2022 Update to the Florida Keys Reasonable Assurance Document

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

with participation from the
Florida Keys Stakeholders

December 2022

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Acknowledgments

The Florida Department of Environmental Protection adopted the *2022 Update to the Florida Keys Reasonable Assurance Document (FKRAD)* by Secretarial Order as part of its statewide watershed management approach to restore and protect Florida's water quality. The update was developed in coordination with stakeholders, identified below, with participation from affected local, regional, and state governmental interests; elected officials and citizens; and private interests.

Florida Department of Environmental Protection
Shawn Hamilton, Secretary

Table Ack-1. FKRAD Update Participants

Type of Entity	Name
Responsible Stakeholders	City of Key Colony Beach City of Key West City of Layton City of Marathon DEP Florida Park Service Key Largo Wastewater Treatment District Monroe County U.S. Navy Village of Islamorada
Responsible Agencies	Florida Department of Environmental Protection Florida Department of Transportation Florida Department of Health
Other Interested Stakeholders	Citizens Florida Department of Economic Opportunity, Division of Community Planning Florida Fish and Wildlife Conservation Commission Florida International University Florida Keys Environmental Fund Florida Sea Grant National Oceanic and Atmospheric Administration Florida Keys National Marine Sanctuary U.S. Environmental Protection Agency

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Table of Contents

Acknowledgments **2**
Table of Contents **3**
List of Tables **5**
List of Figures **6**
List of Acronyms and Abbreviations **7**
Executive Summary **9**
Section 1 : Background **15**
1.1 Purpose of the Update **15**
1.2 Reasonable Assurance Planning Process **15**
1.3 Geographic Boundaries of the FKRAD **16**
1.4 Stakeholder Involvement **21**
Section 2 : Impaired Waterbodies **23**
2.1 Description of the Impaired Waterbodies and Pollutants of Concern **23**
Section 3 : Water Quality and Aquatic Ecologic Goals **25**
3.1 Water Quality Assessment Status **25**
3.2 Restoration of the Designated Uses of the Impaired Waters **27**
Nutrient Impairments 27
Dissolved Oxygen Impairments 27
3.3 Schedule to Meet Targets and Restoration Goals **27**
Status of Onsite Sewage Treatment and Disposal Systems (OSTDS) 27
Status of Central Wastewater Treatment 28
Status of Evaluation of Residential Canals 32
Status of Marine Vessel Sewage and Pumpouts 32
Status of Stormwater Treatment 32
Section 4 : Proposed Management Actions **33**
4.1 Responsible Participating Entities **33**
4.2 Existing Management Activities **33**
4.3 Completed and Proposed Management Activities and Projects **34**
4.4 Estimated Pollutant Load Reduction from the Implementation of Actions **35**
4.5 Future Growth and New Sources **36**
4.6 Implementation Schedule **36**
4.7 Funding **37**
4.8 Enforcement Programs and Local Ordinances for Non-Voluntary Strategies **38**

4.9 Commitment to Plan Implementation 38
Section 5 : Procedures for Monitoring and Reporting Results 39
5.1 Water Quality Monitoring Parameters, Frequency, and Network 39
5.2 Data Management and Assessment 41
5.3 QA/QC 42
5.4 Methods for Evaluating Progress Towards Goals 42
Section 6 : Proposed Corrective Actions 43
6.1 Corrective Actions for Non-Improvement of Impairment 43
6.2 Corrective Actions for Management Actions Not Completed on Schedule 43
6.3 DEP Notification Process for Corrective Action Implementation 43
Appendices 44
Appendix A: Responsible Stakeholder Projects 44

List of Tables

Table ES- 1. TN concentrations and targets by Quad 12
Table ES- 2. TP concentrations and targets by Quad 12
Table 1. WBIDs with impairments in the Florida Keys 16
Table 2. WTFM cell widths and outer distance 20
Table 3. TN concentrations and targets by Quad 25
Table 4. TP concentrations and targets by Quad 26
Table 5. OSTDS Parcels Connected to Central Sewer as of September 2022 28
Table 6. Status of domestic wastewater facilities meeting best available technology 29
Table 7. Existing management activities 33
Table 8. Projects, by entity, and their status 34
Table 9. Anticipated load reductions associated with management activities 36
Table 10. List of WBIDs and the number of recommended stations for FKRAD compliance monitoring 39
Table 11. Water quality parameters for FKRAD monitoring 40
Table 12. Special monitoring sites by DEP Lignumvitae Key Aquatic Preserve 41

List of Figures

Figure ES-1. Tidal flushing model boundaries and Quads 11
Figure 1. FKRAD WBIDs in the Florida Keys 18
Figure 2. Florida Keys WBIDs with Quads 19
Figure 3. Tidal flushing model area and Quads 21

List of Acronyms and Abbreviations

µg/l	Micrograms Per Liter
ACSC	Area of Critical State Concern
AWRF	Advanced Wastewater Reclamation Facility
AWT	Advanced Wastewater Treatment
BAT	Best Available Technology
CMMP	Canal Management Master Plan
CRWS	Cudjoe Regional Wastewater System
DEP	Florida Department of Environmental Protection
DIN	Dissolved Inorganic Nitrogen
DO	Dissolved Oxygen
DOSAT	Dissolved Oxygen (Percent Saturation)
EDU	Equivalent Dwelling Unit
EPA	U.S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
FKAA	Florida Keys Aqueduct Authority
FKNMS	Florida Keys National Marine Sanctuary
FKRAD	Florida Keys Reasonable Assurance Document
FWRA	Florida Watershed Restoration Act
IWR	Impaired Waters Rule
IVOI	Village of Islamorada (Islamorada, Village of Islands)
KLWTD	Key Largo Wastewater Treatment District
lbs/yr	Pounds Per Year
LOF	Laws of Florida
mg/l	Milligrams Per Liter
mg-N/L	Milligrams Nitrogen Per Liter
mg-P/L	Milligrams Phosphorus Per Liter
mgd	Million Gallons Per Day
MM	Mile Marker
NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrate + Nitrite
OFW	Outstanding Florida Water
OSTDS	Onsite Sewage Treatment and Disposal System
PD&E/EMO	Project Development & Environmental/Environmental Management Office
QA/QC	Quality Assurance/Quality Control
RAP	Reasonable Assurance Plan

RESTORE	Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act
SOP	Standard Operating Procedure
SR	State Road
STORET	Storage and Retrieval (Database)
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
UIC	Underground Injection Control
USN	U.S. Navy
WBID	Waterbody Identification (Number)
WIN	Watershed Information Network
WQPP	Water Quality Protection Plan
WTFM	WBID Tidal Flushing Model
WWTF/WWTP	Wastewater Treatment Facility/Plant

Executive Summary

Summary

In 2008, the Florida Keys Reasonable Assurance Documentation (FKRAD) to address nutrients was approved by the Florida Department of Environmental Protection (DEP or department) and was provided to the U.S. Environmental Protection Agency (EPA) in February 2009. The original FKRAD was based, partly, in accordance with Chapter 99-395, Laws of Florida (LOF), which mandated compliance with wastewater treatment requirements by June 2010 and an overall completion date of the management actions by 2020. However, in 2010, Chapter 2010-205, LOF, extended the wastewater treatment compliance date to December 2015. In 2018, an update to the FKRAD was completed that described the projects completed through that time as well as planned projects through 2020. This document provides an update on the status of the management activities defined in the original FKRAD, the attainment of total nitrogen (TN) and total phosphorus (TP) targets for 2019 and 2020 (see **Table ES-1** and **Table ES-2**), as well as an update of dissolved oxygen percent saturation (DOSAT) impairments in some waterbody identification (WBID) segments.

Management Activities Status

Since 2011, 118 water quality restoration projects have been completed. The status of each project along with a list of new projects are provided in **Appendix A**. Most of the listed wastewater and stormwater projects have been completed as of this update and are identified as "completed." However, there are several remaining projects designated as "planned" or "underway" and are scheduled to be completed by 2024.

Monitoring for success includes identification of physical connections to central wastewater systems (**Section 3.3**); number of eliminated OSTDS (**Section 3.3**); wastewater upgrades to reduce total nutrients in wastewater effluent discharged to shallow wells or ocean outfalls and to increase certain treatment levels, including those of eliminated OSTDS (**Section 3.3**); number of stormwater systems installed (**Section 3.3**); and, the status of the near shore nutrient concentrations in comparison to water quality targets and OFW background concentrations (**Section 3.1**).

Water Quality Assessment Status

The water quality assessments for waters of the Florida Keys were updated during the Statewide 2020 to 2022 Biennial Assessment and are included in the South District Basins. All the WBIDs remain in assessment category 4b indicating there is a reasonable assurance plan (RAP) in place to address nutrient (i.e., the "Other Information" category on the Verified List) impairments. Additionally, WBIDs 6011A (Vaca Key), 6011C (Grassy Key), and 6016 (Duck Key) are impaired for DOSAT. These WBIDs are being placed in category 4e (ongoing restoration activities) based on the activities documented in this plan to address the dissolved oxygen impairments.

Although most of the restoration projects in the initial plan have been implemented, continued monitoring is needed to assess the results of these restoration activities. In 2019 and 2020, DEP and Monroe County worked together to establish a two-year monitoring program that focused on the water quality in the near shore waters. The results of this monitoring are reported here.

The water quality improvements were estimated using a tidal flushing model and based on areas called Quads. A geodatabase was developed for the FKRAD to simulate the tidal flow and pollutant concentrations due to stormwater and wastewater discharges driven by tidal exchange. This model was described in Appendix D of the *2008 Florida Keys RAD*. In this model, called the WBID Tidal Flushing Model (WTFM), the nearshore WBID boundaries were adopted as the internal model boundary. In general, these boundary lines were approximately 100 meters offshore from the shoreline. The water area/volume between the shoreline and the WBID boundary make up the initial model cell (Cell 0), which is the receiving cell for land-based discharges of stormwater and wastewater.

Model cells were developed by offsets of the nearshore WBID lines. The first model cell was defined using a 100-meter offset, which each subsequent cell defined by increasing the offset an additional 100 meters. A total of fifteen (15) offsets were made, creating sixteen (16) model cells, including Cell 0. Each model cell was identified by its offset number, from 0 to 15.

The resulting model cell coverage was then divided into 10 models (1 through 10) from Key West to Ocean Reef Club, with each model further divided into a north and south zone using Highway U.S.-1 as the division between them. Model zones referred to as Quads were identified by both their model number and their north/south zone (i.e., 10N). Each Quad is independent of the others and no cross-zone influences are considered in the WTFM algorithms**. Figure ES-1** shows the resulting model boundaries and Quads.

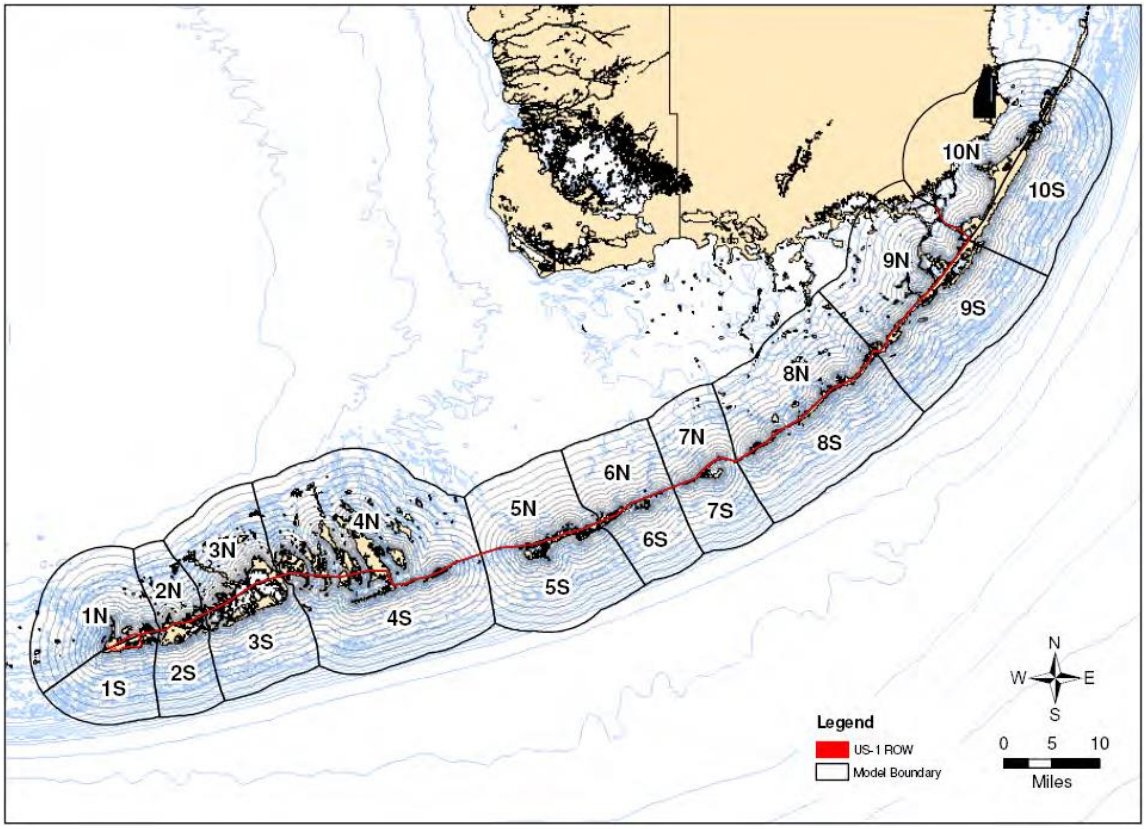

Figure ES-1. Tidal flushing model boundaries and Quads

The Halo Zone is defined as the waters from the coastline of each Florida Key to 500 meters into the nearshore waters. Water quality in the Halo Zone is targeted because these waters are incrementally affected by a combination of nutrient discharges from natural areas and anthropogenic discharges from developed lands and their associated wastewater and stormwater loads. Water quality in waters beyond the Halo Zone are more likely to be dominated by sources located outside the Florida Keys.

