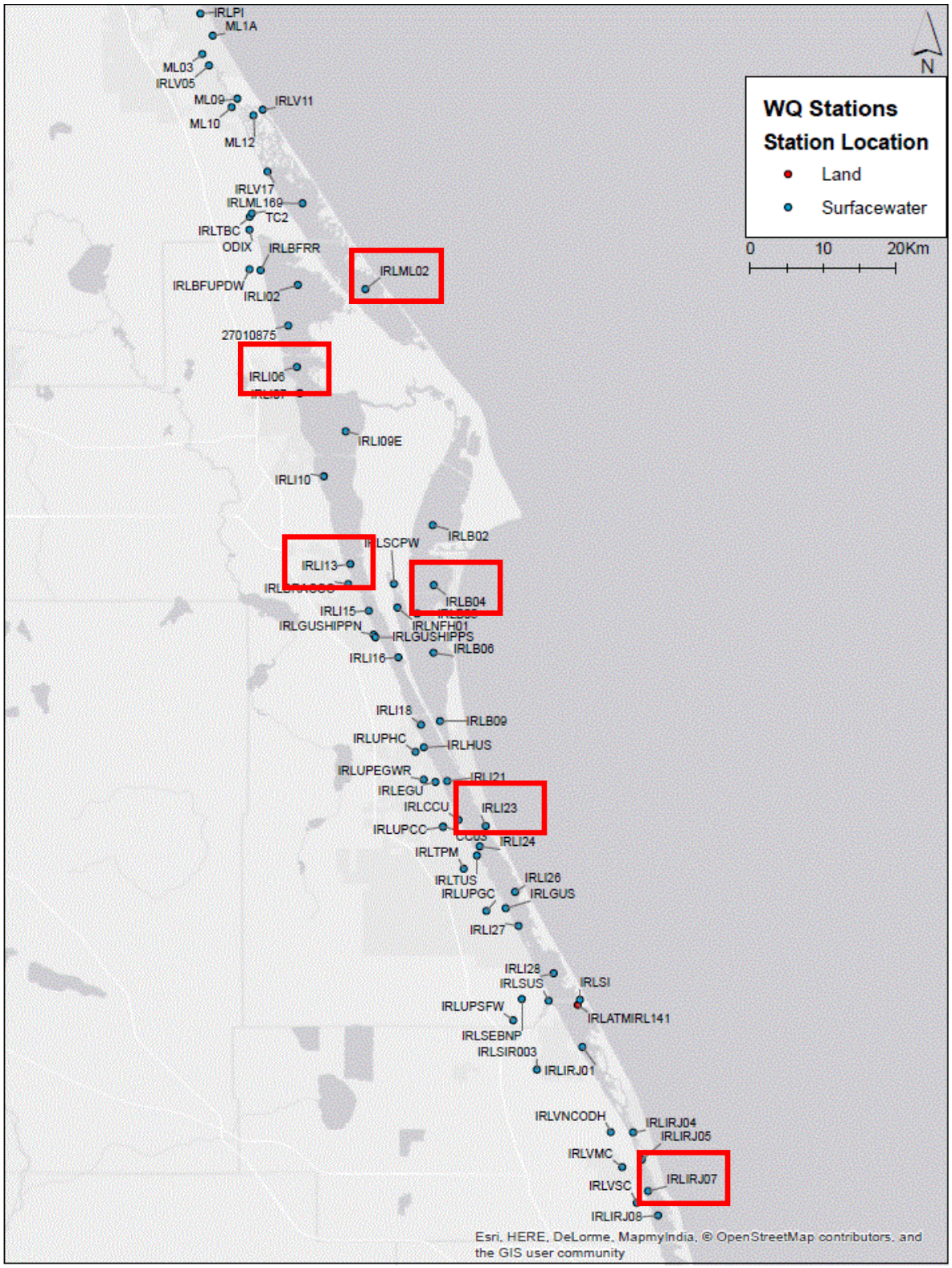

Figure 5. Water quality sampling stations with highlighted representative stations

