



## **Audit Recommendations Follow-Up Report**

**For the Period July 1, 2018  
Through September 30, 2018**

**Project #18-16**

**Prepared by  
Office of Inspector General**

**J. Timothy Beirnes, CPA, Inspector General  
Ann E. Haga, Executive Assistant**



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

## Memorandum

**To:** Governing Board Members

**From:** J. Timothy Beirnes, CPA, Inspector General  
Office of Inspector General

**Date:** November 5, 2018

**Subject:** Audit Recommendations Follow-Up Report -  
For the Period July 1, 2018 through September 30, 2018  
Project No. 18-16

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This audit was performed pursuant to the Inspector General's authority set forth in Section 20.055, F.S. Enclosed is the subject report that was conducted to assess the progress made in implementing audit recommendations.

In our efforts to continue to improve the audit process we utilize an audit recommendations tracking database as an integral part of monitoring the implementation status of audit recommendations. This database contains the basic audit information and recommendations. This system provides us with a vehicle to communicate and gather feedback on the status of the audit recommendations with the Governing Board, District management, and the audited organizational units.

Should you have any questions concerning the enclosed report, please feel free to call me at (561) 682-6398.

C: Ernest Marks  
Brian Accardo  
Joel Arrieta  
Terrie Bates  
Dorothy Bradshaw  
Jill Creech  
Stephen Collins  
John Mitnik  
Duane Piper  
Eva Velez

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## EXECUTIVE SUMMARY

Audit recommendations target the economy and efficiency of District operations and compliance with our policies and statutory responsibilities. Our recommendations also focus on providing District management with suggestions that facilitate their achievement of program goals and objectives. To be effective, audit recommendations must be implemented. Additionally, *Government Auditing Standards* require following up on audit recommendations in previously issued audit reports. Accordingly, the Office of Inspector General has performed follow-up audit work since the office was established in 1996. Every quarter our office surveys departments to determine the implementation status of recommendations and to encourage their completion. This information is maintained in the Inspector General's audit recommendation tracking system. The system allows each audit staff member to update the recommendation's "status" after reviewing information provided by the departments and offices.

This report on the implementation status of audit recommendations is for the period July 1, 2018 through September 30, 2018 (the "Reporting Period"). As shown in Exhibit 1, as of June 30, 2018 there was one (1) recommendation that was not yet Fully Implemented from previously issued audit reports. This recommendation is in the process of being implemented. During the Reporting Period, 13 recommendations were added from a newly issued audit report. Twelve (12) of these recommendations were either implemented at the time of report issuance or were implemented during the Reporting Period. In total from all reports, two (2) recommendations are In-Process of being implemented as of September 30, 2018.

Following is a brief description of the attached exhibits:

- **Exhibit 1:** Displays a summary of recommendation statuses for all audit reports with recommendations in process of implementation. Exhibit 1 also shows the changes in the status of recommendations from the beginning of the period to the end of the period.
- **Exhibit 2:** Shows a summary of the changes in the status of recommendations by each audit report. Exhibit 2 shows only those audit reports that contained one or

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more recommendations that had not been fully implemented at the beginning of the reporting period.

- **Exhibit 3:** Displays detail information regarding the status of each audit recommendation. This includes the status of the recommendation for the prior reporting period and the status at the end of the current period. The comment column provides narrative information regarding implementation progress.

**EXHIBIT 1**  
**Summary of Recommendations Status**  
As of September 30, 2018

	In	Partially	
<b>Prior Period Reports</b>	<b>Process</b>	<b>Implemented</b>	<b>Total</b>
Status Prior Period (June 30, 2018)	1	-	1
Implemented, Partially Implemented, or Status Changed to No Longer Applicable, During Period	-	-	-
Remaining Recommendations to be Fully Implemented	1	-	1
<b>Reports Issued During Current Period</b>			
New Recommendations*	13	-	13
Implemented or Partially Implemented	(12)	-	(12)
Remaining Recommendations to be Fully Implemented	1	-	1
<b>Current Status</b>			
<b>Remaining Recommendations to be Fully Implemented</b>	<b>2</b>	<b>-</b>	<b>2</b>

