DRAFT
Florida Keys
History and Impact of Wastewater Project Funding

Florida Department of Environmental Protection
Florida Department of Economic Opportunity
October 10, 2013

NASA – Florida Keys, December 5, 2003, taken by the Moderate Resolution Imaging Spectroradiometer (MODIS) on the Aqua satellite

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Executive Summary

The Florida Keys chain of islands is approximately 220 miles long and extends from the end of the Florida peninsula southwest toward the Dry Tortugas. The area contains the third largest barrier reef ecosystem in the world, biologically rich and diverse, and sensitive to the impacts of growth and development. Water quality monitoring over the last two decades has demonstrated elevated levels of nitrogen and phosphorus in the near shore waters, pollutants associated with wastewater and fertilizer.

Florida formally recognized the ecological sensitivity of the area and the need for better wastewater treatment, in particular, by designating the Florida Keys an Area of Critical State Concern in 1974. The area is also a National Marine Sanctuary. As a result of these designations, and subsequent state laws establishing specific "best available technology" wastewater treatment requirements for the area, to be met no later than December 31, 2015, substantial federal and state funding has been directed to communities in the Keys to leverage local resources to build needed wastewater infrastructure.

Following the most recent state appropriations for Keys projects in fiscal year 2013-14, Governor Scott directed the Departments of Environmental Protection and Economic Opportunity to review the status of wastewater funding and facilities completion and develop this report, which summarizes environmental circumstances in the Keys, the status of wastewater facilities completion, historical state and federal funding along with future funding opportunities, and economic indicators characterizing Monroe County and its local governments.

Construction of the wastewater collection, treatment and disposal facilities necessary to meet the December 2015 deadline is essentially complete for systems serving Key Largo, Layton, Marathon, Conch Key/Duck Key, Bay Point, Key Colony Beach, and Big Coppitt. In some cases, minor additions to collection systems or treatment upgrades still need to be accomplished.

The major projects remaining to be completed are the collection and transmission systems for the Village of Islamorada, which are to connect to the Key Largo wastewater treatment plant, and Monroe County's Cudjoe regional system. Both projects are slated to be in operation by the 2015 deadline. To date, about 64% percent of the projected customer base in the Keys has sewer service available and the majority of these have been connected. (This assessment excludes Key West and Key Colony Beach, both of which were completely sewered many years ago.)

The estimated cost of the facilities constructed to date or that remain to be built is about $620 million. Total state and federal grant funds provided to Keys communities to underwrite the cost of the facilities is nearly $150 million, or about 25% of the costs. In addition, the Department has or will have provided

financing for approximately $340 million of the $470 million local share through low-interest State Revolving Fund (SRF) loans, further reducing utility customer rates.

The SRF program remains open to the local governments in the Keys for other wastewater projects. The program has a publicly adopted priority system that allows projects to compete based on their beneficial impact on public health and pollution abatement. Keys projects are always highly competitive in the program and likely to receive funding if funds are available.

Keys wastewater projects are also potentially eligible to receive additional financing or refinancing for wastewater management projects from Everglades bond proceeds. Section 215.619(a)(2), F.S., provides for bonds—not to exceed $200 million in total, limited to $50 million per fiscal year—to fund the cost of constructing sewage collection, treatment, and disposal facilities in the Florida Keys Area of Critical State Concern. As a result of bonds authorized by the Legislature in 2012-13 for Islamorada and Monroe County, $150 million remains to be appropriated for these or other Keys wastewater projects should the Legislature choose to do so. The Legislature also has the authority to appropriate funds directly for projects through the annual budget process as it did in 2013-14, appropriating $1 million each for Marathon and Key Largo wastewater projects.

Governor's Direction

Following the most recent state appropriations for Keys projects in fiscal year 2013-14, Governor Scott directed the Departments of Environmental Protection and Economic Opportunity to review the status of wastewater funding and facilities completion and develop this report. Specifically, the Governor's May 20, 2013 letter to Secretary of State Ken Detzner on the subject of budgetary vetoes included the following language, excerpted from page 38:

> *The Florida Families First budget also includes $2 million for the continued investments in wastewater projects for the Florida Keys. As part of this investment in protecting the waters of this important community, the Department of Environmental Protection is directed, in coordination with the Department of Economic Opportunity, to perform a review of the sources of funding currently being utilized for this issue. These agencies are also directed to evaluate the uses and impact of prior state funding, and provide the Office of Policy and Budget within the Executive Office of the Governor with a report outlining the findings of this review, as well as provide recommendations for actions needed to address the continued funding of wastewater projects in the Florida Keys.*

The report that follows provides background information on the Florida Keys environment, the current status of wastewater facilities construction, state and federal funding assistance for the construction of these facilities, and a variety of tables reflecting economic circumstances. It also includes a summary of funding sources available as the wastewater facilities are completed or modified in the future.

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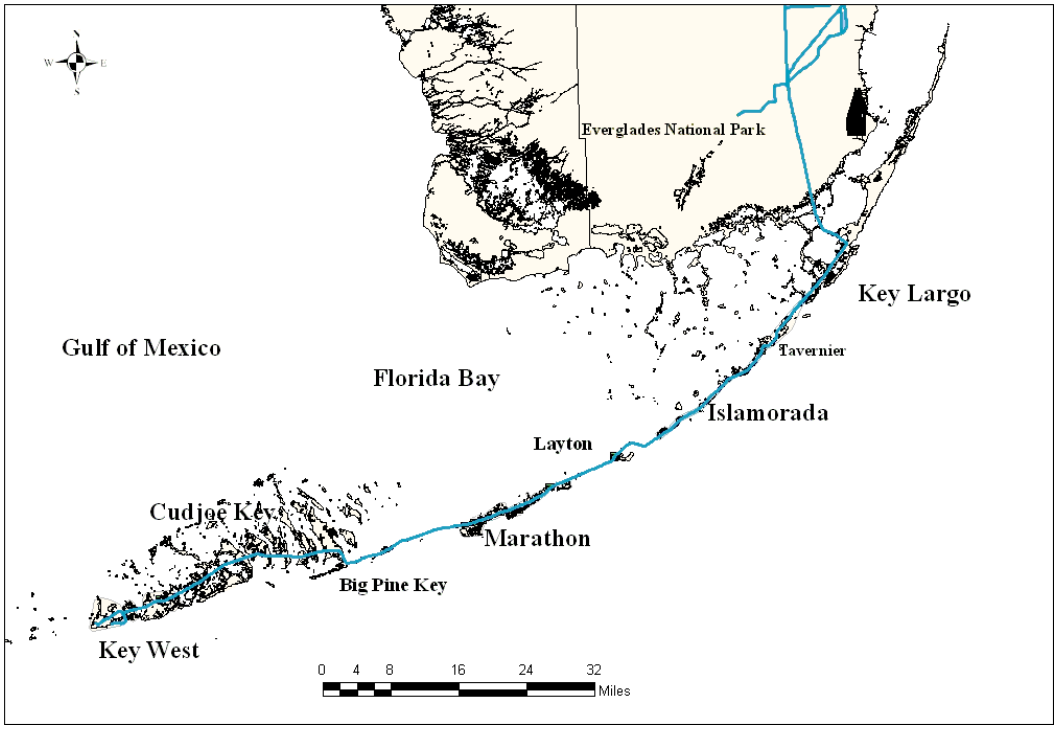
Background

The Florida Keys is a chain of islands approximately 220 miles long, extending from the end of the Florida peninsula and curving southwest toward the Dry Tortugas. Consisting of some 822 islands, of which about 30 are inhabited, the Keys are traversed by U.S. Highway 1 (Overseas Highway) with its 19 miles of bridges. The islands are predominately within Monroe County and include the municipalities of Islamorada, Key Colony Beach, Layton, Marathon, and Key West, along with a variety of named unincorporated areas within the County, and the Key Largo Wastewater Treatment District. See Figure 1.

Figure 1 – Florida Keys



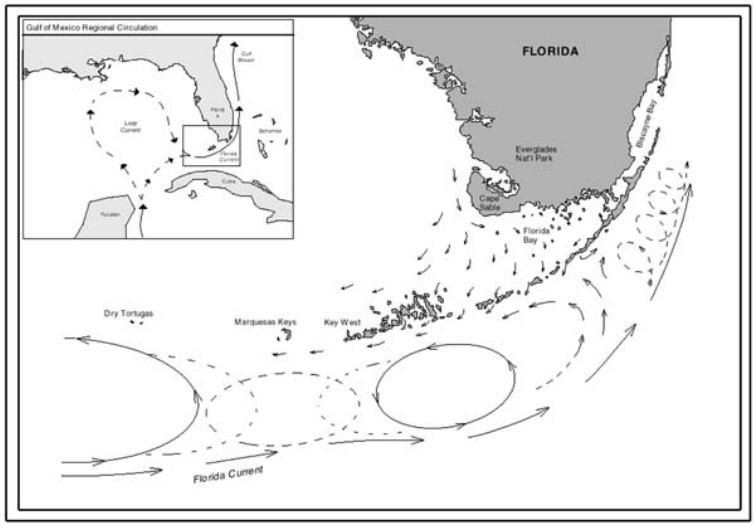
The aquatic environment of the Florida Keys is unique. Adjacent to the islands is the most extensive living coral reef in the United States, most of which lies within the boundaries of the Florida Keys National Marine Sanctuary. The four-mile-wide Florida Reef Tract extends some 150 miles from Soldier Key in Biscayne Bay to the Tortugas Banks and comprises coral formations similar to those in the Caribbean Sea. It is the third largest barrier reef ecosystem in the world, biologically rich and diverse, and particularly sensitive to the impacts of growth and development and corresponding land uses.