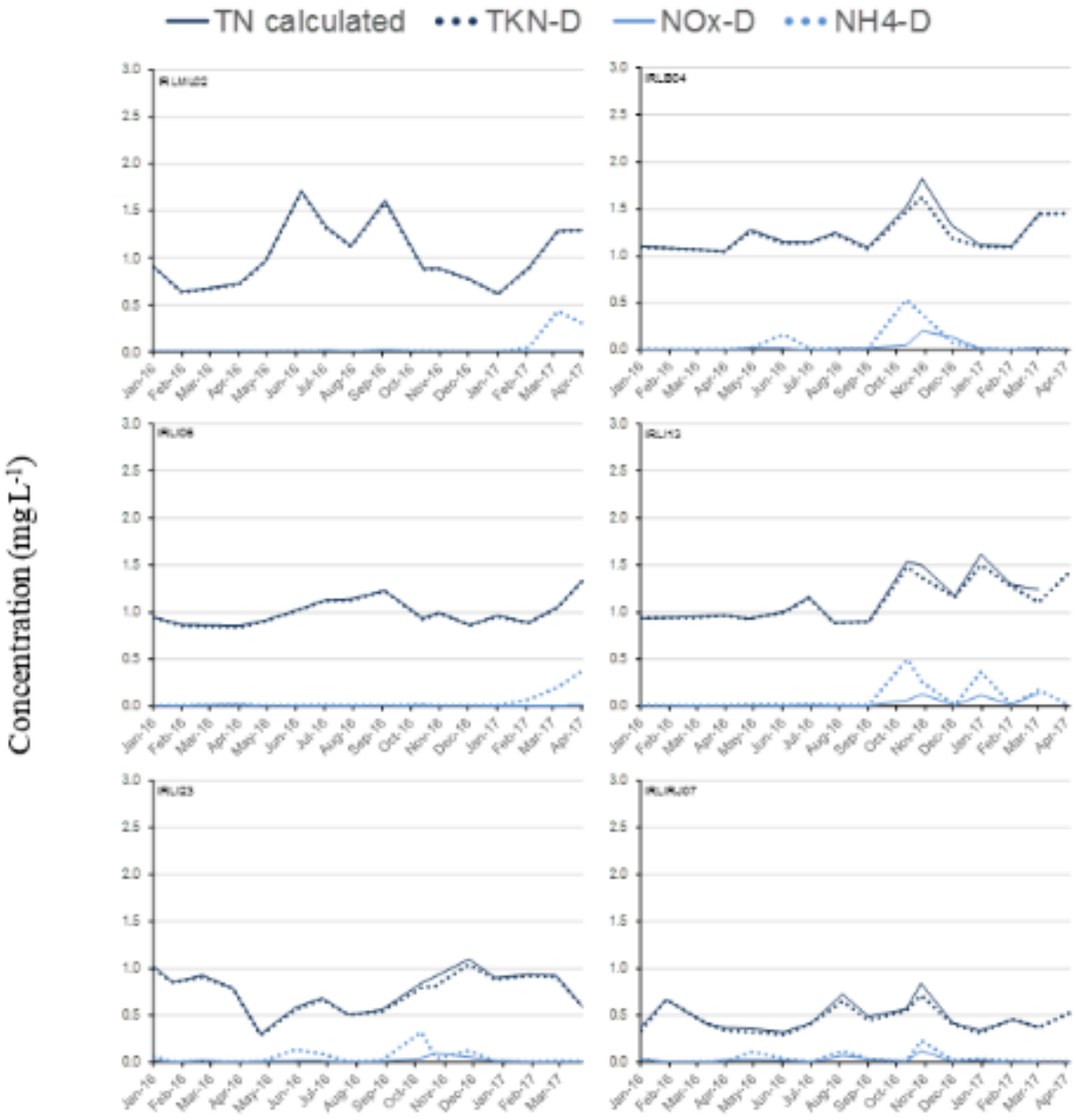

Figure 6. Concentrations of various forms of nitrogen. TN calculated = TN calculated from other forms, TKN-D = Total dissolved Kjeldahl nitrogen, NOx-D = Dissolved nitrate and nitrite, NH4-D = Dissolved ammonium

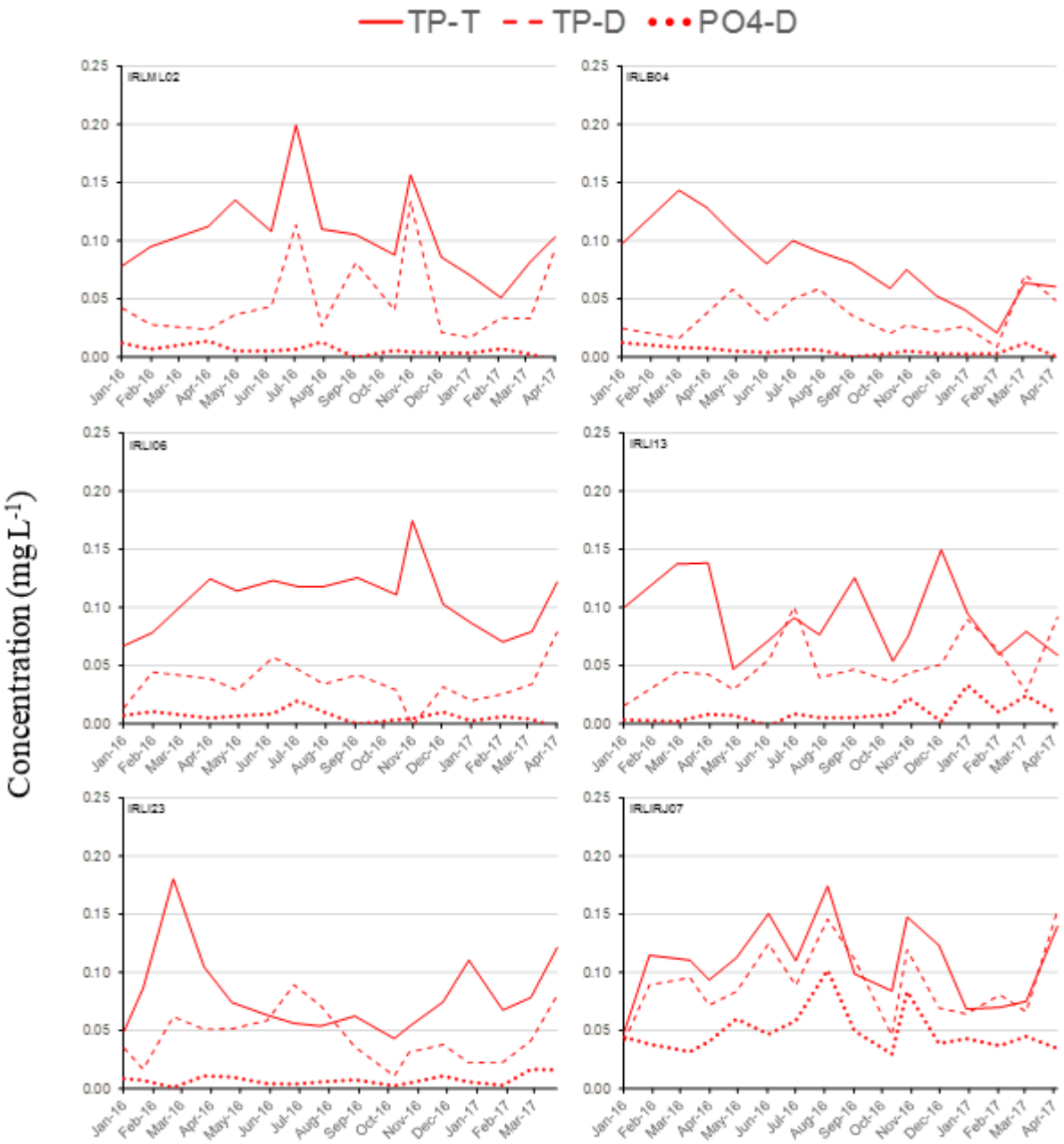

Figure 7. Concentrations of various forms of phosphorus. TP-T = Total phosphorus, TP-D = Total dissolved phosphorus, PO4-D = Dissolved orthophosphate