\* Initial Status is set as "In-Process"

**EXHIBIT 2**  
**Audit Reports With Implementation of Recommendations in Progress**  
**As of September 30, 2018**

<b>Audit No.</b>	<b>Audit Title</b>	<b>No. of Recs</b>		<b>In Process</b>	<b>Partially Implemented</b>	<b>No Longer Applicable</b>	<b>Implemented</b>
	<b>Recommendations - Prior Period Reports</b>						
<b>16-06</b>	<b>Audit of the Kissimmee River Restoration Program Cost Share</b>	<b>3</b>	Initial Status	1	0	0	2
			Change in Status	0	0	0	0
			Current Period Status	1	0	0	2
	<b>Recommendations - Reports Issued During Current Period</b>						
<b>17-06</b>	<b>Audit of O&amp;M Capital Program</b>	<b>13</b>	Initial Status	13	0	0	0
			Change in Status	-12	0	0	12
			Current Period Status	1	0	0	12
	<b>Recommendations - All Reports</b>			<b>3</b>			
	<b>TOTAL</b>	<b>16</b>	Prior/Initial Status	14	0	0	2
			Change in Status	-12	0	0	12
			Status Current Period	2	0	0	14
	<b>Number of Recommendations Remaining to Be Fully Implemented</b>	<b>2</b>		<b>2</b>	<b>0</b>		

**EXHIBIT 3**  
**Detail of In-Process and Partially Implemented Audit Recommendations**  
As of September 30, 2018

Audit No.	Rec No.	Audit Title	Status Prior Report	Status Current Report	Due Date		Recommendation	Management Response	Current Period Comments Regarding Status
					Original	Current			
16-06	1	Audit of the Kissimmee River Restoration Project Cost Share Program	In Process	In Process	12/31/2017	12/1/2018	Ensure that the Real Estate Division su	Management agrees. Management will direct staff to begin preparation	Finance has prepared the credit request to submit to the Corps and will submit same by December 1, 2018.
17-06	1	Audit of O&M Capital Program	In Process	Implemented	12/31/2018	12/31/2018	Consider continuing to increase the an	See Attachment for Management Response	In September of 2018 the Governing Board approved the FY18-19 District budget. This budget included a \$1.5M increase in funding for the Field Station Maintenance Program. In addition, \$850k from District reserves was allocated to canal conveyance improvement studies as pre-cursors to the Capital Improvement program.
17-06	2	Audit of O&M Capital Program	In Process	Implemented	12/31/2018	12/31/2018	Ensure that planned canal and levee re	See Attachment for Management Response	In September of 2018 the Governing Board approved the FY18-19 District budget. This budget included a \$1.5M increase in funding for the Field Station Maintenance Program. In addition, \$850k from District reserves was allocated to canal conveyance improvement studies as pre-cursors to the Capital Improvement program.
17-06	3	Audit of O&M Capital Program	In Process	In Process	9/30/2019	9/30/2019	Coordinate with the State and apply for any available grant infrastructure funding that may become available if the Federal Infrastructure Bill is passed.	Once the Federal Infrastructure Bill is passed, Operations, Engineering	Any potential federal infrastructure bill has been deferred to 2019.