Designated on November 16, 1990, the Florida Keys National Marine Sanctuary is one of 14 marine protected areas in the National Marine Sanctuary System. It is administered by the National Oceanic and Atmospheric Administration (NOAA), and jointly managed with the State of Florida. The sanctuary protects 2,900 square nautical miles of waters surrounding the Florida Keys (some 60% within state waters) from south of Miami westward to encompass the Dry Tortugas, excluding Dry Tortugas National Park. The shoreward boundary of the sanctuary is the mean high-water mark. The sanctuary's management plan includes strategies to reduce pollution from land-based sources of domestic wastewater in the Florida Keys (see http://floridakeys.noaa.gov/mgmtplans/344_water.pdf). The plan is not self-executing—it relies on state and local programs and requirements.

Water Quality

The Florida Keys is a complicated aquatic ecosystem, with continuous interchange of inshore, near shore and offshore surface waters with the high ground water table. Tidal flows take place daily through the channels between the Keys and Florida Bay and between the bay and the Gulf of Mexico. Two large surface currents, the Florida Current and the Gulf of Mexico Loop Current, along with the inshore currents, also sweep across the region. The National Oceanographic and Atmospheric Agency map in Figure 2 illustrates the complexity of surface water currents.

Figure 2 - Current Patterns in the Florida Keys



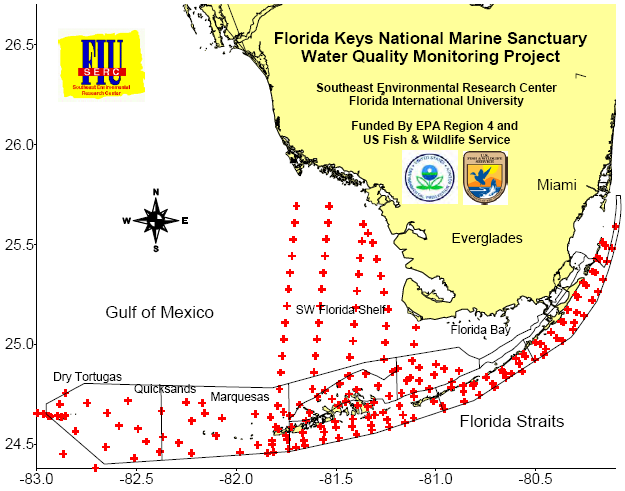
Pollutants are widely dispersed and the soils and underlying geology in the Keys allow rapid infiltration and percolation, preventing nutrient (nitrogen and phosphorus) entrapment and treatment in the soils matrix. The limited size of the land area makes it difficult to control stormwater and, because of the high water table and tides, onsite sewage treatment and disposal systems (for example, septic tanks) have extremely limited treatment capability. Nutrients are typically found in high concentrations in stormwater and poorly treated wastewater. Excessive levels of nutrients in the environment stress marine life and make them prone to disease and death.

The Florida Keys National Marine Sanctuary Water Quality Protection Program is administered by the U.S. Environmental Protection Agency and the Department. Through the program, water quality, seagrass meadows, and coral reefs have been monitored in the sanctuary since the mid-1990s. See http://floridakeys.noaa.gov/wqpp/welcome.html for more about the program. The following paragraphs summarize information from that site.

Water Quality Monitoring

The Water Quality Monitoring Project has been collecting data from 154 stations (see Figure 3) since 1995. From 1995-2010, near shore waters exhibited elevated levels of nitrate, an inorganic form of nitrogen found in plant fertilizers and sewage. In contrast, elevated nitrate concentrations were not present in the Tortugas.

Figure 3 – Florida Keys National Marine Sanctuary Water Quality Monitoring Project[1]



Coral Reef Monitoring

According to the Coral Reef Monitoring Program, mean stony coral species richness has decreased by 2.3 species per sampling station throughout the Florida Keys since monitoring began in 1996. Seventy-five percent of all stations show a decrease in species richness between 1996 and 2008. Of the 43 coral species initially recorded in 1996, 29 have decreased in presence while seven species have increased in presence. Mean species richness changed very little between 2008 and 2009 but is higher than in 2006, which was the low point since the program began.[2]

[1] *Image from http://serc.fiu.edu/wqmnetwork/Report%20Archive/2010FKNMSExec.pdf.*
[2] *Summarized from http://floridakeys.noaa.gov/scisummaries/wqcrem.pdf.*

Seagrass Monitoring

Seagrass meadows cover much of the seafloor in the National Marine Sanctuary. Turtle grass (*Thalassia testudinum*) is the dominant species in much of the sanctuary; it is slow-growing and thrives in low-nutrient conditions. As more nutrients become available, changes will occur in the dominant species.

According to the Seagrass Monitoring Program, scientists have recorded thousands of field observations and have not found significant overall loss of seagrass coverage in the sanctuary, but significant changes have occurred in species composition. In 19 of the 30 monitoring sites, the dominant species has shifted from turtle grass to other species, suggesting higher levels of nutrients. In some of the sites, turtle grass density increases were seen as well. Both trends indicate increased nutrients—as nutrient levels rise, turtle grass density increases first and then, with more nutrients, dense grass dies and is replaced with faster-growing species.[3]

Area of Critical State Concern

The State of Florida has formally recognized the sensitivity of Keys waters and the need for better wastewater treatment and stormwater management along with effective and timely hurricane evacuation. This formal recognition came when the Florida Legislature designated the Florida Keys an Area of Critical State Concern.

The Area of Critical State Concern program was created as part of the Environmental Land and Water Management Act of 1972, included in chapter 380, Florida Statutes (F.S.). The Area of Critical State Concern designation denotes areas of Florida that contain natural resources of regional or statewide importance, areas that are or will be significantly affected by major public facilities, or areas of major development potential. There are five designated areas:

1. City of Apalachicola (Franklin County)
2. Florida Keys, excluding Key West (Monroe County)
3. City of Key West (Monroe County)[4]
4. Green Swamp (portions of Polk and Lake counties)
5. Big Cypress Swamp (Collier County)

Section 380.0552, F.S., the Florida Keys Area Protection Act, establishes state policies to guide decision making at the local level to protect natural resources and the environment, reverse the deterioration of water quality, and facilitate orderly, well-planned growth while protecting property rights. The Act gives the Governor and Cabinet, sitting as the Administration Commission, oversight of local land use decisions.

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[3] *Summarized from http://floridakeys.noaa.gov/scisummaries/seagrassmonitor.pdf.*

[4] *The Florida Keys, including Key West, were originally designated an Area of Critical State Concern in 1974. Key West challenged the original designation and, after resolution of litigation, was re-designated separately in 1984.*

The Administration Commission has adopted growth management rules for the Florida Keys that include, among other requirements, the development of work programs for planning, design and implementation of centralized wastewater systems and upgraded onsite sewage treatment and disposal systems within Monroe County and its municipalities. These rules are contained within chapter 28 of the Florida Administrative Code (F.A.C.) Key West is not within the designation that is the current focus of the Administration Commission.[5] A comprehensive overview of the Keys Area of Critical State Concern, including the current compliance status of the affected local governments with their respective work programs, is available from the Florida Department of Economic Opportunity at: www.floridajobs.org/community-planning-and-development/programs/areas-of-critical-state-concern.

Monroe County Sanitary Wastewater Master Plan

The growth management rules and associated Monroe County Comprehensive Plan led to the completion of the Monroe County Sanitary Wastewater Master Plan (Master Plan) in 2000 (www.monroecounty-fl.gov/DocumentCenter/Home/View/1117). The Master Plan was predicated on research findings that nutrients (nitrogen and phosphorus) from wastewater were a major contributor to the decline of water quality in the Keys, and specifically that:

- Cesspits are illegal, provide very little treatment, and are a health hazard.
- Sewage discharges from cesspits and septic tanks are a source of nutrients and human pathogens.
- Septic tank systems remove a very small amount of nutrients.
- Aerobic treatment units (ATUs) and package treatment plants do not remove dissolved nutrients.

In an effort to bring about water quality improvements cost-effectively, the Master Plan focused on "hot spot" areas, generally defined by the Monroe County Cesspool Identification and Elimination Ordinance at the time as more intensely developed areas expected to be connected to a community wastewater collection and treatment system within the next 10 years, or by 2010. These were typically areas with illegal cesspits, numerous or densely clustered septic tanks, or small wastewater plants ("package plants"), where centralized wastewater service would make engineering and economic sense.

Other Water Quality Protection Requirements

In 1999, the Florida Legislature bolstered the rules of the Administration Commission through passage of sections 4-6 of chapter 99-395, Laws of Florida (L.O.F.). Sections 5 and 6 established specific treatment requirements for wastewater treatment facilities and onsite sewage treatment and disposal systems in the Area of Critical State Concern. The law required the owners of all wastewater facilities and onsite systems to meet specific treatment requirements by July 1, 2010, the same timeline established in the Monroe County ordinance and Master Plan referenced in the previous section. Section

[5] *See Administration Commission rules 28-18, 28-19 and 28-20, F.A.C.*

4 of the law authorized each local government within the area to require the connection of onsite systems and "package" (small) wastewater treatment plants to a central sewer system within 30 days of the notice of service availability. This provision allows local governments to generate the customer revenues necessary to finance wastewater facility construction and operation.

The Legislature amended section 6 of chapter 99-395, L.O.F., several times before repealing it and, along with section 5, replacing it in statutory law by sections 35 and 38 of chapter 2010-205, L.O.F. (http://laws.flrules.org/2010/205). Section 35 amended s. 381.0065, F.S., to update the onsite system requirements in the Area of Critical State Concern while section 38 created s. 403.086(10), F.S., to update the wastewater treatment requirements. Chapter 2010-205, L.O.F., also revised the statutory provisions related to the Florida Keys Area of Critical Concern in s. 380.0552, F.S., to link more closely to the water quality protection requirements in chapters 381 and 403, F.S.