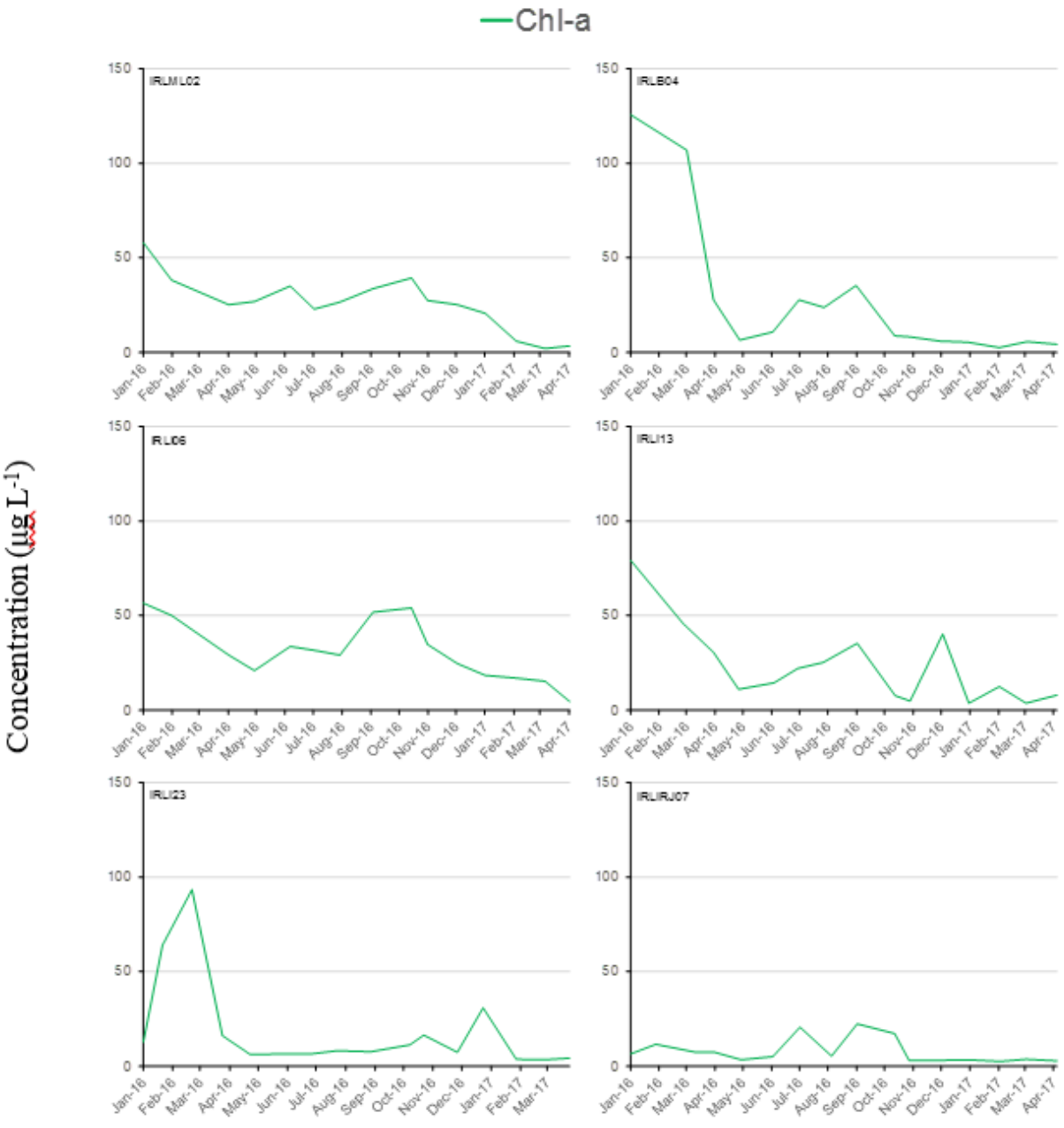

Figure 8. Chlorophyll concentrations. Chl-a = Chlorophyll *a*

Appendices

Appendix A. BMAP Projects

The BMAP project tables in this appendix show the implementation status of the BMAP projects as of February 28, 2017. The tables list (in lbs/yr) the nutrient reduction attributable to each individual project. These projects were submitted to provide reasonable assurance to DEP that each entity has a plan on how to meet its allocation. However, the list of projects is meant to be flexible enough to allow for changes that may occur over time, provided that the reduction is still met within the specified period.

Table A-1. Brevard County projects in the BRL

N/A = Not applicable; O&M = Operations and maintenance

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	BC-01	Education Efforts	Education Efforts	Completed	N/A	79	14			A
2013	BC-02	Pine Island Phase I and II	Wet Detention Pond	Completed	15	160	102	$19,235		A
2013	BC-03	Florida Blvd. Pond	Wet Detention Pond	Completed	74	324	126	$350,384		B
2013	BC-04	Hampton North (Riverside)	Baffle Box – 1st generation	Completed	15	1	1	$27,000		B
2013	BC-05	Hampton South (Needle Blvd.)	Baffle Box – 1st generation	Completed	18	1	2	$29,000		B
2013	BC-06	Albatross	Baffle Box – 1st generation	Completed	22	1	2	$33,000		B
2013	BC-07	Surfside	Baffle Box – 1st generation	Completed	23	2	2	$31,500		B
2013	BC-08	West Scots	Baffle Box – 2nd generation	Completed	10	30	6	$41,000		B
2013	BC-09	Johns Circle	Baffle Box – 1st generation	Completed	20	2	2	$31,000		B
2013	BC-10	Farrington Drive	Baffle Box – 2nd generation	Completed	8	24	5	$37,500		B
2013	BC-11	Porpoise Street	Baffle Box – 2nd generation	Completed	8	25	5	$42,000		B
2013	BC-12	Angler Street	Baffle Box – 1st generation	Completed	10	1	1	$30,700		B
2013	BC-13	Diana Shores	Vortek Unit	Completed	39	0	17	$102,000		B
2013	BC-14	Education Efforts	Education Efforts	Completed	N/A	3,854	825			B
2013	BC-15	Street Sweeping	Street Sweeping	Completed	N/A	525	336			A
2013	BC-16	Fortenberry Pond	Wet Detention Pond	Completed	164	847	365	$10,900,000	$35,000	B
2013	BC-17	Merritt Island Airport Pond	Wet Detention Pond	Completed	148	458	160	$652,056		B
2013	BC-18	Florida Boulevard	Floating Islands/ Managed Aquatic Plant System (MAPS)	Completed	74	117	14	$40,772	$18,295	B