Audit No.	Rec No.	Audit Title	Status Prior Report	Status Current Report	Due Date		Recommendation	Management Response	Current Period Comments Regarding Status
					Original	Current			
17-06	4	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Continue to take appropriate steps to	The Operations and Maintenance Capital Program rollover amounts are subject to change due to many factors. As mentioned in the auditor's report, permitting and construction delays can cause changes in the planned spending schedule. USACE Regulatory permits are subject to receiving a 408 Approval and the USACE has no specific timeframe or federal budget available for completing these reviews. Construction delays can occur during the bid process or during construction. A specific example for a bid process delay is the S-5A Pump Station Refurbishment project. This project was advertised for bid twice because the first responses for bid were higher than estimated. Time was spent on negotiations with the contractor in an attempt to reduce the cost, however this path was not successful. Therefore, staff evaluated and adjusted the schedule requirements for the project and rebid the project to achieve a lower bid response. It was this delay that directly contributed to the highest rollover amount during FY 2015-2016. The Engineering and Construction Bureau will continue to closely review contract schedules, create encumbrances based on work anticipated to be completed during the fiscal year, and establish a larger backlog of projects whose design and permitting are completed and are simply awaiting funding for bidding and construction. The team performed very well this past fiscal year in reducing the rollover amount to the second lowest since the Operations and Maintenance Capital Program's inception in 2010.	Recommendations Implemented at time of report issuance
17-06	5	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Assess whether additional staff is needed to administer O&M capital program projects	Current staffing level, combined with current vacancies in the process	Recommendations Implemented at time of report issuance
17-06	6	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Ensure that deficiencies forwarded to	A specific staff member has been assigned to compile each year's SIP	Recommendations Implemented at time of report issuance

Audit No.	Rec No.	Audit Title	Status Prior Report	Status Current Report	Due Date		Recommendation	Management Response	Current Period Comments Regarding Status
					Original	Current			
17-06	7	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Ensure that all structure inspection rep	With the upgrade to the Structure Inspection Program – Inspection app	Recommendations Implemented at time of report issuance
17-06	8	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Consider requiring IMS inspection staff	The Structure Inspection Program Guidance has been updated to inclu	Recommendations Implemented at time of report issuance
17-06	9	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Enhance the SIP inspection reports by	Structure Inspection Program Reports options are field station or capital. Field stations will need to identify how they plan to handle the deficiencies. The SIP Annual Deficiency Report from the Structure Inspection Program – Archival Tool will provide a column for the field station to provide this information. At the Annual meeting with the field stations, these items will be discussed, and the spreadsheet will be provided back to the Infrastructure Management Section for filing in Documentum as stated in Recommendation #6. Should a change occur, the field station will notify Infrastructure Management Section staff of the change and an update will be made.	Recommendations Implemented at time of report issuance
17-06	10	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Implement procedures to ensure that S	Same as Recommendation #9 and the field stations have been instructed to include "SIP Repair" in the SAP Work Order Header when addressing SIP deficiencies.	Recommendations Implemented at time of report issuance
17-06	11	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Ensure that all SIP work order repairs r	Field Station Bureau Chiefs will cover the requirement of "SIP Repair" i	Recommendations Implemented at time of report issuance