Section 403.086(10), F.S., which the Department of Environmental Protection (Department) is responsible for enforcing, provides the following legislative findings: 1) poorly treated effluent from small wastewater facilities and onsite systems, including septic tanks, harms the coastal environment and threatens the local economy; 2) the only practical and cost-effective way to improve wastewater management is to implement Administration Commission rules and the 2000 Monroe County Master Plan; and 3) construction and operation of centralized wastewater systems is in the public interest. The law specifically:

- Prohibits facilities from discharging wastewater into surface waters.
- Places responsibility on local governments and special districts to build and begin operating central wastewater systems by December 31, 2015, in accordance with the Master Plan and schedules established by Administration Commission rules. (This locus of responsibility represents a significant change from chapter 99-395, L.O.F., which simply required any facility that was built to meet specific treatment requirements.)
- Carries forward the chapter 99-395, L.O.F., authorization for local governments to require facilities (package plants and onsite systems) owned by other entities to connect to central sewer within 30 days after notice that service is available.
- Carries forward the specific treatment standards from chapter 99-395, L.O.F., which must be met by December 31, 2015. The standards for Best Available Treatment (BAT) and Advanced Wastewater Treatment (AWT) are included in Table 1.

Table 1 – Wastewater treatment standards in the Florida Keys

Effluent (treated wastewater) concentration in milligrams per liter as an annual average*	**BOD**	**TSS**	**TN**	**TP**
BAT – applies to facilities with design capacities less than 100,000 gallons per day (generally, OSTDS and package wastewater treatment plants)	10	10	10	1
AWT – applies to facilities with design capacities equal to or greater	5	5	3	1

than 100,000 gallons per day (central wastewater treatment systems)				

**BOD = Biochemical Oxygen Demand; TSS = Total suspended solids; TN = Total nitrogen; TP = Total phosphorus. One milligram per liter is equal to one part per million.*

Section 381.0065 (4)(l), F.S., similarly requires onsite sewage treatment and disposal systems (e.g., septic tanks) to comply with the BAT standards listed in Table 1 or, in the case of total nitrogen, a certified technology-based standard of 70% nitrogen removal, by the 2015 deadline. The technology-based standard was added during the 2013 legislative session through passage of HB 375 (now chapter 2013-079, L.O.F.). That legislation also extended the time property owners, who have already spent money on improved onsite systems, are allowed before they must connect to central wastewater systems. Most private entities with package plants and homeowners with septic tanks will ultimately rely on connecting to local government centralized systems to comply with the December 2015 deadline.

Status of Wastewater Facilities and Connections

Once the central systems have been completed, the majority of wastewater service in the Florida Keys will be provided by local governments. The current status of facilities is summarized below.

Upper Keys

Service is or will be provided primarily by the Key Largo Wastewater Treatment District (Key Largo), Islamorada and Layton.

Currently the area served by Key Largo begins where U.S. Highway 1 enters the Florida Keys at mile marker 107 and extends down Highway 1 to Tavernier at mile marker 91. See Figure 4 on the next page.

Service to additional areas to the north is being designed and will extend up County Road 905 to and including Charlemagne Boulevard. These facilities are expected to be completed in February 2014.

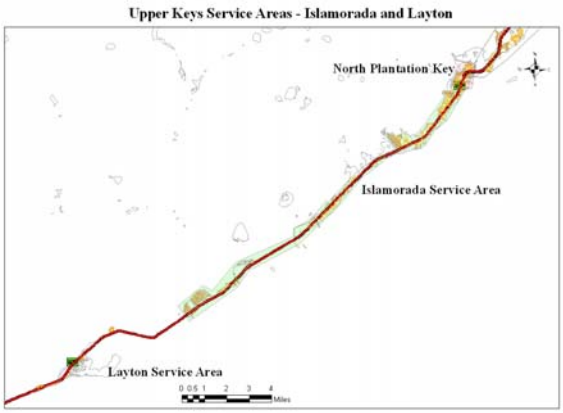
Figure 4

Islamorada and Layton are located south of Key Largo. The Islamorada service area extends down U.S. 1 from mile marker 90 to mile marker 74. Currently, the only area with central wastewater service is on North Plantation Key just south of Tavernier. Once Islamorada's regional collection and transmission system is placed on line, treatment for this entire service area will be provided by Key Largo under a service agreement with Islamorada signed on May 22, 2012.

The service area for Layton currently includes the city itself and Long Key State Park, from mile marker 69 to 67. Expansion of the service area to incorporate the entire island of Long Key from mile marker 66 to 70 is to begin construction in early 2014.

East Long Key extends from mile marker 67 to 70. A collection and transmission system will be constructed to the Layton Wastewater Treatment Plant, which will be expanded to accommodate approximately 30,000 additional gallons of flow per day and modified to provide reclaimed water. West Long Key is located at mile marker 66. With the exception of the Outdoor Resorts Community, which is upgrading its package plant to BAT standards, the properties in this service area will be served by the Layton Wastewater Treatment Plant once the collection and transmission system is completed. See Figure 5 for the Islamorada and Layton service areas.

Figure 5



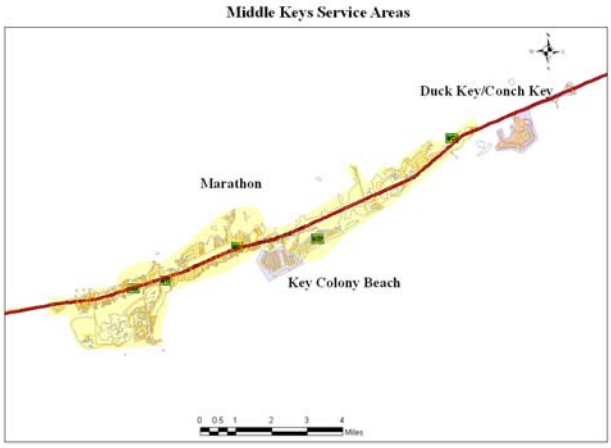
Middle Keys

Further down the Florida Keys are Conch Key, Duck Key, Marathon, and Key Colony Beach. Conch Key and Duck Key are served by a Monroe County treatment facility located in Hawks Cay resort. The service area for this system extends from mile marker 63 to mile marker 60.

Marathon divided its facilities into multiple service areas as a cost saving measure. There are seven service areas from mile marker 60 to mile marker 47, which are served by five wastewater treatment plants.

The third local government providing wastewater service in the middle keys is Key Colony Beach, accessed via a causeway south of mile marker 54, which built central wastewater facilities many years ago. See figure 6 for the service areas in the Middle Keys.

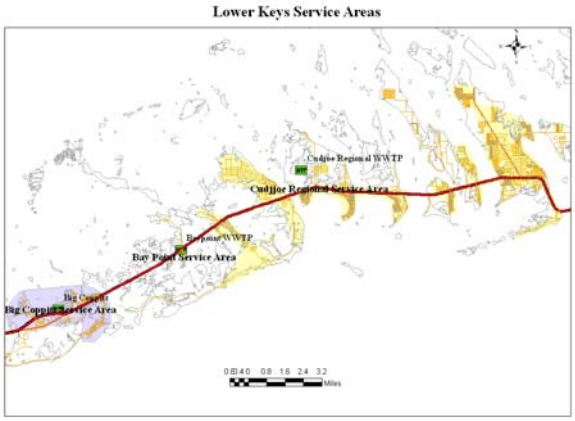
Figure 6



Lower Keys

The Lower Keys, excluding Key West and Key West Resort Utilities (including treatment for Stock Island), are served by four Monroe County treatment facilities: the Big Coppitt, Bay Point and Key Haven wastewater systems, and the Cudjoe regional wastewater system. The Cudjoe service area stretches from mile marker 33 to mile marker 16; Bay Point is at mile marker 15; the Big Coppitt system extends from mile marker 12 to mile marker 8; and Key Haven is located at mile marker 5.5. Figure 7 identifies the Lower Keys service areas.

Figure 7



Remaining Construction

Construction of wastewater collection, treatment and disposal facilities necessary to meet the December 31, 2015 deadline is essentially complete for systems serving Key Largo and Layton in the Upper Keys, Marathon, Conch Key/Duck Key in the Middle Keys, Bay Point, and Big Coppitt.

The Layton Wastewater Treatment Plant will be expanded to accommodate flows from East Long Key and West Long Key and modified to provide reclaimed water. Transmission and collection systems will be constructed to deliver flows to the plant. Construction is anticipated to begin in 2014.

In Islamorada, the system serving North Plantation Key is complete and in operation. Islamorada has entered into a design-build contract to construct a collection and transmission system to serve the rest of the Village. Construction is underway in Middle and South Plantation Key. Construction of the collection systems on Windley, Upper Matecumbe, and Lower Matecumbe keys will begin as soon as the designs are complete and the required permits are obtained, all of which is anticipated by the end of 2013. As already noted, treatment for Islamorada will be provided by the advanced wastewater treatment plant operated by Key Largo. The transmission main to Key Largo is under construction. All facilities in Islamorada are scheduled to be completed by December 2015.

Key Colony Beach invested in a centralized wastewater treatment and disposal system many years ago. The plant is currently operating in a “secondary treatment” mode, which is less stringent than the treatment required by the December 2015 deadline. The plant is capable of operating as an advanced treatment facility to meet the statutory requirements and Key Colony Beach is prepared to make the conversion, including replacing the existing membrane system. Because Key Colony Beach planned and built its facilities early on, the community is not included in the Monroe County Master Plan and has not been a focus of the Area of Critical State Concern work program.