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	BC-19	Third Ave. Baffle Box	Baffle Box – Type 1 retrofit	Completed	53	93	10	$31,452		B
2013	BC-20	Best Management Practice (BMP) Cleanout	BMP Cleanout	Completed		1	1	$95,069	$55,300	B
2013	BC-21	Fourth Place Baffle Box	Baffle Box – Type 1 retrofit	Completed	57	146	26	$34,037		B
2013	BC-22	Thrush 405 Baffle Box	Baffle Box – Type 1 retrofit	Completed	4	7	1	$12,507		B
2013	BC-23	Fortenberry Pond MAPS	Floating Islands/ MAPS	Cancelled	164	256	31	$151,588		B
2013	BC-24	Merritt Ridge Pond 3A	Floating Islands/ MAPS	Underway	84	210	49	$114,914	$25,091	B
2013	BC-25	Cassia Phase 3	Retention BMP	Completed	18	100	0	$100,000		B
2013	BC-26	South Patrick Drive Baffle Box	Baffle Box – 2nd generation	Underway	74	132	17	$625,000		B
2013	BC-27	Kelly Park Reuse	Stormwater Reuse	Completed	33	19	1			B
2013	BC-28	Patrick Air Force Base Golf Course Pond Stormwater Reuse	Stormwater Reuse	Underway	88	359	0			B
2014	BC-29	Ocean Boulevard	Baffle Box – Type 1 retrofit	Completed	6	10	1	$12,507		B
2015	BC-30	Street Sweeping	Street Sweeping	Completed	N/A	0	0			A
2015	BC-31	BMP Cleanout	BMP Cleanout	Completed		0	0			A
2017	BC-32	Cocoa Beach Canal Dredging	Muck Removal/ Restoration Dredging	Completed		0	0	$20,000,000		B

Total TN Project Reduction = 6,827 lbs/yr **Total TP Project Reduction = 2,025 lbs/yr**

Total TN Reduction Required = 42,287 lbs/yr **Total TP Reduction Required = 9,193 lbs/yr**

Table A-2. Cape Canaveral AFS projects in the BRL

N/A = Not applicable; O&M = Operations and maintenance; TBD = To be determined

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	CCAFS-01	Nonuse of Fertilizer/Fertilizer Ordinance	Education Efforts	Completed	N/A	377	108			A
2013	CCAFS-02	Street Sweeping	Street Sweeping	Completed	N/A	25	16			A
2016	CCAFS-03	Dry Retention Ponds after 2000	Stormwater Management Systems	Completed	477	TBD	TBD			A
2016	CCAFS-04	Online Wet Retention Ponds after 2000	Stormwater Management Systems	Completed	157	TBD	TBD			A

Total TN Project Reduction = 402 lbs/yr **Total TP Project Reduction = 124 lbs/yr**

Total TN Reduction Required = N/A **Total TP Reduction Required = N/A**

Table A-3. City of Cape Canaveral projects in the BRL

N/A = Not applicable; O&M = Operations and maintenance; TBD = To be determined

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	CC-01	Holman Road Baffle Box	Baffle Box – 1st generation	Completed	29	2	2	$75,000	$1,200	B
2013	CC-02	Center Street Baffle Box	Baffle Box – 1st generation	Completed	117	8	9	$75,000	$1,200	B
2013	CC-03	International Drive Baffle Box	Baffle Box – 1st generation	Completed	179	12	4	$75,000	$1,200	B
2013	CC-04	Angel Isles Baffle Box	Baffle Box – 1st generation	Completed	106	4	3	$75,000	$1,200	B
2013	CC-05	Wastewater Treatment t (WWTP) Baffle Box	Baffle Box – 1st generation	Completed	11	0	0	$15,000	$1,200	B
2013	CC-06	West Central Boulevard Baffle Box	Baffle Box – 1st generation	Completed	213	13	14	$75,000	$1,200	B

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	CC-07	Central Ditch Baffle Box (3 count)	Baffle Box – 2nd generation	Completed	248	223	40	$270,000	$3,600	B
2013	CC-08	Street Sweeping	Street Sweeping	Completed	N/A	223	40	$12,322		B
2013	CC-09	Shorewood Drainage Subbasin	100 % Onsite Retention	Completed	37	326	80	$12,322		B
2013	CC-10	Education Efforts	Education Efforts	Completed	N/A	230	55	$3,100		B
2013	CC-11	Manatee Park Stormwater Improvements	Wet Detention Pond	Completed	11	59	28	$193,000	$5,000	B
2013	CC-12	Banana River Park Stormwater Improvements	Swales	Completed	5	40	11	$38,000	$2,500	B
2013	CC-13	Exfiltration on North Atlantic Ave.	Swales	Completed	37	102	24	$436,000	$5,000	B
2013	CC-14	Exfiltration at Canaveral City Park	Exfiltration	Completed	30	324	76	$1,820,500	$2,500	B
2013	CC-15	Stormwater Pond on West Central Blvd.	Wet Detention Pond	Underway	334	1,420	549	$3,130,200	$10,000	B
2014	CC-16	Cleanout of Baffle Boxes	BMP Cleanout	Completed		1	0	$4,500	$0	B
2014	CC-17	Central Ditch Dredging Project	Muck Removal/ Restoration Dredging	Cancelled		TBD	TBD	$195,000		B
2014	CC-18	Exfiltration Piping Installations	Exfiltration	Cancelled		TBD	TBD			B
2014	CC-19	Reclaimed Water Tank	WWTF Upgrade	Completed		2,151	158	$3,030,000	$10,000	B
2014	CC-20	Conversion of Baffle Boxes (5) to Next Generation	Baffle Box – 2nd generation	Underway	509	1,221	207	$104,600	$6,000	B
2015	CC-21	Holman Road Swale	BMP Treatment Train	Underway	2	14	6	$26,250	$500	B
2016	CC-22	Cocoa Palms LID	BMP Treatment Train	Underway	4	13	10	$55,450	$1,000	B
2016	CC-23	Cherrie Down Park	Dry Detention Pond	Underway	3	27	9	$58,400	$1,000	B
2016	CC-24	Carver Cove Berm	Grass Swale with Swale Blocks or Raised Culverts	Underway	6	32	9	$20,340	$1,000	B

