



# FY 2017 Sewage Disposal System Capital Improvement Program

Fiscal Years 2017 Through 2021

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**Nicolette N. Bateson**, Chief Financial Officer/Treasurer  
**William M. Wolfson**, General Counsel  
**Suzanne Coffey**, Chief Planning Officer  
**Cheryl Porter**, Chief Operating Officer  
**Monica Y. Daniels**, Manager Capital Management Group

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Sewage Disposal System  
Capital Improvement Program  
Fiscal Years 2017 Through 2021

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## **Executive Management Team**

**Sue F. McCormick, Chief Executive Officer  
Cheryl Porter, Chief Operating Officer  
Nicolette Bateson, Chief Financial Officer  
William M. Wolfson, General Counsel  
Sue Coffey, Chief Planning Officer**

## **Capital Management Group**

**Monica Y. Daniels, Manager  
Corey Thomas**

## **OVERVIEW**

The attached report summarizes the capital planning agenda for the GLWA Sewage Disposal System. This should be considered a planning document – the Capital Improvement Program (CIP) is a dynamic and evolving plan that requires continual review and modification during the course of each year. The estimates indicated in the early years of the attached report are likely more precise than those in the later years. The project descriptions represent brief synopses of the entire project scope; these descriptions are generally more precise for ongoing active projects than for planned new projects, where specific project activities may have yet to be determined.

## **DEFINITIONS**

### **Funded Portion of the Programs**

The Water System and Sewerage System capital improvement plan covers a five fiscal year horizon. The goal of the Authority's capital financing strategy is to align capital project financing sources with multiple goals including: (a) recovering the costs of capital investment over the useful lives of the capital assets; (b) minimizing the impact of the capital programs on water and sewage rates; and (c) protecting and enhancing the Authority's financial position. The potential funding source identified for each project is subject to change based upon the systems need and financial resources available at the time.

### **Projected Expenditures Spread by Fiscal Year**

In the Water System and Sewerage System capital improvement programs, when project funding requirements are displayed spread by fiscal year, the dollar amount shown for the projects is the estimated expenditures for each fiscal year throughout the life of the projects. This type of presentation identifies the financial requirements.

### **Project Types**

The typical capital project consists of three distinct phases: study, design and construction. In some cases, phases are combined, such as study/design or design/construction. For capital program purposes, each phase is considered a separate project. Generally financing is committed only for the current project phase, and not for any subsequent phases until that phase has been authorized to start. Projects identified as ongoing have been authorized to start by the director and the work is underway. Projects identified as new have not yet started.

### **Project Detail Sections**

**Active Project:** is a project that has an assigned DRMS number in the financial system, a Notice to Start Work has been issued, had expenditures in the last fiscal year and has projected expenditures of more than \$100,000 in the current fiscal year.

**Project On Hold:** is a project that has been suspended, may or may not have an assigned DRMS number, experienced expenditures or no expenditures in previous fiscal year(s), and/or has no projected expenditures in the current fiscal year or future fiscal years. *Note: none in this current 5-year plan.*

Project Under Procurement: is a project that has an assigned DRMS number and has not been issued a Notice to Start Work.

Project Pending Close-out: is a project that has an assigned DRMS number, a Notice to Start Work has been issued, has projected expenditures for the current fiscal year, equal to \$100,000 or less – with no future projected expenditures, and has reached substantial completion.

New Project: is a project that does not have an assigned DRMS number, has a proposal, and has never had expenditures charged to it.

**Primary Project Purpose**

- 1** – Directly mandated projects (Specific projects mandated by regulatory agencies or court ordered)
- 2** – Projects mandated by regulatory requirements to maintain compliance
- 3** – Projects required to maintain or improve system reliability and/or capacity
- 4** – Projects that utilize technological advances to improve operational efficiency, worker productivity and/or managerial effectiveness
- 5** – Projects required for new service

**Funding Eligibility**

- RF** -- Revenue Financed
- DE** --- Debt Eligible
- SRF** --- State Revolving Fund
- SAWG** - Stormwater, Asset Management, and Wastewater (SAW) Grant
- SAWL** - SAW Loan
- MG** -- Misc. Grant
- TBD** -- To Be Determined