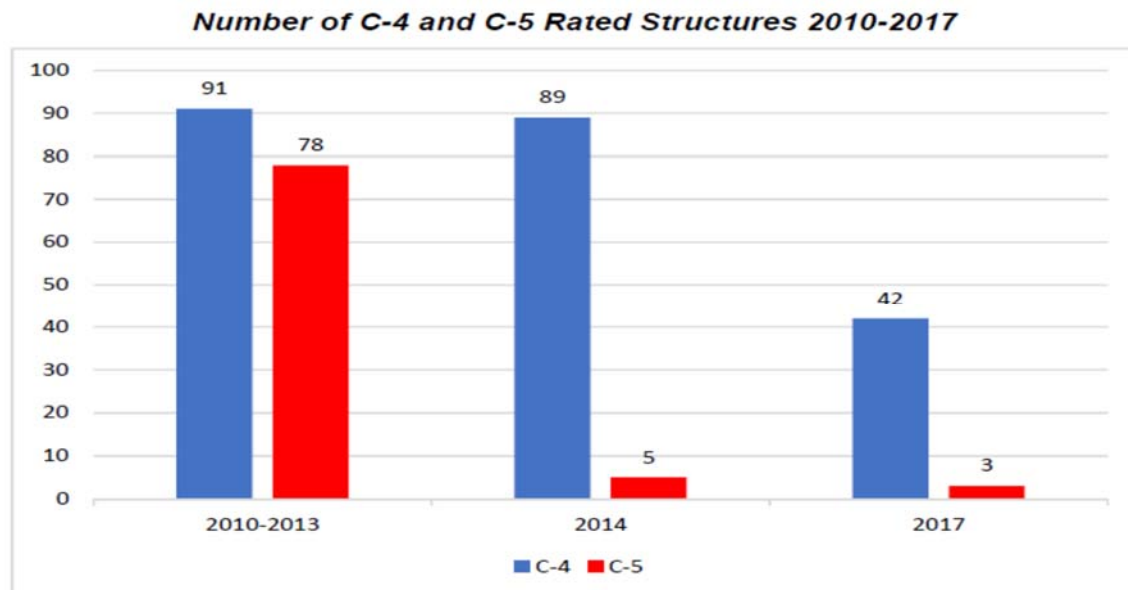
Audit No.	Rec No.	Audit Title	Status Prior Report	Status Current Report	Due Date		Recommendation	Management Response	Current Period Comments Regarding Status
					Original	Current			
17-06	12	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Increase efforts to address C-4 and C-5 structure deficiencies addressed to field stations in a timely manner and ensure that resolutions are adequately documented in SAP.	In cases where the field station can perform the necessary C-4 or C-5 repair, the corresponding Field Station Bureau Chief will cover the importance of making the necessary repairs during monthly meetings with the appropriate field station. Monitoring of the SIP Annual Deficiency Report and SAP work order headers will be conducted on a quarterly basis to ensure C-4 and C-5 deficiencies are being resolved. This information will be distributed at the same meetings as Recommendation #11.	Recommendations Implemented at time of report issuance
17-06	13	Audit of O&M Capital Program	In Process	Implemented	4/12/2018	4/12/2018	Take steps to ensure that IMS inspection staff accurately enter structure inspection results on the spreadsheets under the new reporting streamlined system.	With the automation discussed in Recommendation #7, information is d	Recommendations Implemented at time of report issuance

### EXHIBIT 3 ATTACHMENT

#### Management Response Continuation for Audit #17-06 Audit of O&M Capital Program

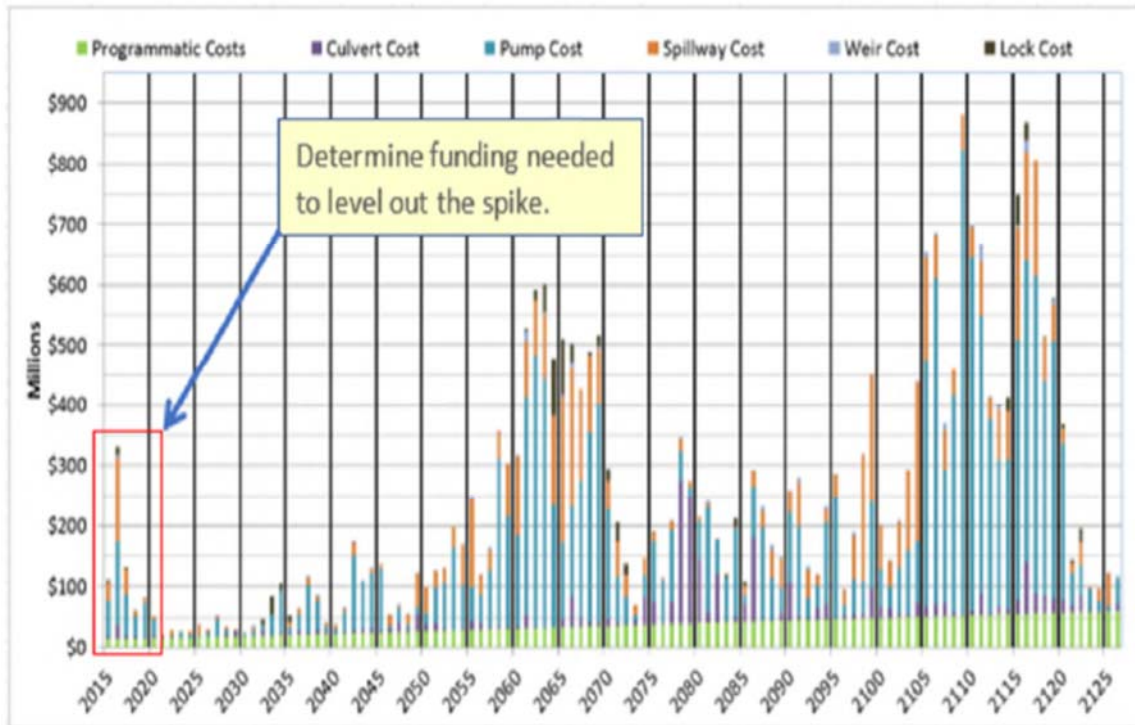
##### Audit No. 17-08, Recommendation #1

