



City of Detroit  
Water & Sewerage Department  
Finance Division

**DATE:** February 12, 2015                      **REVISED - March 3, 2015**

**TO:** Board of Water Commissioners (BOWC) operations, Regulatory, Compliance and Procurement (ORCAP) Committee  
Director  
Chief Financial Officer

**FROM:** Syed Ali, Head Engineer, Capital Management Group

**RE:**     **FY 2016 Water Supply System CIP**  
          **Brief Summary/Highlights and Review Comments Response**

Attached is the FY 2016 Water Supply System CIP for your review and consideration. The “Preliminary” CIP was presented to the ORCAP Committee and BOWC Workshop for review and discussion on December 22, 2014, and January 14, 2015 respectively. The CIP was again presented to the ORCAP Committee for review on February 12, 2015. An update was also provided to the BOWC Finance Committee on February 17, 2015. Review comments from customers, BOWC Technical Advisor and BOWC commissioners were reviewed by DWSD and incorporated in the final version of the CIP, if appropriate.

There are no changes in the Water CIP since it was presented to the ORCAP committee on February 12, 2015, except the following:

- Project titles and descriptions of item 21 and item 22 on page 34 have been corrected.
- New City Council member Janee Ayers has been added on the cover page.

Given below is the brief summary/major highlights.

Revisions made since January 14, 2015 BOWC Workshop presentation are shown in *italics*. *No changes in the highlights since February 12, 2015 presentation.*

## **Water Supply System (WSS)**

- *Total Water CIP plan (5 year + Remaining) is \$650.8 million and the 5-year CIP plan is \$634.5 million.*
- A shaded column with FY 2014-15 updated expenditure projections is provided in the CIP for information purposes only; it is not counted in the sub- total or total and is not a part of the 5-year plan.

- **New for this year** - contract amount, start date and completion date have been added in the CIP.
- Thirty three (33) new project proposals totaling approximately \$163.1 million have been added.
- Total 5-year “Water Transmission/Pump Station Improvements Allowance” is \$50.0 million (\$10.0 million each year) (CIP # 1230, item 2, page 29). *FY 2015 allowance reduced to \$1.0 million from \$2.0 million.*
- Total 5- year “Water Main Replacement Allowance” is \$50.0 million (\$10.0 million each FY) (CIP #463, item 5, page 30).
- A **new allowance** titled “**Water Meter Replacement Allowance**” has been added with \$4.0 million each year for a total of \$20.0 million for purchase and installation of retail meters and accessories in City of Detroit (CIP # 1304, item 6, page 30).
- Total 4- year “IT Systems Allowance” is \$7.5 million (CIP #1262, item 7, page 30).
- Total 5- year “Water Treatment Plant Allowance” is \$90.0 million (CIP #1256, item 8, page 30), which **includes an amount of \$60.0 million for repurposing/reducing capacities of water treatment plants** per the recommendation of the water master plan study team. *FY 2015 allowance reduced to \$4.0 million from \$5.0 million.*
- Total cost for the project “Springwells Water Treatment Plant – Low Lift and High Lift Pump Station Improvements”(CIP #1071, item 14, page 32) has been reduced to \$42.0 million from \$98.5 million based on the recommendation of the water master plan study team because of anticipated change in scope of work.
- *Projection for WS-648A Water Main Replacement in Various Street Throughout the City is revised (item 2, page 15).*
- *CS-1673 Professional Services Contract for Water Mains, contract price \$1.031 million, has been added in the CIP (item 5, page 16). This contract came out of Water Main Allowance.*
- *CS-1490 Geotechnical Services on As Needed Basis projection revised (item 13, page 19).*
- *Projection for SP-563 Springwells Water Treatment Plant Filter Rehabilitation is revised (item 15, page 20).*
- *Projection for WS-686 Water System Improvements in Various Streets throughout the City is revised (item 4, page 22).*
- *Start date, completion date, and contract price for some of the contracts have been corrected.*
- Following projects that existed in FY 2015 CIP have been deleted, as these projects are either complete, no more needed or closed by Accounting:
  - CS-1476 As Needed Technical Services – Project completed.
  - CS-1474 Replacement of High Lift and Low Lift Pumping Units at Springwells Water Pumping Units at Springwells Water Treatment Plant – Project terminated.
  - CS-1430 Northeast Water Treatment Plant Rehabilitation of Filtration System – This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.