**Project Types**

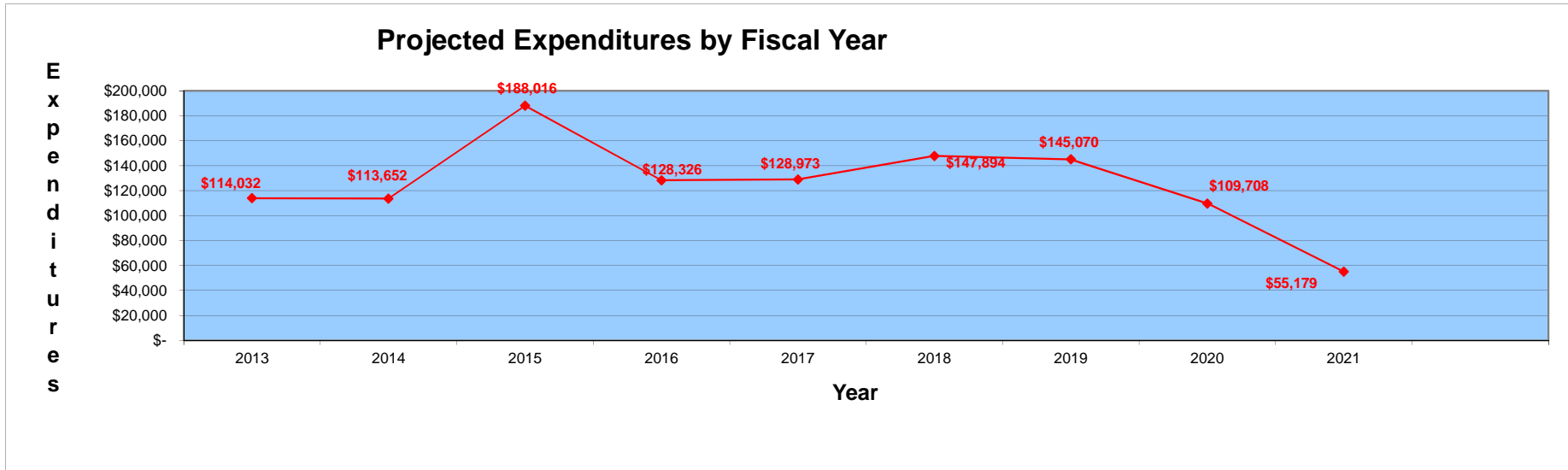
- S** – Study; **S/D** – Study and Design; **S/D/C** – Study, Design and Construction;
- S/D/CA** – Study, Design and Construction Assistance
- D** – Design; **DB** – Design Build; **DBA** – Design Build Assistance;
- D/C** – Design and Construction; **D/CA** – Design and Construction Assistance
- C** – Construction; **CA** – Construction Assistance;
- CM** – Construction Management
- C/CA** – Construction and Construction Assistance
- IT** – Information Technology Systems
- PO** – Purchase Order

**Legend**

- (1) Costs shown represent the Sewage Disposal System’s portion of the project. Refer to the Water CIP for project costs financed by the Water Supply System.

**Sewer Disposal System C.I.P. Executive Summary**  
(000)

Ongoing Projects	*Update	# of Projects	(000)					5 Year	Remaining	Total
	2016		2017	2018	2019	2020	2021	Sub Total		
Active	45,637	24,294	20	6,085	355	121	-	30,855	-	30,855
Under Procurement	2,350	31,050	7	42,240	36,440	9,300	-	119,030	-	119,030
Pending Closeout	3,180	35	4	-	-	-	-	35	-	35
On Hold	-	-	0	-	-	-	-	0	-	-
<b>Ongoing Total</b>	<b>51,167</b>	<b>55,379</b>	<b>31</b>	<b>48,325</b>	<b>36,795</b>	<b>9,421</b>	<b>-</b>	<b>149,920</b>	<b>-</b>	<b>149,920</b>
<b>New Projects Total</b>	<b>19,953</b>	<b>73,594</b>	<b>28</b>	<b>99,569</b>	<b>108,275</b>	<b>100,287</b>	<b>55,179</b>	<b>436,904</b>	<b>-</b>	<b>436,904</b>
<b>Total CIP</b>	<b>\$ 71,120</b>	<b>\$ 128,973</b>	<b>59</b>	<b>\$ 147,894</b>	<b>\$ 145,070</b>	<b>\$ 109,708</b>	<b>\$ 55,179</b>	<b>\$ 586,824</b>	<b>\$ -</b>	<b>\$ 586,824</b>



■ Projected Expenditures (FY 2016 and prior amounts included DWSD Wholesale and Retail Operations combined)  
\*2016 Update is the updated projected expenditures through June 2016

\*For information purposes only. Not counted in the total

# Summary of Projected Expenditures Spread by Fiscal Year

**Sewage Disposal System  
Capital Improvement Program**

**Summary of Projected Expenditures Spread by Fiscal Year for Ongoing and New Projects**

(000)

	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>Remaining</u>	<u>Total</u>
<b>Plant</b>							
<b>Primary Treatment</b>	22,576	24,790	26,900	14,538	2,679		91,483
<b>Secondary Treatment</b>	5,767	8,593	5,600				19,960
<b>Solids Handling</b>	17,751	9,900	8,250	5,770			41,671
<b>Disinfection</b>	6,155	13,350	15,550	5,750			40,805
<b>General Purpose</b>	33,372	31,088	33,705	30,950	20,750		149,865
	<u>\$85,621</u>	<u>\$87,721</u>	<u>\$90,005</u>	<u>\$57,008</u>	<u>\$23,429</u>		<u>\$343,784</u>
<b>Facilities</b>							
<b>Regional Sewer System</b>	22,110	25,050	19,250	31,000	22,700		120,110
<b>Combined Sewer System</b>	1,000	1,500	1,750	3,000			7,250
<b>Information Technology</b>	6,242	8,123	5,425	1,000	1,050		21,840
	<u>\$29,352</u>	<u>\$34,673</u>	<u>\$26,425</u>	<u>\$35,000</u>	<u>\$23,750</u>		<u>\$149,200</u>
<b>Plant Replacement and Renovation</b>							
<b>Pumping Stations and Reservoirs</b>	14,000	25,500	28,640	17,700	8,000		93,840
	<u>\$14,000</u>	<u>\$25,500</u>	<u>\$28,640</u>	<u>\$17,700</u>	<u>\$8,000</u>		<u>\$93,840</u>
<b>Ongoing Projects</b>	55,379	48,325	36,795	9,421			149,920
<b>New Projects</b>	73,594	99,569	108,275	100,287	55,179		436,904
<b>TOTAL CAPITAL COSTS</b>	<u>\$128,973</u>	<u>\$147,894</u>	<u>\$145,070</u>	<u>\$109,708</u>	<u>\$55,179</u>		<u>\$586,824</u>