The water quality targets for the FKRAD were established with the expectation that each Quad would meet the TN and TP targets at the edge of the Halo Zone based on measured water quality data. For TN, most Quads are meeting their TN concentration targets (**Figure ES-1**) as measured in micrograms per liter (µg/L). However, based on the average concentrations in 2019 and 2020, four Quads are not meeting the TN target: Quads 2N, 3N, 3S, and 7S. Additionally, Quad 10N did not meet its TN target in 2020. Additional nutrient sampling was scheduled for 2022 for the Quads not meeting their TN target in a collaborative effort within DEP, including the Lignumvitae Key Aquatic Preserve Office.

Table ES- 1. TN concentrations and targets by Quad

**Cells highlighted in orange with bold font indicate average concentrations higher than the target.*

Reference Community	Quad	TN Target (µg/L)	2019 TN Average (µg/L)	2020 TN Average (µg/L)	2019 and 2020 TN Average (µg/L)
Key West	**1N**	178	78	123	100
	1S	140	53	77	65
Boca Chica	**2N**	205	**247**	**244**	**246**
	2S	135	54	62	58
Saddlebunch	**3N**	215	**246**	210	**228**
	3S	138	113	**165**	**139**
Big Pine	**4N**	221	166	164	165
	4S	141	77	120	98
Marathon	**5N**	225	69	118	94
	5S	135	63	75	69
Marathon	**6N**	248	133	91	112
	6S	135	68	84	76
Layton	**7N**	399	188	121	151
	7S	125	**127**	**135**	**132**
Islamorada	**8N**	764	208	207	207
	8S	124	61	73	68
Key Largo	**9N**	739	529	554	545
	9S	123	35	45	41
Ocean Reef	**10N**	334	299	**343**	325
	10S	128	42	65	53

For TP, based on the data in 2019 and 2020, all Quads were meeting the TP concentration targets in the halo zone (**Table ES- 2**).

Table ES- 2. TP concentrations and targets by Quad

Reference Community	Quad	TP Target (µg/L)	2019 TP Average (µg/L)	2020 TP Average (µg/L)	2019 and 2020 TP Average (µg/L)
Key West	**1N**	11	5	8	6
	1S	8	3	4	4
Boca Chica	**2N**	12	4	6	5
	2S	8	3	4	3
Saddlebunch	**3N**	12	5	6	6
	3S	8	3	5	4
Big Pine	**4N**	12	4	6	5
	4S	7	3	4	3
Marathon	**5N**	10	5	5	5
	5S	8	3	4	4
	6N	10	4	6	5

Reference Community	Quad	TP Target (µg/L)	2019 TP Average (µg/L)	2020 TP Average (µg/L)	2019 and 2020 TP Average (µg/L)
Marathon	**6S**	7	3	4	3
Layton	**7N**	13	5	7	6
	7S	7	3	4	3
Islamorada	**8N**	11	5	6	6
	8S	8	4	4	4
Key Largo	**9N**	10	4	5	4
	9S	7	3	4	4
Ocean Reef	**10N**	8	3	4	4
	10S	8	3	4	4

For most of the areas that are not meeting the TN targets there are projects planned or underway. In Quads 3N and 3S, there is one project underway. In Quads 7N and 7S, there is one planned project. For Quad 10N, there is one project underway. However, there are no planned or underway projects identified for Quad 2N.

For the three WBIDs (6011A, 6011C, and 6016) with DOSAT impairments, there are projects in two of the three WBID areas to help address these impairments. However, there are currently no anticipated projects in WBID 6016 (Quad 6N and 6S) to address the DOSAT impairment in the Duck Key area. In the project list, there are seven projects whose region was not identified. While it is possible that some of those projects will benefit WBID 6016, until the regions are specified by the lead entity, it is unknown what areas those seven projects will benefit.

Project implementation will continue and after all the projects are fully implemented, the attainment of the TP and TN targets will be reassessed in Quads 2N, 3N, 3S, and 7S. The reassessment data will be used to determine whether additional projects are needed to attain the TN and TP targets. This reassessment and determination will include the Boca Chica area (Quads 2N and 2S).

In addition to the existing ambient monitoring network, The DEP Lignumvitae Key Aquatic Preserve is conducting a one-year monitoring effort to collect additional data on the Quads that are not currently attaining water quality standards. The continuation of these additional stations will be reevaluated during the next DEP biennial assessment.

The Florida Keys Water Quality Protection Program Steering Committee is led by the National Oceanic and Atmospheric Administration (NOAA)/Florida Keys National Marine Sanctuary, the U.S. Environmental Protection Agency, and the DEP. The purpose of this steering committee is to set guidance and policy for the development and implementation of the Florida Keys National Marine Sanctuary Water Quality Protection Program.

It is expected that another RAD update will be completed after the next biennial assessment, which is scheduled for completion in 2024. The next RAD update should be prepared by stakeholders and submitted to DEP for review. DEP intends to coordinate with stakeholders on the planning and preparation of the 2024 update.

Section 1: Background

1.1 Purpose of the Update

The Impaired Waters Rule (IWR), Chapter 62-303, Florida Administrative Code (F.A.C.), establishes a scientific methodology for identifying surface waters in Florida that are impaired for pollutants. The department's watershed management approach has historically been following an established five-year cycle that rotates through 29 basins throughout the state over a five-year period (where all WBIDs were assessed once every five years). This process was changed in 2022. Under the new process, all basins in Florida will be assessed every two years rather than over the previous five-year basin cycle approach. Assessments will continue to use the same data assessment period and be evaluated with the applicable water quality criteria. The department will complete the assessment analysis using all available water quality data throughout Florida and will publish an updated statewide impaired water list every two years. The surface waterbodies that are included in the FKRAD are in the Southeast District basins; the most recent assessment, which represented the first biennial assessment, was completed in the spring of 2022. This FKRAD update demonstrates reasonable assurance to the U.S EPA that pollution control mechanisms will result in the attainment of water quality standards in the future, thereby eliminating the need to establish a total maximum daily load (TMDL) for the FKRAD waterbodies.

The purpose of this update is to document actions taken by stakeholders since 2018 (date of the last update) to return the near shore water quality to the nutrient target concentrations. This update also addresses the DOSAT impairment identified by the DEP in some of the water segments; includes plans to add additional monitoring so that conditions can be tracked; and identifies the schedule to meet the remaining water quality targets and restoration goals that are not being met.

1.2 Reasonable Assurance Planning Process

The IWR authorizes two types of restoration plans that avoid immediate placement of a waterbody on the Verified List (list of waters that are confirmed to be impaired because of a pollutant and require the establishment of a TMDL: 1) Assessment category 4b plans also known as "reasonable assurance plans"; and 2) Assessment category 4e plans, also known as "pollutant reduction plans." The difference between a 4b plan and a 4e plan correlates to the level of certainty that water quality standards will be met in the future. For 4b plans, there is reasonable assurance that pollution control mechanisms will result in the attainment of applicable water quality standards in the future and reasonable progress towards the attainment of those standards will be made by the time the next 303(d) list is scheduled to be submitted to EPA. The 303(d) list is a federally required list that includes the state's Verified List and Study List, which are reported to EPA to meet the federal Clean Water Act requirements. As such, the establishment of a TMDL is unnecessary. For 4e plans, the waterbody is still included on the 303(d) list, but

placement on the state's Verified List is postponed, to allow for the implementation of outlined restoration activities to occur. Subsequently, additional evaluation of the 4e plan will be conducted to determine progress towards restoration.

The original FKRAD was developed by DEP as a 4b plan in cooperation with local governments, state agencies, and federal agencies within the Florida Keys to set forth and accelerate the actions that had been taken or were planned to be taken to specifically reduce nutrient loadings to near shore waters so that water quality standards are met, and beneficial uses are restored. The original FKRAD was not developed to address DOSAT impairments. The original plan was approved by DEP in 2008 and provided to EPA in February 2009. The FKRAD was divided into several documents and can be found on the DEP website. This update addresses the attainment of the TN and TP targets as a 4b plan and the DOSAT impairments assessed in category 4e based on activities outlined in this plan.

1.3 Geographic Boundaries of the FKRAD

The Florida Keys is a chain of 822 islands (30 of which are inhabited) approximately 110 miles long, extending from the end of the Florida peninsula, curving southwest toward the Dry Tortugas. All the waters adjacent to the islands are designated as Outstanding Florida Waters (OFWs) and are included within the Florida Keys National Marine Sanctuary (FKNMS). The Florida Keys is also a designated an Area of Critical State Concern (ACSC).

The FKRAD is comprised of 23 estuarine waterbody assessment units identified by a series of numbers and letters (WBIDs) within the Halo Zone waters. The Halo Zone is defined as the waters from the coastline of each Florida Key to 500 meters into the nearshore waters. Water quality in the Halo Zone is targeted because these waters are incrementally affected by a combination of nutrient discharges from natural areas and anthropogenic discharges from developed lands and their associated wastewater and stormwater loads. Water quality in waters beyond the Halo Zone are more likely to be dominated by sources located outside the Florida Keys. **Table 1** identifies the 23 WBIDs by name, location, and stakeholder. Each WBID is currently placed in category 4b for nutrients (i.e., "Other Information" category on the Verified List); the three WBIDs shaded in gray are also impaired for DOSAT per the 2021 assessment of the Southeast District basins, and are currently placed in category 4e. Of the 23 listed, 11 WBIDs are not impaired for DOSAT. In these 11 WBIDs, the DO concentrations were adequate meet the DO criterion based on the number of exceedances for the sample size. **Figure 1** identifies the boundaries associated with each WBID.

Table 1. WBIDs with impairments in the Florida Keys

Note: Gray shading and bold text denotes WBIDs impaired for DOSAT, in addition to nutrient impairment.

WBID	Waterbody Name	Location	Stakeholders in WBID	Quad/Modeled Area
6006A	South Key Largo	Northern Keys	Key Largo Wastewater Treatment District (KLWTD)	10N, 10S

WBID	Waterbody Name	Location	Stakeholders in WBID	Quad/Modeled Area
			Florida Department of Transportation (FDOT)	
6006B	Middle Key Largo	Northern Keys	KLWTD Monroe County FDOT	10N, 10S
6006C	Upper Key Largo	Northern Keys	Monroe County FDOT	5N, 5S
6009	Plantation Keys	Northern Keys	Village of Islamorada FDOT	8N, 8S
6010	Long Key	Central Keys	City of Layton Monroe County FDOT	7N, 7S
6011A	**Vaca Key**	**Central Keys**	**City of Marathon FDOT**	**5N, 5S**
6011B	Key Colony	Central Keys	City of Key Colony Beach FDOT	5S
6011C	**Grassy Key**	**Central Keys**	**City of Marathon FDOT**	**6N, 6S**
6012A	Big Pine Key	South Central Keys	Monroe County FDOT	4N, 4S
6012C	No Name Key	South Central Keys	Monroe County FDOT	4N, 4S
6012D	Long Beach	South Central Keys	Monroe County FDOT	4S
6012E	Big Torch Key	Central Keys	Monroe County FDOT	4N
6013A	Saddlebunch Keys	South Central Keys	Monroe County FDOT	3N, 3S
6013B	Sugarloaf	South Central Keys	Monroe County FDOT	3N
6013C	Cudjoe Key	South Central Keys	Monroe County FDOT	4N, 4S
6013D	Little Knockemdown Key	South Central Keys	Monroe County FDOT	4N
6014A	Key West	Southern Keys	City of Key West U.S. Navy FDOT	1N, 1S
6014B	Stock Island	Southern Keys	Monroe County FDOT	1N, 1S
6014C	U.S. Naval Air Station Key West	South Central Keys	U.S. Navy Monroe County FDOT	2N, 2S
6016	**Duck Key**	**Central Keys**	**DEP Florida Park Service Monroe County FDOT**	**6N, 6S**
6017	Upper Matecumbe Key	Northern Keys	DEP Florida Park Service Village of Islamorada FDOT	8N, 8S

WBID	Waterbody Name	Location	Stakeholders in WBID	Quad/Modeled Area
6018	Bahia Honda State Park	South Central Keys	DEP Florida Park Service Monroe County FDOT	4N, 4S
6019	Lower Matecumbe Key	Northern Keys	Village of Islamorada FDOT	8N, 8S

