

FINAL

2015 PROGRESS REPORT

for the Banana River Lagoon Basin Management Action Plan

prepared by the
Division of Environmental Assessment and Restoration
Water Quality Restoration Program
Florida Department of Environmental Protection
Tallahassee, FL 32399

in cooperation with the
**Banana River Lagoon Basin
Technical Stakeholders**

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This 2015 Banana River Lagoon BMAP Progress Report 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 in cooperation with the Banana River Lagoon stakeholders.



Cape Canaveral Air Force Station Patrick Air Force Base

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LIST OF ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFS	Air Force Station
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BRL	Banana River Lagoon
CDS	Continuous Deflective Separation (Unit)
Department	Florida Department of Environmental Protection
EMC	Event Mean Concentration
FDOT	Florida Department of Transportation
FIT	Florida Institute of Technology
F.S.	Florida Statutes
FYN	Florida Yards and Neighborhood (Program)
GIS	Geographic Information System
IDDE	Illicit Discharge Detection and Elimination
IRL	Indian River Lagoon
lbs/yr	Pounds Per Year
LID	Low-Impact Development
MAPS	Managed Aquatic Plant Systems
MOA	Memorandum of Agreement
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PLSM	Pollutant Load Screening Model
PSA	Public Service Announcement
SJRWMD	St. Johns River Water Management District
SR	State Road
SRF	State Revolving Fund
TBD	To Be Determined
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
UCF	University of Central Florida
UF–IFAS	University of Florida Institute of Food and Agricultural Sciences
WBID	Waterbody Identification
WWTP	Wastewater Treatment Plant

SUMMARY

TOTAL MAXIMUM DAILY LOADS

The Banana River Lagoon (BRL) Basin Management Action Plan was adopted in February 2013 to implement the nutrient TMDLs in the watershed. The BMAP includes management strategies or projects to be implemented by the responsible stakeholders during the first phase of implementation. This 2015 Progress Report is the second progress report for the BRL BMAP, and it describes the implementation activities that occurred during the reporting period from March 1, 2014, through February 28, 2015.

The nutrient TMDLs for the main stem of the Indian River Lagoon (IRL) Basin were adopted by the Florida Department of Environmental Protection in March 2009. The TMDLs focus on the water quality conditions necessary for seagrass regrowth at water depth limits where seagrass historically grew in the 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 due to changes in water quality conditions resulting from human (anthropogenic) influences.

ACCOMPLISHMENTS DURING THE REPORTING PERIOD

During this reporting period, Brevard County completed two projects, the Florida Department of Transportation (FDOT) reimplemented one project, and the Kennedy Space Center completed six projects. Of these, the projects located in the BRL B project zone resulted in an estimated reduction of 1,007 pounds per year (lbs/yr) of total nitrogen (TN) and 467 lbs/yr of total phosphorus (TP). These reductions are in addition to those projects given credit at BMAP adoption. Therefore, the total reductions to date are 18,528 lbs/yr of TN and 4,655 lbs/yr of TP, or 19% of the TN and 21% of the TP reductions needed to meet the TMDL allocated to the BRL B project zone. These reductions are greater than the required reductions in the first BMAP iteration for the BRL B project zone of 14,609 lbs/yr of TN and 3,353 lbs/yr of TP. **Figure ES-1** and **Figure ES-2** show the progress towards the TMDL load reductions in the BRL B project zone for TN and TP, respectively.

Although allocations were not assigned in the BRL A project zone, stakeholders in this area also implemented projects. The reductions achieved to date in the BRL A project zone are 18,872 lbs/yr of TN and 2,966 lbs/yr of TP.

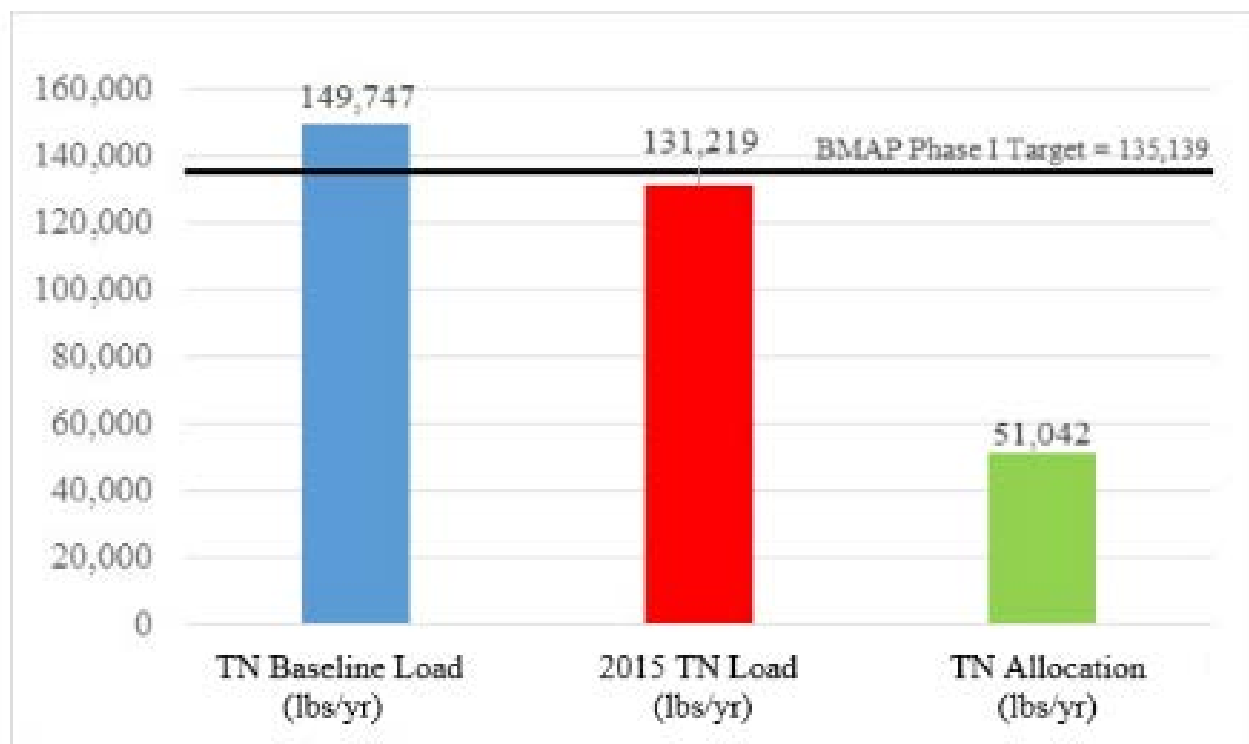


FIGURE ES-1: PROGRESS TOWARDS THE BRL B PROJECT ZONE TN TMDL

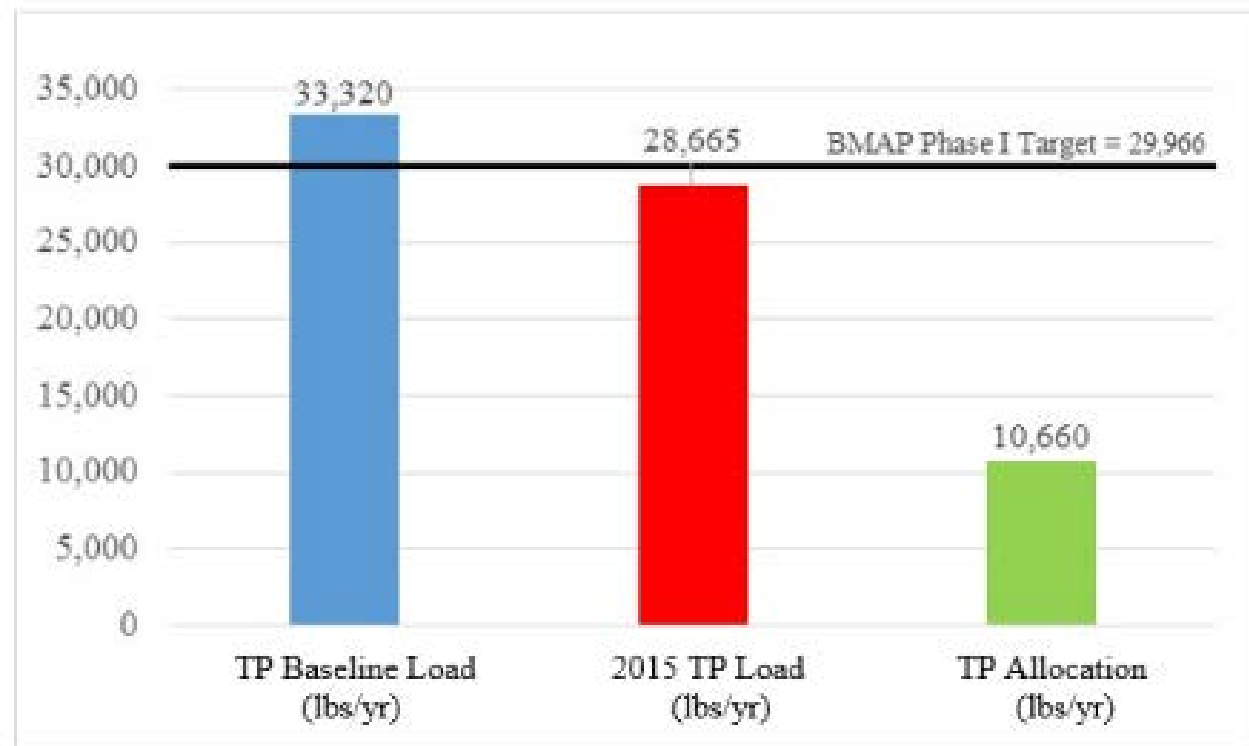


FIGURE ES-2: PROGRESS TOWARDS THE BRL B PROJECT ZONE TP TMDL

SEAGRASS TARGET EVALUATION

The intent of the IRL Basin TMDLs is to recover the deeper water seagrass habitats, with the biological response of the seagrass being the most important factor in evaluating success in achieving TMDL targets. To assess the progress of the IRL Basin towards the median seagrass depth limit target, a two-step process was used. Step 1 is a seagrass frequency distribution analysis, and Step 2 is a median seagrass depth evaluation. If seagrass in a project zone passes both evaluation steps, no further nutrient reductions are required by the stakeholders in that project zone. The department recently conducted this two-step evaluation using seagrass data from 2007, 2009, 2011, and 2013, which were the latest datasets available at the time of the analysis. Based on the results from this period, the BRL A and BRL B project zones were Step 1 and Step 2 noncompliant. Therefore, BMAP stakeholders will continue to work towards achieving the seagrass depth limit targets.

Algal blooms have continued to be a problem in the IRL since 2011 and have resulted in the loss of seagrass acreage. The St. Johns River Water Management District started the IRL Initiative in spring 2013 with a series of research investigations into the potential causes of the blooms. The understanding gained through the IRL Initiative is expected to aid in defining the future actions of the BMAP, and additional information provided from the initiative may be included in future annual updates.

Section 1: INTRODUCTION

1.1 PURPOSE OF THE REPORT

This is the second annual progress report for the Banana River Lagoon (BRL) Basin Management Action Plan. **Section 2** describes the accomplishments during the period from March 1, 2014, through February 28, 2015. **Section 3** summarizes the evaluation of progress towards the seagrass depth limit targets. **Section 4** includes a summary of efforts for the upcoming year and management strategies for the second BMAP iteration.

Prior to the adoption of the BRL BMAP in 2013, extended duration algal superblooms were occurring in the Indian River Lagoon (IRL). These resulted in large losses of seagrass acreage that are reflected in the 2011 seagrass mapping data. The St. Johns River Water Management District (SJRWMD) began the IRL Initiative in spring 2013 in response to the algal blooms with a series of research and data collection investigations into the potential causes. The understanding gained through the IRL Initiative is expected to aid in defining the future direction of the BMAP.

1.2 TOTAL MAXIMUM DAILY LOADS FOR THE BRL BASIN

Due to the large geographic extent of the IRL Basin and the diversity of hydrologic characteristics throughout the basin, the Florida Department of Environmental Protection 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 is located between the barrier island cities of Cape Canaveral and Indian Harbour Beach and Merritt Island, and connects to the IRL at its south end. The lagoon has a limited outlet to the Atlantic Ocean through the lock at Port Canaveral. Net water flow is from the IRL to the BRL because the rate of evapotranspiration exceeds rainfall and basin inflows. The BRL system is a “negative estuary,” characterized by low freshwater inflows and poor flushing, resulting in a high water residence time. For assessment purposes, the department has divided the BRL subbasin into water assessment polygons with a unique waterbody identification (WBID) number for each watershed or segment.