# A - Active Projects

An Active Project is a project that has:

1. an assigned DRMS number
2. been issued the Notice to Start Work
3. had expenditures in the last fiscal year
4. expenditures of more than \$100,000 in the current fiscal year

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Active Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Primary Treatment</b>														
1 Pump Station No. 2 Pumping Improvements	004215	961	CS-1444 \$ 655,246	S/D/CA	54	100	100					200	2	TBD
<b>Start Date:</b> 08/11/2010 <b>Completion Date:</b> 04/28/2018														
<i>This project involves evaluating and recommending alternatives for providing more reliable pumping capacity at Pump Station No. 2 for Pumps#11 and #14.</i>														
2 Rehabilitation of Primary Clarifiers	004290	1141	CS-1484 \$ 1,790,042	S/D/CA	175	200	200	200	121			721	2	TBD
<b>Start Date:</b> 08/11/2010 <b>Completion Date:</b> 07/09/2019														
<i>This project includes rehabilitation of sludge and scum collectors, replacement of sludge conveyance equipment, and sludge cross scum and collectors for the rectangular clarifiers. The scope of work also includes concrete crack repair on floor, wall, and ceiling.</i>														
3 Pump Station 1 Rack & Grit and MPI Sampling Station 1 Improvements	004420	1189	PC-789 \$ 20,335,000	C	7,609	2,776						2,776	2	TBD
<b>Start Date:</b> 11/18/2013 <b>Completion Date:</b> 07/30/2017														
<i>The scope of work includes modifications and improvements of the existing grit and screening handling system at pump station 1 and MPI Sampling Station 1.</i>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Active Projects  
(000)**

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Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Secondary Treatment</b>														
4 Returned Activated Sludge (RAS) Pumps, Influent Mixed Liquor System and Motor Control Centers (MCC) Improvements for Secondary Clairifiers	004211	1100	PC-776 \$ 26,562,000	C	904	115						115	2	
<b>Start Date:</b> 08/23/2010 <b>Completion Date:</b> 05/09/2016														
<i>This project provides new power supply cable to/from the secondary clarifiers and substation Motor Control Centers (MCC), provide new MCCs at each secondary clarifier, provide short-circuit analysis and fault rating, replace 25 Returned Activated Sludge pumps at the secondary clarifiers and complete all miscellaneous electrical work such as replacement of cables, conduit, pull boxes, panels and junction boxes, etc.</i>														
5 Aeration System Improvements	004336	1194	CS-1498 \$ 1,731,573	S/D/CA		202	93					295	2	TBD
<b>Start Date:</b> 02/21/2012 <b>Completion Date:</b> 02/28/2018														
<i>The scope of work includes study, design, and construction assistance for the oxygen baffle on Bay 10 of A1 &amp; A2 decks, Replacement of influent, Return Activated Sludge (RAS) piping, isolation gate and valves for decks Nos. 3 &amp; 4, replace RAS &amp; influent magmeters for Intermediate Lift Pumps (ILP) Nos. 3,4 &amp; 7. The work also includes replacement of influent gates and operators on Aeration Deck No. 1 &amp; 2.</i>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Active Projects  
(000)**

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Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Solids Handling</b>														
6 Replacement of Upper Level Belt Filter Presses for Complex I & II Dewatering	004284	1144	CS-1483 \$ 2,401,776	S/D/CA	300	114						114	2	TBD
<p><b>Start Date:</b> 01/11/2010    <b>Completion Date:</b> 12/31/2016</p> <p><i>The work will consist of replacement of 10 Belt Filter Presses for Complex I and 12 Belt Filter Presses for Complex II Dewatering, Screened Final Effluent booster pumps, sludge belt conveyors, sludge grinders, and all related supportive equipment including control panels and associated wiring.</i></p>														
7 Replacement of Belt Filter Presses for Complex I and Upper Level Complex II	004397	1144	PC-787 \$ 30,216,000	C	3,680	989						989	2	TBD

**Start Date:** 05/21/2012    **Completion Date:** 08/03/2016

*The work will consist of replacement of ten (10) Belt Filter Presses for Complex I and twelve (12) Belt Filter Presses for Complex II Dewatering, Screened Final Effluent booster pumps, sludge belt conveyors, sludge grinders, and all related supportive equipment including control panels and associated wiring.*

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Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
8 Sewage Sludge Incinerator Air Quality Improvements at WWTP	004426	1253	PC-791 \$ 37,989,471	DB	13,500	7,200	3,800					11,000	2	TBD
<p><b>Start Date:</b> 12/17/2012    <b>Completion Date:</b> 06/30/2017</p> <p><i>This project involves the design and construction for sludge incinerator air quality improvements at Complex II Incinerator Facility at WWTP. The scope of work includes installation of new scrubber, induced draft fan, noise reduction modification, and air quality control and monitoring equipment.</i></p>														
9 Biosolids Dryer Facility at WWTP	004439	1254	PC-792 \$ 143,000,000	DB	11,361	5,498						5,498	2	TBD

**Start Date:** 05/23/2013    **Completion Date:** 10/13/2016

*This project provides for study, design and construction of a thermal dryer facility with a firm capacity of 330 dry tons per day (dtpd). The scope of work also includes a conveyance system from Complex I to Complex II.*