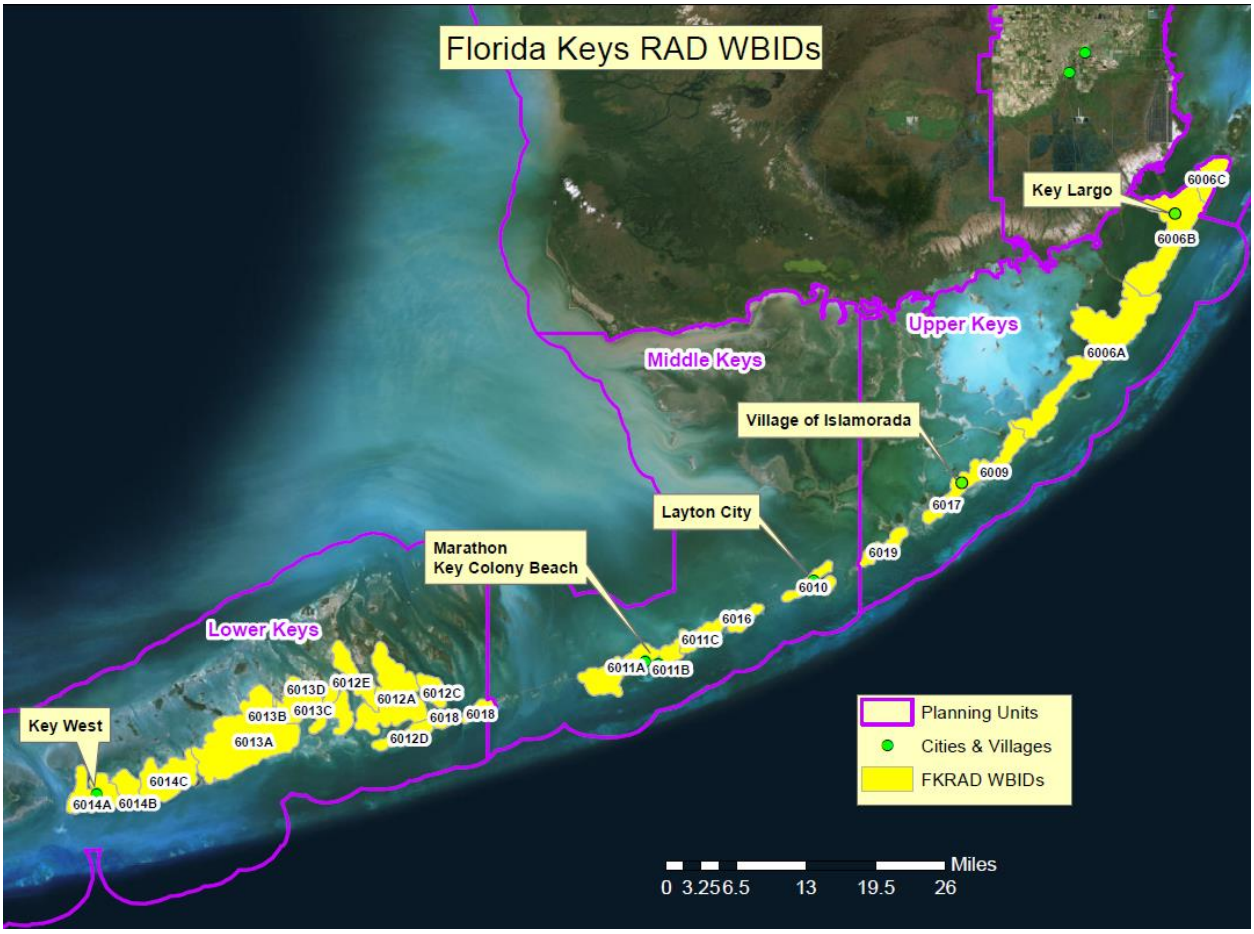

Figure 1. FKRAD WBIDs in the Florida Keys

The water quality conditions were estimated using a tidal flushing model and based on areas called Quads (**Figure 2**). A geodatabase was developed for the RAD to simulate the tidal flow and pollutant concentrations due to stormwater and wastewater discharges driven by tidal exchange. This model was described in Appendix D of the *2008 Florida Keys RAD*. In this model, called the WBID Tidal Flushing Model (WTFM), the nearshore WBID boundaries were adopted as the internal model boundary. In general, these boundary lines were approximately 100 meters offshore from the shoreline. The water area/volume between the shoreline and the WBID boundary make up the initial model cell (Cell 0), which is the receiving cell for land-based discharges of stormwater and wastewater.

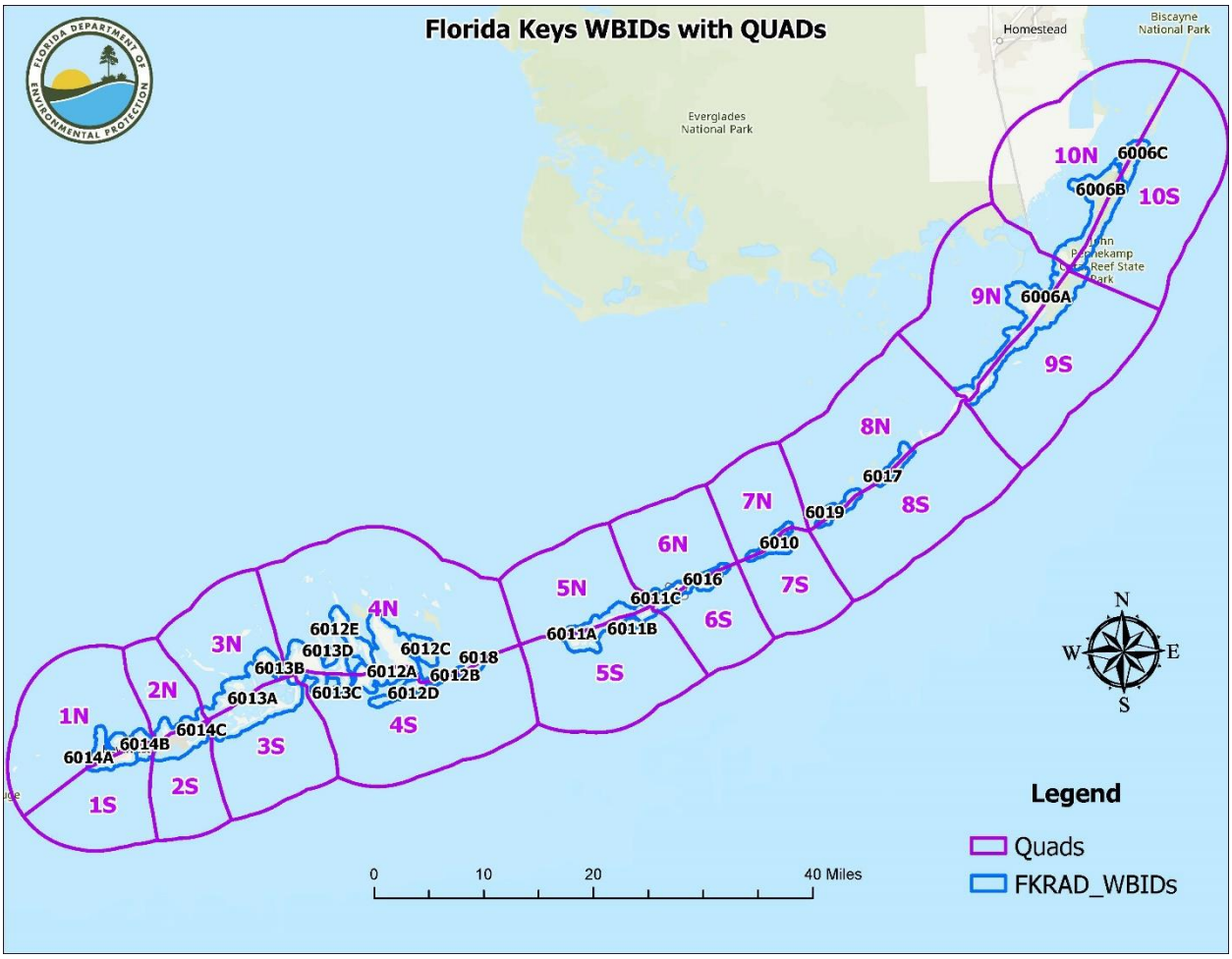

Figure 2. Florida Keys WBIDs with Quads

Model cells were developed by offsets of the nearshore WBID lines. The first model cell was defined using a 100-meter offset, which each subsequent cell defined by increasing the offset an additional 100 meters. A total of fifteen (15) offsets were made, creating sixteen (16) model cells, including Cell 0. Each model cell was identified by its offset number, from 0 to 15.

Table 2 lists the model cells, cell widths, and distance from the original WBID line to their outer boundary.

Table 2. WTFM cell widths and outer distance

Model Cell Number	Cell Width (Meters)	Outer Distance from WBID (Meters)
0	100	0
1	100	100
2	200	300
3	300	600
4	400	1,000
5	500	1,500
6	600	2,100
7	700	2,800
8	800	3,600
9	900	4,500
10	1,000	5,500
11	1,100	6,600
12	1,200	7,800
13	1,300	9,100
14	1,400	10,500
15	1,500	12,000

The resulting model cell coverage was then divided into 10 models (1 through 10) from Key West to Ocean Reef Club, with each model further divided into a north and south zone using Highway US-1 as the division between them. Model zones referred to as Quads were identified by both their model number and their north/south zone (i.e., 10N). Each Quad is independent of the others and no cross-zone influences are considered in the WTFM algorithms**. Figure 3** shows the resulting model boundaries and Quads.

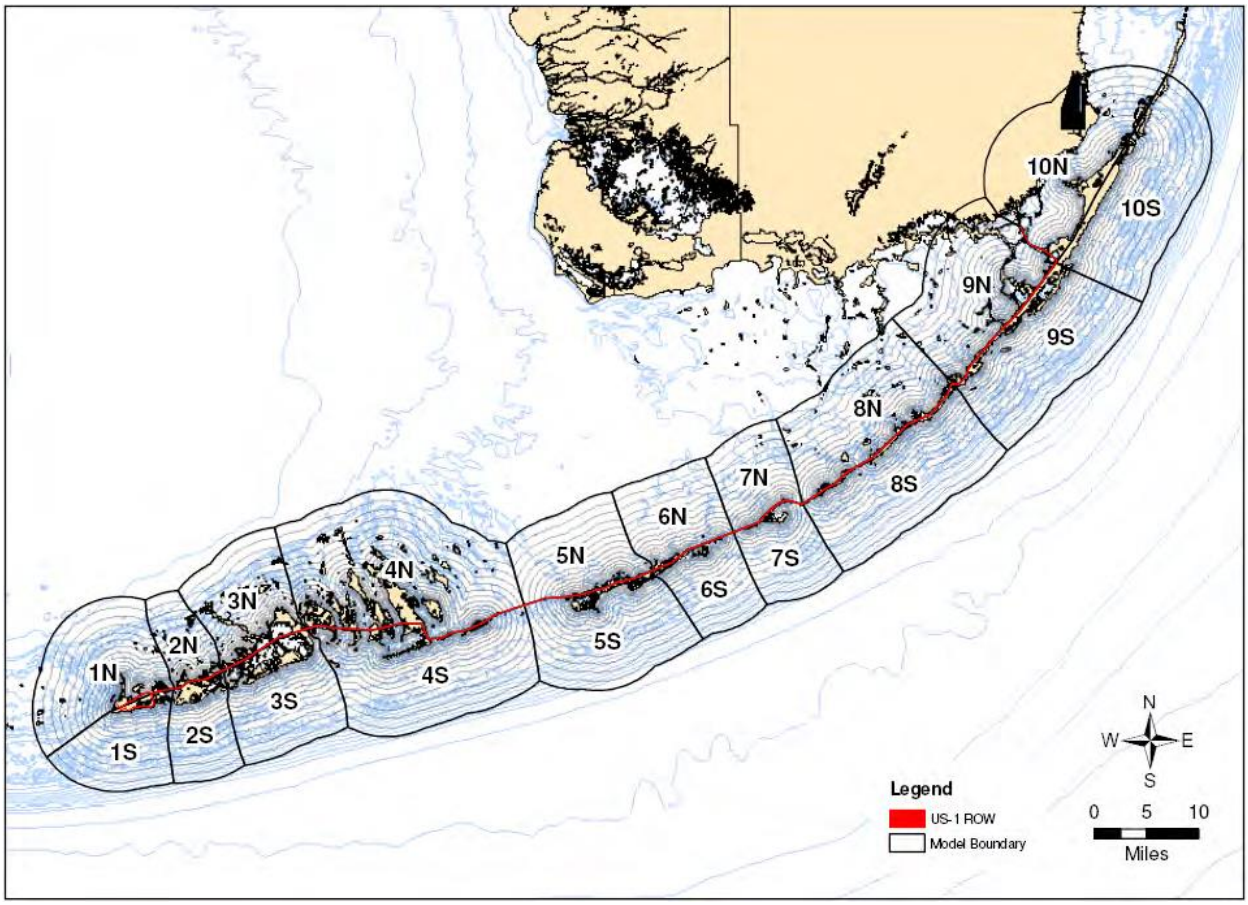

Figure 3. Tidal flushing model area and Quads

1.4 Stakeholder Involvement

A stakeholder-involved process was implemented during preparation of the original FKRAD. The stakeholder process provided an opportunity for local, regional, state, and federal agencies, as well as third parties, to understand the reasonable assurance process; provide data and research input in the development of the FKRAD; and, confirm that the FKRAD reasonably expressed the commitments of stakeholders. A technical working group was established to obtain information on existing and pending stakeholder programs to document regional water quality management actions that would provide reasonable assurance that programs would meet identified goals for restoring impaired waterbodies.

The following entities executed stakeholder agreements to manage local anthropogenic nutrient contributions, and to control loadings generated by local wastewater and stormwater discharges to the extent practicable:

- City of Key Colony Beach.
- City of Key West.
- City of Layton.
- City of Marathon.
- KLWTD.
- Monroe County.
- Village of Islamorada.

The following entities provided letters of commitment to implement pollutant controls within their jurisdictions:

- DEP Florida Park Service.
- Florida Department of Transportation (FDOT).
- U.S. Navy.

Table Ack-1 on page 2 identifies the entities that provided contributions to this update.

Section 2: Impaired Waterbodies

2.1 Description of the Impaired Waterbodies and Pollutants of Concern

The Florida Keys are a linear collection of small watersheds which are hydrologically connected at the local level by near shore waters. Nuances within the Florida Keys are the following:

- Water quality in the near shore waters is affected by far field sources that are a combination of naturally occurring nutrient loads and anthropogenic sources located outside of the Florida Keys.
- Far field sources are not within the control of the Florida Keys stakeholders.
- Water quality in the Halo Zone is incrementally affected by a combination of natural stormwater discharges originating on undeveloped areas and anthropogenic discharges from developed land with loads attributable to wastewater and stormwater management practices from developed properties.

For the purposes of the FKRAD, the focus is on the near shore waters at the Halo Zone (within 500 meters of shore), not including the canals[1]. These WBIDs are Class III waters (used for recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife) and Outstanding Florida Waters (OFWs). **Table 1** identifies the 23-impaired estuarine WBIDs in order of location. The WBIDs are categorized geographically, as defined below:

- Northern Keys – A series of islands approximately 32 miles long by 2 miles wide.
- Central Keys – A series of islands approximately 22 miles long by 2 miles wide.
- South Central Keys – A series of islands approximately 23 miles long by about 6 miles at the widest point.
- Southern Keys – A series of islands approximately 6 miles long by 2 miles wide.

All 23 WBIDs are listed in assessment category 4b for nutrients (i.e., "Other Information" category on the Verified List) (the adopted reasonable assurance plan addresses TN and TP target concentrations). Three WBIDs are also impaired for DOSAT (WBID 6011A – Vaca Key, WBID 6011C – Grassy Key, and WBID 6016 – Duck Key); DEP has placed these WBIDs in assessment category 4e (ongoing restoration activities) because there are ongoing restoration

[1] *December 2008. Northern Keys Area Reasonable Assurance Documentation. Page 3-4. Tallahassee, FL. Florida Department of Environmental Protection.*

activities that will address the role nutrients play in the DOSAT impairments and there are insufficient nutrient data available to determine a causative pollutant. The 2013 Monroe County Canal Management Master Plan (CMMP) indicated that there are more than 500 canals within the WBIDs of which potentially more than 300 had fair or poor dissolved oxygen (DO) conditions. However, with a revision to the DEP DO criteria in 2013 and a re-evaluation of the canals, there are now only 149 canals identified with a fair or poor DO condition.