In addition to dividing the overall IRL Basin into subbasins, the department further divided the BRL into “project zones” whose boundaries are based on the distinct hydrology in different areas of the basin and their corresponding annual residence times. These zones are important because the flushing times vary greatly among locations and consequently affect how nutrient reductions will impact these distinct areas

of the basin. The project zones identify large areas where projects should be implemented to ensure that the load reductions achieve the desired response for each subbasin. The BRL subbasin was split into two project zones, as follows:

- **BRL A** – The area north of and including the State Road (SR) 528 Causeway.
- **BRL B** – The area south of the SR 528 Causeway.

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

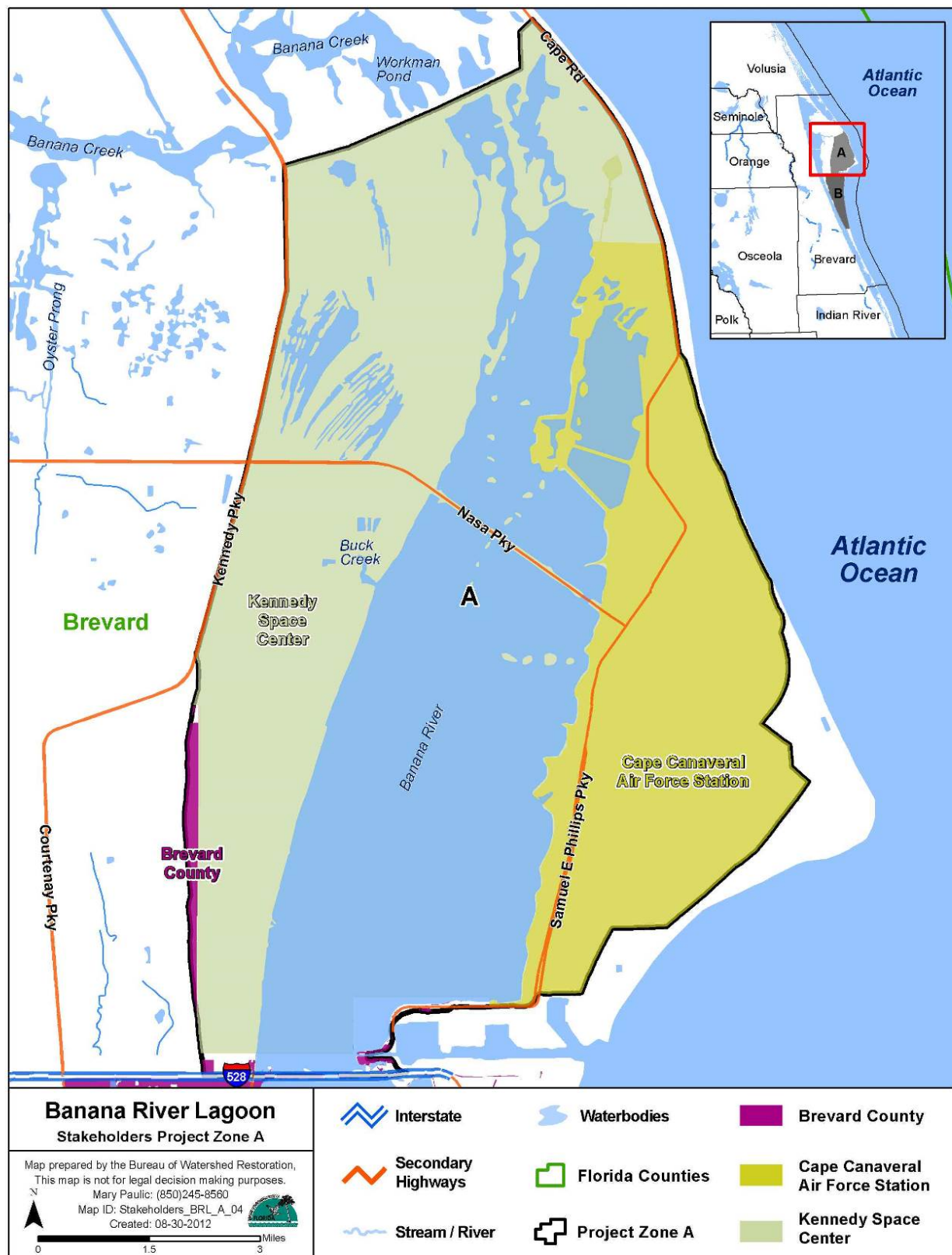


FIGURE 1: STAKEHOLDERS IN THE BRL A PROJECT ZONE

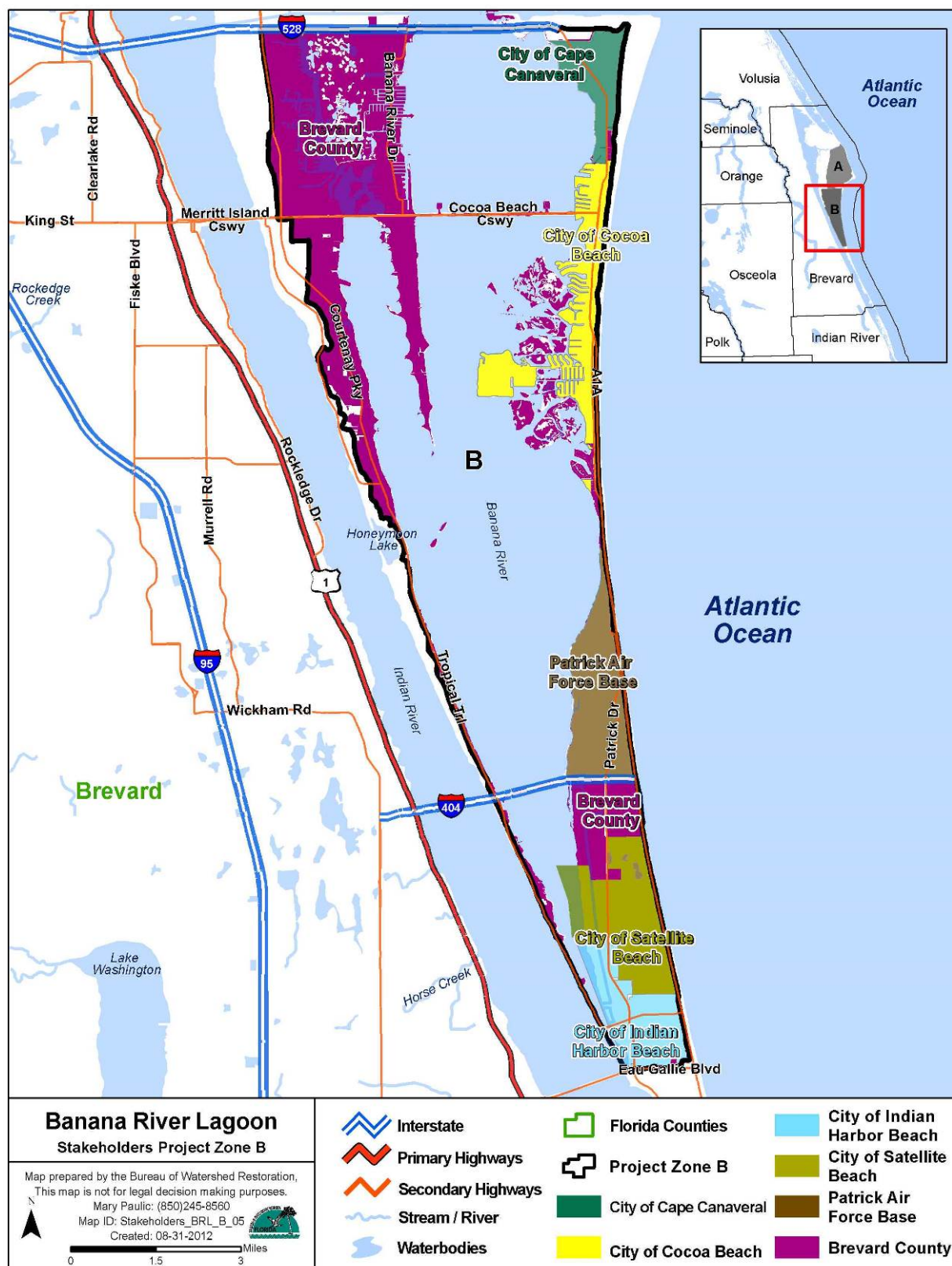


FIGURE 2: STAKEHOLDERS IN THE BRL B PROJECT ZONE

The department adopted the total nitrogen (TN) and total phosphorus (TP) TMDLs for the IRL Basin in March 2009. The TMDLs focus on the water quality conditions necessary for seagrass regrowth at depth limits where seagrass historically grew in the basin, based on a multiyear composite of seagrass coverage. The median depth limits for seagrass coverage in the BRL subbasin have decreased over the years due to changes in water quality conditions resulting from anthropogenic influences. **Table 1** and **Table 2** list the TN and TP TMDLs and pollutant load allocations, respectively, adopted by rule for the BRL subbasin.

TABLE 1: TN TMDLS IN THE BRL SUBBASIN

N/A = Not applicable

WBID NUMBER	WBID NAME	PROJECT ZONE	PARAMETER	TMDL (POUNDS PER YEAR [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+ 3057B	Banana River below 520 Causeway + Banana River above 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
TN TOTAL	BRL TN TOTAL	N/A	TN	291,755	7,387	104,642	179,727

TABLE 2: TP TMDLS IN THE BRL SUBBASIN

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+ 3057B	Banana River below 520 Causeway + Banana River above 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
TP TOTAL	BRL TP TOTAL	N/A	TP	23,253	1,523	17,697	4,033

1.3 RESPONSIBLE PARTIES AND KEY STAKEHOLDERS

The BRL BMAP identified municipal separate storm sewer systems (MS4s) and urban nonpoint sources of TN and TP in the basin. The following stakeholders are responsible for achieving the load reductions:

- Brevard County.
- City of Cape Canaveral.
- City of Cocoa Beach.
- City of Indian Harbour Beach.
- City of Satellite Beach.
- Cape Canaveral Air Force Station (AFS).
- Florida Department of Transportation (FDOT) District 5.
- Kennedy Space Center.
- Patrick Air Force Base (AFB).

In addition to these stakeholders, the department and the SJRWMD are essential to the implementation of the BMAP activities.

1.4 BMAP ALLOCATIONS

Stakeholders in the BRL BMAP determined that assigning detailed allocations was the best approach for achieving the TMDL reductions. The BRL A project zone was meeting seagrass depth limit targets; therefore, additional reductions were not required in this zone and allocations were not calculated. For the stakeholders in the BRL B project zone, the acreage and loading information for each stakeholder were calculated using output from the Pollutant Load Screening Model (PLSM). Each stakeholder's baseline loadings for TN and TP were calculated using information from the PLSM. Based on these starting loads, agriculture, Port Canaveral, and the city of Melbourne were determined to be *de minimus* and were not assigned allocations in the first BMAP iteration. Each of these *de minimus* stakeholders contributed less than 0.5% of the total load for both TN and TP, and combined they contributed approximately 1% of the total load.

For the stakeholders receiving allocations, the allowable loadings were calculated using a target load per acre for TN and TP. These target loads were multiplied by each stakeholder's acreage in the basin to determine the allowable loading. The difference between the baseline loading and the allowable loading resulted in each stakeholder's required reductions.

The BMAP provides for the phased implementation of projects designed to achieve incremental reductions, while simultaneously monitoring and conducting studies to better understand the water quality dynamics in the watershed. The total required reductions from the TMDLs are spread over a 15-year period. The first BMAP iteration addresses 15% of the allocated reductions over a five-year period. The BRL BMAP identified a list of considerations that could be addressed before the second iteration to help improve the accuracy of allocations. Considerations identified included improvements to the PLSM, the use of more up-to-date land use data, and the refinement of basin boundaries. **Table 3** lists the required reductions for the first BMAP iteration.

TABLE 3: TN AND TP REQUIRED REDUCTIONS FOR THE FIRST BMAP ITERATION

STAKEHOLDER	BMAP 1 TN REQUIRED REDUCTIONS (LBS/YR)	BMAP 1 TP REQUIRED REDUCTIONS (LBS/YR)
Brevard County	6,343	1,379
City of Cape Canaveral	886	220
City of Cocoa Beach	1,702	354
City of Indian Harbour Beach	1,018	175
City of Satellite Beach	1,573	298
FDOT District 5	472	179
Patrick AFB	2,615	748

Section 2: ACCOMPLISHMENTS DURING THE REPORTING PERIOD

During the reporting period, Brevard County completed two projects, FDOT reimplemented one project, and Kennedy Space Center completed six projects. **Section 2.1** through **Section 2.6** describe the accomplishments during the reporting period, and **Appendix A** includes the individual project tables.