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2016	CC-25	Cape Shores Swales (3 count)	Grass Swale with Swale Blocks or Raised Culverts	Underway	8	31	15	$108,100	$1,000	B
2016	CC-26	International Drive	Wet Detention Pond	Underway	168	601	283	$708,450	$2,500	B
2016	CC-27	Justamere Road Swale	Grass Swale with Swale Blocks or Raised Culverts	Underway	1	6	3	$7,800	$1,000	B
2016	CC-28	Hitching Post Berm	Grass Swale with Swale Blocks or Raised Culverts	Underway	9	27	22	$36,980	$1,000	B
2016	CC-29	Center Street Pond	Wet Detention Pond	Underway	106	413	190	$277,850	$2,500	B
2016	CC-30	Holman Road Pond	Wet Detention Pond	Underway	29	36	37	$235,630	$2,500	B
2016	CC-31	Costa Del Sol Pond	Dry Detention Pond	Underway	3	10	3	$58,120	$2,500	B
2016	CC-32	Costa del Sol Denitrification Wall	BMP Treatment Train	Underway	13	39	34	$18,800	$1,000	B

Total TN Project Reduction = 3,717 lbs/yr **Total TP Project Reduction = 542 lbs/yr**

Total TN Reduction Required = 5,907 lbs/yr **Total TP Reduction Required = 1,467 lbs/yr**

Table A-4. City of Cocoa Beach projects in the BRL

N/A = Not applicable; O&M = Operations and maintenance; TBD = To be determined

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	CB-01	Maritime Hammock Preserve Alum Pond	Wet Detention Pond	Completed	130	746	318	$960,000	$20,000	B
2013	CB-02	Ocean Beach Blvd. Bioretention/Exfiltration	Swales	Completed	51	218	46	$1,150,000	$18,000	B
2013	CB-03	2nd Street South Pollution Control Device (PCD)	Baffle Box – 2nd generation	Completed	52	135	25	$181,974	$1,200	B
2013	CB-04	Cottage Row Parking Facilities Lot	Exfiltration	Completed	2	37	9		$500	B

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	CB-05	Shepard Park Improvements	Dry Detention Pond	Completed	0	0	0		$3,000	B
2013	CB-06	Burris Way (alley) Exfiltration	Exfiltration	Completed	1	4	1		$1,200	B
2013	CB-07	Brevard Ave. Exfiltration	Swales	Completed	1	5	1		$300	B
2013	CB-08	50 Danube River Exfiltration	Swales	Completed	2	1	0		$300	B
2013	CB-09	12 Bougainvillea Dr. Exfiltration	Swales	Completed	1	1	0		$300	B
2013	CB-10	9th St. S and Brevard Ave. Exfiltration	Swales	Completed	0	0	0		$300	B
2013	CB-11	321 Jack Dr. Exfiltration	Swales	Completed	1	0	0		$120	B
2013	CB-12	125 Cedar Ave. Exfiltration	Swales	Completed	1	1	0		$120	B
2013	CB-13	Meade Bioretention	Swales	Completed	0	0	0		$300	B
2013	CB-14	Osceola E Bioretention	Swales	Completed	TBD	TBD	TBD			Outside model boundary
2013	CB-15	4th St. N Bioretention	Swales	Completed	0	1	0		$120	B
2013	CB-16	4th St. S Bioretention	Swales	Completed	1	2	1		$120	B
2013	CB-17	3rd St. South N Bioretention	Swales	Completed	TBD	TBD	TBD			Outside Model Boundary
2013	CB-18	3rd St. South S Bioretention	Swales	Completed	TBD	TBD	TBD			Outside Model Boundary
2013	CB-19	Holiday Lane Bioretention	Swales	Completed	5	34	7		$1,200	B
2013	CB-20	S Banana/ St. Lucie Swale	Swales	Completed	4	13	3		$120	B
2013	CB-21	S Banana/ St. Lucie Swale	Swales	Completed	1	2	0		$120	B
2013	CB-22	Banana River Retention	Dry Detention Pond	Completed	1	2	0		$1,500	B
2013	CB-23	Banana River Retention	Dry Detention Pond	Completed	1	2	1		$1,500	B
2013	CB-24	Minutemen/ Country Club Swale	Swales	Completed	2	7	2		$120	B

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	CB-25	Palm Ave. Swale	Swales	Completed	0	0	0		$120	B
2013	CB-26	Minutemen/Cocoa Beach High School (CBHS)	Swales	Completed	1	20	5		$500	B
2013	CB-27	Minutemen/Public Works Complex Swale	Swales	Completed	2	4	1		$3,000	B
2013	CB-28	Tom Warriner/Public Works Complex Swale	Swales	Completed	1	3	0		$3,000	B
2013	CB-29	Shepard Drive Swale	Swales	Completed	1	3	1		$120	B
2013	CB-30	Shepard Drive Swale	Swales	Completed	1	5	0		$120	B
2013	CB-31	W Gadsden/ Banana Swale	Swales	Cancelled		TBD	TBD		$120	B
2013	CB-32	W Pasco/Banana Swale	Swales	Completed	1	2	0		$120	B
2013	CB-33	W Pasco/Banana Swale	Swales	Completed	2	3	0		$120	B
2013	CB-34	32 Inlet Baskets	BMP Cleanout	Completed	TBD	32	10		$1,200	B
2013	CB-35	Dino Museum/Store, 250 W Cocoa Beach Causeway	Dry Detention Pond	Completed	2	4	1		$120	B
2013	CB-36	332-334 N Orlando	Dry Detention Pond	Completed	1	1	0		$120	B
2013	CB-37	Street Sweeping	Street Sweeping	Completed	N/A	84	54	$38,405	$38,405	B
2013	CB-38	Education Efforts	Education Efforts	Completed	N/A	1,098	228	$5,000	$5,000	B
2013	CB-39	Minutemen Corridor Stormwater Improvement/LID	BMP Treatment Train	Underway	20	330	74	$4,625,328	$12,000	B
2016	CB-40	Downtown North LID	BMP Treatment Train	Underway	43	TBD	TBD			B