Section 3: Water Quality and Aquatic Ecologic Goals

3.1 Water Quality Assessment Status

The waters of the Florida Keys were assessed and updated during 2021 as part of the Statewide 2020 to 2022 Biennial Assessment and are included in the South District Basins. All the WBIDs remain in assessment category 4b indicating there is a RAP in place to address nutrient (i.e., "Other Information" category on the Verified List) impairments. Additionally, WBIDs 6011A (Vaca Key), 6011C (Grassy Key), and 6016 (Duck Key) are impaired for DOSAT. These WBIDs were placed in category 4e (ongoing restoration activities) based on the activities documented in this plan to address DOSAT issues.

Although most of the restoration projects in the initial plan have been implemented, continued monitoring is needed to assess the results of these restoration activities. In 2019 and 2020, DEP and Monroe County worked together to establish a two-year monitoring program that focused on the water quality in the near shore waters and the results are reported here.

The water quality targets for the FKRAD were established with the expectation that each Quad would meet the TN and TP targets at the edge of the Halo Zone based on measured water quality data. For TN, most of the Quads are meeting their TN concentration targets. However, based on the average concentrations in 2019 and 2020, four Quads are not meeting their TN targets: Quads 2N, 3N, 3S, and 7S (**Table 3**). Additionally, Quad 10N did not meet its TN target in 2020. Additional nutrient sampling was scheduled in 2022 for the Quads not attaining their TN targets. This sampling is being implemented through a collaborative effort within DEP, including the Lignumvitae Key Aquatic Preserve office, to track continued progress towards attainment of the TN targets as additional water quality improvement projects are completed.

Table 3. TN concentrations and targets by Quad

**Cells highlighted in orange with bold font indicate average concentrations higher than the target.*

Reference Community	Quad	TN Target (µg/L)	2019 TN Average (µg/L)	2020 TN Average (µg/L)	2019 and 2020 TN Average (µg/L)
Key West	**1N**	178	78	123	100
	1S	140	53	77	65
Boca Chica	**2N**	205	**247**	**244**	**246**
	2S	135	54	62	58
Saddlebunch	**3N**	215	**246**	210	**228**
	3S	138	113	**165**	**139**
Big Pine	**4N**	221	166	164	165
	4S	141	77	120	98
Marathon	**5N**	225	69	118	94
	5S	135	63	75	69
Marathon	**6N**	248	133	91	112
	6S	135	68	84	76

Reference Community	Quad	TN Target (µg/L)	2019 TN Average (µg/L)	2020 TN Average (µg/L)	2019 and 2020 TN Average (µg/L)
Layton	**7N**	399	188	121	151
	7S	125	**127**	**135**	**132**
Islamorada	**8N**	764	208	207	207
	8S	124	61	73	68
Key Largo	**9N**	739	529	554	545
	9S	123	35	45	41
Ocean Reef	**10N**	334	299	**343**	325
	10S	128	42	65	53

For TP, based on the data in 2019 and 2020, all the quads were meeting the TP concentration target, also listed in µg/L, in the halo zone (**Table 4**).

Table 4. TP concentrations and targets by Quad

Reference Community	Quad	TP Target (µg/L)	2019 TP Average (µg/L)	2020 TP Average (µg/L)	2019 and 2020 TP Average (µg/L)
Key West	**1N**	11	5	8	6
	1S	8	3	4	4
Boca Chica	**2N**	12	4	6	5
	2S	8	3	4	3
Saddlebunch	**3N**	12	5	6	6
	3S	8	3	5	4
Big Pine	**4N**	12	4	6	5
	4S	7	3	4	3
Marathon	**5N**	10	5	5	5
	5S	8	3	4	4
Marathon	**6N**	10	4	6	5
	6S	7	3	4	3
Layton	**7N**	13	5	7	6
	7S	7	3	4	3
Islamorada	**8N**	11	5	6	6
	8S	8	4	4	4
Key Largo	**9N**	10	4	5	4
	9S	7	3	4	4
Ocean Reef	**10N**	8	3	4	4
	10S	8	3	4	4

3.2 Restoration of the Designated Uses of the Impaired Waters

Nutrient Impairments

The nutrient concentrations of the Halo Zone WBIDs and near shore waters are influenced by far field anthropogenic and natural nutrient loading, outside of the influence of the Florida Keys stakeholders. The FKRAD participants have and will continue to significantly reduce the additive anthropogenic nutrients due to local wastewater and stormwater loads.

While the influences of the islands of the Florida Keys will be minimized by these activities, continuing work on the Everglades, Peace River, Caloosahatchee River, Mississippi River, and other outside controlling factors is needed to return the water quality in the Florida Keys to historic conditions.

Dissolved Oxygen Impairments

DEP has not identified a causative pollutant for the DOSAT impairments, identified previously in section 3.1. These WBIDs (6011A, 6011C and 6016) include internal residential canals and currently have insufficient nutrient data available to determine a causative pollutant. However, DEP acknowledges that the following items should be addressed in the canals to achieve Class III marine surface water DOSAT standards: poor circulation, seagrass wrack, organic sediments, and water depth issues. The ongoing management actions and restoration activities described in **Section 4** and **Appendix A,** particularly the specific canal restoration projects, are anticipated to improve water quality conditions in the canals. Therefore, DEP has placed the DOSAT impairments in assessment category 4e (ongoing restoration activities), which postpones TMDL development.

3.3 Schedule to Meet Targets and Restoration Goals

The original FKRAD established a goal of achieving water quality targets by 2020 with the completion of all committed wastewater and stormwater management activities by 2015. The sections below provide a summary of the progress that has been made through this reporting period. See **Appendix A** for a detailed list of projects, the lead entities, and the project status.

Status of Onsite Sewage Treatment and Disposal Systems (OSTDS)

A catalyst for the original FKRAD was the legislative mandate for the conversion of onsite sewage treatment and disposal systems (OSTDS) to central sewer systems by December 31, 2015. The conversion timeline was legislatively extended to 2020 for those OSTDS installed after July 1, 2010. As of September 2022, Monroe County reported the Florida Department of Economic Opportunity that 94% of the parcels with OSTDS have been connected, as described in **Table 5** below. Of the 23,372 parcels with OSTDS, over 22,000 have been connected to sewer with 1,328 OSTDS remaining, most of which are in the Cudjoe Regional and Big Coppitt WWTFs service areas. The parcels that have not been connected have been cited by Monroe County code compliance and the county is moving forward with enforcement measures.

Table 5. OSTDS Parcels Connected to Central Sewer as of September 2022

Wastewater Facility Service Area	Number of OSTDS Parcels	OSTDS Parcels Connected to Sewer	OSTDS Parcels Remaining	Percent Connected
Key Largo WWTF	10,642	10,633	9	99.9%
Hawk's Cay, Duck Key, and Conch Key WWTF	1,495	1,468	27	98%
South Lower Keys WWTF/Big Coppitt Regional System	1,749	1,603	146	92%
Cudjoe Regional WWTF	9,488	8,342	1,146	88%
Totals	**23,374**	**22,046**	**1,328**	**94%**

Status of Central Wastewater Treatment

DEP indicated that as of July 2020, of the 29 remaining permitted wastewater facilities in the Florida Keys, 4 package plants were under compliance or enforcement mandates to complete their connection to central sewer due to not achieving best available technology (BAT) treatment levels. As of August 2022, those 4 facilities have been abandoned and the following updates made: the facilities of Big Pine Hotel and Lazy Lakes were connected to the Cudjoe Key facility; the Casa Cavo facility was connected to the City of Marathon Area 3; and the Manatee Bay Club wastewater is currently being hauled to a facility in Miami, with a connection to the Cross Key facility expected by the end of 2022. All the other permitted wastewater facilities were meeting advanced wastewater treatment (AWT) or are using the BAT. In **Table 6** below, the status of the domestic wastewater facilities is summarized, including the 4 facilities that were connecting to other facilities to come into compliance.

Table 6. Status of domestic wastewater facilities meeting best available technology

Permit Number	Facility Name	Operations	Connection Area	Meeting BAT? (Yes/No)	DEP Compliance Actions, If Applicable	Treatment (Total Suspended Solids: Carbonaceous Biochemical Oxygen Demand: TN:TP)
FLA014982	Big Pine Motel	U.S. Water Corp.	Cudjoe Regional	No	Permit issued to plug and abandon underground injection control wells issued 05/19/2020. Facility connected to central sewer (cleared 04/29/2021) and abandoned (confirmed on close-out inspection 05/04/2021; Underground Injection Control (UIC) certifications received 05/05/2021). Connected to Cudjoe Regional.	Not designed to meet minimum BAT (10:10:10:1) per 403.086(10), FS
FLA014725	Lazy Lakes	Conch Wastewater	Cudjoe Regional	No	Permit issued to plug and abandon underground injection control wells issued 06/22/2020. Facility connected to central sewer (cleared 04/14/2021) and abandoned (UIC certifications received 08/11/2021); final inspection 08/03/2021 and case closed 08/17/2021. Connected to Cudjoe Regional.	Not designed to meet minimum BAT (10:10:10:1) per 403.086(10), FS
FLA014885	Manatee Bay Club	N/A	Cross Key	No	Application for permit to plug and abandon underground injection control wells received 07/14/2020. Facility abandoned (confirmed on 09/01/2020 close-out inspection; UIC certification received 08/24/2020). Collection system permit (135333-002-DWC/CM) issued 10/15/2021 for connection to FKAA Cross Key WWTP. Wastewater is being hauled to and treated by the South District Wastewater Treatment Plant, Miami-Dade Water and Sewer Department. The final connection to Cross Creek is expected by the end of 2022.	Not designed to meet minimum BAT (10:10:10:1) per 403.086(10), FS

Permit Number	Facility Name	Operations	Connection Area	Meeting BAT? (Yes/No)	DEP Compliance Actions, If Applicable	Treatment (Total Suspended Solids: Carbonaceous Biochemical Oxygen Demand: TN:TP)
FLA014744	Casa Cayo	U.S. Water Corp.	City of Marathon Area 3	No	Permit# 0064134-010-UA to plug and abandon UIC wells issued 02/21/2020. Facility connected to central sewer (cleared 01/22/2021) and abandoned (UIC certification received 02/16/2021). Connected to City of Marathon Area 3.	Not designed to meet minimum BAT (10:10:10:1) per 403.086(10), FS
FLA015001	Anchorage Resort	U.S. Water Corp.	Not in a connection area	Yes	NA	BAT (10:10:10:1)
FLA015032	Bahia Honda State Park Spur #3	Conch WW	Regional Facility	Yes	NA	BAT (10:10:10:1)
FLA341274	Bay Point	FKAA	Regional Facility	Yes	NA	BAT (10:10:10:1)
FLA567591	Big Coppitt	FKAA	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA014989	Cheeca Lodge	H2O Proactive	Islamorada	Yes	NA	BAT (10:10:10:1)
FLA014720	City of Key Colony Beach	U.S. Water Corp.	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA419371	City of Layton	FKAA	Regional Facility	Yes	NA	BAT (10:10:10:1)
FLA642851	City of Marathon Area 3	COM	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA550973	City of Marathon Area 4	COM	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA187364	City of Marathon Area 5	COM	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA579033	City of Marathon Area 6	COM	Regional Facility	Yes	NA	AWT (5:5:3:1)

Permit Number	Facility Name	Operations	Connection Area	Meeting BAT? (Yes/No)	DEP Compliance Actions, If Applicable	Treatment (Total Suspended Solids: Carbonaceous Biochemical Oxygen Demand: TN:TP)
FLA705250	City of Marathon Area 7	COM	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLAB07106	Cross Key	FKAA	Regional Facility	Yes	NA	BAT (10:10:10:1)
FLA671932	Cudjoe Regional	FKAA	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA014772	Duck Key	FKAA	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA014995	Gilbert's Resort	Hand Utilities	Not in connection area	Yes	NA	BAT (10:10:10:1)
FLA014935	Fiesta Key KOA	U.S. Water Corp.	Not in connection area	Yes	NA	BAT (10:10:10:1)
FLA370967	Key Largo	KLWTD	Regional Facility	Yes	NA	AWT (5:5:3:1) to backup wells
FLA014951	Key West Resort Utility	KWRU	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA014845	Little Palm Island	U.S. Water Corp.	Regional Facility	Yes	NA	BAT (10:10:10:1)
FLA014932	Mangrove Marine (Marley's)	Hand Utilities	Not in connection area	Yes	NA	BAT (10:10:10:1)
FLA015009	North Key Largo Utility (Ocean Reef)	NKLU	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA014999	Outdoor Resorts at Long Key	H2O Proactive	Regional Facility	Yes	NA	BAT (10:10:10:1)
FLA147222	Richard A. Heyman (City of Key West)	Jacobs-CH2M	Regional Facility	Yes	NA	AWT (5:5:3:1)
FLA014875	Sunshine Key	U.S. Water	Not in connection area	Yes	NA	BAT (10:10:10:1)

Status of Evaluation of Residential Canals

Since the completion of the original FKRAD in 2008, the 2011 update, and the 2018 update, Monroe County has undertaken a comprehensive evaluation of the more than 500 residential canals in the Florida Keys that discharge directly to near shore OFWs. Most canals were designed as long, multi-segmented, dead-end canal networks which maximize waterfront property but result in little or no tidal flushing. Without adequate tidal flushing, the canals accumulate oxygen consuming sediments, nutrients, and organic matter.

The resulting 2013 Monroe County CMMP provided an updated water quality assessment of all residential canals within the Florida Keys. Of the more than 500 canals, 171 canals received the ranking of "Good," 180 canals received the ranking of "Fair," and 131 canals received the ranking of "Poor." However, with a revision to the DEP DO criteria in 2013 and a re-evaluation of the canals, there are now only 149 canals identified with a “Fair” or “Poor” DO condition. A timeline is not provided in the CMMP for the completion of all canal restoration projects; however, **Appendix A** reflects the completed, underway, and planned canal restoration projects known at the time of this update.