**Sewage Disposal System  
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(000)**

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Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Disinfection</b>														
10 Study, Design, & Construction Management Services for Modified Detroit River Outfall No. 2 - WWTP	004178	1117	CS-1448 \$ 13,097,673	S/D/CA	1,000	55						55	1	TBD
<b>Start Date:</b> 10/31/2006 <b>Completion Date:</b> 10/31/2016														
<i>The scope of work includes limited study, detailed design, preparation of construction plans, and construction management services necessary to implement the modified Detroit River Outfall No. 2 in accordance with NPDES Permit requirements.</i>														
<i>This contract is being used to provide study, design and construction assistance services for RRO-2 Segment 1.</i>														
11 Rouge River Outfall No. 2 (RRO-2) Segment 1 - WWTP Modifications	004395	1235	PC-786 \$ 13,117,000	C	1,432	50						50	1	TBD

**Start Date:** 05/21/2012    **Completion Date:** 12/21/2016

*The scope of work includes installation of new Stop Log-8 Gates, modification of Movable Dam MD-1, and installation of new power pack building. This project will also provide for a hydraulic actuation system for gates MD-3 A/B, MD-4 A/B and SG 41-44, modification of stop logs SL-1 A/B, and replace Chlorination/dechlorination tank car emergency shutoff valves. The project will further include modification of PLC based control system, capping abandon PC-709 entrance shaft, and removal of PC-709 precast tunnel lining segments.*

**General Purpose**

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Active Projects  
(000)**

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Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
12 <b>Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection Improvements</b>	<b>004180</b>	<b>1028</b>	<b>PC-782</b> \$ 5,749,000	C	366	75						75	3	TBD

**Start Date:** 04/15/2013    **Completion Date:** 09/05/2016

*This project involves the installation of an Integrated Plant Wide Fire Alarm System in approximately 100 buildings (of which 50 + have a stand-alone fire alarm system) at the WWTP in order to facilitate centralized monitoring and assure faster corrective action. The new system will be interfaced with the existing WWTP Control System.*

13 <b>Underground Electrical Duct Bank Repair and EB-1, EB-2, and EB-10 Primary Power Service Improvements - WWTP</b>	<b>004181</b>	<b>366</b>	<b>CS-1449</b> \$ 1,986,550	S/D/CA	35	75						75	2	TBD
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**Start Date:** 06/12/2008    **Completion Date:** 06/11/2016

*This project involves the necessary study, design, and construction assistance work for repairing the 15KV Primary Switch Gears A & B, unit substation EB-1, EB-2, and EB-10, unit 5KV substation and switchgear DE-1, and two outdoor 3-phase primary transformers; and repair of building structure and associated components. The work will also include coordination of system shut-down, and coordination of system reconnection with new cables.*

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Active Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
14 <b>Underground Electrical Duct Bank Repair and EB-1, EB-2, and EB-10 Primary Power Service Improvements - WWTP</b>	<b>004181</b>	<b>366</b>	<b>PC-783</b> \$ 27,620,000	C	2,456	2,927						2,927	2	TBD
<b>Start Date:</b> 05/21/2012 <b>Completion Date:</b> 05/21/2016														
<i>This project will include replacement of 15KV Primary Switch Gears A &amp; B, unit substation EB-1, EB-2, and EB-10, unit 5KV substation and switchgear DE-1, and two outdoor 3-phase primary transformers; and repair of building structure and associated components. The work will also include site preparation, installation of new ducts, placement of new electrical cable, coordination of system shut-down, and coordination of system reconnection with new cables.</i>														
15 <b>General Engineering Services (1)</b>	<b>004207</b>	<b>1031</b>	<b>CS-1432A</b> \$ 7,303,500	D	220	1,842	400	155				2,397	3	TBD

**Start Date:** 01/23/2008    **Completion Date:** 12/12/2018

*This project involves the study, design and construction assistance services for a variety of disciplines including, but not limited to, civil, architectural, structural, geotechnical, hydraulics, mechanical, piping, electrical, and instrumentation in a variety of tasks on an as-needed basis. Further tasks involve one or more DWSD facilities including, but not limited to, water treatment plants, water distribution system including booster stations, wastewater treatment plant, wastewater collection system including pumping stations, combined sewer overflow facilities, and administrative and logistical support facilities.*

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Active Projects  
(000)**

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Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
16 <b>As-needed CIP Implementation Assistance and Related Services (1)</b>	<b>004218</b>	<b>956</b>	<b>CS-1433</b> \$ 9,913,172	S/D/CM	850	700	217					917	3	TBD
<b>Start Date:</b> 03/24/2006 <b>Completion Date:</b> 07/24/2017														
<i>This project provides for multi-discipline engineering services on an "as-needed basis" to support the water &amp; sewer systems.</i>														
17 <b>General Engineering Services (1)</b>	<b>004293</b>	<b>1182</b>	<b>CS-1481</b> \$ 6,600,000	D	431	605	608					1,213	3	TBD
<b>Start Date:</b> 03/27/2008 <b>Completion Date:</b> 03/27/2018														
<i>This project provides for rapid design turn-around for a variety of small scale projects on an as-needed basis providing multi-disciplinary professional services including meter pit improvement services.</i>														
18 <b>As-needed Engineering Services for Concrete Testing, Geotechnical Soil Borings, other Testing Services, and Related Services (1)</b>	<b>004295</b>	<b>1147</b>	<b>CS-1488</b> \$ 4,597,850	D/C	775	650	667					1,317	3	TBD
<b>Start Date:</b> 04/08/2009 <b>Completion Date:</b> 04/08/2018														
<i>The scope of work provides for as-needed engineering services for concrete testing, geotechnical soil borings, and other testing and related services.</i>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Active Projects  
(000)**