Total TN Project Reduction = 2,471 lbs/yr **Total TP Project Reduction = 715 lbs/yr**

Total TN Reduction Required = 11,347 lbs/yr **Total TP Reduction Required = 2,360 lbs/yr**

Table A-5. City of Indian Harbour Beach projects in the BRL

N/A = Not applicable; O&M = Operations and maintenance; TBD = To be determined

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	IHB-01	N Osceola Drive	Exfiltration	Completed	9	42	6	$60,000	$500	B
2013	IHB-02	Datura Drive	Exfiltration	Completed	1	4	1	$50,000	$300	B
2013	IHB-03	Coquina Palms Subdivision	100 % Onsite Retention	Completed	6	61	11			B
2013	IHB-04	Education Efforts	Education Efforts	Ongoing	N/A	648	121			B
2013	IHB-05	Inlet Cleaning	BMP Cleanout	Ongoing		7	4			B
2013	IHB-06	Street Sweeping	Street Sweeping	Ongoing	N/A	150	96	$9,800		B
2013	IHB-07	Gleason Park Phase 1	Wet Detention Pond	Completed	129	382	119	$135,000	$200	B
2013	IHB-08	Atlantic Ave. Swale	Swales	Completed	1	8	1			B
2013	IHB-09	Gleason Park Irrigation	Reclaimed Water	Ongoing	129	48	8			B
2013	IHB-10	Indian Harbour Beach Condo Pond	Dry Detention Pond	Completed	2	48	8	$13,277		B
2013	IHB-11	Fire Station Exfiltration	Exfiltration	Completed	3	9	1	$11,481		B
2013	IHB-12	School Road at Park Drive	Exfiltration	Completed	16	15	3			B
2014	IHB-13	Yuma Drive Exfiltration	Exfiltration	Completed	11	26	6			B
2014	IHB-14	Lime Bay Exfiltration	Exfiltration	Completed	31	28	6			B
2014	IHB-15	Andros Lane Exfiltration	Exfiltration	Completed	9	4	1			B
2015	IHB-16	Indian Harbour Beach Condo Pond	Dry Detention Pond	Cancelled		TBD	TBD			B
2016	IHB-17	Fire Station Exfiltration	Exfiltration	Completed	3	3	0			B
2016	IHB-18	Inwood Lane Exfiltration	Exfiltration	Completed	8	8	1			B
2016	IHB-19	Gleason Park Irrigation Expansion	Reclaimed Water	Envisioned, but not funded	129	48	8			B
2016	IHB-20	Oars and Paddles Dry Pond	Dry Detention Pond	Envisioned, but not funded	35	TBD	TBD			B
2016	IHB-21	FDOT Pond #3 Beemats	Floating Islands/ MAPS	Envisioned, but not funded	138	TBD	TBD	$10,000		B

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2016	IHB-22	Kristi and Pinetree Dr. Swale	Grass Swale with Swale Blocks or Raised Culverts	Envisioned, but not funded	4	54	12	$12,000		B
2016	IHB-23	Wimico Drive Swale	Grass Swale with Swale Blocks or Raised Culverts	Envisioned, but not funded	3	23	3	$10,000		B
2016	IHB-24	Crispino Wet Pond	Wet Detention Pond	Envisioned, but not funded	34	99	32	$600,000		B
2016	IHB-25	Big Muddy Canal Baffle Box @ Dorothy	Baffle Box – 2nd generation	Envisioned, but not funded	TBD	TBD	TBD			B
2016	IHB-26	Cheyenne Dr./ Marion Baffle	Baffle Box – 2nd generation	Envisioned, but not funded	TBD	TBD	TBD			B
2016	IHB-27	Beach Funeral Home Pervious Parking	Pervious Pavement	Envisioned, but not funded	TBD	TBD	TBD			B
2016	IHB-28	Townhouse Estates Exfiltration	Exfiltration	Envisioned, but not funded	5	TBD	TBD	$15,000		B
2016	IHB-29	Palm Springs Swale	Grass Swale with Swale Blocks or Raised Culverts	Envisioned, but not funded	5	83	21	$10,000		B
2016	IHB-30	Alhambra Exfiltration	Exfiltration	Envisioned, but not funded	16	63	10	$500,000		B
2016	IHB-31	Ronnie Exfiltration Extension	Exfiltration	Envisioned, but not funded	2	15	2	$200,000		B
2016	IHB-32	Atlantic Exfiltration East	Exfiltration	Envisioned, but not funded	38	188	27	$1,400,000		B
2016	IHB-33	Atlantic Exfiltration West	Exfiltration	Envisioned, but not funded	32	107	15	$1,200,000		B
2016	IHB-34	Pinetree Streetscaping	BMP Treatment Train	Envisioned, but not funded	91	TBD	TBD			B
2016	IHB-35	Muck Dredging	Muck Removal/ Restoration Dredging	Envisioned, but not funded	TBD	TBD	TBD			B
2017	IHB-36	Save Our Lagoon Park	Wet Detention Pond	Design	43	TBD	TBD			B

Total TN Project Reduction = 1,442 lbs/yr **Total TP Project Reduction = 385 lbs/yr**

Total TN Reduction Required = 6,787 lbs/yr **Total TP Reduction Required = 1,167 lbs/yr**