2.1 ACTIVITIES BY STAKEHOLDER

2.1.1 BREVARD COUNTY

Brevard County completed the Pine Island Phase I and Phase II project (BC-2), which improves water quality and reduces the duration of flooding in the North Merritt Island drainage basin. Phase I construction, completed in September 2012, involved the expansion and re-grading of the north borrow pit, the installation of the first pump, and the fabrication of a diversion weir in the Pine Island Road ditch to redirect stormwater runoff into the borrow pit for water quality treatment. Water quality monitoring for Phase I was completed in 2014 and showed an average nutrient removal efficiency of 88% and 94% for TN and TP, respectively. Phase II, completed in 2014, involved expanding and excavating the south borrow pit and the installation of two more pumps to divert additional flow to the pits from the Pine Island Road drainage ditch (see **Figure 3** and **Figure 4**). Water quality monitoring for Phase II is ongoing and will be completed in 2015.



FIGURE 3: BREVARD COUNTY PINE ISLAND PHASE II



FIGURE 4: BREVARD COUNTY PINE ISLAND PHASE II

Brevard County has also completed the Fortenberry Pond project (BC-16), which involves the multiphase construction of a 22.3-acre regional stormwater treatment pond on Merritt Island (see **Figure 5**).



FIGURE 5: BREVARD COUNTY FORTENBERRY STORMWATER SYSTEM PHASE II

Brevard County continued educational efforts (BC-1 and B-14) during the reporting period. Stormwater outreach activities are part of the county's efforts to engage the community in activities that prevent and reduce pollution through source control as well as restoration. Outreach is conducted by the county's in-house Stormwater Outreach Specialist and through a partnership of nine municipalities in the county, the Brevard Zoo, and Good Education Solutions (a contracted public outreach firm), known as the "BLUE LIFE" partnership. Outreach conducted countywide during 2014 through the "BLUE LIFE" partnership included the following:

- **Outreach to Children:** 58 presentations to 2,081 children.
- **Outreach to Adults:** 37 presentations to 1,790 people.
- **Outreach at Special Events:** 21 events, 6,381 people.

In 2014, the county strengthened its partnership with the extension service through the creation of the "My Brevard Yard" Program, an expansion to the existing Florida Yards and Neighborhood (FYN) Program. "My Brevard Yard" includes hands-on workshops tailored to educate participants about maintaining a healthy lawn while complying with local fertilizer ordinances and providing information about best management practices (BMPs) for fertilizer and irrigation. Participants learn how to calibrate and use a fertilizer spreader, calculate the correct amount of fertilizer, set irrigation timers, and calibrate an irrigation system. The program also includes follow-up site visits for participants, upon request. During visits, a University of Florida Institute of Food and Agricultural Sciences (UF-IFAS) agent will collect a soils test for lab analysis, test the salt content of on-site wells if used for irrigation, check the irrigation system, and train the homeowner in setting the irrigation timer. Based on the results of the soils tests, the UF-IFAS agent will make site-specific recommendations for fertilizer use, irrigation, and Florida-friendly landscaping.

Pre- and post-program tests were administered to 101 "My Brevard Yard" workshop participants. They were asked about their knowledge of fertilizer application, irrigation systems, and nonpoint source pollution. After the workshop, test scores were 37% higher than the preprogram scores, indicating that participants knew more about the topics than before attending the workshop. 23 participants in the home site visits completed a follow-up survey. The results show that 39% now irrigate at the recommended time of day; 30% now apply the recommended amount of fertilizer; 17% no longer leave grass clippings on hardscapes or allow it to go into waterways; and 13% use soil test results to determine

the correct fertilizer type and amount to apply. Working with one commercial applicator in two residential communities resulted in reductions to the rate of fertilizer application, refined analysis procedures based on BMPs and soil test results, and modified application timing, leading to more efficient and/or reduced fertilizer applications.

Brevard County received appropriations of \$410,000 from the state Legislature in 2014 to restore and evaluate oyster reefs in the IRL. During the year, Brevard County, in partnership with the Brevard Zoo, established a citizen science oyster-gardening program in which residents with access to the lagoon shoreline volunteered to build oyster gardens (assemble metal enclosures), hang the gardens under their private docks, care for their gardens weekly to propagate and raise juvenile oysters, and collect weekly data. Based on the 2014 Memorandum of Agreement (MOA) for the Indian River Lagoon Oyster Restoration Project, the Brevard Zoo will engage the Brevard County community in a citizen-based oyster propagation program to raise additional juvenile oysters to expand oyster reefs at the three pilot sites in the IRL and BRL. The Desert Research Institute will take denitrification measurements. The University of Central Florida (UCF) will measure oyster growth, survival, and recruitment. The three pilot oyster reefs in the lagoon are anticipated to help remove nutrient levels, while the data collection efforts are designed to guide future shellfish restoration efforts in the IRL.

In 2014, Brevard County also received an appropriation of \$10 million from the Florida Legislature to remove legacy muck deposits from the lagoon. The county contracted with a team of consultants to identify, design, and permit five high-priority muck removal areas and contracted with a team of researchers at Florida Institute of Technology (FIT), per legislative intent, to document and analyze the ecological responses of the national estuary to muck removal. Five priority muck removal locations were selected: the Mims Boat Ramp, Sykes Creek, Cocoa Beach, Grand Canal, and Turkey Creek. Sykes Creek, Cocoa Beach, and Grand Canal are located in the BRL.

Street sweeping operations continued throughout the county (BC-15 and BC-30). Brevard County also continued to implement maintenance cleanout operations (BC-20 and BC-31). In early 2015, the county increased the level and frequency of these services by contracting street sweeping and drainage infrastructure cleanout operations to vendors.

2.1.2 CAPE CANAVERAL AFS

Cape Canaveral AFS continued to implement a fertilizer ordinance (CCAFS-1) and carried out periodic street sweeping at set intervals and after activities that generate significant sediment (CCAFS-2). It also

provided employees training on stormwater awareness and TMDL topics. As part of the “Considerations” in the BMAP, the 45th Space Wing is in the fourth year of surface water and ground water data collection efforts to refine the input parameters used in the PLSM within the Cape Canaveral AFS jurisdiction. The 45th Space Wing, working with 3E Consultants, Inc., updated land use data, soil data, basin boundaries, and areas with existing stormwater treatment. This work also included the development of a monitoring program to measure continuous surface water discharge volumes (baseflow and stormwater runoff); evaluate ground water, surface water, and stormwater runoff samples for TN and TP; and measure the hydrologic interaction between ground water, surface water, and rainfall. The data collected during the last 3.5 years were used to update event mean concentrations (EMCs) and runoff coefficients for specific land uses, including military, aviation, and natural lands.

2.1.3 CITY OF CAPE CANAVERAL

The city of Cape Canaveral continued to install exfiltration piping (CC-18) in the rights-of-way along city streets to allow stormwater to infiltrate into the surficial aquifer and prevent street flooding. Two hundred and forty-six feet of exfiltration piping were installed along Poinsettia Avenue south of Tyler Avenue on April 4, 2014, and 150 feet of exfiltration piping were installed along Polk Avenue west of Poinsettia Avenue on the same date. The city also initiated the construction of a 2.5-million-gallon reclaimed water storage tank (CC-19) at the city's wastewater treatment plant (WWTP) to more than double the city's storage capacity for reclaimed water. The additional reclaimed water will ensure there is enough water for all customers in the city and, even in periods of drought, provide water to the city of Cocoa Beach and Port Canaveral as needed and eliminate almost all discharges of reclaimed water from the city's WWTP to the Banana River. The completion date for this project is December 2015.

The city of Cape Canaveral initiated the construction of stormwater swales along North Atlantic Avenue (CC-13), which are constructed atop a coastal ridge consisting of fine to medium sand. A stormwater system is not currently present along most of the roadway; stormwater flows from the street and sidewalks onto private properties and into stormwater inlets located along side streets. The construction of the stormwater swales will allow stormwater to infiltrate into the surficial aquifer, eliminating flow to private properties and reducing flow to the city's stormwater system (see **Figure 6**).



FIGURE 6: NORTH ATLANTIC AVENUE STREETSCAPE (PROJECT ARTIST CONCEPT)

The city continued monthly street sweeping (CC-8) of all curbed city streets, with a total of 130 cubic yards of sand and debris collected. It also removed debris totaling 278 cubic yards from nine baffle boxes after heavy rainfall events.

In continuation of the city's public education efforts (CC-10), 432 stormwater-related documents were distributed at the city's public library, and 289 packages that included stormwater-related documents were mailed to area businesses as part of the business license renewal packages.

The city of Cape Canaveral partnered with the city of Cocoa Beach, Brevard County, and UF–IFAS in a "My Brevard Yard" seminar and continued its participation in Brevard County's "BLUE LIFE" partnership. The city also partnered with Keep Brevard Beautiful for beach/city cleanup events. The Sea Turtle Preservation Society, sponsored by Keep Brevard Beautiful, started monthly trash bash events at Cheri Down Park (within the city limits) in January 2015. Events were held on January 3 and February 7, 2015, and continue to be held the first Saturday after the first Thursday of every month.

2.1.4 CITY OF COCOA BEACH

The city of Cocoa Beach continued routine street sweeping twice a month for areas with more trees and debris, and once a month for all other curbed roadways (CB-37).

The city has also continued public educational and outreach efforts (CB-38). The pet waste/illicit discharge ordinance was passed over two years ago, and the city installed seven pet waste stations along the most frequently used walking corridors. Two “My Florida Yard” seminars were conducted in April and May 2014 in partnership with the Brevard Agricultural Center and city of Cape Canaveral. These seminars, offered to residents and landscape/lawn firms, include education on proper fertilization, Florida-friendly plants, proper irrigation, pest management, the nuances of the city’s fertilizer ordinance, and the land-water connection in the lagoon. The city’s public outreach program includes a Citizens Academy, ecoinformation/resources on the city’s website, the email distribution of environmental/watershed information/events, a downtown kiosk on the land-water stormwater connection, partnership with Friends of the Thousand Islands and Cocoa Beach Surfrider, and information on Keep Brevard Beautiful/city island cleanup events. The city also has more than 90% of the storm drains labeled with the IRL snook marker.

The city of Cocoa Beach Minutemen Corridor Streetscape and Stormwater/Low-Impact Development (LID) Improvement Project (CB-39) is behind schedule but is currently in the bid process, with construction scheduled to start in mid-May 2015. This LID project includes using landscape urban planter rain gardens, pervious pavers, and underparking exfiltration. Additionally, the project uses nutrient sorption media in all BMPs (with the exception of monitoring control BMPs) to capture nitrogen and phosphorus, further protecting the lagoon as well as ground water sources. The monitoring of preground water discharge canal and discharge flow will provide baseline data. Postdischarge monitoring includes the same parameters and also the inflow/outflow nutrient concentration of nutrient sorption media BMPs and one BMP of each type without the sorption media.

2.1.5 CITY OF INDIAN HARBOUR BEACH

The city of Indian Harbour Beach continued public educational and outreach efforts (IHB-4). It also continued inlet cleaning two to seven times per year throughout the city, and continued street sweeping eight times over the year (IHB-5 and IHB-6). The city continued irrigating Gleason Park with pond water (IHB-9).

2.1.6 CITY OF SATELLITE BEACH

The city of Satellite Beach continued to implement street sweeping (SB-19). Every quarter, the city collects and removes an average of 20 cubic yards of debris, mostly sand and light vegetation, via sweeping. The city also continued to implement its illicit discharge and stormwater education programs (SB-20).

2.1.7 FDOT DISTRICT 5

FDOT District 5 continued to implement illicit discharge and stormwater education programs (FDOT-2 and FDOT-15). FDOT has also reimplemented a street sweeping program (FDOT-14) in Brevard County. Under the new street sweeping contract, FDOT has removed 160 lbs of TN and 102 lbs of TP in BRL project zone B. In June 2014, it started the statewide implementation of mandatory illicit discharge detection and elimination (IDDE) training for all staff and contractors working within its right-of-ways.