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Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
19 <b>Geotechnical and Related Services on an As-Needed Basis (1)</b>	<b>004307</b>	<b>1164</b>	<b>CS-1490</b> \$ 2,500,000	D	165							0	3	TBD
<p><b>Start Date:</b> 01/14/2010    <b>Completion Date:</b> 07/14/2016</p> <p><i>The work includes consultant services for geotechnical work on as-needed basis. The work also provides for additional engineering/technical services as requested.</i></p>														
20 <b>Department-wide General Engineering Services on an As-needed Basis (1)</b>	<b>004338</b>	<b>1026</b>	<b>CS-1499</b> \$ 5,337,500	D	324	121						121	3	TBD

**Start Date:** 05/12/2010    **Completion Date:** 06/02/2018

*The scope of work includes civil, structural, architectural, hydraulics, mechanical, electrical, surveying, instrumentation and piping design services.*

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Active Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
					\$45,637	\$24,294	\$6,085	\$355	\$121	\$0	\$0	\$30,855		

# UP - Projects Under Procurement

A Project Under Procurement has:

1. an assigned DRMS number
2. not been issued the Notice to Start Work

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Projects Under Procurement  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Primary Treatment</b>														
1 <b>Pump Station No. 2 Pumping Improvements</b>	<b>004215</b>	<b>961</b>	<b>PC-795</b>	C		1,300	1,890	200				3,390	2	TBD
<i>The scope of work involves modification/refurbishment of existing constant speed Pump Nos. 11 and 14. The modifications consist of replacing the complete pump excluding the casing and hand hole covers, worn out parts, suction head and stuffing box head to improve pump hydraulic conditions and replace the existing suction pipe with newly designed suction pipe with vanes based on the computerized flow dynamics (CFD) analysis.</i>														
2 <b>Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery</b>	<b>004818</b>	<b>291</b>	<b>PC-757</b>	C		17,500	18,000	17,000	4,300			56,800	2	TBD
<i>The work to be completed under this project will include installing ventilation and atmospheric control for the pipe gallery; providing new lights and emergency lights, etc. This work also includes rehabilitation of twelve (12) drain lines from rectangular clarifiers 3 -12, circular clarifiers 15 and 16, installation of large manhole with sump pumps to collect drainage and discharge to clarifier, and concrete crack repairs, and rehabilitation work in Electrical/Mechanical Building.</i>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Projects Under Procurement  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Secondary Treatment</b>														
3 <b>Aeration System Improvements</b>	004336	1194	PC-796	C		5,450	8,500	5,600				19,550	2	TBD
<p><i>The scope of work includes the installation of oxygen baffle on Bay 10 of A1 &amp; A2 decks, replacement of influent, Returned Activated Sludge (RAS) piping, isolation gate and valves for decks Nos. 3 &amp; 4, replace RAS &amp; influent magmeters for Intermediate Lift Pumps Nos. 3,4 &amp; 7. The work will also include replacement of influent gates and operators on Aeration Deck Nos. 1 &amp; 2.</i></p>														
<b>Solids Handling</b>														
4 <b>Rehabilitation of Central Offload Facility</b>	004820	1221	CS-1701	S/D/CA	250	800	350	250	350			1,750	2	TBD
<p><i>The scope of work consists of study, design, and construction assistance services for the rehabilitation of the central offload facility, which includes bin activators, rotary feeder valves, knife gate valves, bottom hoppers, conveyors, and other associated items. The work also includes rehabilitation of HVAC system of the entire facility, lime offloading system, drainage system, elevator, and doors.</i></p>														
<b>Disinfection</b>														
5 <b>Rouge River Outfall (RRO) Disinfection (Alternative)</b>		1302	CS-1781	CM		500	1,000	750	350			2,600	2	TBD
<p><i>The consultant shall provide comprehensive professional services for project oversight and Owner's representation for the PC-797 RRO Disinfection Progressive Design-Build Contract.</i></p>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Projects Under Procurement  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
6 <b>Rouge River Outfall (RRO) Disinfection (Alternative)</b>	<b>004849</b>	<b>1302</b>	<b>PC-797</b>	S/D/C	2,000	5,000	12,000	12,000	3,600			32,600	1	TBD

*The scope of work consists of completing basis of design, design and construction services to develop and implement a solution that will result in 100% disinfection of wet weather flow discharged from WWTP to Detroit River Outfall and Rouge River Outfall in order to meet NPDES Permit requirements.*

**Pumping Stations and Reservoirs**

7 <b>Fairview Pumping Station - Replace Four Sanitary Pumps</b>	<b>004844</b>	<b>1241</b>	<b>CS-1747</b>	D/CA	100	500	500	640	700			2,340	3	TBD
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*The scope of work consists of the study and design for four new pumping systems including inlet and discharge valves and wet well hydraulics. This will also include enlarging doorways, revamping roadways, and upgrade of electrical and control systems.*

<u>\$2,350</u>	<u>\$31,050</u>	<u>\$42,240</u>	<u>\$36,440</u>	<u>\$9,300</u>	<u>\$0</u>	<u>\$0</u>	<u>\$119,030</u>
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# PC - Projects Pending Close-Out