- CS-1475 Sludge Treatment and Flocculation/Sedimentation Basins Upgrade at Northeast Water Treatment Plant - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- CS-1494 Northeast Water Treatment Plant - Chemical Process, Electrical and Mechanical Improvements - This project will not be needed in the same scope because of the ongoing Water Master Plan study.
- IH-106 Southwest Water Treatment Plant Filtration Improvements - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- DWS-862A Vulnerability Assessment Recommended Upgrades – No activity/No more needed.
- DWS-888 Metering Improvements at Southwest & Northwest WTPs – No more needed/New CIP proposal received.
- SP-567 Springwells Water Treatment Plant Discharge Header Pipe System Replacement – No activity/No more needed.
- NE-378 Northeast Water Treatment Plant - Rehabilitation of Filtration System - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- WS-674 Parallel 42-Inch Main in 24 Mile Road from Foss Road to Fairchild Road – Project completed.
- WS-668 Water System Improvements, Various Streets Throughout the City – Project completed.
- CS-1465 Customer Billing and Management System (CBMS) Upgrade – Project completed.
- DWS-893 Rochester Pump Suction Improvements – Project terminated.
- CIP 1075 Springwells Water Treatment Plant - Pre-Treatment Improvements-D/CA/C - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- CIP 927 Northeast Water Treatment Plant - Major Pumping Equipment Improvements - D/CA/C - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- NE-374 Sludge Treatment and Flocculation/Sedimentation Basins Upgrade at Northeast Water Treatment Plant - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.

- CIP 1119 Northeast Water Treatment Plant - Chemical Process, Electrical and Mechanical Improvements – C - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- CIP 1211 Northeast Water Treatment Plant - High Pressure Zone Pumping Units – C - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- CIP 1065 Southwest Water Treatment Plant Improvements - High Lift and Low Lift Pump Station Administration Building Chemical Building and System – D/CA/C - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- CIP 1067 Southwest Water Treatment Plant - Filtration Improvements Construction – C - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- CIP 1068 Southwest Water Treatment Plant - Electrical and Instrumentation and Controls Design – D/CA/C - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- CIP 1234 MCCs and Lighting Panels at Southwest Water Treatment Plant – S/D/C - This project was on hold for a long time and will not be needed in the same scope because of anticipated plant repurposing/ or capacity reduction as a result of the ongoing Water Master Plan study.
- CIP 1228 Ready Road Pump Station – C - This project is no more needed.
- Following projects have been moved from the “Active” category to “Pending Closeout” category as the projects are anticipated to be completed and closed out. Contract expenditures (unaudited numbers) up to the end of FY 2014 are shown below. Projects marked with \* are 50/50 combined water and sewer projects; water portions of the contract expenditures are shown here. :
  - \*CS-1499 Department-wide General Engineering Services on an As-needed Basis (item 1, page 25) - \$4,192,136.
  - WS-680 Water System Improvements, Various Streets throughout the City of Detroit (item 2, page 25) - \$2,985,652.
  - \*CS-1345 As Needed Engineering Services (item 3, page 25) - \$4,012,396.
  - \*DWS-884A Central Services Facility (CSF) Improvements (item 4, page 26) - \$520,873.
  - CS-1528 Comprehensive Water Master Plan Update (item 5, page 26) - \$1,286,000.

- Following projects have been moved from the “Under Procurement” category to “Active” category as “Notice to Proceed” have been issued to the contractors. Contract expenditures (unaudited numbers) up to the end of FY 2014 are shown below.
  - WS-681 Parallel 42-Inch Main in 24 Mile Road from Rochester Station to Romeo Plank Rd (item 1, page 15) - \$150,000.
  - WS-648A Water Main Replacement in Various Streets Throughout the City (item 2, page 15) - \$300,000.
  - WS-685 Water System Improvements, Various Streets Throughout the City of Detroit (item 3, page 15) - \$0.
  - WS-691 Water System Improvements in Joy Rd from Southfield Rd to Trinity (item 4, page 16) - \$0.
- Projects’ expenditures have been revised based on the current status in terms of the progress/schedule and cost, and the input/information provided by the project managers.