2.1.8 KENNEDY SPACE CENTER

The Kennedy Space Center continued efforts to reduce the amount of fertilizer used to maintain landscapes (KSC-1). Additional facilities were also demolished to reduce the impervious footprint in the BRL Basin (KSC-22, KSC-23, KSC-24, KSC25, KSC-26, and KSC-27).

2.1.9 PATRICK AFB

Patrick AFB continued to implement the fertilizer ordinance (PAFB-5) and golf course pond stormwater reuse rule (PAFB-6). As part of the “Considerations” in the BMAP, the 45th Space Wing is in the fourth year of surface water and ground water data collection efforts to refine the input parameters used in the PLSM within the Patrick AFB jurisdiction. The 45th Space Wing, working with 3E Consultants, Inc., updated land use data, soil data, basin boundaries, and areas with existing stormwater treatment. This work also includes the development of a monitoring program that measures continuous surface water discharge volumes (baseflow and stormwater runoff); evaluates ground water, surface water, and stormwater runoff samples for TN and TP; and monitors the hydrologic interaction between ground water, surface water and rainfall. The data collected during the last 3.5 years were used to update EMCs and runoff coefficients for specific land uses, including military, aviation, and natural lands.

2.2 SUMMARY OF ACCOMPLISHMENTS

Table 4 summarizes the projects completed during the second annual BMAP reporting period in the BRL B project zone. These projects resulted in an estimated reduction of 1,007 lbs/yr of TN and 467 lbs/yr of TP. These reductions are in addition to those projects given credit at BMAP adoption. Therefore, the total reductions to date are 18,528 lbs/yr of TN and 4,655 lbs/yr of TP, or 19% and 21%, respectively, of the reductions needed to meet the TMDLs allocated to the BRL B project zone. These reductions are greater than the required reductions in the first BMAP iteration for the BRL B project zone of 14,609 lbs/yr of TN and 3,353 lbs/yr of TP.

Figure 7 and **Figure 8** show the progress towards the TMDL load reductions in the BRL B project zone for TN and TP, respectively. The first bar in the figures shows the baseline load for stormwater runoff. The second bar shows the current estimated loading with the implementation of projects. The third bar shows the total allocation for stormwater runoff to meet the TMDLs. The black horizontal line shows the reduction target for the first BMAP iteration. Although allocations were not assigned in the BRL A project zone, stakeholders in this area also implemented projects.

Table 5 lists the projects completed in the BRL A project zone during the reporting period; these achieve reductions of 193 lbs/yr of TN and 111 lbs/yr of TP. The total reductions achieved to date in the BRL A project zone are 18,872 lbs/yr of TN and 2,966 lbs/yr of TP.

TABLE 4: SUMMARY OF PROJECTS COMPLETED IN THE REPORTING PERIOD (MARCH 1, 2014–FEBRUARY 28, 2015) IN THE BRL B PROJECT ZONE

N/A = Not applicable

STAKEHOLDER	PROJECT NUMBER	PROJECT NAME	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Brevard County	BC-16	Fortenberry Pond	847	364.6
FDOT	FDOT-14	Street Sweeping - reimplemented program	160	102
TOTAL	N/A	TOTAL REDUCTIONS IN REPORTING PERIOD	1,007	467

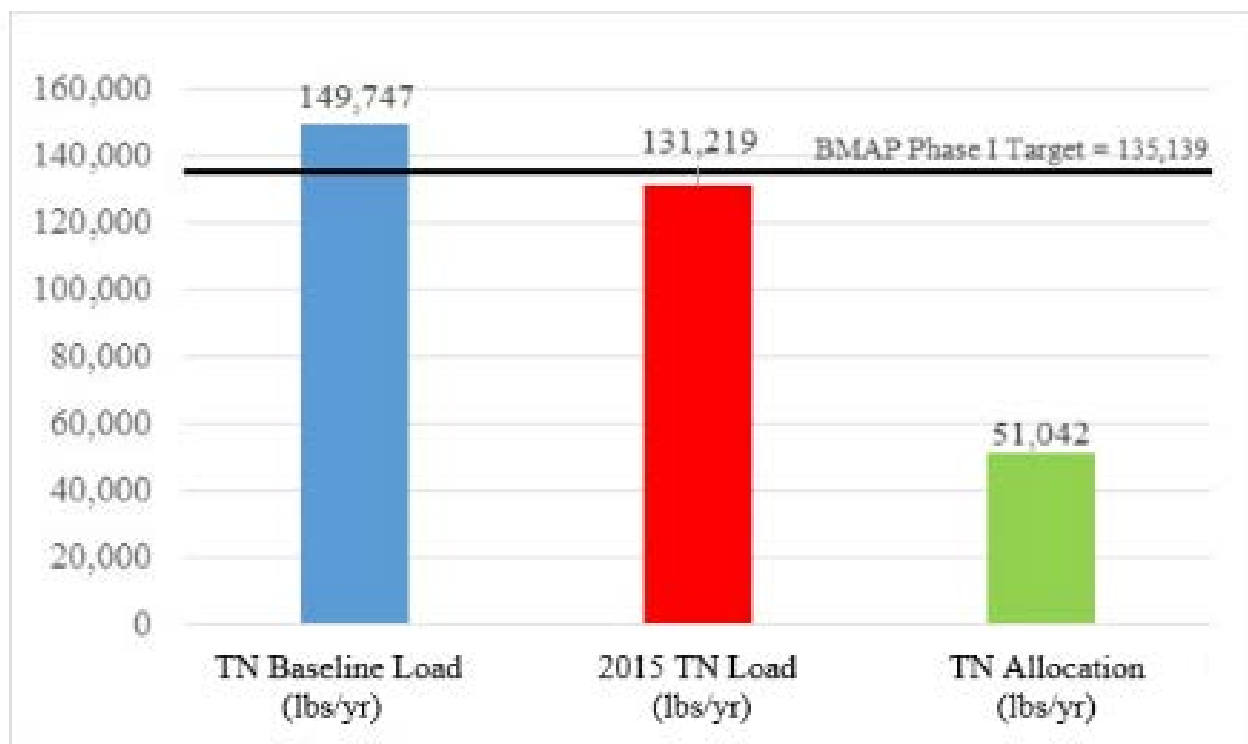


FIGURE 7: PROGRESS TOWARDS THE BRL B PROJECT ZONE TN TMDL

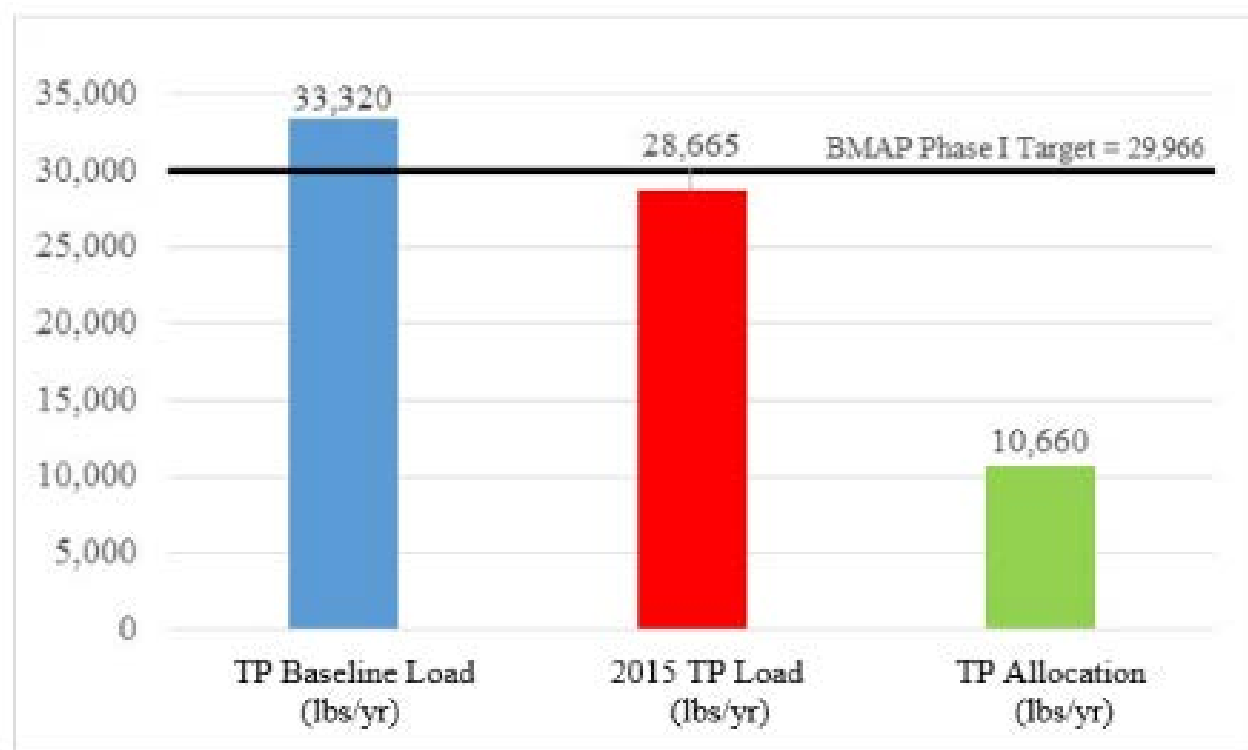


FIGURE 8: PROGRESS TOWARDS THE BRL B PROJECT ZONE TP TMDL

TABLE 5: SUMMARY OF PROJECTS COMPLETED IN THE REPORTING PERIOD (MARCH 1, 2014–FEBRUARY 28, 2015) IN THE BRL A PROJECT ZONE

N/A = Not applicable

STAKEHOLDER	PROJECT NUMBER	PROJECT NAME	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Brevard County	BC-2	Pine Island Phase I and II	160	102
Kennedy Space Center	KSC-22	Demolition of Facility M7-0862	0	0.1
Kennedy Space Center	KSC-23	Demolition of Facility M7-1012	0	0
Kennedy Space Center	KSC-24	Demolition of Facility M7-1061	15	3.9
Kennedy Space Center	KSC-25	Demolition of Facility M7-1112	2	0.5
Kennedy Space Center	KSC-26	Demolition of Facility M7-0961	16	4.1
Kennedy Space Center	KSC-27	Demolition of Facility K7-2468	0	0
TOTAL	N/A	TOTAL REDUCTIONS IN REPORTING PERIOD	193	111

2.3 STREET SWEEPING

Since the adoption of the BMAP, the methodology for calculating nutrient load reductions using the Florida Stormwater Association’s assessment tool was modified. Most of the street sweeping reductions in the first year of BMAP implementation were reported based on the old methodology.

However, for this reporting period most of the street sweeping calculations were done using the newest methodology, which is available on the department’s [National Pollutant Discharge Elimination System \(NPDES\) Stormwater Program website](#). For the next reporting period, all stakeholders with a street sweeping program will be required to calculate street sweeping reductions based on the updated methodology, which is consistent with the requirements included in the MS4 permits.

2.4 FUNDING

Brevard County received countywide appropriations of \$10 million from the 2014 Legislature to remove legacy muck deposits and \$410,000 for the restoration and evaluation of oyster reefs in the IRL. Appropriations were also awarded to the county from the department in the amount of \$800,000 (Grant S066) for the purchase of an aquatic vegetation harvester and harvesting activities, salary for an equipment operator, toxicity mapping by citizen scientists, and professional consulting and laboratory testing services to measure nutrient reductions. The county received a grant of \$136,000 for the South Patrick Drive baffle box with denitrification bioreactor and a departmental 319(h) grant of \$117,000 to install trash screens that will convert 11 Type 1 baffle boxes to Type 2. Four of the Type I boxes are in BRL project zone B. Brevard County was also awarded an \$116,752 TMDL grant for the Merritt Ridge Pond floating vegetative island.

The city of Cape Canaveral continued the use of \$8 million from the department’s State Revolving Fund (SRF) Loan Program (Loan #05050) for stormwater and wastewater improvement projects. The city also received a departmental 319(h) grant of \$589,262 for the Canaveral City Park exfiltration project and applied to the SJRWMD for an additional \$326,074 in funding for this project.

The city of Cocoa Beach was awarded a departmental 319(h) grant for \$544,540, a TMDL grant for \$450,000, and Clean Water Project funding for \$400,000. These monies will be used for the Minutemen Stormwater and Streetscape Improvements.