A Project Pending Close-Out is a project that has:

1. an assigned DRMS number
2. been issued the Notice to Start Work
3. been substantially completed
4. project expenditures for the current fiscal year equal to \$100,000 or less - with no projected expenditures

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Projects Pending Close-out  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>1 Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection Improvements</b>	<b>004180</b>	<b>1028</b>	<b>CS-1443</b> \$ 710,668	S/D/CA	2,000	35						35	3	TBD

**Start Date:** 06/12/2008      **Completion Date:** 12/31/2015

*This project involves the study, design, and construction assistance for the installation of an Integrated Plant Wide Fire Alarm System in approximately 100 buildings at the WWTP in order to facilitate centralized monitoring and assure faster corrective action. The new system will be interfaced with the existing WWTP Control System so signals associated with this system can be transmitted over existing fiber optic cables as a physical media for interconnection of the standalone systems.*

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Projects Pending Close-out  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Information Technology</b>														
2 Data Center Reliability/Availability Improvements (1)	004367	1206	DWS-881 \$ 2,862,425 \$ 2,862,425	DB	184	0						0	4	TBD
<p><b>Start Date:</b> 01/29/2013      <b>Completion Date:</b> 02/27/2016</p> <p><i>The scope of work consists of designing and building data centers, which will provide system improvements for both power and uninterruptible power supply systems, environmental service, fire protection, structural wiring, and monitoring. This includes the Systems Control Center, Water Board Building, Switch Room Central Services Facility, Switch Room WWTP-NAB-B1, Data Center Central Service Facility - IS-226, and Data Center WWTP-K303.</i></p>														
3 SCADA Radio Network Upgrade (1)	004369	1207	DWS-882 \$ 3,997,545	DB	637							0	3	TBD
<p><b>Start Date:</b> 03/26/2013      <b>Completion Date:</b> 03/26/2016</p> <p><i>The scope of work consists of installing and upgrading the Department's new SCADA Radio network including low voltage wiring, radio wiring and cable, data connections, antenna mounting and connections, instrument wiring, network wiring, and fiber networks. It also includes system improvements and planning, system and material procurement in support of the activities required for completing each task.</i></p>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year  
Projects Pending Close-out  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	DRMS No.	CIP No.	Contract No./Contract Amount	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
4 Consolidated Process Control System Upgrades (1)	004393	1153	PC-773D \$ 3,280,158	DB1	359							0	3	TBD

**Start Date:** 05/23/2013      **Completion Date:** 05/22/2016

*This project involves integrating the control and monitoring network throughout all of the facilities with the new SCADA system installed under PC-713. The work includes control system hardware, software, and firmware upgrade or replacement, troubleshooting, installation, start-up, testing, and repair services.*

<u>\$3,180</u>	<u>\$35</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$35</u>
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# N - New Projects

A New Project is a project that:

1. does not have an assigned DRMS number
2. has a proposal
3. has never had expenditures charged against it

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year**

**New Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	Contract No.	Year Added	CIP No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Primary Treatment</b>														
1 <b>Pump Station No. 2 Improvements Phase II at Wastewater Treatment Plant (WWTP)</b>		<b>2014</b>	<b>1287</b>	S/D/C		200	600	2,000	6,000	2,000		10,800	2	TBD
<i>The work includes study, design, and construction for the rehabilitation of five pumps Nos. 9, 12, 13, 15, 16 and any associated equipment. Also the replacement of HVAC system, instrumentation and controls improvements, structural, architectural and electrical improvements at the pump station.</i>														
2 <b>Rehabilitation of Main Lift Pumps at Pump Station No. 1</b>		<b>2016</b>	<b>1312</b>	S/D/C		450	3,000	5,500	3,500	679		13,129	1	TBD
<i>The study/design work will identify all major parts including impellers and wear rings to be refurbished for each pump and all related appurtenances. The construction services will provide rehabilitation and/or replacement as determined in the study and design along with the sequencing of pump shutdown throughout the rehabilitation period.</i>														
3 <b>Replacement of Bar Racks at Pump Station No.2</b>		<b>2016</b>	<b>1314</b>	S/D/C		50	1,000	2,000	617			3,667	1	TBD
<i>This study and design work will determine the need to improve the existing eight bar screens and their associated motors and electrical panels as necessary to meet the long-term wet weather requirements. The construction phase will provide the refurbishment or replacement of the existing equipment.</i>														
<b>Solids Handling</b>														
4 <b>Rehabilitation of Central Offload Facility</b>		<b>2010</b>	<b>1221</b>	C			3,500	4,500	2,000			10,000	2	TBD
<i>The scope of work for the rehabilitation of the central offload facility includes bin activators, rotary feeder valves, knife gate valves, bottom hoppers, conveyors, and other associated items. The work also includes rehabilitation of HVAC system of the entire facility, lime offloading system, drainage system, elevator, and doors.</i>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year**