Construction on Monroe County’s Cudjoe regional system began in January 2013 with construction of the advanced wastewater treatment facility and the “inner islands” collection system. The “outer islands” collection system will be built through a design-build contract. All facilities are expected to be complete by early 2016, but substantial completion and start-up for the last phases of the collection system are scheduled for December 2015. The treatment facilities for the regional system are expected to be substantially complete and in operation by January 2015.

The Florida Keys Aqueduct Authority acquired the aging Key Haven Wastewater Treatment Plant from the Key Haven Wastewater Utility in 2009. The plant does not currently meet BAT standards and collection system testing and analysis indicate adverse inflow and infiltration issues. The collection system will be refurbished and the plant will be abandoned with flows being directed to one of the neighboring compliant treatment plants. Construction is slated to begin in 2014. Table 2 summarizes service area progress.

Table 2 – Wastewater Project Status by Service Area

Project	General Comments
Key Largo WWTD	The WWTP in operation and meeting standards. The collection system and transmission mains are essentially complete and service is available to almost all potential customers. Some outlying areas are still under construction.
Islamorada	North Plantation Key is complete and in operation. The collection system for Middle and South Plantation Key is under construction. The collection system for the rest of Islamorada is currently being designed and constructed as part of the design/build contract. All treatment will eventually be done at the KLWTD WWTP.
East Long Key	The project is in the design phase. A collection and transmission system will be constructed to the Layton Wastewater Treatment Plant, which will be expanded to accommodate the flow and upgraded to allow for utilization of reclaimed water. Construction is anticipated to begin in 2014.
Layton	Complete and in operation.
West Long Key	The project is in the planning phase. A collection system is proposed to be constructed to deliver flows from West Long Key residents and businesses, excluding the Outdoor Resorts Community, to the Layton Wastewater Treatment Plant. Construction is anticipated to begin in 2014.
Marathon	Phase One complete, consisting of Wastewater Service Areas 1 and 3-7. Phase Two consists of 0.1 MGD plant and wastewater collection system equipment and infrastructure for connections that were value-engineered out of Phase One because properties were vacant or required utility easements were not in place at the time of construction. Phase Two also includes extensions to the reclaimed water distribution system and a maintenance facility.
Conch Key, Duck Key, and Hawk's Cay	Collection system complete - wastewater is pumped and treated at Hawks Cay.
Key Colony Beach	Centralized wastewater facilities completed before 2000. The plant currently operates at “secondary treatment” and can meet the advanced treatment requirements of the 2015 deadline with chemical addition. Note that the membrane system for this membrane bioreactor facility is at the end of its useful life and is in need of replacement.
Key Haven	The collection system will be refurbished to correct extensive inflow and infiltration and the treatment plant will be abandoned with flow directed to one of the neighboring compliant plants. Construction is expected to begin in 2014.
Cudjoe Regional	Construction of the WWTP and the inner islands collection system began on 1/24/13. The outer islands collection system is currently in design.
Bay Point	Complete and in operation.
Big Coppitt Regional	Complete and in operation.
Stock Island	The collection system is mostly complete, with only a small portion that is expected to be constructed in the near future.

Connection to Available Wastewater Facilities

When the Master Plan was developed, potential service areas were evaluated based on "equivalent dwelling units," or EDUs. In this way, single-family dwellings, multi-family dwellings, businesses and other potential service units could be equalized for analytical purposes. According to page 52 of the Master Plan, an EDU represented 145 gallons per day of wastewater. Connection of EDUs serves as a general gauge of progress in achieving state and local water quality improvement objectives in the Keys.

It should be noted that as detailed planning, design and construction have progressed, there have been changes in the determination of EDUs, and even the equivalent value of EDUs, to be connected to central wastewater service. Some changes are based on engineering choices, but a significant factor has been the decline in Monroe County's population since the time of the Master Plan. According to the U.S. Census, population decreased by about 8% between 2000 and 2010. Most of this decline, both in absolute number and by percentage, occurred outside Key West. (It appears the County's population is once again on the rise, with about a 2.4% jump between 2010 and 2012.[6]) For these reasons, the characterizations of EDU connections that follow are an approximation.

About 50% percent of projected EDUs have been connected to date. (This figure excludes Key West and Key Colony Beach, which were completely sewered many years ago.) Some 64% of the EDUs have central wastewater service available, meaning that connections are lagging somewhat behind service availability. See Table 3 for details.

Table 3 – Equivalent Dwelling Unit (EDU) Status by Service Area (Estimate)

Project	EDUs	Connected[7]	Project Complete – Being Connected	Project Under Construction	Project in Planning or Design
Key Largo Wastewater Treatment District	14,572	11,923	2,649	146	0
Islamorada	7,556	1,055	648	5,853	0
East Long Key	225	0	0	0	225
Layton	351	351	0	0	0
West Long Key	72	0	0	0	72
Marathon*	10,180	6,921	2,260	0	599
Conch Key, Duck Key, Hawk's Cay	1,454	1,051	403	0	0
Cudjoe Regional	8,800	0	0	8,800	0
Bay Point	437	420	17	0	0
Big Coppitt Regional	1,713	1,315	398	0	0
Key Haven	450	0	0	0	450

[6] *The population data and other demographic attributed to the Census have been gathered through the Census's online portal at http://www.census.gov/.*

[7] *As noted in the text, there have been changes in EDUs and projected EDU connections over time, and this will likely continue, if only marginally, until completion of remaining facilities. For that reason, the total of connected and to-be-connected EDUs does not equal the total EDUs estimated in the Master Plan.*

Bahia Honda	377	0	0	0	377
Totals	46,187	23,036	6,375	14,799	1,723

**Includes Phase Two treatment plant capacity expansion.*

Project Costs

As outlined in the project status section, most wastewater facilities in the Keys have been completed and final costs are available. In securing cost estimates, the Department has relied on the various local governments for information on the facilities, or components of facilities, that have been financed locally or with funding from other agencies. The Department can only directly document the costs associated with the grant and loan funding it has provided, and it has verified this information with the local governments as well.

Two major projects remain to achieve compliance with the December 2015 deadline: the Islamorada regional collection and transmission system and the Monroe County Cudjoe regional wastewater facilities. Until construction is completed, cost estimates are based on construction contract documents, which can change over time for a variety of circumstances. The contract to construct and operate the Islamorada project was awarded in August 2012, with an estimated cost of $141 million. The cost for the Monroe County Cudjoe regional project is estimated at $137.4 million.

Table 4 summarizes the best available information on project costs for all of the facilities in the Area of Critical State Concern. Original planning costs and some design costs are not available to the Department. Figure 8 illustrates the current estimated costs based on completed construction of most facilities and executed contracts for construction of the Islamorada and Monroe County-Cudjoe facilities.

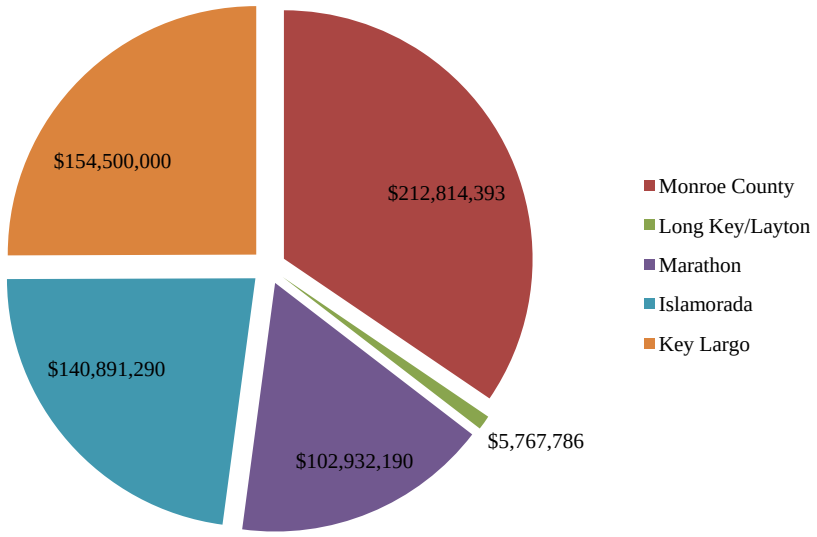
Table 4 – Estimated Project Costs by Local Government

Planning (Service) Area	Estimated Cost in Master Plan[8]	Master Plan Update 11-07	Estimated Current Costs[9]
Monroe County	$124,012,000	$302,600,000	$212,814,393
Long Key/Layton	$3,540,000	$6,480,000	$5,767,786
Marathon	$77,480,000	$110,650,000	$102,932,190
Islamorada	$75,670,000	$169,700,000	$140,891,290
Key Largo	$119,360,000	$248,290,000	$154,500,000
Totals	**$400,062,000**	**$837,720,000**	**$616,905,659**

[8] *The Master Plan was prepared in 2000. Master Plan costs adjusted to 2013 dollars equal $541,154,240.*

[9] *The wide variation in estimated and actual costs is attributable to a variety of factors, including macroeconomic circumstances affecting equipment and labor costs and adjustments in service areas and project configurations between the planning and construction phases.*

Figure 8 – Estimated Project Costs, Completed and Ongoing Projects



State and Federal Grant Funding

Since 2000, based on the best information available[10], communities in the Florida Keys have received approximately $174 million in grants for wastewater projects from various state and federal sources (see Table 5 and Figure 9). These grants have come from direct legislative line item appropriations provided primarily through the Department's budgets. Grants have also come from other entities, including the South Florida Water Management District (SFWMD), the Federal Emergency Management Agency (FEMA), the U.S. Army Corps of Engineers (USACOE), and the U.S. Environmental Protection Agency (EPA).