During the development of the FY2011-2012 budget the level of funding was reduced with the downturn in Ad Valorem collections, to approximately \$50M under the premise that the program would be able to adequately maintain District infrastructure without allowing the current number of backlog projects, that were in need of repairs, to increase. As can be seen in the graphic below the program was able to successfully accomplish this.



In 2015, the District hired a consultant to assist District staff in developing a Capital Program Infrastructure Lifecycle Assessment Model to forecast costs and timeframes for refurbishment and replacement of more than 700 District water control structures. The model uses historical cost data and timeframes for refurbishment and replacement of each type of water control structure and then uses the inspection condition rating (i.e., "C" rating) to give priority to completing those projects first that received inspection ratings that indicate major deficiencies exist. The model output provides annual rollup costs for refurbishment and replacement of water control structures based on scenario analysis of different funding levels for the capital program. The initial analysis focused on determining the annual funding level needed to complete the scheduled projects by spreading out the current life cycle cost spike. Once the initial spike has passed, the model indicates that less than \$50 million will be needed through 2034.

### Capital Program Infrastructure Life Cycle Assessment Model Output



Phase two of the Lifecycle Assessment model included the addition of the Canal and Levee assessment and expanding all prioritization from condition-based to risk-based by including both the likelihood of failure (Physical Condition “C” rating) multiplied by the consequence of failure (percentage of urbanization of the drainage basin the facility serves). The canal physical condition assessment was based on canal bank condition, access along right-of-way and vegetation coverage. The levee physical condition assessment was based on slope stability, settlement, erosion/bank caving, depressions/rutting, cracking, seepage, animal control and vegetation coverage. Although the canal and levee assessment did identify that \$18.5 million may be needed annually for 20 years to restore canal banks, and \$10 million may be needed annually for five years to rehabilitate levees, these programs were never considered to be part of the original Operations and Maintenance Capital Program and instead the costs of such improvements were funded by other District initiatives.

Please note the canal and levee assessment did not consider capacity reduction, which was performed under the Canal Conveyance Capacity Program (CCCP), undertaken from 2006 to 2008. Currently canals in Miami-Dade County and the Big Cypress Basin, are being further evaluated under the level of service investigation to determine if any reduction in flood protection has occurred and,

therefore, if dredging should be planned. Of the initial canals evaluated to date in Miami-Dade County, it was determined that additional dredging was not needed.

In summary District Management agrees that the Operations and Maintenance Capital Program needs additional funding in the coming years, however District Management disagrees with the recommended amount of \$88.5M. If the District were to increase the funding of the Operations and Maintenance Capital Program to \$88.5M in the FY2018–2019 budget this would directly contradict the audit's recommendations under Recommendation #4 below pertaining to reducing the annual rollover amounts. Increasing the level of funding for the program also necessitates “ramping up” the program to be able to execute at the higher funding levels. A look back at FY2009–2010 illustrates how sudden increases in funding does not equate to higher levels of program execution as it takes time to develop the design plans and specs that result in additional construction activities.

In consideration of this, District Management has been working towards increasing the amount of funding allocated to the Field Station Maintenance program as well as the Operations and Maintenance Capital Program as evidenced by the Governing Board approval to increase the amount of funding in the FY2017-2018 budget for the Operations and Maintenance Capital Program by an additional \$3M. Currently, the proposed FY2018-2019 budget, which is subject to Governing Board approval, incorporates an additional \$1M for the Operations and Maintenance Capital Program and \$1M for the Field Station Maintenance Program. Together, this represents a \$5M increase over the audited period if approved by the Governing Board.