**New Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	Contract No.	Year Added	CIP No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>5 Complex I Incinerators Decommissioning and Reusability at Wastewater Treatment Plant (WWTP)</b> <i>The work includes decommissioning of the existing Complex I incineration facility requiring study, plan, removal and relocation of the existing equipment. The work includes future reusability recommendation for Complex I incineration facility.</i>		<b>2014</b>	<b>1284</b>	S/D/C	250	3,000						3,000	3	TBD
<b>6 Improvements to Sludge Feed Pumps at Dewatering Facilities</b> <i>The scope of work includes study, design, and construction for the replacement of sludge feed pumps SFP-1, 2, 5 and 6 at the WWTP.</i>		<b>2016</b>	<b>1309</b>	S/D/C		50	1,000	1,500	810			3,360	2	TBD
<b>7 Modification to Incinerator Sludge Feed Systems at Complex -II</b> <i>The study and design will determine the modifications and factors for of better performance of the incinerator sludge feed systems at Complex-II. The construction services of this project will implement the modification in the systems as necessary.</i>		<b>2016</b>	<b>1311</b>	S/D/C		100	1,250	2,000	2,610			5,960	2	TBD

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year**

**New Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	Contract No.	Year Added	CIP No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>Disinfection</b>														
8 <b>Replacement of Chlorination and Dechlorination Equipment at the WWTP</b>		<b>2010</b>	<b>1222</b>	C		550	350	2,800	1,800			5,500	2	TBD
<i>The work will consist of installation of sixteen (16) chlorinators, fourteen (14) sulfonators, and thirty (30) evaporators and related equipment mandated by regulatory requirements.</i>														
<b>General Purpose</b>														
9 <b>Study/ Repair Potable Water, Screened Final Effluent, Natural Gas and Compressed Air Pipe Lines at the WWTP</b>		<b>2006</b>	<b>1140</b>	S/D/C		50	350	2,800	1,800			5,000	2	TBD
<i>This project will include the repair or replacement of the aging and corroded pipes, valves, and fittings for the potable water supply system, natural gas system, Screened Final Effluent system, and compressed air system. It also includes installation of a compressed air system to supply air to the pneumatic tools in the PS-2 facility.</i>														
10 <b>Rehabilitation of Grit and Screening System at PS-2 and Rehabilitation of Sampling Sites at WWTP</b>		<b>2010</b>	<b>1223</b>	C			3,000	5,000	3,000			11,000	2	TBD
<i>The work consists of modifications and improvements of the existing grit and screening handling system at pump station #2. The work also includes removal, and installation of new samplers, pumps, piping, housing, and related equipment. Sampling sites include Jefferson, Oakwood, Main Plant Influent 2, North Interceptor East Arm, Plant Effluent, River Rouge Outfall, Primary Effluent Activated Sludge 1, 3 and 4, ML-1 through ML-4, Return Activated Sludge 1 through 4, and Combined Secondary Effluent 3 and 4. These improvements will enable WWTP to be in compliance with NPDES permit.</i>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year**

**New Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	Contract No.	Year Added	CIP No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>11 Rehabilitation of the Main Plant Maintenance Building, Replacement of Various Plant Maintenance Areas and Work Environment Improvement</b>  <i>The scope of work consists of studying existing maintenance facilities and evaluation of suitable modifications to consolidate the maintenance areas and provide sufficient storage. The work includes providing new maintenance areas, rehabilitating primary treatment maintenance areas: i.e., Main Plant Maintenance building, shops, work and storage areas for Pump Station No. 1, replace loading dock on the Rack and Grit building and Complex I, rehabilitate basement of the Rack and Grit building for equipment storage, and provide work environment improvements at the Wastewater Treatment Plant.</i>		<b>2011</b>	<b>1237</b>	S/D/C		500	1,000	6,000	5,400			12,900	3	TBD
<b>12 Wastewater Treatment Plant, Lift Station and Wastewater Collection System Structures Allowance</b>  <i>This is an allowance for unplanned critical projects, equipment replacement/rehabilitation, critical asset replacement, energy saving projects, etc. at the Wastewater Treatment Plant and other Wastewater Operation Facilities. Unplanned critical items including but not limited to mechanical, HVAC, electrical, instrumentation and control, demolition, earthwork, concrete, masonry, etc.</i>		<b>2012</b>	<b>1257</b>	D/C	5,000	12,000	12,000	12,000	15,000	15,000		66,000	3	TBD
<b>13 Construction of new Industrial Waste Control Division and Analytical Laboratory Operations</b>  <i>The work includes construction of the industrial waste control division and analytical laboratory operations and WWTP.</i>		<b>2014</b>	<b>1285</b>	C		2,000	3,000	2,000				7,000	3	TBD
<b>14 Vehicle, Heavy Equipment and Equipment Purchases</b>  <i>This is an allowance for planned and unplanned equipment replacement, vehicles, and heavy equipment.</i>			<b>1328</b>	C	3,400	3,937	1,646	250	250	250		6,333	4	TBD

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year**

**New Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	Contract No.	Year Added	CIP No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>15 Scheduled Replacement Program of Critical Assets</b> <i>This program is to perform the scheduled replacement as per the 2013 Needs Assessment for critical asset replacement at the Wastewater Treatment Plant and Combined Sewer Outfall facilities.</i>		<b>2015</b>	<b>1330</b>	D/C	3,303	4,655	5,000	5,000	5,000	5,000		24,655	2	TBD
<b>16 Energy Management: Electric Metering Improvement Program</b> <i>This program will increase the number of electric meters at pumping stations and treatment facilities to allow for active demand management to reduce electricity rates. The meters can be tied to the existing data management system for data archiving and use.</i>		<b>2016</b>	<b>1343</b>	S/D/C		500	500	500	500	500		2,500	4	TBD
<b>17 Security Infrastructure Improvements</b> <i>Implement recommendations of GLWA security vulnerability assessments □ Security systems for the Belle Isle Intake. Security systems for all Water and Wastewater Plants chlorine storage and handling facilities. Enhance perimeter security and at all water plants. Replace analog video cameras systems to digital cameras systems at all GLWA facilities.</i>		<b>2016</b>	<b>1354</b>	D/C		2,700	2,700					5,400	4	TBD