Status of Marine Vessel Sewage and Pumpouts

The U.S. EPA and FKNMS have established a no discharge zone for sewage from marine vessels in Monroe County and Monroe County has a proof of pumpout ordinance. As of December 1, 2021, free mobile pumpout service to vessels anchored throughout Monroe County in specific service areas was funded by DEP through June 2022. More than 30 additional shoreside pumpout facilities are located throughout the Florida Keys. All vessels anchored or moored for more than 10 consecutive days are required by Florida Statutes to have a marine sanitation device, and must provide proof of pumpout. Penalties for non-compliance are outlined in Section 26-104 of the Monroe County ordinance. The City of Key West provides sanitary pump-out service at Garrison Bight Marina and Key West Bight Marina and utilizes a boat to provide sanitary pump-out service to all vessels in the mooring field.

Status of Stormwater Treatment

From 2008 to 2015 for stormwater treatment, the City of Key West completed the construction and installation of 49 gravity injection wells with baffle boxes and 10 pollution control baffle boxes, exceeding the target of two stormwater disposal wells with baffle boxes per year. Additional stormwater projects have been completed or are ongoing by the City of Key Colony Beach, City of Marathon, FDOT District VI, and the Village of Islamorada for a total of 32 projects. See **Appendix A** for further details on stormwater best management practices.

Section 4: Proposed Management Actions

4.1 Responsible Participating Entities

The FKRAD is implemented by local governments, state agencies, and federal partners. Entities responsible for the completion of management activities are the following:

- City of Key Colony Beach.
- City of Key West.
- City of Layton.
- City of Marathon.
- DEP Florida Park Service.
- FDOT.
- KLWTD.
- Monroe County.
- U.S. Navy.
- Village of Islamorada.

4.2 Existing Management Activities

Management activities are classified into three different categories: wastewater management, stormwater management, and regulatory programs. The activities are summarized below in **Table 7.**

Table 7. Existing management activities

Wastewater Management Practices	Stormwater Management Practices	Regulatory Actions
• Eliminate cesspits. • Centralize wastewater services. • Upgrade privately-owned wastewater systems. • Install Class V deep injection wells for disposal of wastewater effluent (replace existing ocean outfall).	• Retrofit existing drainage systems with stormwater treatment prior to outfall to Halo Zone waters. • Retrofit existing drainage systems with stormwater treatment and stormwater	• Designation as an ACSC. • Implement local land development regulations. • Implement Section 403.086(10), F.S., sewage disposal facilities; advanced and secondary waste treatment in the Florida Keys.

Wastewater Management Practices	Stormwater Management Practices	Regulatory Actions
• Marine pump-out service for moored boats to reduce illicit discharges.	treatment wells (no direct outfall to Halo Zone). • Incorporate treatment components in new transportation projects.	

Additionally, Monroe County has conducted a pilot program in collaboration with DEP, FKNMS, neighboring local governments, and other programs to improve water quality in the canals at a cost of $7 million. Additional canal restorations have occurred after completion of the pilot projects. Possible options for treatment include vacuum dredging to remove organics; air curtains to reduce seaweed loading; injection well systems to facilitate flushing; improved culvert connections; and backfilling to reduce depths.

4.3 Completed and Proposed Management Activities and Projects

See **Appendix A** for activities and projects completed, underway, or planned by the responsible stakeholders since the 2018 update. At the time of the 2018 update, 100 projects (primarily septic to sewer conversions and some stormwater management projects) had been completed by stakeholders with 7 underway projects, and 4 planned projects, for a total of 111 projects. Based on the 2022 update project information in **Appendix A**, 21 additional projects have been completed, along with 2 ongoing projects, 5 underway projects, and 9 planned projects, for a total of 137 projects with benefits. There have been 8 canceled projects, for a total of 145 projects listed. See **Table 8** below for a summary of the projects conducted by entity and their status.

Table 8. Projects, by entity, and their status

Entity and Status	Project Count
City of Key Colony Beach	**2**
Completed	2
City of Key West	**14**
Completed	10
Ongoing	1
Planned	2
Underway	1
City of Layton	**3**
Completed	3
City of Marathon	**17**
Canceled	1

Entity and Status	Project Count
Completed	16
FDOT District VI	**17**
Completed	17
Florida International University	**1**
Ongoing	1
Florida Keys Aqueduct Authority (FKAA)	**5**
Completed	3
Underway	2
Florida State Parks System	**19**
Completed	18
Planned	1
Key Largo Wastewater Treatment District	**22**
Canceled	6
Completed	16
Key West Resort Utilities Corporation	**1**
Completed	1
Monroe County	**25**
Canceled	1
Completed	23
Planned	1
U.S. Navy	**1**
Completed	1
Village of Islamorada	**18**
Completed	11
Planned	5
Underway	2
Total	**145**

4.4 Estimated Pollutant Load Reduction from the Implementation of Actions

Quantification of the actual water quality benefits achieved in the receiving waters directly attributable to the reduction of the wastewater and anthropogenic stormwater nutrient loads, expressed in terms of water column and groundwater concentrations of nutrients, is technically difficult due to flushing characteristics of the surficial aquifers and the canal systems and the dynamic circulation patterns in the near shore waters. The model based on 1999 anthropogenic

sources, estimated the loads by region. Since then, the management actions detailed in **Appendix A** have been updated over time to estimate the TN and TP reductions that can be achieved through local efforts. The table in **Appendix A** describes projects completed, ongoing, planned, or underway totaling reductions of 608,100 lb-yr of TN and 112,843 lb-yr TP; **Table 9** below summarizes the total completed and anticipated reductions by region.

Table 9. Anticipated load reductions associated with management activities

Location	Nutrient	1999 Modeled Anthropogenic Load (lb-yr)	Anticipated Reductions (lb-yr)
Northern Keys	TN	360,488	414,817
	TP	90,178	65,208
Central Keys	TN	164,705	94,133
	TP	40,527	25,981
South Central Keys	TN	200,668	72,142
	TP	46,628	21,061
Southern Keys	TN	239,863	27,009
	TP	69,035	592

4.5 Future Growth and New Sources

The potential for growth of anthropogenic sources is generally believed to be limited due to the regulations of multiple federal, state, regional, and local programs and plans, combined with the lack of raw land and the overall cost of living in the Florida Keys.

New pollutant sources can be expected from the limited growth. Programs and management practices that are in place are expected to limit nutrient discharges to the Halo Zone waters from any new pollutant sources from the limited available growth.

4.6 Implementation Schedule

Stakeholders continue to pursue projects and project funding as well as measure water quality within the Halo zone to monitor the response to these efforts. There are several projects planned or underway that are scheduled to be completed by 2024 at which point, it is expected that all the WBIDs will attain their applicable water quality standards for TN, TP, and DOSAT.

4.7 Funding

Stakeholder projects have been funded to date through a variety of sources including the following:

- Bonds for Everglades restoration.
- Legislative appropriations.
- DEP State Revolving Loan Fund.
- South Florida Water Management District stormwater grants and cost-share programs.
- Local sales tax.
- U.S. Army Corps of Engineers.
- Federal Highway Administration.
- The Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE Act).

More than $13 million was appropriated in the 2017/2018 fiscal year General Appropriations Act (state budget) for Florida Keys ACSC and City of Key West ACSC projects.

In 2016, the Florida Legislature amended Section 215.619, F.S. (bonds for Everglades restoration), to specify that the Florida Keys ACSC and the City of Key West ACSC may seek bonds for projects that protect, restore, or enhance near shore water quality and fisheries, such as stormwater or canal restoration projects, and projects to protect water resources available to the Florida Keys, including wastewater management projects.

Also in 2016, the Florida Legislature added a provision to Section 259.105, F.S. (Florida Forever Act) that states for the 2016/2017 fiscal year, the sum of $5 million in non-recurring funds from the General Revenue Fund is appropriated to DEP to be distributed in accordance with the existing interlocal agreements for the purposes of constructing sewage collection, treatment and disposal systems; implementing stormwater collection and treatment systems; canal restoration and muck remediation projects; and, projects that protect and enhance water supply in the Florida Keys and City of Key West ACSCs. Further, beginning in the 2017/2018 fiscal year and continuing through the 2026/2027 fiscal year, at least $5 million shall be spent on land acquisition within the Florida Keys ACSC. The State of Florida has funded additional efforts in

the 2018 to 2022 period including the Florida Keys water quality projects, land acquisition, and support for the vessel pump-out program.

4.8 Enforcement Programs and Local Ordinances for Non-Voluntary Strategies

Enforcement of existing regulations and ordinances by state, regional, and local agencies will achieve the implementation of the wastewater and stormwater management actions.

4.9 Commitment to Plan Implementation

Successful implementation requires commitment and follow-up. The responsible stakeholders have expressed their intention to carry out the plan, monitor its effects, and continue to coordinate within and across jurisdictions to achieve nutrient reduction goals. Although the water quality targets were largely achieved by 2020, there are still some areas that are not meeting their TN targets. Stakeholders must continue to pursue additional management actions and funding opportunities to reduce nutrients locally, with particular emphasis on reducing TN in Quads 2N, 3N, 3S, 7S, and 10N, as well as improving DOSAT in WBIDs 6011A, 6011C, and 6016.

Section 5: Procedures for Monitoring and Reporting Results

5.1 Water Quality Monitoring Parameters, Frequency, and Network

Currently, the primary water quality monitoring network in the Florida Keys is the FKNMS Ambient Water Quality Network that is operated by the Florida International University Southeastern Environmental Research Center. This network contains approximately 100 sites, with only a few sites within the Halo Zone. The water quality status from this network is measured quarterly and annually reported to the Water Quality Protection Plan (WQPP).

In 2019 and 2020, DEP provided funding assistance for a FKRAD compliance monitoring network in the Halo Zone, with Monroe County. Monroe County agreed to be the lead entity responsible for the DEP grant and for reporting. The monitoring consisted of collecting samples at multiple stations in the 23 WBIDs (**Table 10**), with 4 samples collected at each station in a calendar year. This effort collected about 250 samples each year, over the 2-year period. Additionally, data collected at the FKRAD compliance monitoring stations were used to assess the attainment of the FKRAD targets (**Table 11**) by modeling Quads (**Figure 3)** for nutrient assessment.

Table 10. List of WBIDs and the number of recommended stations for FKRAD compliance monitoring

WBID	Waterbody Name	Location	Number of Stations
6006A	South Key Largo	Northern Keys	6
6006B	Middle Key Largo	Northern Keys	4
6006C	Upper Key Largo	Northern Keys	2
6009	Plantation Keys	Northern Keys	4
6017	Upper Matecumbe Key	Northern Keys	4
6019	Lower Matecumbe Key	Northern Keys	4
6010	Long Key	Central Keys	2
6011A	Vaca Key	Central Keys	4
6011B	Key Colony	Central Keys	4
6011C	Grassy Key	Central Keys	2
6012E	Big Torch Key	Central Keys	1
6016	Duck Key	Central Keys	2
6012A	Big Pine Key	South Central Keys	2
6012C	No Name Key	South Central Keys	1
6012D	Long Beach	South Central Keys	1
6013A	Saddlebunch Keys	South Central Keys	4
6013B	Sugarloaf	South Central Keys	1
6013C	Cudjoe Key	South Central Keys	4
6013D	Little Knockemdown Key	South Central Keys	1
6014C	U.S. Naval Air Station Key West	South Central Keys	2

WBID	Waterbody Name	Location	Number of Stations
6018	Bahia Honda State Park	South Central Keys	2
6014A	Key West	Southern Keys	4
6014B	Stock Island	Southern Keys	2

Table 11. Water quality parameters for FKRAD monitoring

Parameter	Sample Type	Description	Lab Method
NO_x	Water Grab	Nitrite+Nitrate in aqueous matrices as milligrams nitrogen per liter (mg-N/L)	EPA 353.2 Rev. 2.0
TP	Water Grab	TP in aqueous matrices as milligrams phosphorus per liter (mg-P/L)	EPA 365.1 Rev. 2.0
TKN	Water Grab	TKN in aqueous matrices	EPA 351.2 Rev. 2.0
Chlorophyll *a*	Water Grab	Phytoplankton chlorophyll *a* (corrected for phaeophytin) by spectrophotometry	SM 10200 H (mod.)
DO	Field Measurement	DO concentration in water measured by field meter	Discrete Measurement
Percent DOSAT	Field Measurement	Percent DOSAT in water measured by field meter	Discrete Measurement
pH	Field Measurement	pH level in water measured by field meter	Discrete Measurement
Specific Conductance	Field Measurement	Specific conductance of water measured by field meter	Discrete Measurement
Water Temperature	Field Measurement	Water temperature measured by field meter	Discrete Measurement

All water quality data was uploaded quarterly into the Florida Watershed Information Network (WIN) Database. Quarterly progress reports were submitted to DEP that included the following information:

- A tabulation of the water quality samples collected at each station during the quarter, including sampling dates and times for each site.
- Field quality assurance problems encountered during the quarter.
- Any corrective actions necessary as a result of problems encountered during the quarter.
- Copies of all field data sheets/forms and notes for samples and measurements collected during the quarter.

- Status information on uploading lab and field data to WIN.

In addition to the existing ambient monitoring network, The DEP Lignumvitae Key Aquatic Preserve is conducting a one-year monitoring effort to collect additional data on the Quads that are not currently attaining water quality standards. The continuation of these additional stations will be reevaluated during the next DEP biennial assessment. **Table 12** outlines the additional sites being sampled by the aquatic preserve.

Table 12. Special monitoring sites by DEP Lignumvitae Key Aquatic Preserve

Station ID (if applicable)	Station Name	WBID	Latitude	Longitude	Quad	Sample Frequency
21FLMONRLA57	South Cudjoe Key Ocean Side	6013A	24.63151	-81.50374	3S	Bi-monthly
21FLMONRLB45	West Cudjoe Key Bay Side	6013A	24.6785	-81.5711	3N	Bi-monthly
21FLMONRLB47	Shark Key Bay Side	6014C	24.60613	-81.65368	2N	Bi-monthly
21FLMONRMA31	Conch Key Ocean Side	6010	24.79801	-80.84784	7S	Bi-monthly
21FLMONRUB01	Ocean Reef Bay Side	6006C	25.33145	-80.28553	10N	Bi-monthly
21FLMONRUB02	North Key Largo Bay Side	6006B	25.29685	-80.32237	10N	Bi-monthly

5.2 Data Management and Assessment

Water quality data in Florida is entered by the entity collecting the data into WIN, which replaced the Florida Storage and Retrieval System (STORET) in 2017. DEP pulls water quality data directly from WIN for impaired waters evaluations and TMDL development. Data providers are required to upload their data regularly, so the information can be used as part of the water quality assessment process and for annual reporting. Data providers should upload their data to WIN, upon completion of the appropriate quality assurance/quality control (QA/QC) checks. All data collected in the last quarter of the calendar year should be uploaded no later than April 1st of the following year.