2.5 FERTILIZER ORDINANCES

Local governments located in the watershed of a waterbody or segment listed as impaired for nutrients are required to adopt, at a minimum, the department’s model ordinance for Florida-friendly fertilizer use on urban landscapes (Section 403.067, Florida Statutes [F.S.]). **Table 6** summarizes the status of ordinance development in the BRL.

TABLE 6: SUMMARY OF FERTILIZER DEVELOPMENT DURING THE REPORTING PERIOD IN THE BRL

STAKEHOLDERS	FERTILIZER ORDINANCE STATUS
Brevard County	Adopted
City of Cape Canaveral	Adopted
City of Cocoa Beach	Adopted
City of Indian Harbour Beach	Adopted
City of Satellite Beach	Adopted

2.6 WATER QUALITY AND SEAGRASS MONITORING

The SJRWMD monitors six stations in the BRL, and these were monitored monthly during the reporting period. The district also continued seagrass transect monitoring in the BRL for seagrass, phytoplankton, epiphyte coverage, and water quality along each transect. In addition, the department and SJRWMD are working with Dewberry, a consulting firm, to collect aerial photography for the seagrass imagery analysis in April and/or May 2015. The mapped seagrass deep edge from the aerial imagery should be available in 2016 and will be used to update the seagrass depth limit evaluation.

Section 3: SEAGRASS DEPTH LIMIT TARGET EVALUATION

The goal of the TMDLs is to recover the deeper seagrass habitats, with the biological response of the seagrass being the most important factor in evaluating the success of achieving the TMDL targets. To assess progress for the IRL Basin towards the median seagrass depth limit target, a two-step process is used.

Step 1 in this process is a cumulative frequency distribution analysis. The four most recent mapped seagrass datasets from the SJRWMD are used to create a union coverage of the assessment years with Geographic Information System (GIS) software. Using this union coverage, a 15.8-meter buffer zone is applied to the perimeter of the coverage to establish the deep edge of the seagrass beds. This buffer coverage shows the deepest edge where seagrass grew at any time within the data period, and is used to create a cumulative frequency distribution curve of the depth at which seagrass are present in each project zone in the IRL Basin. This curve is then compared with the union coverage TMDL depth limit target curve. Compliance in Step 1 is achieved when at least 50% or more of the assessment years' frequency distribution curve (including the 50th percentile value) lies on or to the right of the TMDL depth limit target curve.

Step 2 is conducted by calculating the median seagrass depth for each year of the four most recent datasets. Each assessment year median is then compared with the TMDL median depth limit target. Three of the four assessment years' medians must meet or exceed the median TMDL to be Step 2 compliant. If the project zone is both Step 1 and Step 2 compliant, it is considered to be meeting the TMDL seagrass depth limit target. If the basin fails to meet either Step 1 or Step 2, it is not considered to be meeting the TMDL seagrass depth limit target for that set of assessment years.

The department conducted this two-step evaluation process using the 2007, 2009, 2011, and 2013 mapping years, which were the latest datasets available at the time of this analysis. Based on the results from this period, BRL project zone A was Step 1 compliant (see **Figure 9**) but not Step 2 compliant (see **Table 7**). BRL project zone B was neither Step 1 compliant (see **Figure 10**) nor Step 2 compliant (see **Table 7**). Therefore, BRL project zone A does not meet the TMDL target and will require additional reductions, while the BMAP reductions will continue in BRL project zone B to work towards achieving the seagrass depth limit target.

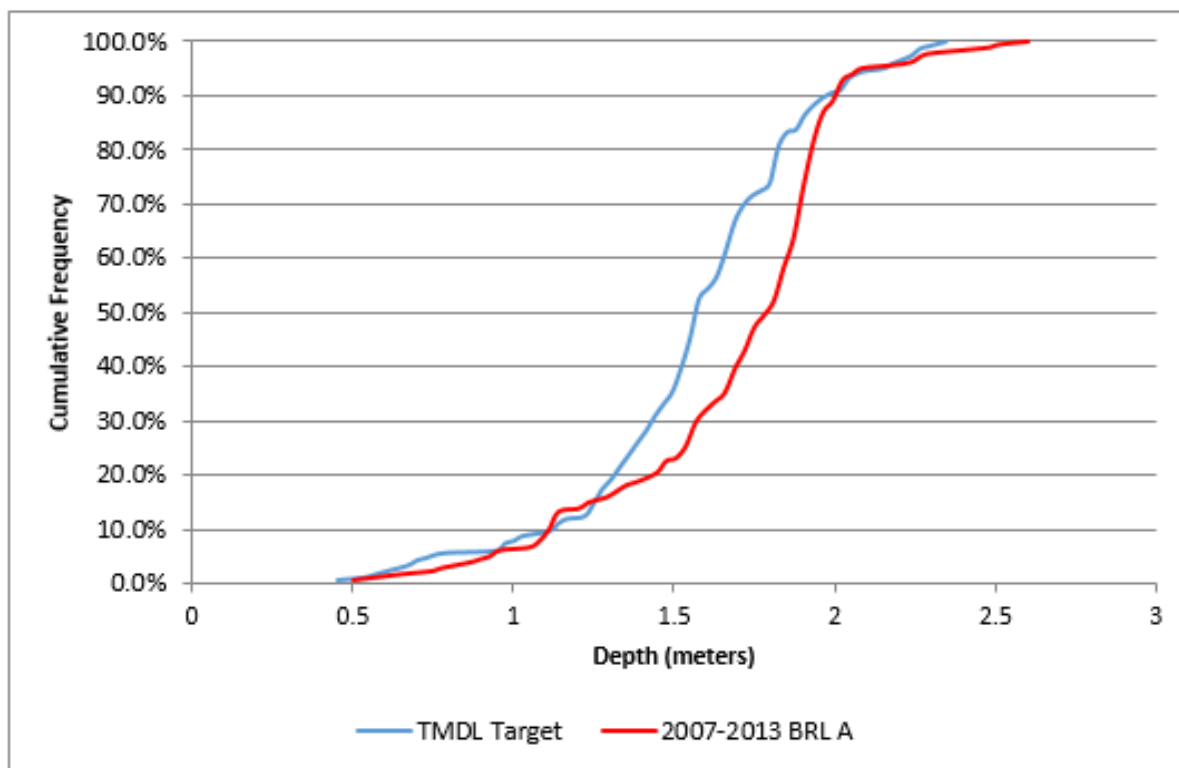


FIGURE 9: STEP 1 COMPLIANCE EVALUATION FOR THE BRL A PROJECT ZONE FOR 2007-13

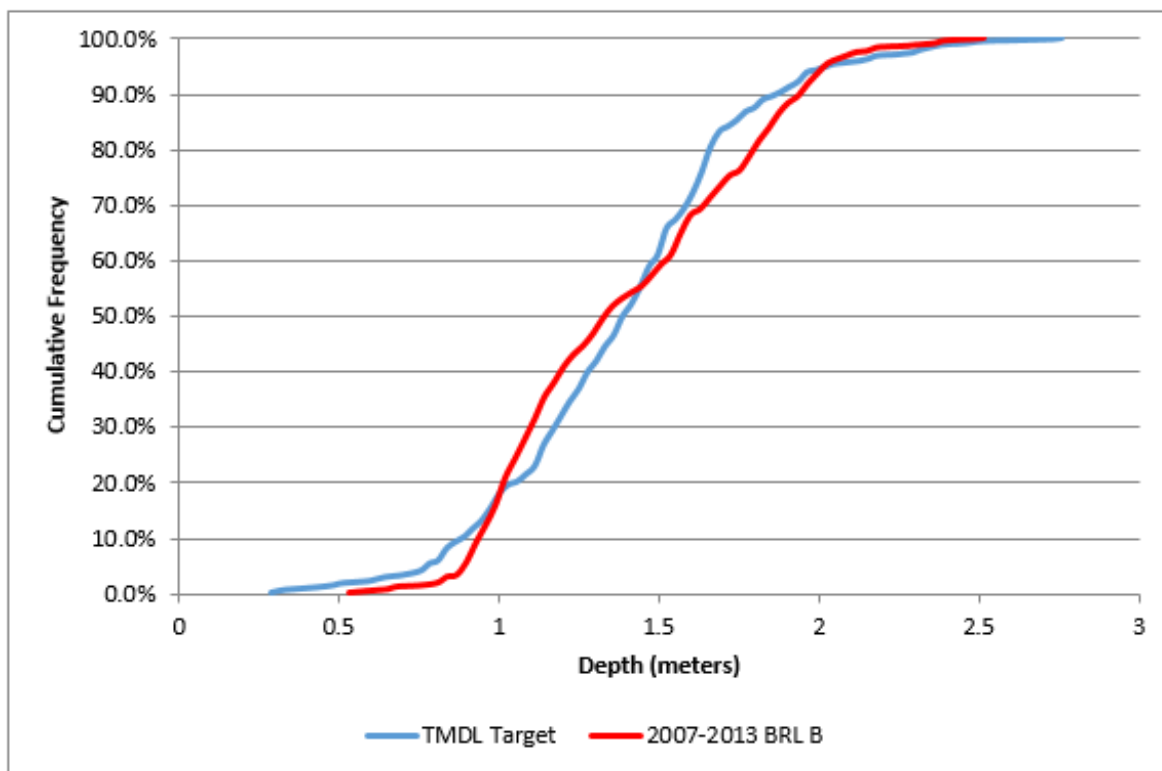


FIGURE 10: STEP 1 COMPLIANCE EVALUATION FOR THE BRL B PROJECT ZONE FOR 2007-13

TABLE 7: STEP 2 COMPLIANCE EVALUATION FOR THE BRL SUBBASIN

Note: Boldface type and shaded cells indicate years when the TMDL median depth limit target was achieved in the project zone.

YEAR	BRL A MEDIAN DEPTH (METERS)	BRL B MEDIAN DEPTH (METERS)
TMDL Median	1.58	1.41
2007	1.81	1.32
2009	1.78	1.32
2011	0.71	0.62
2013	0.81	0.84
STEP 2 COMPLIANT?	No	No

Section 4: UPCOMING ACTIVITIES

4.1 ACTIVITIES IN THE UPCOMING REPORTING PERIOD

The third annual progress report will encompass the period from March 1, 2015, to February 29, 2016.

Section 4.1.1 through **Section 4.1.4** summarize the activities that will occur during this time.

4.1.1 BREVARD COUNTY

In 2015, the Brevard County muck dredging project will remove up to 350,000 cubic yards of muck soils from sites in the IRL, BRL, and associated tributaries. Major components of the project include hydroacoustic surveying and the subsurface mapping of muck, dredging design and permitting, sediment management design and permitting, dredging, sediment management operations and site cleanup, and restoration and project closeout. Major project components will be carried out as necessary for each site location selected. Site-specific construction plans will be established to maximize the use of existing data and any previously issued authorizations. Project component costs will vary by location and will depend on muck volume, general local characteristics, and proximity to dewatering sites. State permits for removing major muck deposits from the Cocoa Beach site have been approved, and federal permits are pending with active dialogue on appropriate permit conditions. State and federal permits have been issued for Turkey Creek in Palm Bay. Bid document preparation is under way with the project award anticipated in June 2015, less than one year after appropriation. The Cocoa Beach site is also anticipated to go to bid, with environmental dredging to begin in late summer. A grant from the SJRWMD will provide material costs for gardened oysters in 2016 and 2017 to be incorporated into living shoreline pilot projects. The existing oyster-gardening and reef-building project will continue into 2015 and beyond.

The prioritization of the county's outfalls and the association of each outfall to its drainage basin will help focus the location of future water quality treatment projects in areas with the highest pollutant removal potential. The county is developing a LID manual illustrating typical retrofit ideas for commercial and industrial sites in the IRL's BMAP watersheds. The manual will be printed and distributed to local businesses, posted on the county's website, and presented at workshops aimed at a business audience to encourage the reduction of stormwater pollutants at the source. Street sweeping and BMP cleanout operations were contracted to vendors in early 2015 to maximize debris removal from county streets and drainage infrastructure. Managed aquatic plant systems (MAPS)—specifically, floating islands—will be installed in 10 ponds to enhance the load reductions of the existing treatment trains.

Brevard County will also upgrade the Third Avenue baffle box (BC-19), Fourth Place baffle box (BC-21), and Thrush 405 baffle box (BC-22); install the Alum Pond MAPS (BC-24); and construct the South Patrick Drive (BC-26) and Ocean Boulevard projects (BC-39) in 2015.