The award of state grant funds has been governed by different proviso language in the General Appropriations Act from year to year. In some years, proviso set forth the distribution of money. In other years, proviso required the local governments to agree on a distribution, including consideration of certain criteria upon which to base the agreement. Grants awarded by the SFWMD and the several federal agencies were determined based on the programmatic criteria of those agencies, whether related to water quality, economic or emergency response considerations.

The most recent grant funding directly related to meeting the wastewater compliance deadline of December 2015 was derived from the issuance of $50 million in Everglades bonds pursuant to s. 215.619, F.S., dated April 25, 2013.[11] This section of law authorizes up to $200 million in bonds, limited to $50 million per fiscal year, to fund the Florida Keys Area of Critical State Concern protection

[10] *DEP can directly account for funds that the agency has awarded. The amounts for other grant funds are based on information from the respective agencies or from the local government recipients of the grants.*

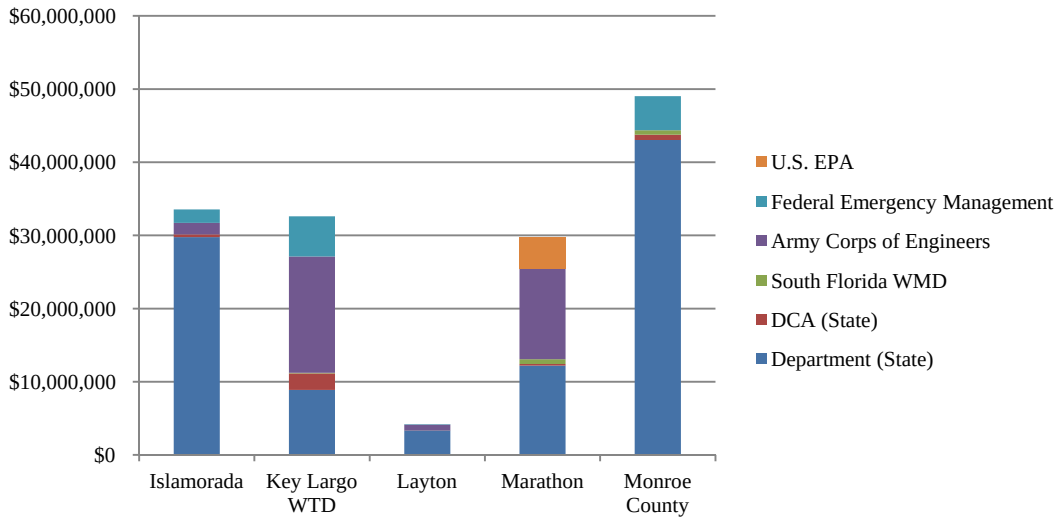
[11] *State of Florida, Department of Environmental Protection, Everglades Restoration Revenue Bonds, Series 2013A $46,445,000 (Dated 04/25/2013). Official Statement available:* https://www.sbafla.com/fsb/portals/bondfinance/archive/OfficialStmts/EnvironmentalPrgm/Everglades/EVERGLADES2013A_FOS.pdf

program. The 2012-13 General Appropriations Act appropriated the first year's estimated debt service along with budget for receipt of bond proceeds, and included proviso establishing that the proceeds would be split between Monroe County (60%) and Islamorada (40%). The Department entered into grant agreements awarding these funds on June 13, 2013 and July 16, 2013, respectively.

Table 5 – Estimated State and Federal Grants since 2000

Local Government	Department (State)	DCA (State)	South Florida WMD	Army Corps of Engineers	Federal Emergency Management	U.S. EPA	Total Grant Funds
Islamorada	$29,763,760	$ 381,730	$0	$1,560,430	$1,844,910	$0	$ 33,550,830
Key Largo WTD	$8,885,312	$ 2,239,286	$100,000	$15,904,906	$5,485,714	$0	$ 32,251,596
Layton	$3,350,000	$ 9,000	$0	$782,238	$ 56,000	$0	$ 4,197,238
Marathon	$12,213,758	$ 214,000	$ 653,200	$12,345,669	$ -	$ 4,326,000	$ 29,752,627
Monroe County	$43,028,445	$ 735,000	$ 613,400	$0	$4,650,000	$0	$ 49,026,845
Totals	**$97,741,275**	**$3,579,016**	**$1,366,600**	**$30,593,243**	**$12,036,624**	**$4,326,000**	**$148,779,136**

Figure 9 – Estimated State and Federal Grants since 2000

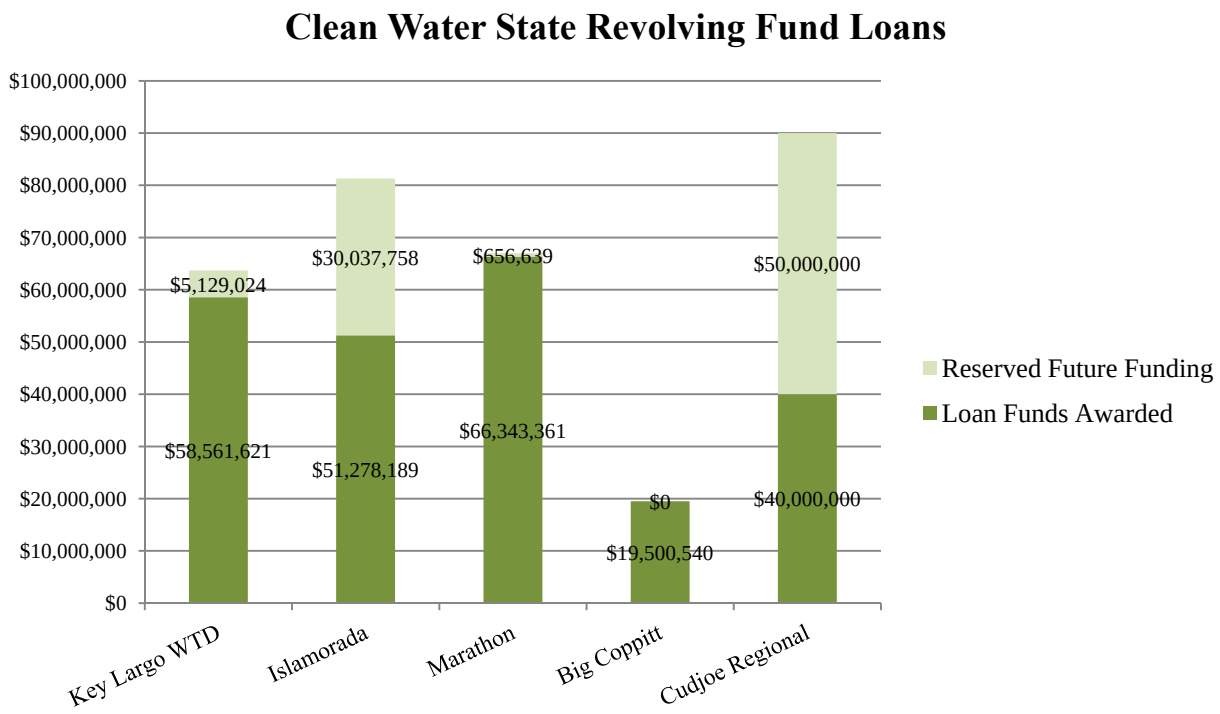


Loan Funding

The Department's Clean Water State Revolving Fund (SRF) loan program has been financing projects in Monroe County since an initial loan to Key Colony Beach on July 15, 1998. Key West received a loan on February 9, 2001. All SRF loans are awarded at substantially below-market interest rates. At present, the subsidy on interest rates is primarily based on the economic wherewithal of the recipient community based on an "affordability index."

Key Largo, Marathon, Islamorada, and Monroe County have been active in the SRF program more recently. Figure 10 illustrates SRF loan funding to these communities as of July 2013. The graph includes loans awarded and reserved future funding. At present, large loan commitments remain for Islamorada ($30 million) and the Monroe County Cudjoe project ($50 million). The communities may opt not to take all of the future loans based on changing project costs and receipt of other funds, if any.

Figure 10



It is worth noting that Monroe County and its local governments have pursued and received more SRF loan funding since 2000 than all but one other county (Lee). Because participation in the loan program is voluntary, the reasons local governments choose to do so vary. Taking on the debt burden associated with SRF loans—even though they are subsidized and substantially less costly than conventional financing—requires careful consideration. Participation in the program may reflect local demand for infrastructure or the need to build infrastructure to meet general or specific federal or state requirements. SRF funds may be borrowed to finance entire projects or they may be part of a portfolio of financing. Thus, comparing communities should be considered in that light. Figure 11 identifies the 10 areas (county and local governments within county) receiving the most SRF loan dollars since 2000.

Figure 11

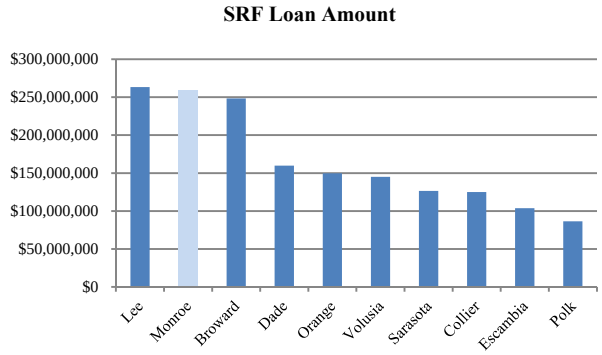
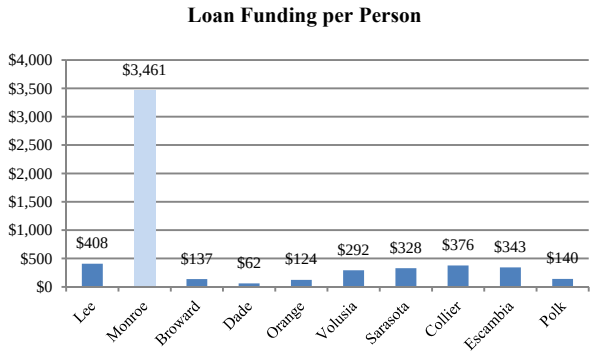


Figure 12



Among these top ten SRF program participant counties, Monroe County communities have received more loan funding per person (Figure 12). (Key West received a relatively small share of these loan dollars.) While this fact means that Monroe County residents have benefited from much less expensive project financing than would be the case in the private market, it also means that they have taken on substantial obligations through their costs for wastewater service to enable that debt to be paid off (see Wastewater Rates, Fees and Charges, below).