The water quality data were compared to the FKRAD water quality targets identified in **Table 3** and **Table 4**. A similar process will be used to evaluate future achievement of the targets.

5.3 QA/QC

Stakeholders participating in the monitoring plan must collect water quality data in a manner consistent with Chapter 62-160, F.A.C., and the DEP standard operating procedures (SOPs) for QA/QC required therein. The most current version of these procedures is available on the DEP website. For FKRAD-related data analyses, entities should use National Environmental Laboratory Accreditation Conference (NELAC) National Environmental Laboratory Accreditation Program (NELAP)–certified laboratories or other labs that have been audited by DEP and determined to meet the certification and other requirements outlined in the SOPs.

5.4 Methods for Evaluating Progress Towards Goals

Monitoring for success will include identification of physical connections to central wastewater systems (**Section 3.3**); number of eliminated OSTDS (**Section 3.3**); wastewater upgrades to reduce total nutrients in wastewater effluent discharged to shallow wells or ocean outfalls and to increase certain treatment levels, including those of eliminated OSTDS (**Section 3.3**); number of stormwater systems installed (**Section 3.3**); and, the status of the near shore nutrient concentrations in comparison to water quality targets and OFW background concentrations (**Section 3.1**).

Section 6: Proposed Corrective Actions

6.1 Corrective Actions for Non-Improvement of Impairment

Water quality in the near shore waters is affected by far field sources that are a combination of naturally occurring nutrient loads and anthropogenic sources located outside of the Florida Keys, which are outside the control of the responsible stakeholders. However, management actions are identified in **Table 3** for the stakeholders to implement and for which regulatory agencies have enforcement action should implementation fail to remedy the nutrient impairments. For example, FDOH can conduct enforcement actions against owners of non-complying OSTDS; DEP can conduct enforcement actions against public and privately-owned wastewater treatment facilities (WWTFs) that do not produce an effluent and/or dispose of its effluent in a manner compliant with state requirements.

6.2 Corrective Actions for Management Actions Not Completed on Schedule

The stakeholders will submit a report to DEP on the progress of the management actions and projects, the overall success of the plan, and the need for corrective actions, if any, including schedule modifications.

6.3 DEP Notification Process for Corrective Action Implementation

If a corrective action is deemed overly significant, such as the introduction of a new management action to address the failure of an existing management action, DEP will be notified formally through written correspondence of this significant change to the plan's implementation by the responsible stakeholder.

Appendices

Appendix A: Responsible Stakeholder Projects

Table A-1. Responsible stakeholder projects completed or ongoing since 2011, underway, or planned

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
City of Key Colony Beach	KCB-01	Phase IV Stormwater Treatment System	Construction of treatment BMPs and two 120-foot deep 24-inch diameter Class V stormwater injection wells serving five drainage basins and eliminating direct discharges to Halo Zone waters at three outfalls.	BMP Treatment Train	Completed	2010	9	1	6011B	$0	Not provided	Not provided - NULL
City of Key Colony Beach	KCB-02	Wastewater Treatment Plant (WWTP) Conversion	Conversion of existing membrane filter WWTP to full advanced wastewater treatment (AWT) operations.	WWTF Upgrade	Completed	2010	3,156	0	6011B	$5,900,000	Legislature/ City	Legislature - $1,000,000/ City - $4,900,000
City of Key West	KW-01	Baffle Boxes and Stormwater Disposal Wells	Construction of 17 baffle boxes and 17 stormwater disposal wells.	Baffle Boxes-Second Generation	Completed	2010	273	43	6014A	$4,624,000	FHWA	FHWA - $369,546
City of Key West	KW-02	Baffle Boxes and Stormwater Disposal Wells	Construction of 24 baffle boxes and 24 stormwater disposal wells.	Baffle Boxes-Second Generation	Completed	2010	258	41	6014A	$4,080,000	FHWA	FHWA - $1,242,451

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
City of Key West	KW-03	Marine Vessel Pumpout Collections	Incremental collections of marine pump-out program (above the 2007 levels). Pump out collections (294,220 ga;/yr avg) and boats serviced (4,485 avg), 2nd pump out boat added to service anchorages, mooring field, marinas.	Wastewater Service Area Expansion	Completed	2010	112	41	6014A	$93,040	Not provided	Not provided - NULL
City of Key West	KW-04	Stormwater Treatment Systems	Installation of 6 baffle boxes on existing roadway.	Baffle Boxes-Second Generation	Completed	2010	88	13	6014A	$215,500	USACE	USACE - $140,075
City of Key West	KW-05	Stormwater Treatment Systems	Installation of 4 baffle boxes on existing roadway.	Baffle Boxes-Second Generation	Completed	2010	56	8	6014A	$179,000	USACE	USACE - $116,350
City of Key West	KW-06	Marine Vessel Pumpout Collections	Marine vessel pump-out program: 10,231 pumpouts totaling 204,790 gallons. One serves the mooring field/off-shored vessels. Pump out station completed at Garrison Bight City Marina on Wahoo and Kingfish Piers. KW Bight sanitary pump outs available.	Wastewater Service Area Expansion	Completed	2016	171	31	6014A	$88,000	DEP CVA	DEP CVA - $69,780
City of Key West	KW-07	17th St. LAP & Elizabeth St. Olivia St. & E. Front St Flood Mitigation	Construction of seven baffle boxes and seven stormwater disposal wells.	Baffle Boxes-Second Generation	Completed	2015	484	75	6014A	$3,504,395	FDOT/ FDEM	FDOT - $406,271/ FDEM - $2,628,298
City of Key West	KW-08	20th St. LAP Project	Construction of one baffle box and one stormwater disposal well.	Baffle Boxes-Second Generation	Completed	2011	90	14	6014A	$440,726	FDOT	FDOT - $220,363

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
City of Key West	KW-09	Wahoo and Kingfish Pump Out	Purchase and install two marine sanitation systems; one for Kingfish Pier and the other for Wahoo Pier.	Wastewater Service Area Expansion	Completed	2013	0	0	6014A	$92,490	DEP CVA	DEP CVA - $69,367.65
City of Key West	KW-10	Collection of Sanitary Waste	Marine vessel pump-out program for the mooring field: Average 40,500 gallons per year; approximately 3,000 vessels per year in the mooring field/off-shored area.	Wastewater Service Area Expansion	Completed	2021	1,492	268	6014A	$6,286	NA	NA
City of Key West	KW-11	Curb Inlet Filters	Purchase and install 86 curb inlet filters; Caroline St, Emma St, Thomas St, Simonton St, Whitehead St, Duval St.	Catch Basin Inserts/Inlet Filter Cleanout	Ongoing	NA	34	6	6014A	$92,523	NA	NA
City of Key West	KW-12	Dennis & Venetia Stormwater Pump Station	Construct stormwater pump station, valve vault, baffle box, force main and outfall connection.	Baffle Boxes-Second Generation	Underway	2022	5	1	6014A	$2,767,806	FDEM/ DEP	FDEM - $982,094/ FDEP - $929,000
City of Key West	KW-13	Tide Valves & Baffle Boxes	Install 3 triple-chamber baffle boxes inline to the outfalls.	Baffle Boxes-Second Generation	Planned	2024	48	8	6014A	$345,000	DEO CDBG	DEO CDBG - $3,099,159
City of Key West	KW-14	Harris & 10th Outfall	Install neighborhood stormwater collection/transmission system, including triple-chamber baffle box and outfall structure.	Baffle Boxes-Second Generation	Planned	2025	11	2	6014A	$115,000	DEO CDBG	DEO CDBG - $633,485
City of Layton	L-01	WWTF AWT	Construction of WWTF that meets AWT standards.	WWTF Upgrade	Completed	2005	0	0	6010	$5,700,000	Not provided	Not provided - NULL
City of Layton	L-02	Long Key East	Long Key East (322 equivalent dwelling units [EDUs]).	OSTDS Phase Out	Completed	Not provided	1,160	569	6010	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
City of Layton	L-03	Long Key West	Long Key West (395 EDUs).	OSTDS Phase Out	Completed	Not provided	1,395	697	6010	$0	Not provided	Not provided - NULL
City of Marathon	M-01	Service Area 2	Installation of central wastewater collection system serving Service Area 2 and provision of AWT treatment with disposal in a shallow effluent disposal well serving 33 EDUs.	OSTDS Phase Out	Canceled	NA	0	0	6011A	$0	NA	NA - NULL
City of Marathon	M-02	Service Area 1	Installation of central wastewater collection system serving Service Area 1 and provision of AWT treatment with disposal in a shallow effluent disposal well serving 312 EDUs.	OSTDS Phase Out	Completed	2012	1,672	760	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-03	Stormwater Treatment Systems	Installation of stormwater interception and treatment system serving approximately 81 acres in conjunction with the central wastewater collection system serving Service Area 1.	Stormwater System Upgrade	Completed	2012	32	5	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-04	Service Area 6	Installation of central wastewater collection system serving Service Area 6 and provision of AWT treatment with disposal in a shallow effluent disposal well serving 1,014 EDUs.	OSTDS Phase Out	Completed	2009	9,270	2,475	6011A	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
City of Marathon	M-05	Service Area 6	Installation of central wastewater collection system serving Service Area 6 and provision of AWT treatment with disposal in a shallow effluent disposal well serving 14 EDUs.	OSTDS Phase Out	Completed	2009	120	35	6011B	$0	Not provided	Not provided - NULL
City of Marathon	M-06	Stormwater Treatment Systems	Installation of stormwater interception and treatment system serving approximately 390 acres in conjunction with the central wastewater collection system serving Service Area 6.	Stormwater System Upgrade	Completed	2009	152	23	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-07	Service Area 3	Installation of central wastewater collection system serving Service Area 3 and provision of AWT treatment with disposal in a shallow effluent disposal well serving 1,565 EDUs.	OSTDS Phase Out	Completed	2011	15,885	3,814	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-08	Stormwater Treatment Systems	Installation of stormwater interception and treatment system serving approximately 248 acres in conjunction with the central wastewater collection system serving Service Area 3.	Stormwater System Upgrade	Completed	2009	97	15	6011A	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
City of Marathon	M-09	Service Area 4	Installation of central wastewater collection system serving Service Area 4 and provision of AWT treatment with disposal in a shallow effluent disposal well serving 2,283 EDUs.	OSTDS Phase Out	Completed	2009	20,701	5,563	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-10	Stormwater Treatment Systems	Installation of stormwater interception and treatment system serving approximately 1,010 acres in conjunction with the central wastewater collection system serving Service Area 4.	Stormwater System Upgrade	Completed	2009	392	59	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-11	Service Area 7	Installation of centralized wastewater collection system serving Service Area 7 and provision of AWT treatment with disposal in a shallow effluent disposal wells serving 360 EDUs.	OSTDS Phase Out	Completed	2011	1,888	944	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-12	Service Area 7	Installation of centralized wastewater collection system serving Service Area 7 and provision of AWT treatment with disposal in a shallow effluent disposal wells serving 1,237 EDUs.	OSTDS Phase Out	Completed	2012	6,710	3,240	6011C	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
City of Marathon	M-13	Stormwater Treatment Systems	Installation of stormwater interception and treatment system serving approximately 1,672 acres in conjunction with the central wastewater collection system serving Service Area 7.	Stormwater System Upgrade	Completed	2010	650	98	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-14	Service Area 5	Installation of central wastewater collection system serving Service Area 5 and provision of AWT treatment with disposal in a shallow effluent disposal well serving 2,668 EDUs.	OSTDS Phase Out	Completed	2010	28,177	6,503	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-15	Stormwater Treatment Systems	Installation of stormwater interception and treatment system serving approximately 1,135 acres in conjunction with the central wastewater collection system serving Service Area 5.	Stormwater System Upgrade	Completed	2011	441	67	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-16	City-Wide WWTP O&M	Labor, utilities, chemicals, sludge hauling, maintenance and repairs for City-wide wastewater collection, transmission and treatment.	Sanitary Sewer and Wastewater Treatment Facility (WWTF) Maintenance	Completed	2021	0	0	6011A	$0	Not provided	Not provided - NULL
City of Marathon	M-17	City-Wide Construction Costs	Construction costs for City-wide wastewater and stormwater collection, treatment and disposal.	Stormwater System Upgrade	Completed	2021	0	0	6011A	104,830,312	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
FDOT District VI	FDOT-01	SR 5/US 1/Jewfish Creek Bridge	Construct bridge from Abaco Rd at Key Largo to north of Jewfish Creek.	Stormwater System Rehabilitation	Completed	2010	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-02	Big Coppitt Key -From Shark Channel Bridge to Old Boca Chica Channel	Add turn lanes.	Stormwater System Rehabilitation	Completed	2010	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-03	Card Sound Road/CR-905 Intersection Conversion	PD&E/EMO Study.	Study	Completed	2009	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-04	United Street (Key West) Master Drainage Plan	Stormwater mitigation master drainage plan.	Study	Completed	2009	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-05	SR 5/Overseas Highway	Resurfacing from mile marker (MM) 33.8/Spanish Harbor Channel to MM 35.3/Big Spanish Channel.	Stormwater System Rehabilitation	Completed	2009	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-06	SR5/US 1/Overseas Highway	Resurfacing from MM 86.8/S of East Ridge Road to MM 90/ Royal Poinciana Boulevard.	Stormwater System Rehabilitation	Completed	2009	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-07	SR 5/Overseas Highway	Resurfacing from MM 103.2 Hialeah Lane to MM 106.6 Reef Drive.	Stormwater System Rehabilitation	Completed	2012	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-08	SR 5/Overseas Highway	Resurfacing from MM 93 to MM 97.	Stormwater System Rehabilitation	Completed	2009	0	0	All	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
FDOT District VI	FDOT-09	SR 5/Overseas Highway	Resurfacing from SR A1A to 320 ft north of Cross Street.	Stormwater System Rehabilitation	Completed	2009	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-10	SR 5/Overseas Highway	Resurfacing from 2,000 ft south of MM 100 to 2,580 ft south of MM 97.	Stormwater System Rehabilitation	Completed	2012	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-11	SR 5/Overseas Highway	Resurfacing from MM 49.1/north of 37th St. to MM 53.1/Bridge over Vaca Cut.	Stormwater System Rehabilitation	Completed	2012	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-12	SR 5/Overseas Highway	Resurfacing from MM 99.7/south of Laguna Avenue to MM 103.1/Hialeah Lane.	Stormwater System Rehabilitation	Completed	2009	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-13	SR 5/Overseas Highway	Resurfacing from 500 ft north of Cut Throat Drive to 500 ft north of Spanish Drive.	Stormwater System Rehabilitation	Completed	2010	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-14	Little Venice Road Improvements	Road improvements at various locations in Marathon including the south end of 95th, 96th, 105th Streets.	Stormwater System Rehabilitation	Completed	2010	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-15	Monroe Countywide Drainage Pushbutton Projects	Drainage projects.	Stormwater System Rehabilitation	Completed	2016	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-16	SR 5/Overseas Highway	MM 59 to Grassy Key drainage improvements.	Stormwater System Rehabilitation	Completed	2012	0	0	All	$0	Not provided	Not provided - NULL
FDOT District VI	FDOT-17	SR 5/Overseas Highway	From Caribbean Drive/MM 24.5 to West Shore Drive/MM 25 drainage improvements.	Stormwater System Rehabilitation	Completed	2014	0	0	All	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Florida International University	FIU-01	Water Quality Monitoring Project for the Florida Keys National Marine Sanctuary	To measure the condition of the chemical and physical characteristics of water at 112 stations (10 within the Halo) relative to the requirements of coral reefs and other biotic species need.	Monitoring/ Data Collection	Ongoing	NA	0	0	All	$500,000	EPA	EPA - $500,000
Florida Keys Aqueduct Authority (FKAA)	FKAA-01	Key Haven WWTP	Due to excessive infiltration and inflow, decommissioning of small package plant with flow redirected to the Big Coppitt regional WWTP on east Rockland Key.	Decommission/ Abandonment	Completed	2018	23,781	0	6014B	$12,928,845	FKAA Wastewater Revenue Rates	FKAA Wastewater Revenue Rates - NULL
Florida Keys Aqueduct Authority (FKAA)	FKAA-02	Wastewater Services for U.S. Navy	See description at USN-1. Credits/reductions shown here and not duplicated with FKAA-02.	OSTDS Phase Out	Completed	2011	8,827	2,596	6014C	$0	Not provided	Not provided - NULL
Florida Keys Aqueduct Authority (FKAA)	FKAA-03	Bay Point WWTP	Expansion of system to serve 440 EDUs.	OSTDS Phase Out	Completed	Prior to 2011	0	0	Not provided	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Florida Keys Aqueduct Authority (FKAA)	FKAA-04	Cross Key Wastewater Treatment Facility	Construction of a WWTP and collection system at Mile Marker 112.5, designed to treat 149 EDU's to BAT standards.	OSTDS Phase Out	Underway	2022	760	304	6002	$4,860,000	FKAA Wastewater Revenue Rates/ EPA/ Property Owner Assessments	FKAA Wastewater Revenue Rates - $1,01,000/ EPA - $2,740,000/ Property Owner Assessments - $1,110,000
Florida Keys Aqueduct Authority (FKAA)	FKAA-05	Centralized Management of Decentralized Onsite Wastewater Treatment	Installation of 21 BAT Onsite Wastewater Nutrient Removal Systems for parcels throughout the Lower Keys that are currently served by septic tanks or cesspits. They will be owned and managed by the FKAA as an extension of the central wastewater system.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Underway	2022	105	42	6013A	$23,625,000	FKAA Wastewater Revenue Rates/ EPA/ Property Owner Assessments	FKAA Wastewater Revenue Rates - $1,360,000/ EPA - $908,000/ Property Owner Assessments - $94,500
Florida State Parks System	FSPS-01	Dagny Johnson Key Largo Hammock Botanical State Park	Convert assistant manager residence and 7 ranger residences to central wastewater system provided by KLWTD.	OSTDS Phase Out	Completed	2015	0	0	6006B	$21,879	State	State - $21,879
Florida State Parks System	FSPS-02	John Pennekamp Coral Reef State Park	WWTP at state park abandoned and wastewater flows from 5 ranger residences are transmitted, received, and handled by KLWTD.	Decommission/ Abandonment	Completed	2007	0	0	6006B	$143,220	State	State - $143,220