4.1.2 CITY OF CAPE CANAVERAL

The city's revised Stormwater Master Plan identified 11 future projects to reduce concentrations of nitrogen and phosphorus in the city's stormwater discharge. The construction of these 11 additional projects will eliminate 1,201 lbs/yr of TN and 582 lbs/yr of TP from the city's stormwater discharge. The city is also planning to complete a stormwater exfiltration project on North Atlantic Avenue (CC-13), the Central Ditch dredging project (CC-17), and the construction of a 2.5-million-gallon reclaimed water storage tank (CC-19).

4.1.3 CITY OF COCOA BEACH

The city of Cocoa Beach's Minutemen Corridor streetscape and stormwater/LID improvements (CB-39) are scheduled for completion by the end of 2015.

4.1.4 CITY OF INDIAN HARBOUR BEACH

The city of Indian Harbour Beach Lift Station Pond (IHB-10) is scheduled for completion by September 2015, and the city has added another dry retention project, the Indian Harbour Beach Condo Pond (IHB-16), that will be completed at the end of 2015.

4.1.5 WATER QUALITY AND SEAGRASS MONITORING

The SJRWMD will continue to monitor six water quality stations in the BRL Basin and continue seagrass transect monitoring in the basin. The department and SJRWMD will continue to work with Dewberry on the 2015 seagrass aerial imagery so that the seagrass target evaluation can be updated with the latest data.

4.2 MANAGEMENT STRATEGIES FOR THE SECOND BMAP ITERATION

The BRL BMAP stakeholders have begun planning management strategies to achieve additional TN and TP reductions for the second BMAP iteration. **Section 4.2.1** through **Section 4.2.9** summarize the strategies identified to date. It is important to note that the activities listed below are not BMAP requirements at this time, but are listed to show that plans are under way to achieve additional nutrient reductions to benefit the BRL.

Cost-share funds for projects that reduce nutrient loading are available from the department through the 319(h) and TMDL Restoration Grant programs. The department announces the availability of these funds to stakeholders and encourages local governments to take advantage of these programs.

4.2.1 *BREVARD COUNTY*

Brevard County will continue to prioritize the county's outfalls and finalize the LID manual, as described in **Section 4.1.1**. The county will work with the department to identify potential nontraditional and cost-effective BMPs and strategies to reduce loading to the lagoon.

4.2.2 *CAPE CANAVERAL AFS*

Cape Canaveral AFS will update the department when more information becomes available.

4.2.3 *CITY OF CAPE CANAVERAL*

The city will continue with stormwater improvement projects/initiatives identified in its Stormwater Master Plan.

4.2.4 *CITY OF COCOA BEACH*

The city of Cocoa Beach will continue the Surface Water Capital Improvements Program using LID methods. The next LID project will be an extension of the Minutemen Downtown Corridor—bringing the same LID BMPs (urban planters/bioswales, tree filters, porous pavers, exfiltration vaults, and nutrient sorption media) to adjacent urban commercial/residential streets in the oldest part of town. Lessons learned from the Minutemen Corridor LID project will be applied to this next phase.

The city of Cocoa Beach is also working on flow meter installation in the Maritime Hammock Preserve Alum-Enhanced Stormwater Pond (CB-1) to obtain accurate measurements of flow to the pond and discharge flow from the pond back to the lagoon. Ground water testing will be completed in the near future to see how the pond may be affecting the local ground water table in the area of the pond.

4.2.5 *CITY OF INDIAN HARBOUR BEACH*

The city of Indian Harbour Beach will update the department when more information becomes available.

4.2.6 *CITY OF SATELLITE BEACH*

The city of Satellite Beach is looking into the development of a stormwater pond on DeSoto Parkway that will provide additional treatment to the basin, which already has a number of BMPs in place. The

project is in the initial discussion and concept phase. Preliminary annual additional nutrient reduction estimates are 750 lbs/yr of TN and 200 lbs/yr of TP.

4.2.7 FDOT DISTRICT 5

FDOT District 5 will update the department when more information becomes available.

4.2.8 KENNEDY SPACE CENTER

The Kennedy Space Center will update the department when more information becomes available.

4.2.9 PATRICK AFB

Patrick AFB will update the department when more information becomes available.

APPENDIX A: BMAP PROJECTS

The BMAP project tables below show the implementation status of the BMAP projects as of February 28, 2015. The tables provide information on the nutrient reduction attributed to each individual project, shown in lbs/yr. These projects were submitted to provide reasonable assurance to the department that each stakeholder has a plan on how it will meet its allocation; however, this 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 time frame.

Since the adoption of the BMAP, the methodology for calculating nutrient load reductions using the Florida Stormwater Association assessment tool has been modified. Street sweeping reductions in the first year of BMAP implementation were reported based on the old methodology. For this reporting period, most street sweeping calculations were calculated based on the new reporting method.

BRL A PROJECT ZONE

TABLE A-1: BREVARD COUNTY PROJECTS IN THE BRL A PROJECT ZONE

N/A = Not applicable

TBD = To be determined

* This is the cost for the portion of the project located in the BRL Basin.

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	ANNUAL OPERATIONS AND MAINTENANCE (O&M) COSTS	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
BC-1	FYN; Landscape, Irrigation, Fertilizer, Pet Waste Ordinances; Public Service Announcements (PSAs), Pamphlets, Website, Illicit Discharge Program	Educational efforts	N/A	N/A	N/A	Ongoing	Ongoing	79	14.0
BC-2	Pine Island Phase I and II	Wet detention pond	15.3	\$19,235*	\$170*	2015	Completed	76	36.0
BC-30	Street Sweeping Increasing to Monthly	Street sweeping	N/A	N/A	N/A	2015	Started	TBD	TBD
BC-31	Baffle Box/Sediment Trap Cleaning Increasing to Quarterly	BMP cleanout	N/A	N/A	N/A	2015	Started	TBD	TBD

TABLE A-2: BREVARD COUNTY SUMMARY OF PROJECT REDUCTIONS IN THE BRL A PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	155	50.0
Credit for Future BMAPs	155	50

TABLE A-3: CAPE CANAVERAL AIR FORCE STATION PROJECTS IN THE BRL A PROJECT ZONE

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
CCAFS-1	Nonuse of Fertilizer/Fertilizer Ordinance	Educational efforts	Ongoing	Ongoing	176	46.0
CCAFS-2	Street Sweeping	Street sweeping	Ongoing	Ongoing	6	4

TABLE A-4: CAPE CANAVERAL AIR FORCE STATION OF PROJECT REDUCTIONS IN THE BRL A PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	182	50
Credit for Future BMAPs	182	50

TABLE A-5: FDOT DISTRICT 5 PROJECTS IN THE BRL A PROJECT ZONE

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
FDOT-1	Street sweeping	Street sweeping	Ongoing	Ongoing	49	31.2
FDOT-2	Pamphlets, illicit discharge program	Education efforts	Ongoing	Ongoing	1	0.5
FDOT-3	Elimination of fertilizer application on rights-of-way	Fertilizer cessation	2005	Completed	102	0.0

TABLE A-6: FDOT DISTRICT 5 SUMMARY OF PROJECT REDUCTIONS IN THE BRL A PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	152	32
Credit for Future BMAPs	152	32

TABLE A-7: KENNEDY SPACE CENTER PROJECTS IN THE BRL A PROJECT ZONE

N/A = Not applicable

- = Empty cell/no data

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	PROJECT DETAIL	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
KSC-1	Landscape Fertilizer Reduction	Fertilizer reduction	Fertilizer reduced from 60 tons/yr in 2000 to 20 tons/yr in 2010; changed from rapid nitrogen release 16-4-8 to slow nitrogen release, phosphate free 15-0-15	200	Unknown	Ongoing	Ongoing	1,872	265.4
KSC-2	Citrus Grove Termination Jerome Road East	Change in land use	Grove lease termination resulted in previously fertilized areas abandoned	49.4	Unknown	2010	Completed	0	0
KSC-3	Citrus Grove Termination TEL-IV	Change in land use	Grove lease termination resulted in previously fertilized areas abandoned	20.5	Unknown	2010	Completed	0	0
KSC-4	Vertical Processing Facility M7-1469	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	2.3	Unknown	2010	Completed	24	9.4
KSC-5	Spacecraft Assembly Encapsulation Facility 2 M7-1210	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	1.2	Unknown	-	Completed	15	4.9
KSC-6	Central Heat Plant M6-595	Change in land use	Demolition of facility resulted in stormwater system treatment in excess of permit requirement	0.2	Unknown	2010	Completed	3	1
KSC-7	Utility Shops K6-1246	Change in land use	Demolition of facility resulted in stormwater system treatment in excess of permit requirement	0.3	Unknown	-	Completed	3	1

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	PROJECT DETAIL	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
KSC-8	Fire Station 2 K6-1198	Change in land use	Demolition of facility resulted in stormwater system treatment in excess of permit requirement	0.4	Unknown	2009	Completed	5	1.5
KSC-9	Vehicle Loading Ramp M7-0651	Change in land use	Demolition of facility resulted in stormwater system treatment in excess of permit requirement	0.0	Unknown	2007	Completed	0	0.1
KSC-10	Hypergol Module Storage East M7- 1412	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	0.5	Unknown	2005	Completed	6	2.1
KSC-11	Hypergol Module Storage West M7- 1410	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	0.6	Unknown	2005	Completed	8	2.6
KSC-12	Regional Stormwater Management System	Wet detention pond	Wet detention pond designed and constructed to treat 593 acres with buildout of 40% impervious area	593.2	Unknown	2004	Completed	2,541	1,022.1
KSC-13	ARF Stormwater System	Retention BMP	ARF area drains to wet detention pond – missing from model.	55.4	Unknown	Unknown	Completed	320	67.8
KSC-14	VAB South Wetland Treatment System	Wetland treatment	VAB South area drains to wetland treatment system – missing from model	188.5	Unknown	Unknown	Completed	672	330.3
KSC-15	Schwartz Road Landfill	100% on-site retention	Landfill is closed basin surrounded by berms	122.5	Unknown	Unknown	Completed	1,341	257.1
KSC-16	Closed Basin 4 (Spoil Site - Static Test Road)	100% on-site retention	Area is closed basin surrounded by berms	68.2	Unknown	Unknown	Completed	844	160.6
KSC-17	Impounded Areas	100% on-site retention	Areas are impounded	1,655.3	\$62,406	Unknown	Completed	2,444	149.6

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	PROJECT DETAIL	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
KSC-18	Depressional Storage (22nd St. to 28th St.)	100% on-site retention	Area is characterized by depressional storage throughout basin. It is surrounded by ridges on all sides (<i>i.e.</i> , areas of high elevation, roads, berms, <i>etc.</i>).	1,008.1	\$491,976	Unknown	Completed	4,139	228.3
KSC-19	Depressional Storage (Jerome Road to 22 nd Street)	100% on-site retention	Area is characterized by depressional storage throughout basin, with no discharge.	982.0	\$477,506	Unknown	Completed	4,064	283.6
KSC-20	Demolition of Facilities M7-1521 and M7-1522	Change in land use	Two facilities and associated slabs removed	0.5	Unknown	2/2013	Completed	7	1.8
KSC-21	Demolition of Facility M6-0339	Change in land use	Facility and associated slab removed; located in Region 1 basin.	0.5	Unknown	4/2013	Completed	7	2.3
KSC-22	Demolition of Facility M7-0862	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	.02	Unknown	2014	Completed	0	0.1
KSC-23	Demolition of Facility M7-1012	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	.007	Unknown	2014	Completed	0	0
KSC-24	Demolition of Facility M7-1061	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	1.30	Unknown	2014	Completed	15	3.9
KSC-25	Demolition of Facility M7-1112	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	.11	Unknown	2014	Completed	2	0.5
KSC-26	Demolition of Facility M7-0961	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	1.04	Unknown	2014	Completed	16	4.1

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	PROJECT DETAIL	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
KSC-27	Demolition of Facility K7-2468	Change in land use	Demolition of facility resulted in loss of impervious area and change of land use	.10	Unknown	2014	Completed	0	0

TABLE A-8: KENNEDY SPACE CENTER SUMMARY OF PROJECT REDUCTIONS IN THE BRL A PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	18,348	2,800
Credit for Future BMAPs	18,348	2,800