Table A-6. City of Satellite Beach projects in the BRL

N/A = Not applicable; O&M = Operations and maintenance

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	SB-01	Jackson Exfiltration	Exfiltration	Completed	25	9	2			B
2013	SB-02	Jackson Exfiltration	Exfiltration	Completed	8	6	1			B
2013	SB-03	Jackson Exfiltration	Exfiltration	Completed	9	6	2			B
2013	SB-04	Avocado Continuous Deflective Separation (CDS) Unit	CDS Unit	Completed	9	0	3			B
2013	SB-05	Jackson Exfiltration	Exfiltration	Completed	12	3	0			B
2013	SB-06	Coconut Exfiltration	Exfiltration	Completed	40	27	5			B
2013	SB-07	Desoto Exfiltration	Exfiltration	Completed	108	97	14			B
2013	SB-08	Desoto Exfiltration	Exfiltration	Completed	8	25	4			B
2013	SB-09	Jamaica Blvd. Ponds	Wet Detention Pond	Completed	216	600	160			B
2013	SB-10	Jamaica Pond Reuse	Stormwater Reuse	Completed	216	277	25			B
2013	SB-11	Desoto Exfiltration	Exfiltration	Completed	4	17	2			B
2013	SB-12	Desoto Baffle Boxes	Baffle Box – 2nd generation	Completed	58	82	10			B
2013	SB-13	Cassia Phase 1–22	Baffle Box – 2nd generation	Completed	33	61	8	$1,796,800		B
2013	SB-14	Cassia Phase 1–23	Baffle Box – 2nd generation	Completed	13	30	6			B
2013	SB-15	Cassia Phase 1–24	Retention BMP	Completed	13	18	4			B
2013	SB-16	Cassia Phase 1–25	Retention BMP	Completed	20	13	2			B
2013	SB-17	Cassia Phase 1–26	Retention BMP	Completed	14	12	3			B
2013	SB-18	North Basin Stormwater Retrofit	Retention BMP	Completed	98	318	81			B
2013	SB-19	Street Sweeping	Street Sweeping	Completed	N/A	47	30			B
2013	SB-20	Education Efforts	Education Efforts	Completed	N/A	1,002	197			B
2013	SB-21	Cassia Phase 3 – C3A	Retention BMP	Completed	0	3	1			B

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	SB-22	Cassia Phase 3 – C3B	Retention BMP	Completed	0	2	1			B
2013	SB-23	Cassia Phase 3 – C3C	Retention BMP	Completed	0	2	1			B
2013	SB-24	Cassia Phase 3 – C3D	Retention BMP	Completed	0	3	1			B
2013	SB-25	Cassia Phase 3 – C3E	Retention BMP	Completed	0	3	1			B
2013	SB-26	Cassia Phase 3 – C3F	Retention BMP	Completed	2	11	3			B
2013	SB-27	Cassia Phase 3 – C3G	Retention BMP	Completed	1	8	2			B
2013	SB-28	Cassia Phase 3 – C5A	Retention BMP	Completed	0	2	1			B
2013	SB-29	Cassia Phase 3 – C5B	Retention BMP	Completed	6	24	5			B
2013	SB-30	Cassia Phase 3 – C7A	Retention BMP	Completed	0	3	0			B
2013	SB-31	Cassia Phase 3 – C7B	Retention BMP	Completed	4	25	4			B
2013	SB-32	Cassia Phase 3 – C9A	Retention BMP	Completed	0	4	1			B
2013	SB-33	Cassia Phase 3 – C9B	Retention BMP	Completed	2	19	3			B
2013	SB-34	Cassia Phase 3 – C13A	Retention BMP	Completed	1	7	2			B
2013	SB-35	Cassia Phase 3 – C13B	Retention BMP	Completed	0	1	0			B
2013	SB-36	Cassia Phase 3 – C13C	Retention BMP	Completed	3	9	2			B
2013	SB-37	Cassia Phase 3 – C13D	Retention BMP	Completed	0	7	2			B
2013	SB-38	Cassia Phase 3 – C13E	Retention BMP	Completed	1	9	2			B
2013	SB-39	Cassia Phase 3 – C13F	Retention BMP	Completed	2	11	3			B
2013	SB-40	Cassia Phase 3 – C13G	Retention BMP	Completed	3	15	4			B

Total TN Project Reduction = 2,818 lbs/yr **Total TP Project Reduction = 592 lbs/yr**

Total TN Reduction Required = 10,487 lbs/yr **Total TP Reduction Required = 1,987 lbs/yr**

Table A-7. FDOT District 5 projects in the BRL

N/A = Not applicable; O&M = Operations and maintenance; TBD = To be determined

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	FDOT-01	Street Sweeping	Street Sweeping	Completed	N/A	49	31			A
2013	FDOT-02	Education Efforts	Education Efforts	Completed	N/A	1	1			A
2013	FDOT-03	Fertilizer Cessation	Fertilizer Cessation	Completed		102	0			A
2013	FDOT-04	FM: 237139 D5_70120-3518-01	Wet Detention Pond	Completed	5	63	16			B
2013	FDOT-05	FM: 237454 D5_70100-3553-01	Retention BMP	Completed	5	23	11			B
2013	FDOT-06	FM: 237447 D5_70008-3505-02	Wet Detention Pond	Completed	3	9	5			B
2013	FDOT-07	FM: 237447 D5_70008-3505-03	Retention BMP	Completed	3	7	4			B
2013	FDOT-08	FM: 237447 D5_70008-3505-04	Retention BMP	Completed	4	12	7			B
2013	FDOT-09	FM: 237482 D5_70060-3533-01	Retention BMP	Completed	0	1	1			B
2013	FDOT-10	FM: 237453 D5_70008-3507-01	Wet Detention Pond	Completed	9	26	10			B
2013	FDOT-11	FM: 237453 D5_70008-3507-02	Wet Detention Pond	Completed	11	24	7			B
2013	FDOT-12	FM: 237712 D5_70060-3519-01	Retention BMP	Completed	2	36	9			B
2013	FDOT-13	FM: 422691-01 D5_422691-01	Retention BMP	Completed	1	15	4			B
2013	FDOT-14	Street Sweeping	Street Sweeping	Completed	N/A	418	268			B
2013	FDOT-15	Education Efforts	Education Efforts	Completed	N/A	25	8			B
2013	FDOT-16	Fertilizer Cessation	Fertilizer Cessation	Completed		1,358	0			B