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Florida State Parks System	FSPS-03	John Pennekamp Coral Reef State Park WWTP	WWTP at state park was decommissioned, abandoned and removed in 2010 and the entire park's wastewater flows are transmitted, received, and handled by KLWTD.	Decommission/ Abandonment	Completed	2010	0	0	6006B	$214,211	State	State - $214,211
Florida State Parks System	FSPS-04	Lignumvitae Key State Park	Replace septic system with aerobic treatment unit at PM residence.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2010	0	0	Not provided	$40,000	State	State - $40,000
Florida State Parks System	FSPS-05	Lignumvitae Key State Park	Abandoned septic system at Matheson House.	OSTDS Phase Out	Completed	2009	0	0	Not provided	$104,127	State	State - $104,127
Florida State Parks System	FSPS-06	Lignumvitae Key State Park	Septic conversion at land-based shop building to Islamorada wastewater facility.	OSTDS Phase Out	Completed	TBD	0	0	Not provided	$0	State	State - NULL
Florida State Parks System	FSPS-07	Lignumvitae Key State Park	Septic conversion at land-based residence to Islamorada wastewater facility.	OSTDS Phase Out	Completed	2016	0	0	Not provided	$119,767	State	State - $119,767
Florida State Parks System	FSPS-08	Windley Key Fossil Reef State Park	Septic conversion at visitor center to Islamorada wastewater facility.	OSTDS Phase Out	Completed	2016	0	0	Not provided	$117,420	State	State - $117,420

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Florida State Parks System	FSPS-09	Long Key State Park	WWTP at state park abandoned and wastewater flows from ranger station, 2 residences, boardwalk restroom building, ranger compound area, day use building, and 3 bathhouses are transmitted, received, and handled by the City of Layton.	Decommission/ Abandonment	Completed	2007	0	0	6010	$1,176,969	State	State - $1,176,969
Florida State Parks System	FSPS-10	Long Key State Park	Construction of new shop building that will have wastewater flows handled by the City of Layton.	Wastewater Service Area Expansion	Planned	TBD	0	0	6010	$0	State	State - NULL
Florida State Parks System	FSPS-11	Long Key State Park WWTP	WWTP at state park was decommissioned, abandoned and removed in 2007 and the entire park's wastewater flows are transmitted, received, and handled by the City of Layton. Costs and funding info with FSPS-09.	Decommission/ Abandonment	Completed	2007	0	0	6010	$0	NA	NA - NULL
Florida State Parks System	FSPS-12	Curry Hammock State Park	Wastewater collection/transmission system designed in which flows will transmit to the City of Marathon WWTP for the ranger station, 2 residences, shop building, picnic area, and bathhouse.	Decommission/ Abandonment	Completed	2014	0	0	6011A	$227,941	State	State - $227,941