BRL B PROJECT ZONE

TABLE A-9: BREVARD COUNTY PROJECTS IN THE BRL B PROJECT ZONE

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	ANNUAL O&M COSTS	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
BC-3	Florida Boulevard Pond	Wet detention pond	73.6	\$350,384	N/A	2002	Completed	324	126.4
BC-4	Hampton North (Riverside)	1 st generation baffle box	15.3	\$27,000	N/A	2010	Completed	1	1.4
BC-5	Hampton South (Needle Boulevard)	1 st generation baffle box	18.1	\$29,000	N/A	2010	Completed	1	1.6
BC-6	Albatross	1 st generation baffle box	21.8	\$33,000	N/A	2010	Completed	1	1.5
BC-7	Surfside	1 st generation baffle box	22.8	\$31,500	N/A	2010	Completed	2	2.2
BC-8	West Scots	2 nd generation baffle box	9.7	\$41,000	N/A	2010	Completed	30	5.9
BC-9	Johns Circle	1 st generation baffle box	19.5	\$31,000	N/A	2010	Completed	2	1.8
BC-10	Farrington Drive	2 nd generation baffle box	7.8	\$37,500	N/A	2010	Completed	24	4.9
BC-11	Porpoise Street	2 nd generation baffle box	7.8	\$42,000	N/A	2010	Completed	25	4.9
BC-12	Angler Street	1 st generation baffle box	10.2	\$30,700	N/A	2010	Completed	1	0.9
BC-13	Diana Shores	Vortek unit	38.6	\$102,000	N/A	2010	Completed	0	17.0
BC-14	FYN; Landscape, Irrigation, Fertilizer, Pet Waste Ordinances; PSAs, Pamphlets, Website, Illicit Discharge Program	Educational efforts	N/A	N/A	N/A	Ongoing	Ongoing	3,854	825.0
BC-15	Street Sweeping	Street sweeping	N/A	N/A	N/A	Ongoing	Ongoing	32	14.5
BC-16	Fortenberry Pond	Wet detention pond	164.5	\$10,900,000	\$35,000	06/2014	Completed	847	364.6
BC-17	Merritt Island Airport Pond	Wet detention pond	148.2	\$652,056	N/A	2011	Completed	458	160.0
BC-18	Florida Boulevard	MAPS	73.6	\$40,772	\$18,295	2012	Completed	117	14.3
BC-19	Third Avenue Baffle Box	Type 1 baffle box retrofit	53.1	\$31,452	N/A	2015	Funded	93	10.0
BC-20	Inlet baskets and weirs	BMP cleanout	N/A	\$95,069	\$55,300	Ongoing	Ongoing	1	1

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	ANNUAL O&M COSTS	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
BC-21	Fourth Place Baffle Box	Type 1 baffle box retrofit	57.0	\$34,037	Unknown	2015	Funded	146	25.7
BC-22	Thrush 405 Baffle Box	Type 1 baffle box retrofit	4.3	\$12,507	Unknown	2015	Funded	7	0.7
BC-23	Fortenberry Pond MAPS	MAPS	164.5	\$151,588	Unknown	Unknown	Funded	256	31.4
BC-24	Alum Pond MAPS	MAPS	99.0	\$100,362	Unknown	2015	Funded	147	16.5
BC-25	Cassia Phase 3	Retention BMP	18.4	\$100,000	Unknown	2012	Completed	100	0.0
BC-26	South Patrick Drive	2 nd generation baffle box	73.9	\$625,000	Unknown	2016	Funded	132	16.9
BC-27	Kelly Park Reuse	Stormwater reuse	32.9	Unknown	Unknown	2001	Completed	19	1.3
BC-28	Patrick Air Force Base Golf Course Pond Stormwater Reuse	Stormwater reuse	N/A	Unknown	Unknown	2017	Planned, not yet funded	359	0.0
BC-29	Ocean Boulevard	Type 1 baffle box retrofit	6.0	\$12,507	Unknown	2015	Funded	10	1.4

TABLE A-10: BREVARD COUNTY SUMMARY OF PROJECT REDUCTIONS IN THE BRL B PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	6, 989	1,652
Total BMAP I Required Reductions	6,343	1,379
Credit for Future BMAPs	646	273

TABLE A-11: CITY OF CAPE CANAVERAL PROJECTS IN THE BRL B PROJECT ZONE

N/A = Not applicable
TBD = To be determined

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	ANNUAL O&M COSTS	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
CC-1	Baffle Box – Holman Road	1 st generation baffle box	35.2	\$75,000	\$1,200	2005	Completed	2	2.3
CC-2	Baffle Box – Center Street	1 st generation baffle box	48.2	\$75,000	\$1,200	2005	Completed	3	2.6
CC-3	Baffle Box - International Drive	1 st generation baffle box	94.7	\$75,000	\$1,200	2000	Completed	7	7.5
CC-4	Baffle Box - Angel Isles	1 st generation baffle box	73.2	\$75,000	\$1,200	2005	Completed	2	1.1
CC-5	Baffle Box - WWTP	1 st generation baffle box	11.6	\$15,000	\$1,200	2000	Completed	0	0.1
CC-6	Baffle Box – West Central Boulevard	1 st generation baffle box	199.1	\$75,000	\$1,200	2000	Completed	11	11.2
CC-7	3 Baffle Boxes – Central Ditch	2 nd generation baffle box	121.6	\$270,000	\$3,600	2009	Completed	178	30.9
CC-8	Street Sweeping	Street sweeping	N/A	\$12,322/yr	N/A	Ongoing	Ongoing	168	108
CC-9	Shorewood Drainage Subbasin	100% on-site retention	61.9	Unknown	N/A	2001	Completed	567	134.0
CC-10	Irrigation, Fertilizer, and Pet Waste Management Ordinances; Pamphlets; Website; Illicit Discharge Program; BLUE LIFE	Educational efforts	N/A	\$3,100	N/A	Ongoing	Ongoing	252	59.6
CC-11	Manatee Park Stormwater Improvements	Wet detention pond	11.5	\$193,000	\$5,000	2011	Completed	2	0.1
CC-12	Banana River Park Stormwater Improvements	Swales	5.6	\$38,000	\$2,500	2011	Completed	13	0.7
CC-13	Stormwater Exfiltration on North Atlantic Avenue	Retention BMP	37.0	\$436,000	\$10,000	December 2015	Started	160	37.8

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	ANNUAL O&M COSTS	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
CC-14	Stormwater Exfiltration at Canaveral City Park	Retention BMP	29.2	\$988,103	\$10,000	June 2016	Planned, funded	46	11
CC-15	Stormwater Pond on West Central Blvd.	Wet detention pond	61.3	\$1,800,000	\$10,000	September 2019	Envisioned, not funded	366	158.5
CC-16	Cleanout of Baffle Boxes	BMP cleanout	N/A	N/A	\$4,500	Ongoing	Ongoing	45	18
CC-17	Central Ditch Dredging Project	Dredging	120.6	\$195,000	N/A	December 2015	Planned, funded	TBD	TBD
CC-18	Exfiltration Piping Installations – 8 Locations (two additional installations are added each year)	Exfiltration	Variable	\$25,000/yr	N/A	N/A	Started	TBD	TBD
CC-19	2.5-Million-Gallon Reclaimed Water Tank	Reclaimed water	N/A	\$4,100,00	\$10,000	December 2015	Started	2,151.0	158.0
CC-20	Conversion of Baffle Boxes (5) to Next Generation	Baffle box	TBD	\$295,000	\$5,000	December 2016	Envisioned, not funded	TBD	TBD
CC-21	Holman Road Swale	Swales	1.6	\$26,250	N/A	May2016	Planned, funded	TBD	TBD

TABLE A-12: CITY OF CAPE CANAVERAL SUMMARY OF PROJECT REDUCTIONS IN THE BRL B PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	3,973	741
Total BMAP I Required Reductions	886	220
Credit for Future BMAPs	3,087	521

TABLE A-13: CITY OF COCOA BEACH PROJECTS IN THE BRL B PROJECT ZONE

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
CB-1	Maritime Hammock Preserve Alum Pond	Alum/wet detention pond	130.2	\$960,000	2008	Completed	746	317.5
CB-2	Ocean Beach Blvd Bioretention/Exfiltration	Swales	50.6	\$1,150,00	2010	Completed	218	46.3
CB-3	2 nd Street South	2 nd generation baffle box	52.0	\$181,974	2003	Completed	135	25.0
CB-4	Cottage Row Parking Facilities Lot	Exfiltration	2.4	Unknown	2007	Completed	37	9.1
CB-5	Shepard Park Improvements	Dry detention pond	0.0	Unknown	2003	Completed	0	0.0
CB-6	Burris Way (alley) Exfiltration	Exfiltration	0.8	Unknown	2010	Completed	4	1.0
CB-7	Brevard Avenue Exfiltration	Swales	0.5	Unknown	2003	Completed	5	1.0
CB-8	50 Danube River Exfiltration	Swales	2.7	Unknown	2003	Completed	2	0.3
CB-9	12 Bougainvillea Drive Exfiltration	Swales	1.7	Unknown	2003	Completed	1	0.2
CB-10	9 th Street South & Brevard Avenue Exfiltration	Swales	1.9	Unknown	2003	Completed	2	0.3
CB-11	321 Jack Drive Exfiltration	Swales	2.0	Unknown	2006	Completed	1	0.2
CB-12	125 Cedar Avenue Exfiltration	Swales	1.4	Unknown	2008	Completed	1	0.3
CB-13	Meade Bioretention	Swales	0.0	Unknown	2009	Completed	0	0.0
CB-14	Osceola E Bioretention	Swales	0.7	Unknown	2009	Completed	2	0.3
CB-15	4 th Street North North Bioretention	Swales	0.1	Unknown	2009	Completed	1	0.3
CB-16	4 th Street North South Bioretention	Swales	0.5	Unknown	2009	Completed	2	0.5
CB-17	3 rd Street South North Bioretention	Swales	0.5	Unknown	2009	Completed	1	0.1
CB-18	3 rd Street South South Bioretention	Swales	2.1	Unknown	2009	Completed	3	0.3
CB-19	Holiday Lane Bioretention	Swales	5.2	Unknown	2007	Completed	34	7.3
CB-20	South Banana/St. Lucie Swale	Swales	4.7	Unknown	2000	Completed	17	4.0
CB-21	South Banana/St. Lucie Swale	Swales	2.2	Unknown	2000	Completed	4	0.4
CB-22	Banana River Retention	Dry retention pond	1.1	Unknown	2001	Completed	2	0.4
CB-23	Banana River Retention	Dry retention pond	1.4	Unknown	2001	Completed	2	0.5
CB-24	Minutemen/Country Club Swale	Swales	3.2	Unknown	2001	Completed	13	3.1
CB-25	Palm Avenue Swale	Swales	1.2	Unknown	2002	Completed	2	0.1
CB-26	Minutemen/Cocoa Beach High School	Swales	1.3	Unknown	2002	Completed	20	4.8
CB-27	Minutemen/Public Works Complex Swale	Swales	1.9	Unknown	2002	Completed	4	0.8

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
CB-28	Tom Warriner/Public Works Complex Swale	Swales	0.9	Unknown	2003	Completed	3	0.4
CB-29	Shepard Drive Swale	Swales	3.2	Unknown	2006	Completed	16	3.6
CB-30	Shepard Drive Swale	Swales	2.4	Unknown	2006	Completed	10	2.0
CB-31	West Gadsden/Banana Swale	Swales	1.4	Unknown	2006	Completed	3	0.4
CB-32	West Pasco/Banana Swale	Swales	1.0	Unknown	2006	Completed	2	0.2
CB-33	West Pasco/Banana Swale	Swales	2.3	Unknown	2006	Completed	3	0.4
CB-34	32 Inlet Baskets	BMP cleanout	N/A	Unknown	2003/2004	Completed	32	10.3
CB-35	Dino Museum/ Store, South Cayer, 250 West Cocoa Beach Causeway	Dry detention pond	1.2	Unknown	Unknown	Completed	1	0.1
CB-36	332-334 North Orlando, contractor	Dry detention pond	1.7	Unknown	Unknown	Completed	3	0.6
CB-37	Street Sweeping	Street sweeping	N/A	Unknown	Ongoing	Ongoing	85	54
CB-38	FYN; Pet Waste, Landscape, Fertilizer, Irrigation Ordinances; Pamphlets, Website, Illicit Discharge Program	Educational efforts	N/A	Unknown	Ongoing	Ongoing	1,098	228
CB-39	Minutemen Corridor Stormwater Improvement/LID	Bioretention/ rain tanks/ paver storage/ nutrient sorption media	20.3	\$3,883,518	February 2016	Started	330	74.2

TABLE A-14: CITY OF COCOA BEACH SUMMARY OF PROJECT REDUCTIONS IN THE BRL B PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	2,845	799
Total BMAP I Required Reductions	1,702	354
Credit for Future BMAPs	1,143	445