## **Audit No. 17-06, Recommendation #2**

In support of the Capital Program Infrastructure Lifecycle Assessment Model, District staff quantified and completed a risk-based prioritization of District canals and levees. The canal and levee related projects are prioritized in a similar manner to water control structures and each year at least two new reaches will be identified and moved into either design or construction depending on specific project needs and on total program funding discussed in Recommendation #1.

The canal assessments evaluated the canal bank condition and vegetation density in the canal right of way. Canal conveyance is at its highest risk of blockage from large vegetation along canal banks because of the effects of wind and rain, which can break limbs or loosen root zones and eventually fall into the canal. Due to past experiences with hurricane events, the District therefore determined that tree removal in highly populated urban areas would provide the best risk reduction and have been focusing on tree removal projects in both Miami-Dade and Broward Counties (C100A and North New River canals respectively).

District staff evaluated canal conveyance in 2006 – 2008 and determined that further evaluations in the lower east and west coasts would be necessary due to development changes from the original design and sea level rise. The inception of the Flood Protection Level of Service Program began in Fiscal Year 2013-2014 and was created to identify and prioritize the current and future infrastructure needs of the District. This is a multi-year effort implemented through local flood studies that assess and prioritize flood protection needs and are followed by project implementation. The assessment identifies flood issues, generates an updated water operations atlas, examines the impact of sea level rise on coastal structures, examines coastal flow and stage data to update structure design criteria, and when necessary, develops a flood model of the primary canal conveyance system. The flood model is used to determine the current and future level of flood protection. Flood studies have been completed for the C-4 and C-7 basins in Miami-Dade and a study of the watersheds in the Big Cypress Basin is nearing completion.

In contrast the previous Canal Conveyance Capacity Program (2006 – 2008) and identified segments of District canals that are deficient with respect to the original design characteristics and recommended remedial measures that would, at a minimum, restore them to their design criteria. This was primarily accomplished by identifying canal reaches where, (i) bottom elevations exceeded their design elevations by more than two feet, or (ii) the design depths have decreased by more than 10%. In addition to these efforts, Field Station staff and Water Managers were interviewed to determine which canal systems exhibited either visual constrictions or limited canal capacity and staff began analyzing nine separate canals in the north and south ends of the system.

The current program essentially maintains the same objectives, except that a more comprehensive engineering approach to evaluating canal capacities is included. Canal capacities are evaluated by their original design flows, current design flows, design water surface profiles and available freeboard. Water surface profiles at design discharges under current conditions will be

compared to those pertaining to original design conditions. This approach will allow for the accounting of factors other than canal conditions that may influence system capacity (e.g. structure capacities and operations), leading to more reliable remedial measures. Canals that may require dredging will be identified through this process. The District has not waited for this process to be complete and started an in-house dredging program utilizing a team assembled from Field Station staff with specific expertise. This team has performed dredging/bank stabilization projects starting with the Deer Fence Canal in Hendry County in Fiscal Year 2012-2013 to increase its conveyance capacity, to the ongoing C40 Canal work in Glades County that began in Fiscal Year 2013-2014.

For levees, the District began its risk-based program starting in 2009 when the USACE began its inspection of the District's levee inventory. Because the East Coast Protective Levee (ECPL) provides protection to the highest populated areas from West Palm Beach south to Miami, evaluation and refurbishment of the ECPL became our highest priority. Evaluation, design and construction for multiple segments of the ECPL began in 2009 and were completed in 2015. As requested by both Palm Beach and Broward County, the District provided documentation to FEMA that these levees provide protection from the base flood and are in full compliance with regulations established in 44 CFR 65.10. The District has also been working on clearing vegetation along levees and requiring removal of encroachments impacting the levee prism through the District Right of Way Program. The District has also been prioritizing replacements of C-5 and C-4 rated structures that are in levee systems higher than in canal systems as part of our risk-based approach.