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Florida State Parks System	FSPS-13	Bahia Honda State Park	Replacement of conventional septic system to ATU at two residences.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2010	0	0	6018	$82,623	State	State - $82,623
Florida State Parks System	FSPS-14	Bahia Honda State Park	Septic systems abandoned and effluent discharge from 2 residences, ranger station, restroom building, and bathhouse routed to the park's WWTP, SAND SPUR #3.	OSTDS Phase Out	Completed	2009	0	0	6018	$261,233	State	State - $261,233
Florida State Parks System	FSPS-15	Bahia Honda State Park	Composting toilets at two restrooms were abandoned and closed for public use. Costs included with FSPS-14.	OSTDS Phase Out	Completed	2009	0	0	6018	$0	State	State - NULL
Florida State Parks System	FSPS-16	Bahia Honda State Park	SAND SPUR WWTP modified and converted to AWT. Costs included with FSPS-14.	WWTF Upgrade	Completed	2009	0	0	6018	$0	State	State - NULL
Florida State Parks System	FSPS-17	Bahia Honda State Park	SAND SPUR #4 WWTP was abandoned and decommissioned. Costs included with FSPS-14.	Decommission/ Abandonment	Completed	2009	0	0	6018	$0	State	State - NULL
Florida State Parks System	FSPS-18	Fort Zachary Taylor State Park	Septic systems decommissioned and effluent from concession and beach bathroom, 2 residences, fort bathroom, shop, and volunteer village transmitted to City of Key West WWTP. Costs	OSTDS Phase Out	Completed	2011	0	0	6014A	$0	NA	NA - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
			and funding info with FSPS-19.									
Florida State Parks System	FSPS-19	Fort Zachary Taylor State Park	Construction of new entrance station that is connected to central sewer.	OSTDS Phase Out	Completed	2017	0	0	6014A	$2,292,151	State	State - $2,292,151
Key Largo Wastewater Treatment District	KLWTD-01	AWT Treatment Facility	Construction of 2.3 million gallons per day (mgd) AWT treatment facility with disposal in a deep Class V effluent disposal well. Includes costs and funding info for KLWTD-2 to -09.	WWTF Upgrade	Completed	2010	196,855	24,637	6006A	$22,195,837	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-02	Basin A Central Wastewater Collection System	Construction of the Basin A central wastewater collection system serving 1,323 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well. Costs and funding with KLWTD-01.	OSTDS Phase Out	Completed	2010	0	0	6006A	$0	NA	NA - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Key Largo Wastewater Treatment District	KLWTD-03	Basin B Central Wastewater Collection System	Construction of the Basin B central wastewater collection system serving 1,861 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well. Costs and funding with KLWTD-01.	OSTDS Phase Out	Completed	2010	0	0	6006A	$0	NA	NA - NULL
Key Largo Wastewater Treatment District	KLWTD-04	Basin D Central Wastewater Collection System	Construction of the Basin D central wastewater collection system serving 2,548 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well. Costs and funding with KLWTD-01.	OSTDS Phase Out	Completed	2010	0	0	6006A	$0	NA	NA - NULL
Key Largo Wastewater Treatment District	KLWTD-05	Basin C Central Wastewater Collection System	Construction of the Basin C central wastewater collection system serving 1,207 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well. Costs and funding with KLWTD-01.	OSTDS Phase Out	Completed	2010	0	0	6006A	$0	NA	NA - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Key Largo Wastewater Treatment District	KLWTD-06	Basin E (Phase II) Central Wastewater Collection System	Construction of the Basin E (Phase II) central wastewater collection system serving 999 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well. Costs and funding with KLWTD-01.	OSTDS Phase Out	Completed	2010	0	0	6006A	$0	NA	NA - NULL
Key Largo Wastewater Treatment District	KLWTD-07	Basin F Central Wastewater Collection System	Construction of the Basin F central wastewater collection system serving 1,111 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well. Costs and funding with KLWTD-01.	OSTDS Phase Out	Completed	2010	0	0	6006A	$0	NA	NA - NULL
Key Largo Wastewater Treatment District	KLWTD-08	Basin G Central Wastewater Collection System	Construction of the Basin G central wastewater collection system serving 1,625 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well. Costs and funding with KLWTD-01.	OSTDS Phase Out	Completed	2011	0	0	6006A	$0	NA	NA - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Key Largo Wastewater Treatment District	KLWTD-09	Basin H Central Wastewater Collection System	Construction of the Basin H central wastewater collection system serving 737 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well. Costs and funding with KLWTD-01.	OSTDS Phase Out	Completed	2011	0	0	6006A	$0	NA	NA - NULL
Key Largo Wastewater Treatment District	KLWTD-10	State Park Connection to Central Wastewater, Phase I	Initial connection of John Pennekamp State Park to central wastewater collection system serving 167 EDUs in Basins A-C.	OSTDS Phase Out	Completed	2010	0	0	6006A	$0	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-11	State Park Connection to Central Wastewater, Phase II	Final connection of John Pennekamp State Park to central wastewater collection system serving 43 EDUs in Basins C-H.	OSTDS Phase Out	Completed	2010	0	0	6006A	$0	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-12	Basin K Central Wastewater Collection System	Construction of the Basin K central wastewater collection system serving 1,080 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well.	OSTDS Phase Out	Canceled	2011	0	0	6006A	$0	NA	NA - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Key Largo Wastewater Treatment District	KLWTD-13	Basin I Central Wastewater Collection System	Construction of the Basin I central wastewater collection system serving 1,910 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well.	OSTDS Phase Out	Completed	2011	0	0	6006A	$0	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-14	Basin J central wastewater collection system	Construction of the Basin J central wastewater collection system serving 893 EDUs with subsequent connection to the 2.3 mgd AWT treatment facility with finished effluent disposal in a deep Class V well.	OSTDS Phase Out	Completed	2011	0	0	6006A	$0	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-15	Upgrade Private Facilities	Upgrade private facilities to biologically accelerated treatment (BAT; 128 EDUs).	WWTF Upgrade	Canceled	Not provided	0	0	6006A	$0	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-16	Upgrade Cesspools	Upgrade cesspools to aerobic treatment units (ATUs; 32 EDUs).	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Canceled	Not provided	0	0	6006A	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Key Largo Wastewater Treatment District	KLWTD-17	Upgrade Private Facilities	Upgrade private facilities to BAT (30 EDUs).	OSTDS Phase Out	Canceled	Not provided	0	0	6006B	$0	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-18	Upgrade Cesspools	Upgrade cesspools to ATU (47 EDUs).	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Canceled	Not provided	0	0	6006B	$0	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-19	Ocean Reef Club AWT	Ocean Reef Club AWT and shallow well (2,786 EDUs).	WWTF Upgrade	Canceled	Not provided	0	0	6006C	$0	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-20	Central Wastewater Vacuum Collection System and Transmission Mains	Construction of the vacuum collection systems and the north and south transmission mains to connect properties to the WWTF. Includes costs and funding info for KLWTD-2 to KLWTD-14.	Wastewater Service Area Expansion	Completed	2011	0	0	6006A	$81,920,172	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Key Largo Wastewater Treatment District	KLWTD-21	AWT Treatment Facility Expansion	Construction of digester and conversion of existing digester to SBR #3, increase capacity to 3.45 mgd AWT treatment facility and to accommodate flows from Islamorada.	WWTF Upgrade	Completed	2012	135,507	16,943	6006A	$9,076,170	Not provided	Not provided - NULL
Key Largo Wastewater Treatment District	KLWTD-22	C-905 Grinder Pump Collection System	Construction of force mains along C-905 and for Unique Properties. Installation of grinder pump stations to connect properties in the area to the KLWTD WWTF.	OSTDS Phase Out	Completed	2014	0	0	6006A	$1,311,466	Not provided	Not provided - NULL
Key West Resort Utilities Corporation	KWRU-01	Stock Island WWTP	Expansion of 0.499 mgd AWT plant using shallow disposal wells to approx. 0.850 mgd.	WWTF Disposal Site	Completed	2015	0	0	Not provided	$0	Not provided	Not provided - NULL
Monroe County	MC-01	Duck Key/Hawks Cay WWTP Upgrade	Conversion to AWT and construction of collection system (1,500 EDUs).	WWTF Upgrade	Completed	2011	2,226	1,113	6016	$22,300,000	Monroe County/ FKAA	Monroe County - NULL/ FKAA - NULL
Monroe County	MC-02	Cudjoe Regional Wastewater System (CRWS) - Advanced Wastewater Reclamation Facility (AWRF)	Went into service in October 2015 using a deep injection disposal well. Designed for an average annual daily flow of just under 1.0 mgd; as of July 2017, processes 0.3 mgd.	Wastewater - Injection Well	Completed	2015	0	0	6013C	##########	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Monroe County	MC-03	CRWS - South Lower Keys Central Sanitary Sewer System	Expansion of system to serve 936 EDUs with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2016	7,605	2,124	6014C	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-04	CRWS - South Lower Keys Central Sanitary Sewer System	Expansion of system to serve 686 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2016	4,027	1,557	6014C	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-05	CRWS - Middle Lower Keys Central Sanitary Sewer System	Expansion of system to serve 66 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2016	538	103	6013B	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-06	CRWS - Middle Lower Keys Central Sanitary Sewer System	Expansion of system to serve 565 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2016	4,580	1,116	6013C	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-07	CRWS - Middle Lower Keys Central Sanitary Sewer System	Expansion of system to serve 2,860 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2016	19,521	5,665	6013C	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Monroe County	MC-08	CRWS - Middle Lower Keys Central Sanitary Sewer System	Expansion of system to serve 9 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2016	70	21	6013D	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-09	CRWS - North Lower Keys Central Sanitary Sewer System	Expansion of system to serve 2,815 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2020	19,640	5,737	6012A	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-10	CRWS - North Lower Keys Central Sanitary Sewer System	Expansion of system to serve 813 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2020	5,876	1,724	6012A	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-11	CRWS - North Lower Keys Central Sanitary Sewer System	Expansion of system to serve 24 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2020	164	48	6012C	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-12	CRWS - North Lower Keys Central Sanitary Sewer System	Expansion of system to serve 43 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2020	291	84	6012D	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Monroe County	MC-13	CRWS - North Lower Keys Central Sanitary Sewer System	Expansion of system to serve 94 EDUs on with an AWT (5-5-3-1) treatment facility and nominal 90-foot effluent disposal well. Cost estimates provided in MC-02.	OSTDS Phase Out	Completed	2020	1,003	286	6012E	$0	Monroe County/ FKAA/ State Grants	Monroe County - NULL/ FKAA - NULL/ State Grants - NULL
Monroe County	MC-14	Veteran's Park	Upgrade onsite wastewater system to best available technology (BAT) standards.	WWTF Upgrade	Completed	2017	0	0	8076A	$0	EPA	EPA - NULL
Monroe County	MC-15	Pigeon Key	Upgrade onsite wastewater system to best available technology (BAT) standards.	WWTF Upgrade	Planned	2023	0	0	8081	$800,000	TBD	TBD - NULL
Monroe County	MC-16	Canal Restoration #266 Organic Removal and Air Curtain Demo Project	Removal of approximately 8,300 cubic yards of organic muck and 160 cubic yards of trash from the canal bottom and the installation of an air curtain to prevent seaweed from entering the canal.	Canal Restoration and Improvement	Completed	2016	0	0	6012A	$1,303,355	Monroe County	Monroe County - NULL
Monroe County	MC-17	Canal Restoration #290 Organic Removal and Air Curtain Demo Project	Removal of approximately 4,700 cubic yards of organic muck and 130 cubic yards of trash from the canal bottom and the installation of an air curtain to prevent seaweed from entering the canal.	Canal Restoration and Improvement	Completed	2017	0	0	6012A	$788,421	Monroe County	Monroe County - NULL
Monroe County	MC-18	Canal Restoration #287 Air Curtain	The installation of an air curtain to prevent seaweed from entering the canal.	Canal Restoration and	Completed	2016	0	0	6012A	$101,192	Monroe County	Monroe County - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
		Demo Project		Improvement								
Monroe County	MC-19	Canal Restoration #29 Backfilling Demo Project	The placement of approximately 27,000 cubic yards of fill material in the canal.	Canal Restoration and Improvement	Completed	2015	0	0	6006A	$1,360,000	Monroe County	Monroe County - NULL
Monroe County	MC-20	Canal Restoration #277 Culvert Demo Project	The installation of an approximately 200 linear feet of 60-inch diameter reinforced concrete pipe with a manatee grate.	Canal Restoration and Improvement	Completed	2016	0	0	6012A	$423,957	DEP/ Monroe County	DEP - $50,000/ Monroe County - $373,957
Monroe County	MC-21	Canal Restoration #472 Culvert Demo Project	The installation of an approximately 120 linear feet of a 38 inch x 24 inch diameter reinforced concrete elliptical pipe with a manatee grate.	Canal Restoration and Improvement	Completed	2015	0	0	6014A	$199,291	DEP	DEP - NULL
Monroe County	MC-22	Canal Restoration #83 Organic Removal, Backfilling, and Air Curtain	Removal of approximately 3,500 cubic yards of organic muck, the placement of approximately 5,570 cubic yards of fill material, and the installation of an air curtain to prevent seaweed from entering the canal.	Canal Restoration and Improvement	Completed	2017	0	0	6006A	$1,524,040	Monroe County	Monroe County - $1,524,040
Monroe County	MC-23	Canal Restoration #75 Backfilling Demo Project	The placement of approximately 27,000 cubic yards of fill material in the canal.	Canal Restoration and Improvement	Completed	2018	0	0	6006A	$1,300,000	DEP Stewardship	DEP Stewardship - $1,300,000

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Monroe County	MC-24	Canal Restoration #48, #59, #79, and #80 Augmented Aeration Demo Projects - Not performed	The installation of an augmented aeration system at each canal system.	Canal Restoration and Improvement	Canceled	2018	0	0	6006A	$200,000	NA	NA - NULL
Monroe County	MC-25	Long Key East and West	Construction of an extension of the collection system to include most properties on the east and west ends of Long Key (excluding Outdoor Resorts and Fiesta Key) (100 EDUs).	OSTDS Phase Out	Completed	2017	0	0	6010	$0	Not provided	Not provided - NULL
U.S. Navy	USN-1	Wastewater Utility Service by FKAA (see FKAA-02)	The USN contracted with FKAA to own 5 wastewater systems (Boca Chica Field, Naval Branch Health Clinic, Sigsbee Park, Truman Annex, and Trumbo Point including Fleming Key). FKAA will treat at Big Coppitt plant. 1,730 EDUs. Credits listed with FKAA-02.	OSTDS Phase Out	Completed	2011	0	0	6014C	$0	Not provided	Not provided - NULL
Village of Islamorada	VI-01	North Plantation Key Phase II Central Wastewater Collection System	Construction to connect to the existing BAT Central Wastewater Treatment Facility located at the Key Largo Wastewater Treatment District Plant, MM 100 - 1,100 EDUs.	BMP Treatment Train	Completed	2009	13,798	3,880	6009	$0	Not provided	Not provided - NULL

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Village of Islamorada	VI-02	Middle Plantation Key Central Wastewater Collection System	Construction to connect to the existing BAT Central Wastewater Treatment Facility located at the Key Largo Wastewater Treatment District Plant, MM100 - 1,600 EDUs.	OSTDS Phase Out	Completed	2015	13,274	3,553	6009	$0	Not provided	Not provided - NULL
Village of Islamorada	VI-03	South Plantation Key Central Wastewater Collection System	Construction to connect to the existing BAT Central Wastewater Treatment Facility located at the Key Largo Wastewater Treatment District Plant, MM100 - approximately 1,900 EDUs.	OSTDS Phase Out	Completed	2015	11,129	3,188	6009	$0	Not provided	Not provided - NULL
Village of Islamorada	VI-04	Windley Key Central Wastewater Collection System	Construction to connect to the existing BAT Central Wastewater Treatment Facility located at the Key Largo Wastewater Treatment District Plant, MM100 - 900 EDUs.	OSTDS Phase Out	Completed	2015	8,451	2,486	6009	$0	Not provided	Not provided - NULL
Village of Islamorada	VI-05	Upper Matecumbe Key Central Wastewater Collection System	Construction to connect to the existing BAT Central Wastewater Treatment Facility located at the Key Largo Wastewater Treatment District Plant, MM100 - approximately 2,600 EDUs.	OSTDS Phase Out	Completed	2015	11,214	3,279	6017	$0	Not provided	Not provided - NULL
Village of Islamorada	VI-06	North Upper Matecumbe Key Central Wastewater Collection System	Combined with VI-5.	OSTDS Phase Out	Completed	2015	13,311	3,831	6017	$0	Not provided	Not provided - NULL

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	WBID	Cost Estimate	Funding Source	Funding Amount
Village of Islamorada	VI-07	Lower Matecumbe Key Central Wastewater Collection System	Construction to connect to the existing BAT Central Wastewater Treatment Facility located at the Key Largo Wastewater Treatment District Plant, MM100 - approximately 1,600 EDUs.	OSTDS Phase Out	Completed	2015	10,518	3,107	6019	$0	Not provided	Not provided - NULL
Village of Islamorada	VI-08	Canal Restoration #132 Air Curtain	The installation of an air curtain to prevent seaweed from entering the canal.	Canal Restoration and Improvement	Planned	2022	0	0	6009	$50,000	Local Property Owners	Local Property Owners - $50,000
Village of Islamorada	VI-09	Canal Restoration #137 Air Curtain	The installation of aerators within boat basin and an air curtain to prevent seaweed from entering the canal.	Canal Restoration and Improvement	Completed	2014	0	0	6009	$28,597	Local Discretionary Sales Surtax	Local Discretionary Sales Surtax - $28,597
Village of Islamorada	VI-10	Canal Restoration #145 Air Curtain	The installation of an air curtain to prevent seaweed from entering the canal.	Canal Restoration and Improvement	Completed	2019	0	0	6019	$66,698	Local Discretionary Sales Surtax/ Local Property Owner	Local Discretionary Sales Surtax - $9,030/ Local Property Owner - $57,668
Village of Islamorada	VI-11	Canal Restoration #148 Air Curtain	The installation of an air curtain to prevent seaweed from entering the canal.	Canal Restoration and Improvement	Completed	2017	0	0	6019	$37,000	DEP	DEP - $37,000

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Village of Islamorada	VI-12	Canal Restoration #114 Injection Well	The installation of an injection well to increase canal flushing by allowing the incoming tide to move through the canal and infiltrate into the subsurface through gravity flow.	Canal Restoration and Improvement	Underway	2023	0	0	6009	$350,000	US Treasury Restore Act/ EPA/ Local Discretionary Sales Surtax	US Treasury Restore Act - $128,309/ EPA - $82,452/ Local Discretionary Sales Surtax - $0
Village of Islamorada	VI-13	Canal Restoration #118 Organic Removal	Removal of approximately 300 cubic yards of organic muck from the canal bottom and clearing of adjacent culvert pipe.	Canal Restoration and Improvement	Underway	2022	0	0	6009	$40,000	Local Discretionary Sales Surtax	Local Discretionary Sales Surtax - $40,000
Village of Islamorada	VI-14	Lower Matecumbe Canal Restoration Culverts	The installation of approximately 720 linear feet of 60-inch diameter reinforced concrete pipe with a manatee grate within 5 canal systems.	Canal Restoration and Improvement	Planned	2024	0	0	6019	$2,000,000	TBD	TBD - NULL
Village of Islamorada	VI-15	Venetian Shores Stormwater Project Phase 1	Install Miami curb along roadway, grate inlets, connected perforated pipe in exfiltration trench, connected sand/oil separator structure. Roadways are Bayview Isle Dr, Villa Bella Dr and portion of Venetian Blvd between Villa Bella Dr and Bayview Isle Dr.	Stormwater System Upgrade	Completed	2019	0	0	6009	$2,300,000	SFWMD/ Stormwater Assessments	SFWMD - $150,000/ Stormwater Assessments - $2,150,000

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Village of Islamorada	VI-16	Transfer Station Upgrades	Convert wet well system to inline booster pump system, install emergency storage and pump bypass, install septage receiving station for IVOI only and convert odor control to mulch bed system.	Wastewater Service Area Expansion	Planned	2024	0	0	6009	$4,800,000	TBD	TBD - NULL
Village of Islamorada	VI-16a	Transfer Station Upgrades	Convert wet well system to inline booster pump system, install emergency storage and pump bypass, install septage receiving station for IVOI only and convert odor control to mulch bed system.	Wastewater Service Area Expansion	Planned	2024	0	0	6017	$4,800,000	TBD	TBD - NULL
Village of Islamorada	VI-16b	Transfer Station Upgrades	Convert wet well system to inline booster pump system, install emergency storage and pump bypass, install septage receiving station for IVOI only and convert odor control to mulch bed system.	Wastewater Service Area Expansion	Planned	2024	0	0	6019	$4,800,000	TBD	TBD - NULL