TABLE A-15: CITY OF INDIAN HARBOUR BEACH PROJECTS IN THE BRL B PROJECT ZONE

N/A = Not applicable
TBD = To be determined

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	ANNUAL O&M COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
IHB-1	North Osceola Drive	Exfiltration	8.6	\$60,000	\$500	2008	Completed	27	3.8
IHB-2	Datura Drive	Exfiltration	0.7	\$50,000	\$300	2004	Completed	3	0.4
IHB-3	Coquina Palms Subdivision	100% retention	6.3	N/A	N/A	2000	Completed	61	10.9
IHB-4	Landscape, Irrigation, Fertilizer, Pet Waste Ordinances; Pamphlets, Illicit Discharge Program	Education	N/A	Unknown	Unknown	Ongoing	Ongoing	282	52.5
IHB-5	Inlet Cleaning	BMP cleanout	N/A	Unknown	Unknown	Ongoing	Ongoing	0	0
IHB-6	Street Sweeping	Street sweeping	N/A	\$9,800	N/A	Ongoing	Ongoing	116	74
IHB-7	Gleason Park Phase 1	Wet detention pond	101.3	\$135,000	\$200	2011	Completed	357	114.7
IHB-8	Atlantic Avenue Swale	Retention BMP	1.0	Unknown	Unknown	2011	Completed	8	1.2
IHB-9	Gleason Park Irrigation	Stormwater reuse	101.3	Unknown	Unknown	Ongoing	Ongoing	38	6.8
IHB-10	Lift Station Pond	Dry retention pond	2.3	\$13,277	N/A	September 2015	Planned, Funded	28	6.8
IHB-11	Fire Station Exfiltration	Exfiltration	2.8	\$11,481	N/A	September 2013	Completed	9	1
IHB-12	Park Road Exfiltration	Exfiltration	15.8	Unknown	N/A	August 2012	Completed	18	3.6
IHB-13	Yuma Drive Exfiltration	Exfiltration	11.15	Unknown	Unknown	2013	Completed	26	5.9
IHB-14	Lime Bay Exfiltration	Exfiltration	26.86	Unknown	Unknown	2013	Completed	24	5.3
IHB-15	Andros Lane Exfiltration	Exfiltration	15.83	Unknown	Unknown	2013	Completed	2	.2
IHB-16	Indian Harbour Beach Condo Pond	Dry retention pond	1.39	Unknown	Unknown	December 2015	Started	TBD	TBD

TABLE A-16: CITY OF INDIAN HARBOUR BEACH SUMMARY OF PROJECT REDUCTIONS IN THE BRL B PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	999	287
Total BMAP I Required Reductions	1,018	175
Credit for Future BMAPs	--	112

TABLE A-17: CITY OF SATELLITE BEACH PROJECTS IN THE BRL B PROJECT ZONE

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
SB-1	Jackson Exfiltration	Exfiltration	24.7	Unknown	2002	Completed	9	2.2
SB-2	Jackson Exfiltration	Exfiltration	8.2	Unknown	2002	Completed	6	0.8
SB-3	Jackson Exfiltration	Exfiltration	8.6	Unknown	2002	Completed	6	1.7
SB-4	Avocado Continuous Deflective Separation (CDS) Unit	CDS unit	8.6	Unknown	2002	Completed	0	3.2
SB-5	Jackson Exfiltration	Exfiltration	11.7	Unknown	2002	Completed	3	0.4
SB-6	Coconut Exfiltration	Exfiltration	39.7	Unknown	2005	Completed	27	4.6
SB-7	Desoto Exfiltration	Exfiltration	108.2	Unknown	2005	Completed	97	13.7
SB-8	Desoto Exfiltration	Exfiltration	7.8	Unknown	2005	Completed	25	3.5
SB-9	Jamaica Boulevard Ponds	Wet detention pond	216.2	Unknown	2007	Completed	600	160.2
SB-10	Jamaica Pond Reuse	Stormwater reuse	216.2	Unknown	2002	Completed	277	25.0
SB-11	Desoto Exfiltration	Exfiltration	3.5	Unknown	2005	Completed	17	2.4
SB-12	Desoto Baffle Boxes	2 nd generation baffle box	57.8	Unknown	2007	Completed	82	9.5
SB-13	Cassia Phase 1-22	2 nd generation baffle box	32.5	\$1,796,800	2010	Completed	61	8.2
SB-14	Cassia Phase 1-23	2 nd generation baffle box	12.9	Part of SB-13	2010	Completed	30	5.6
SB-15	Cassia Phase 1-24	Retention BMP	12.8	Part of SB-13	2010	Completed	18	3.5
SB-16	Cassia Phase 1-25	Retention BMP	19.7	Part of SB-13	2010	Completed	13	1.8
SB-17	Cassia Phase 1-26	Retention BMP	14.1	Part of SB-13	2010	Completed	12	2.6
SB-18	North Basin Stormwater Retrofit	Retention BMP	97.9	Unknown	December 2012	Completed	318	80.5
SB-19	Street Sweeping	Street sweeping	N/A	Unknown	Ongoing	Ongoing	57	37
SB-20	Landscape, Irrigation, Fertilizer, Pet Waste Ordinances; PSAs, Pamphlets, Website, Illicit Discharge Program	Educational efforts	N/A	Unknown	Ongoing	Ongoing	668	131.4

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
SB-21	Cassia Phase 3 - C3A	Retention BMP	0.2	Unknown	March 2012	Completed	0	0.6
SB-22	Cassia Phase 3 - C3B	Retention BMP	0.2	Unknown	March 2012	Completed	0	0.5
SB-23	Cassia Phase 3 - C3C	Retention BMP	0.2	Unknown	March 2012	Completed	0	0.5
SB-24	Cassia Phase 3 - C3D	Retention BMP	0.2	Unknown	March 2012	Completed	0	0.8
SB-25	Cassia Phase 3 - C3E	Retention BMP	0.2	Unknown	March 2012	Completed	0	0.7
SB-26	Cassia Phase 3 - C3F	Retention BMP	2.0	Unknown	March 2012	Completed	0	3.0
SB-27	Cassia Phase 3 - C3G	Retention BMP	1.3	Unknown	March 2012	Completed	0	2.3
SB-28	Cassia Phase 3 - C5A	Retention BMP	0.2	Unknown	March 2012	Completed	0	0.5
SB-29	Cassia Phase 3 - C5B	Retention BMP	5.9	Unknown	March 2012	Completed	0	5.4
SB-30	Cassia Phase 3 - C7A	Retention BMP	0.4	Unknown	March 2012	Completed	0	0.4
SB-31	Cassia Phase 3 - C7B	Retention BMP	4.1	Unknown	March 2012	Completed	0	3.5
SB-32	Cassia Phase 3 - C9A	Retention BMP	0.5	Unknown	March 2012	Completed	0	0.6
SB-33	Cassia Phase 3 - C9B	Retention BMP	2.1	Unknown	March 2012	Completed	19	2.8
SB-34	Cassia Phase 3 - C13A	Retention BMP	1.2	Unknown	March 2012	Completed	7	1.9
SB-35	Cassia Phase 3 - C13B	Retention BMP	0.1	Unknown	March 2012	Completed	0	0.3
SB-36	Cassia Phase 3 - C13C	Retention BMP	3.1	Unknown	March 2012	Completed	0	1.7
SB-37	Cassia Phase 3 - C13D	Retention BMP	0.5	Unknown	March 2012	Completed	7	1.6
SB-38	Cassia Phase 3 - C13E	Retention BMP	0.9	Unknown	March 2012	Completed	9	2.2
SB-39	Cassia Phase 3 - C13F	Retention BMP	1.6	Unknown	March 2012	Completed	11	2.6
SB-40	Cassia Phase 3 - C13G	Retention BMP	3.3	Unknown	March 2012	Completed	15	3.8

TABLE A-18: CITY OF SATELLITE BEACH SUMMARY OF PROJECT REDUCTIONS IN THE BRL B PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	2,227	500.6
Total BMAP I Required Reductions	1,573	298
Credit for Future BMAPs	654	202

TABLE A-19: FDOT DISTRICT 5 PROJECTS IN THE BRL B PROJECT ZONE

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	PROJECT DETAIL	TREATMENT ACRES	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
FDOT-4	FM: 237139 D5_70120-3518-01	Wet detention pond	SR 518 at SR 513	4.7	1984	Completed	63	15.8
FDOT-5	FM: 237454 D5_70100-3553-01	Retention BMP	SR 520 widening – missing from model	5.0	1994	Completed	23	11.3
FDOT-6	FM: 237447 D5_70008-3505-02	Wet detention pond	SR 513 southwest drainage from north of East Eau Gallie Boulevard to Parkside Place - missing from model	3.4	1992	Completed	9	5.0
FDOT-7	FM: 237447 D5_70008-3505-03	Retention BMP	SR 513 Parkside Place to north of Yacht Club Boulevard - missing from model	2.8	1992	Completed	7	4.2
FDOT-8	FM: 237447 D5_70008-3505-04	Retention BMP	SR 513 from north of Yacht Club Boulevard to Banana River Drive (County Road 3) - missing from model	3.8	1992	Completed	12	6.8
FDOT-9	FM: 237482 D5_70060-3533-01	Retention BMP	SR A1A drainage improvements from south of North Drive to south of Sherry Lee Lane - missing from model	0.4	1991	Completed	1	0.8
FDOT-10	FM: 237453 D5_70008-3507-01	Wet detention pond	SR 513 from Banana River Drive (County Road 3) to just south of Anchor Drive - missing from model	8.7	1997	Completed	26	9.5
FDOT-11	FM: 237453 D5_70008-3507-02	Wet detention pond	SR 513 from just south of Anchor Drive to Desoto Parkway - missing from model	10.7	1997	Completed	24	7.4
FDOT-12	FM: 237712 D5_70060-3519-01	Retention BMP	SR A1A drainage improvements on northbound lane from north of 1 st Street to south of 4 th Street	2.5	2001	Completed	36	8.9
FDOT-13	FM: 422691-01 D5_422691-01	Retention BMP	SR A1A drainage improvements from 1 st Street to just south of 4 th Street	1.3	2008	Completed	15	3.8
FDOT-14	Street Sweeping	Street sweeping	Street sweeping	N/A	Ongoing	Ongoing	160	120
FDOT-15	Educational efforts	Educational efforts	Pamphlets, illicit discharge program, and call in	N/A	Ongoing	Ongoing	25	8.0
FDOT-16	Fertilizer Cessation	Fertilizer cessation	Elimination of fertilizer application on rights-of-way	N/A	2005	Completed	1,358	0.0

TABLE A-20: FDOT DISTRICT 5 SUMMARY OF PROJECT REDUCTIONS IN THE BRL B PROJECT ZONE

* FDOT is working to resolve the issue with its street sweeping contracts so that credit for street sweeping can be included in the BMAP.

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	1,759	202
Total BMAP I Required Reductions	472	179
Credit for Future BMAPs	1,287	23

TABLE A-21: PATRICK AFB PROJECTS IN THE BRL B PROJECT ZONE

N/A = Not applicable

PROJECT NUMBER	PROJECT NAME	PROJECT TYPE	TREATMENT ACRES	PROJECT COST	END DATE	STATUS	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
PAFB-1	Youth Center Building 3656	Retention BMP	1.7	Unknown	2002	Completed	3	0.9
PAFB-2	Building 543 Replace Main Gate	Retention BMP	0.2	Unknown	2005	Completed	0	0.1
PAFB-3	Basin 6B No Discharge	100% retention	3.2	Unknown	N/A	Completed	46	12.5
PAFB-4	Basin 6C No Discharge	100% retention	11.3	Unknown	N/A	Completed	164	43.5
PAFB-5	Nonuse of Fertilizer/ Fertilizer Ordinance	Educational efforts	N/A	Unknown	Ongoing	Ongoing	122	32.3
PAFB-6	Golf Course Pond Stormwater Reuse	Stormwater reuse	348.9	\$850,000	May 2013	Completed	3,677	969.9

TABLE A-22: PATRICK AFB SUMMARY OF PROJECT REDUCTIONS IN THE BRL B PROJECT ZONE

CATEGORY	TN REDUCTION (LBS/YR)	TP REDUCTION (LBS/YR)
Total Project Reductions	4,012	1,059
Total BMAP I Required Reductions	2,615	748
Credit for Future BMAPs	1,397	311