Wastewater Funding Impacts

The Governor's veto letter calls for an evaluation "of the uses and impact of prior state funding" and "recommendations for actions needed to address the continued funding." Impacts to date and future demand cannot be measured with any single metric because of the differences in projects, implementation timing, the economic dynamics in effect when funding was received, the underlying economic differences among the communities, and a host of other factors. In order to provide context for considering the need for future funding, this report presents several measures of assistance and local economic circumstances in this section and those that follow.

The simplest way to consider the affect of financial assistance is to compare all forms of subsidies with the total estimated project costs for each community (see Table 6). The last column identifies Department awarded or reserved low-interest SRF loan funding, which saves substantial money when compared to any form of conventional market or bank financing.

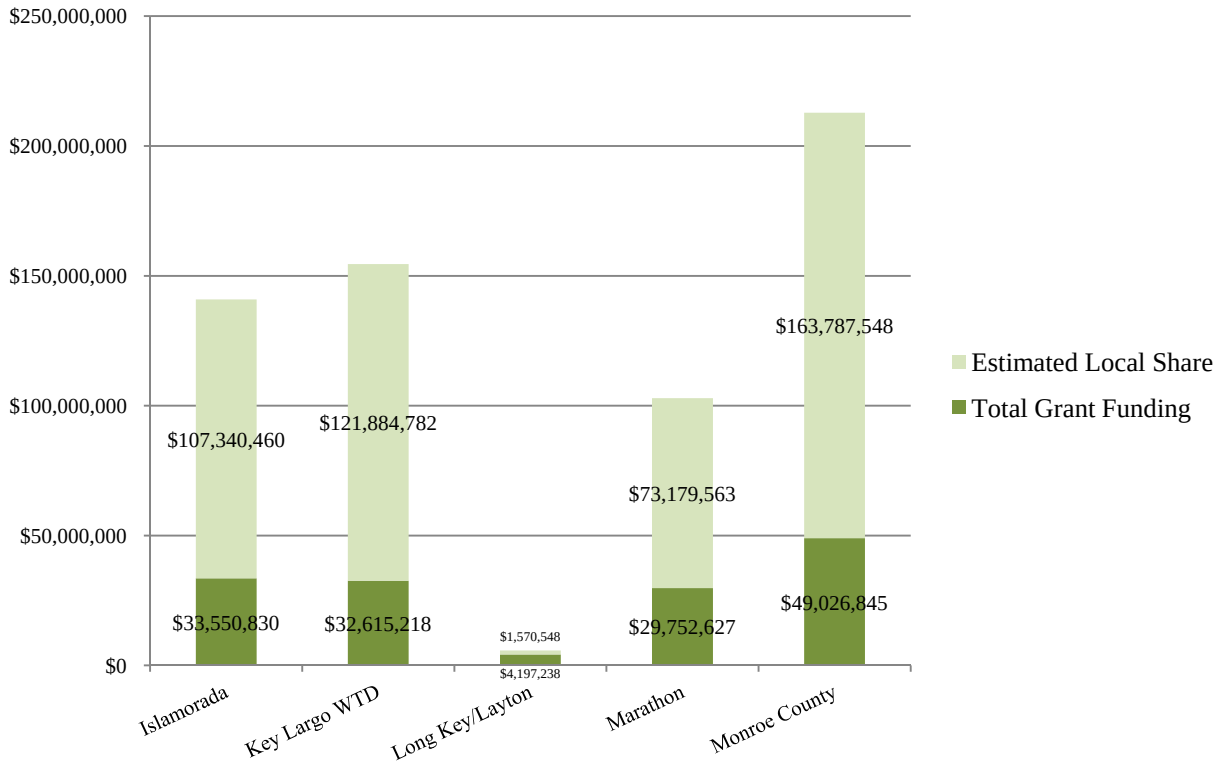
Table 6 – Comparison of Current Keys Project Costs to Estimated Financial Assistance since 2000

Local Government	Final or Current Project Costs	Estimated State Grant Funding	% of State Grant Funding	Estimated Other Grant Funding	Total Grant Funding	% of Total Grant Funding	Department SRF Low-Interest Loans[12]
Islamorada	$140,891,290	$30,145,490	21.4%	$3,405,340	$33,550,830	23.8%	$101,315,947
Key Largo	$154,500,000	$11,124,598	7.2%	$21,490,620	$32,615,218	23.1%	$63,690,645
Long Key/Layton	$5,767,786	$3,359,000	58.2%	$838,238	$4,197,238	72.8%	$0
Marathon	$102,932,190	$12,427,758	12.1%	$17,324,869	$29,752,627	28.9%	$67,000,000
Monroe County	$212,814,393	$43,763,445	20.6%	$5,263,400	$49,026,845	23.0%	$109,500,540
Totals	**$616,905,659**	**$100,820,291**	**16.3%**	**$48,322,467**	**$149,142,758**	**24.2%**	**$341,507,132**

Figure 13 illustrates the relationship between the grant funding the Monroe County communities have received and their estimated local shares. It must be reiterated that these estimates are based on the best information available to the Department and have been verified wherever possible.

[12] *As noted in the loan funding section, loans here include those already awarded and, for Islamorada and Monroe County, reserved future funding. Depending on project costs, timing and receipt of other funds, if any, they may decide not to take the reserved funds.*

Figure 13
Keys Project Costs – Estimated Local Share and External Grant Funding



Economic Information

There are innumerable ways to characterize the economic circumstances of communities. Each one has limitations and biases. The best way to minimize these limitations and biases is to examine a number of different data sets for context.

Wastewater Rates, Fees and Charges

The cost of wastewater service is influenced by a wide variety of circumstances, including location, physical difficulty of building facilities and providing service, total population and population density, timing and economic circumstances, the ability of planning to anticipate and provide for growth, etc. Beyond the cost, the manner by which rate structures are established and individual rates, fees and other charges are assessed varies from community to community. In many communities, wastewater rates are combined with water use rates in one monthly fee. Thus, direct comparisons of rates, fees and charges from one community to another can be misleading. That fact should be kept in mind when considering the information in Table 7.

Table 7 – Monroe County Wastewater Rates

Service Area	Base Rate (standard meters	User Charge per 1,000 gallons	Cost for 6,000 gallons	System Development Charge*	Notes
Stock Island	$17.81	$3.87	$41.03	$2,700	
Big Coppitt	$27.05	$10.24	$88.49	$4,500	
Bay Point	$27.05	$10.24	$88.49	$2,700	
Cudjoe Regional System	$27.05	$10.24	$88.49	$4,500	
Conch Key/Duck Key	$27.05	$10.24	$88.49	$4,500	$4,500 is the SDC for the recently completed project serving 1,173 EDUs. The SDC for 281 EDUs connected in 2005 was $2,700.
Key Haven	$27.05	$10.24	$88.49	$1,800	
Long Key/Layton	$27.05	$10.24	$88.49	$3,400	
Long Key East and West	$27.05	$10.24	$88.49	TBD	
Marathon	$35.97	$8.06	$84.33	$4,681	
Islamorada Regional System	$49.01	$6.27	$86.63	$6,392	
Key Largo	$33.60	$5.27	$65.22	$5,700	Original SDC charges for Key Largo were $4,770 and have incrementally increased over time. The average SDC is estimated at $5,000.

*A system development charge is a one-time fee intended to cover the impact of each additional user on the system; these charges are sometimes called impact fees.

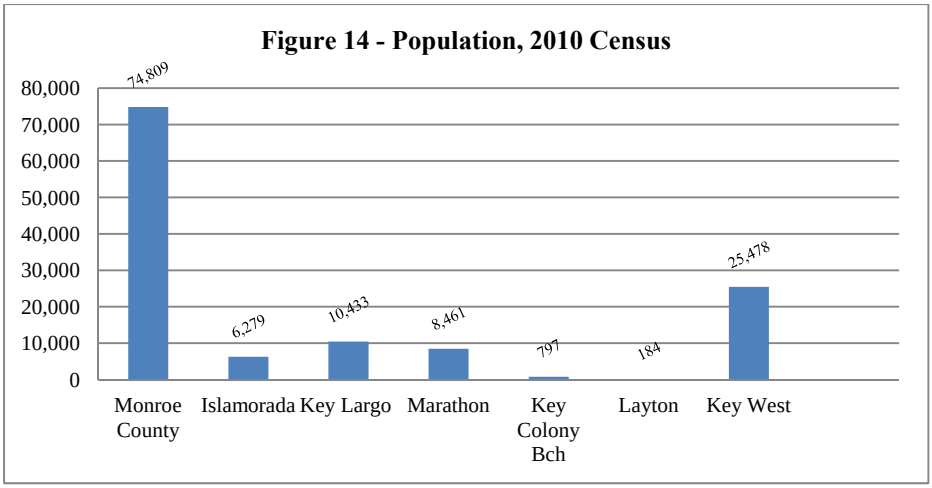
The rates for several other Florida communities for which data are readily available include:

- Tallahassee – $16.50 customer charge; $5.27 per 1,000 gallons ($48.12 per 6,000 gallons).
- Apalachicola – $12.00 residential base charge; $3.30 per 1,000 gallons. As a result of financing, these rates are projected to go to $18.81 base and $5.16 per 1,000 gallons by 2018 ($49.77 per 6,000 gallons).
- Lee County - $16.27 single-family service charge; $5.59 per 1,000 gallons ($49.81 per 6,000 gallons).
- Collier County - $26.94 service availability charge; $3.79 per 1,000 gallons ($49.68 per 6,000 gallons).