Total TN Project Reduction = 2,169 lbs/yr **Total TP Project Reduction = 382 lbs/yr**

Total TN Reduction Required = 3,147 lbs/yr **Total TP Reduction Required = 1,193 lbs/yr**

Table A-8. KSC projects in the BRL

O&M = Operations and maintenance

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	KSC-01	KSC Landscape Fertilizer Reduction	Fertilizer Reduction	Completed	200	1,872	265			A
2013	KSC-02	KSC Citrus Grove Termination Jerome East	Land Use Change	Completed	49	0	0			A
2013	KSC-03	KSC Citrus Grove Termination TEL-IV	Land Use Change	Completed	20	0	0			A
2013	KSC-04	Vertical Processing Facility M7-1469	Land Use Change	Completed	2	24	9			A
2013	KSC-05	Spacecraft Assembly Encapsulation Facility 2 M7-1210	Land Use Change	Completed	1	15	5			A
2013	KSC-06	Central Heat Plant M6-595	Land Use Change	Completed	0	3	1			A
2013	KSC-07	Utility Shops K6-1246	Land Use Change	Completed	0	3	1			A
2013	KSC-08	Fire Station 2 K6-1198	Land Use Change	Completed	0	5	2			A
2013	KSC-09	Vehicle Loading Ramp M7-0651	Land Use Change	Completed	0	0	0			A
2013	KSC-10	Hypergol Module Storage East M7-1412	Land Use Change	Completed	0	6	2			A
2013	KSC-11	Hypergol Module Storage West M7-1410	Land Use Change	Completed	1	8	3			A
2013	KSC-12	Regional Stormwater Management System	Wet Detention Pond	Completed	593	2,541	1,022			A
2013	KSC-13	ARF Stormwater System	Retention BMP	Completed	55	320	68			A
2013	KSC-14	VAB South Wetland Treatment System	Wetland Treatment	Completed	188	672	330			A
2013	KSC-15	Schwartz Road Landfill	100 % Onsite Retention	Completed	122	1,341	257			A

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	KSC-16	Closed Basin 4 (Spoil Site– Static Test Road)	100 % Onsite Retention	Completed	68	844	161			A
2013	KSC-17	Impounded Areas	100 % Onsite Retention	Completed	1,655	2,444	150	$62,406		A
2013	KSC-18	Depressional Storage (22nd St. to 28th St.)	100 % Onsite Retention	Completed	1,008	4,139	228	$491,976		A
2013	KSC-19	Depressional Storage (Jerome Rd. to 22nd St.)	100 % Onsite Retention	Completed	982	4,064	284	$477,506		A
2014	KSC-20	Demolition of Facilities M7-1521 and M7-1522	Land Use Change	Completed	0	7	2			A
2014	KSC-21	Demolition of Facility M6-0339	Land Use Change	Completed	0	7	2			A
2015	KSC-22	Demolition of Facility M7-0862	Land Use Change	Completed	0	0	0			A
2015	KSC-23	Demolition of Facility M7-1012	Land Use Change	Completed	0	0	0			A
2015	KSC-24	Demolition of Facility M7-1061	Land Use Change	Completed	1	15	4			A
2015	KSC-25	Demolition of Facility M7-1112	Land Use Change	Completed	0	2	1			A
2015	KSC-26	Demolition of Facility M7-0961	Land Use Change	Completed	1	16	4			A
2015	KSC-27	Demolition of Facility K7-2468	Land Use Change	Completed	0	0	0			A
2016	KSC-28	Cut 13 Dredging	Muck Removal/ Restoration Dredging	Underway	37	0	0	$14,000,000		A

Total TN Project Reduction = 18,348 lbs/yr **Total TP Project Reduction = 2,800 lbs/yr**

Total TN Reduction Required = N/A **Total TP Reduction Required = N/A**

Table A-9. Patrick AFB projects in the BRL

O&M = Operations and maintenance; TBD = To be determined

Year Project Added	Project Number	Project Name	Project Type	Project Status	Acres Treated	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Cost	Cost Annual O&M	Project Zone
2013	PAFB-01	Youth Center Bldg. 3656	Retention BMP	Completed	2	3	1			B
2013	PAFB-02	Building 543 Replace Main Gate	Retention BMP	Completed	0	0	0			B
2013	PAFB-03	Basin 6B No Discharge	100 % Onsite Retention	Completed	3	46	13			B
2013	PAFB-04	Basin 6C No Discharge	100 % Onsite Retention	Completed	11	164	44			B
2013	PAFB-05	Nonuse of Fertilizer/ Fertilizer Ordinance	Education Efforts	Completed	N/A	245	65			B
2013	PAFB-06	Golf Course Pond Stormwater Reuse	Stormwater Reuse	Completed	349	3,677	970	$850,000		B
2016	PAFB-07	Street Sweeping	Street Sweeping	Completed		68	43			B
2016	PAFB-08	Demo AFTEC Bldg.	Land Use Change	Completed	TBD	TBD	TBD			B
2016	PAFB-09	Fuel Farm	Baffle Box – 2nd generation	Completed	TBD	TBD	TBD			B
2016	PAFB-10	South Patrick Drive Baffle Box	Baffle Box – 2nd generation	Underway	TBD	TBD	TBD			B
2016	PAFB-11	Canal/Basin Cleanout	Retention BMP	Completed		5	3			B
2016	PAFB-12	Ponds without Discharge	Stormwater Management Systems	Completed	88	TBD	TBD			B
2016	PAFB-13	Dry Retention Ponds after 2000	Stormwater Management Systems	Completed	144	TBD	TBD			B

Total TN Project Reduction = 4,208 lbs/yr **Total TP Project Reduction = 1,138 lbs/yr**

Total TN Reduction Required = 17,433 lbs/yr **Total TP Reduction Required = 4,987 lbs/yr**