**Regional Sewer System**

<b>18 Sewer and Interceptor Evaluation and Rehabilitation Program</b> <i>Yearly allowance for evaluation and rehabilitation of the interceptors, other large diameter sewers, siphons and outfalls.</i>		<b>2013</b>	<b>1263</b>	S/D/C	1,000	8,000	8,000	8,000	20,000	20,000		64,000	2	TBD
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**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year**

**New Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	Contract No.	Year Added	CIP No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>19 Oakwood District Intercommunity Relief Sewer Modification at Oakwood District</b>  <i>The work includes basis of design (study) report on alternative solution to proposed Oakwood District Intercommunity Relief Sewer, design for replacement of sewer lines, catch basins, diversion of stormwater flow, and construction assistance during construction phase of emerging projects, etc.</i>  <i>A portion of this work will be deferred until the completion of the wastewater master plan.</i>		<b>2014</b>	<b>1286</b>	S/D		110	550	2,750	5,500	2,200		11,110	2	TBD
<b>20 Detroit River Interceptor (DRI) Evaluation and Rehabilitation</b>  <i>Evaluation, design and rehabilitation of the DRI. The existing system has been in place for 100+ years.</i>		<b>2016</b>	<b>1329</b>	S/D/C		1,500	5,000	5,000	5,000			16,500	2	TBD
<b>21 North Interceptor East Arm (NIEA) Evaluation and Rehabilitation</b>  <i>Rehabilitation work on the NIEA between NESPS and Gratiot Avenue and Sylvester Street.</i>			<b>1332</b>	S/D/C	5,000	12,000	11,000	3,000				26,000	2	TBD
<b>22 Sewage Meter Design, Installation, Replacement and Rehabilitation Program</b>  <i>Lifecycle rehabilitation and replacement of sewage meters to ensure accurate billings and allow high quality analysis of the system operations.</i>		<b>2016</b>	<b>1344</b>	S/D/C		500	500	500	500	500		2,500	3	TBD

**Combined Sewer System**

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year**

**New Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	Contract No.	Year Added	CIP No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>23 Improvements at Puritan-Fenkell, 7-Mile and Conner Creek CSO Control Facilities</b>		<b>2016</b>	<b>1313</b>	D/C		1,000	1,500	1,750	3,000			7,250	2	TBD
<i>Provide study and design to improve the deteriorating structural conditions at the three retention-treatment basins: Puritan-Fenkell Basin/dry weather pump station, the 7-Mile Basin and the Conner Creek CSO Basin. The construction will be in accordance to the NPDES permit requirements and follow the sequencing of final design. A portion of this work will be deferred until the completion of the Wastewater Master Plan.</i>														

**Information Technology**

<b>24 Replacement of LIMS / PIMS Software System</b>		<b>2010</b>	<b>1224</b>	S/D/C		500	2,500	2,000				5,000	4	TBD
<i>The scope of work consists of the study, design, purchase, and installation of the LIMS / PIMS software system. This will include identifying major tasks to be performed and customizing software requirements, testing, and training.</i>														
<b>25 IT Systems Allowance (1)</b>		<b>2013</b>	<b>1262</b>	DB	1,500	5,742	5,623	3,425	1,000	1,050		16,840	4	TBD
<i>This is an allowance for the procurement of IT equipment or services for the replacement or upgrade of the department's computer systems, software licensing, and related IT items.</i>														

**Pumping Stations and Reservoirs**

<b>26 Fairview Pumping Station - Replace Four Sanitary Pumps</b>		<b>2011</b>	<b>1241</b>	C			10,000	10,000	10,000			30,000	3	TBD
<i>The scope of work consists of the construction of four new pumping systems including inlet and discharge valves and wet well hydraulics. This will also include enlarging doorways, revamping roadways, and upgrade of electrical and control systems.</i>														

**Sewage Disposal System  
Capital Improvement Program  
Projected Expenditures Spread by Fiscal Year**

**New Projects  
(000)**

\* For information purposes only. Not counted in Total.

Project Title	Contract No.	Year Added	CIP No.	Type	Update* 2016	2017	2018	2019	2020	2021	Remaining	Total	Primary Project Purpose	Funding
<b>27 Freud &amp; Conner Creek Pump Station Improvements</b>		<b>2016</b>	<b>1315</b>	S/D/C		500	2,000	5,000	7,000	8,000		22,500	2	TBD
<i>This project will provide study and design to improve system operations, efficiency and reliability of pumping responses to storm events. The construction will provide the improvements designed necessary to improve the flexibility, flow and treatment.</i>														
<b>28 Northeast Pumping Station</b>		<b>2016</b>	<b>1331</b>	D/C	500	13,000	13,000	13,000				39,000	2	TBD
<i>This project will include replacement of the inlet gate valve, installation of new chopper pumps and Pump No. 3, repair of service elevator, rebuilding of spare pumps, repair and upgrade of wet well, dry well and Gate House air handling systems.</i>														
					<u>\$19,953</u>	<u>\$73,594</u>	<u>\$99,569</u>	<u>\$108,275</u>	<u>\$100,287</u>	<u>\$55,179</u>	<u>\$0</u>	<u>\$436,904</u>		