Unfortunately, the disparity in the way rates and fees are assessed and reported means that the information does not speak for itself. It is safe to say that the customer costs of wastewater service in the Keys are more expensive than many if not most communities in Florida. The costs have been mitigated to a significant extent by state and federal grant funding as well as Clean Water SRF low-interest loans.

Demographics

Figures 14 – 21 illustrate select Census and Florida Department of Revenue (DOR) data. Certain local governments outside Monroe County are included for comparison because they appear to have some similarity to the Monroe County communities because of population or Area of Critical State Concern status. In all cases, overall State of Florida information is included for reference. Both the Census and DOR make much more data available that could be used to further refine the picture. Census data are available at www.census.gov/; Florida Department of Revenue information is available at http://dor.myflorida.com/dor/.



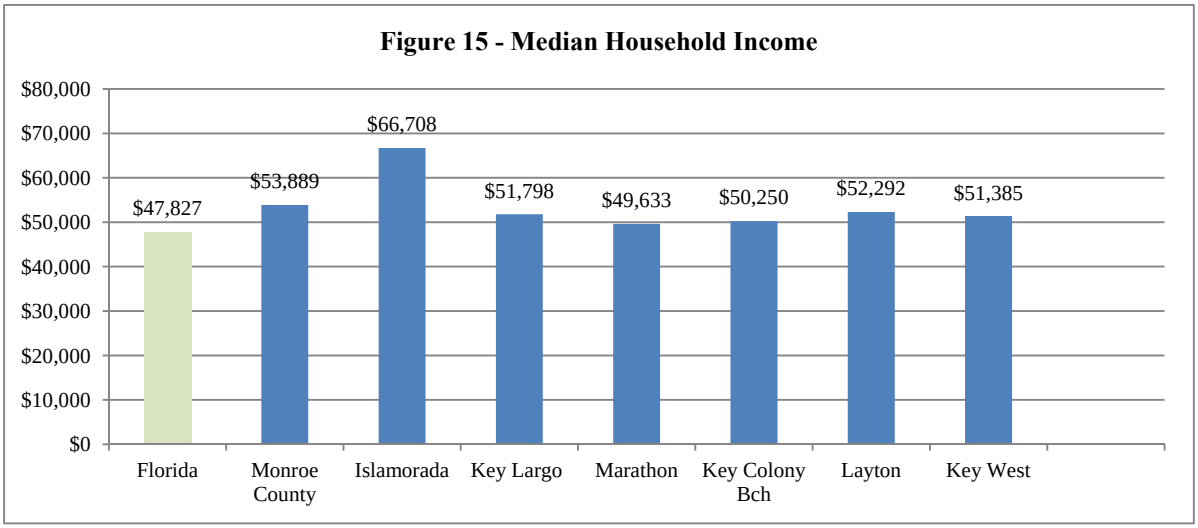


Figure 16 - Per Capita Income

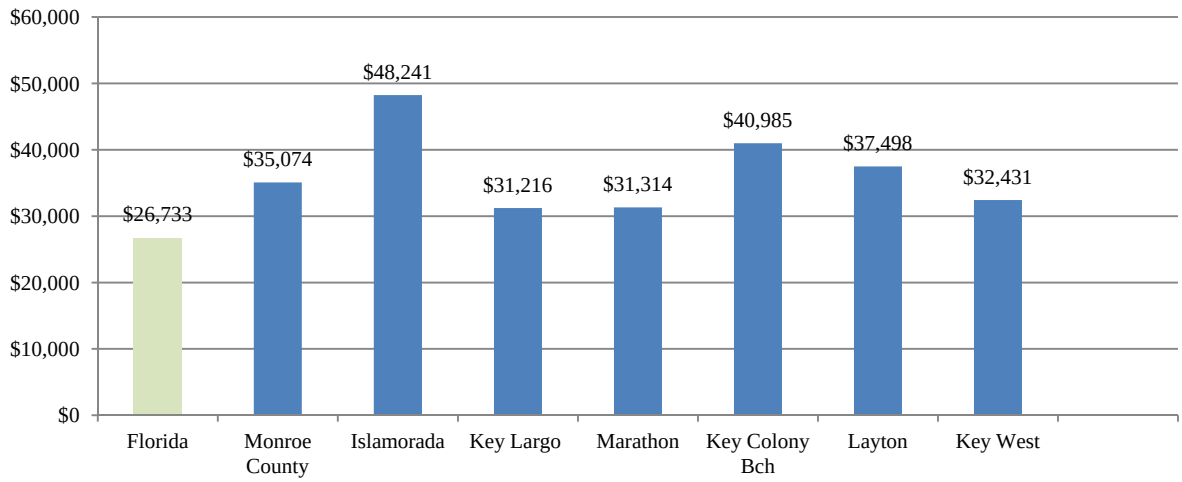


Figure 17 - Median Owner-Occupied Home Value

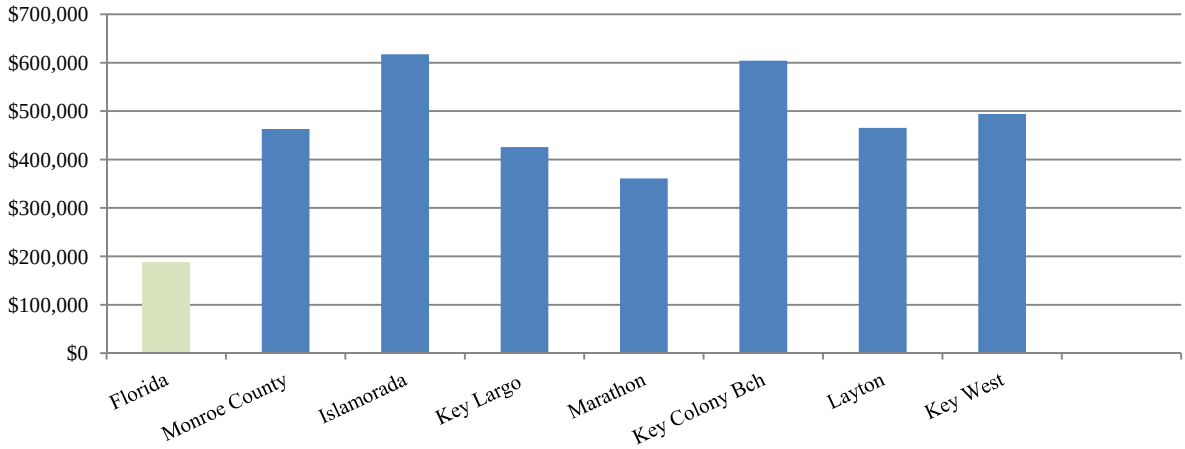
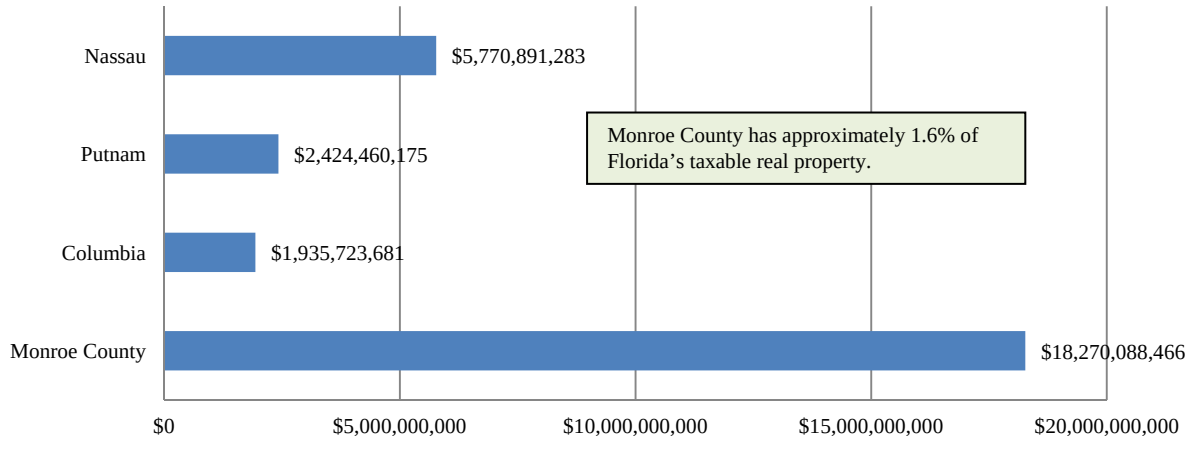


Figure 18 - Taxable Real Property
Monroe County and Other Comparably Sized Counties in Florida



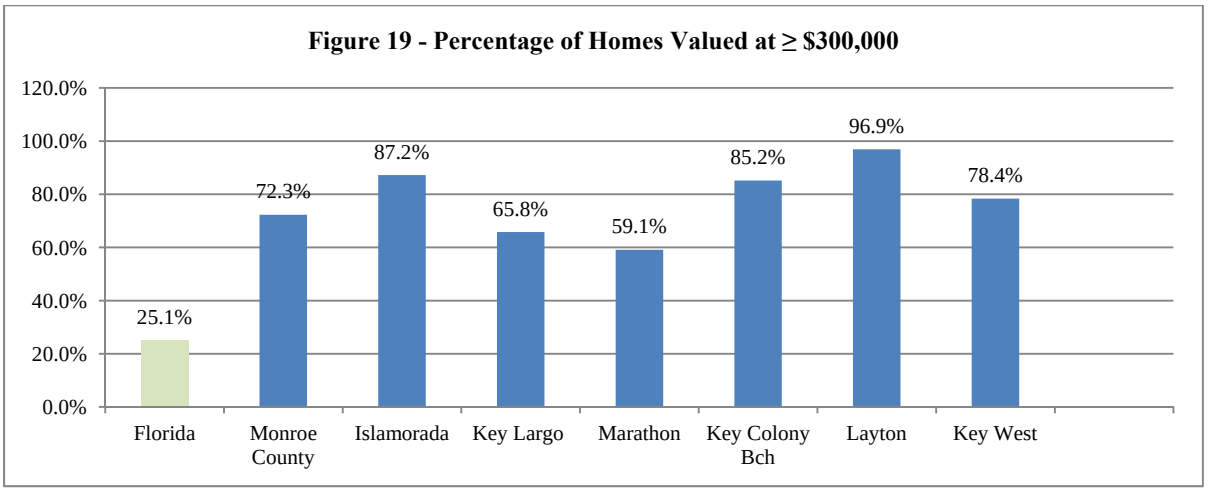


Figure 19 - Percentage of Homes Valued at ≥ $300,000
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
25.1%
72.3%
87.2%
65.8%
59.1%
85.2%
96.9%
78.4%
Florida
Monroe County
Islamorada
Key Largo
Marathon
Key Colony Bch
Layton
Key West

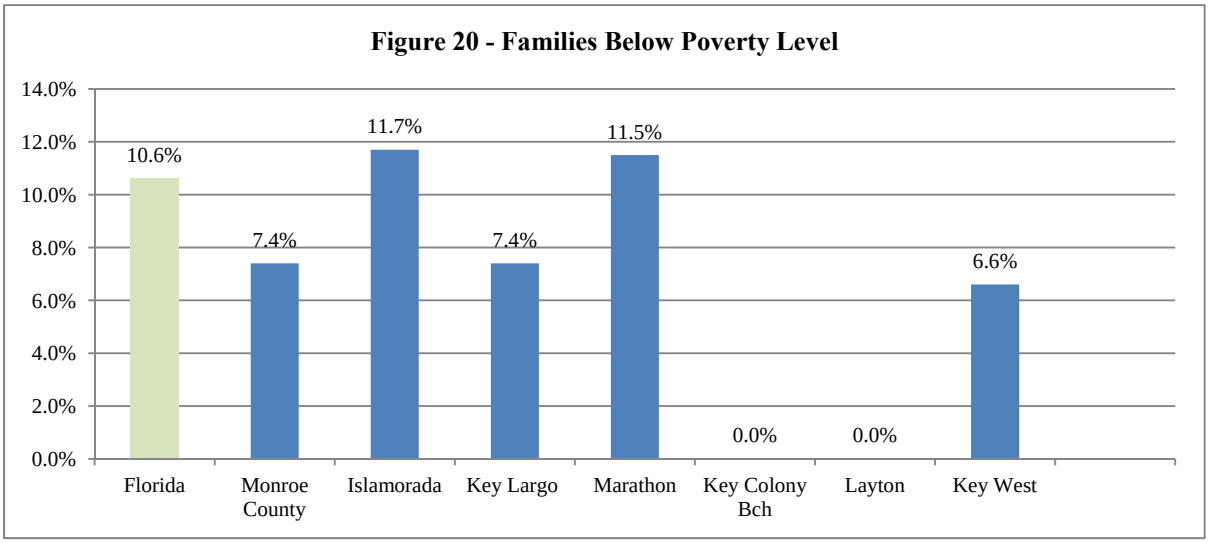


Figure 20 - Families Below Poverty Level
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
10.6%
7.4%
11.7%
7.4%
11.5%
0.0%
0.0%
6.6%
Florida
Monroe County
Islamorada
Key Largo
Marathon
Key Colony Bch
Layton
Key West

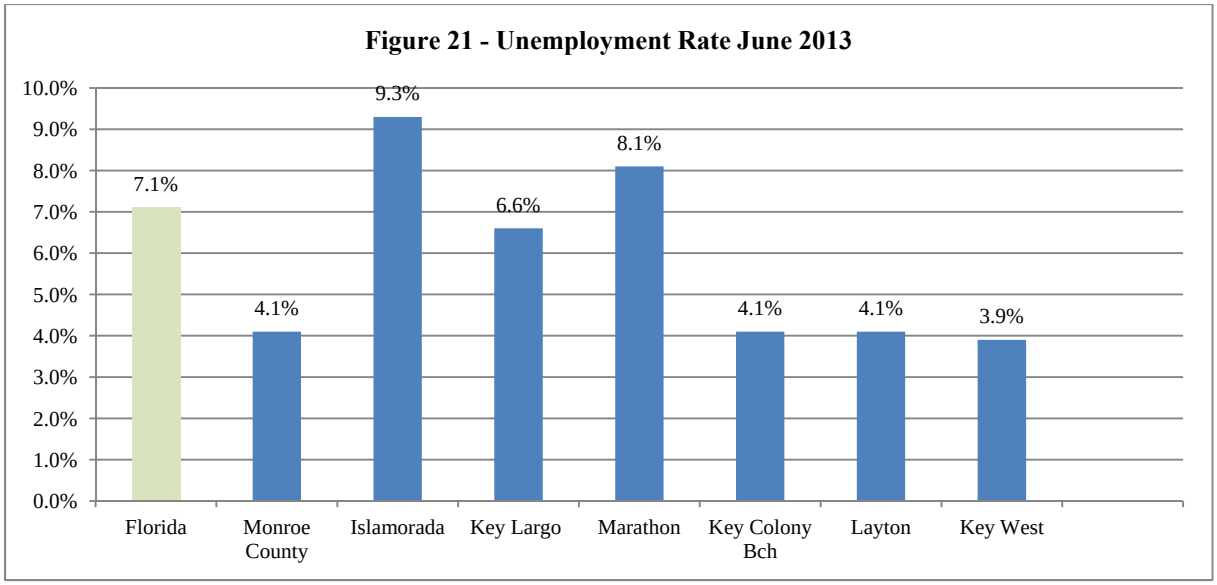


Figure 21 - Unemployment Rate June 2013
10.0%
9.0%
8.0%
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
7.1%
4.1%
9.3%
6.6%
8.1%
4.1%
4.1%
3.9%
Florida
Monroe County
Islamorada
Key Largo
Marathon
Key Colony Bch
Layton
Key West

Conclusions and Recommendations

This report has set forth information related to wastewater requirements, construction costs, funding, and economic and demographic information in the Florida Keys Area of Critical State Concern. The Governor's veto letter also charges the Department and Department of Economic Opportunity to recommend actions needed to address the continued funding of wastewater projects in the Florida Keys.

Clean Water State Revolving Fund

The Department continues to fund Keys projects through its Clean Water SRF loan program. Islamorada and Monroe County are in the middle of building large projects necessary to meeting the December 2015 wastewater treatment deadline and for which they have collectively been awarded $91.3 million to date and could receive up to another $100 million. Key Largo and Marathon are also on the SRF program's list for small increments of additional funding in addition to the $125 million they have been awarded to date.

The SRF program remains open to the local governments in the Keys for other wastewater and stormwater projects, as it does to other communities across Florida. The program has a publicly adopted and federally approved priority system that allows projects to fairly compete based on their beneficial impact on public health and pollution abatement, particularly in Florida's priority waterbodies. Keys projects are always competitive in the program and likely to receive funding if funds are available.

Everglades Bonding Authority

Keys wastewater projects are also potentially eligible to receive additional funding for wastewater management projects from Everglades bond proceeds. Under s. 215.619(a)(2), F.S., the Legislature has authorized bonds—not to exceed $200 million in total, limited to $50 million per fiscal year—to fund the cost of constructing sewage collection, treatment, and disposal facilities in the Florida Keys Area of Critical State Concern. The Department is the designated agency to receive bond proceeds, if any, and enter into financial assistance agreements with the local governments to finance or refinance project costs.

The Legislature appropriated budget to the Department in 2012-13 for the purpose of obligating $50 million in bond proceeds, which bonds were dated April 25, 2013 and which have been obligated to Islamorada and Monroe County. Therefore, under s. 215.619(a)(2), F.S., $150 million of the $200 million in authority remains to be appropriated should the Legislature choose to do so. The Division of Bond Finance is the appropriate entity for addressing technical questions about the mechanics of selling bonds and the significance of tax and other considerations associated with refinancing versus original financing.

Legislative Line Item Appropriations for Projects

The Legislature periodically appropriates money by budget line item for specific local governments or other entities. For example, for fiscal year 2013-14, the Legislature included several dozen such projects in the Department's budget, including $1 million each for wastewater projects in Marathon and Key Largo.

Summary

The Department has identified several available state sources of project funding that could be applied to wastewater projects in Monroe County. One of those sources, previously authorized (but not fully appropriated) bond-related grant funds identified expressly for wastewater projects in the Keys, lies within the discretion of the Legislature to continue. The other two sources, Legislative line item appropriations and the Department's own Clean Water SRF program, invoke the Department's statutorily defined role as an objective reviewer of potential projects from communities across the state.