### **PROJECTION ANALYSIS – WATER**

#### **FY 2016 CIP Vs. FY 2015 CIP**

	Water Supply System							Not counted in Sub Total or Total. For information only.		
	'(000)									
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	5 Year Sub Total	Remaining	Total
Per FY 15 Water CIP	62,198	125,213	153,273	107,099	71,257	47,589		504,431	7,561	511,992
Per FY 16 Water CIP		81,262	132,813	174,649	151,812	117,606	57,600	634,480	16,316	650,796
Comparison: FY 16 CIP vs. FY 15 CIP		(43,951)	(20,460)	67,550	80,555	70,017	57,600	130,049	8,755	138,804
Comparison %: FY 16 CIP vs. FY 15 CIP		-35.10%	-13.35%	63.07%	113.05%			25.78%	115.79%	27.11%

#### **FY 2016 CIP Vs. FY 2016 Preliminary CIP**

	Water Supply System							Not counted in Sub Total or Total. For information only.		
	'(000)									
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	5 Year Sub Total	Remaining	Total	
Per FY 16 Preliminary Water CIP	80,344	132,718	174,967	153,312	117,606	57,600	636,203	16,316	652,519	
Per FY 16 Water CIP	81,262	132,813	174,649	151,812	117,606	57,600	634,480	16,316	650,796	
Comparison: FY 16 CIP vs. FY 16 Preliminary CIP	918	95	(318)	(1,500)	-	-	(1,723)	-	(1,723)	
Comparison %: FY 16 CIP vs. FY 16 Preliminary CIP	1.14%	0.07%	-0.18%	-0.98%			-0.27%	0.00%	-0.26%	

## CIP Review Comment and DWSD Response

The following summarizes public and BOWC Technical Advisor review comments on the FY 2016 “Preliminary” Water CIP.

The proposed new projects were presented and discussed with the TAC/AWG group on October 7, 2015 and the “Preliminary” CIP was sent on December 22, 2014 for customers/communities review and comments.

Customer questions/comments included the following:

Customer Question/Comment	DWSD Response
<p>General Comment: Overall, the CIP looks really good.</p> <ol style="list-style-type: none"> <li>1. For the current year, 2014/15, I do think that the \$12.5 million for 2014/15 for new projects, all of which are allowances, is too high. Given that the year is half over already and none of these projects have been identified, I would suggest that all of the allowances be reduced to half the level in the draft CIP. That would give a total of \$6.25 million for allowance projects to be completed before <b>June 30</b>, which should be plenty of money, and is probably still more than will be spent.</li> </ol>	<p>Thank you.</p> <p>Projections for current FY 2015 reduced to \$10.5 million.</p>
<ol style="list-style-type: none"> <li>2. I like the addition of the contract number, contract amount, start date and completion date to the active projects. That helps to tie things together.</li> </ol>	<p>Thank you.</p>
<ol style="list-style-type: none"> <li>3. The Urban System Improvements total of \$38.66 million for 2015/16 looks too high. Historically, the department has not been able to spend that much money on these projects. It would also be helpful to know if any of the projects to reduce the level of non-revenue water have been included in these line items.</li> </ol>	<p>Urban System Improvements (USI) category not only includes water main replacement projects within City of Detroit but also the retail meter replacement allowance (added new allowance, \$4.0 million each year beginning FY 2016). Water main replacement projects include 3 active projects WS-648A, WS-685, and WS-691, and 2 under procurement projects WS-686 and WS-693 with a planned expenditure of \$24.660, and \$10.0 million allowance for new water main projects. With the ramp up efforts in progress, DWSD anticipates to utilize the projected expenditures for FY 2016 in USI category.</p> <p>All the water main replacement projects will help reduce the non-revenue water volume. Metering projects at the water treatment plants will also</p>

	help in this regard.
4. The amount of money in the allowance projects for 2015/16 (new projects for both transmission and water plant) also appears too high. It looks as if the department has done a good job of identifying actual projects, especially in the water plants, which are covered in other parts of the CIP. Given the high number of projects already identified, I think that the <b>allowance</b> amounts should be significantly reduced. I would keep a couple of million in each of the transmission and water project allowances but the current level is too high.	DWSD has increased the effort(s) to identify and complete the needed replacement of water transmission lines and anticipate utilizing the planned allowance of \$10.0 million each year. Water treatment plant allowance is only \$30.0 million (\$10.0 million in FY 16, and \$5.0 million each in the other four subsequent fiscal years) for unplanned critical projects, \$60.0 million (\$15.0 million each year beginning FY 2017) is for the repurposing/reducing capacity of the plants as recommended by the master plan team; thus totaling \$90.0 million. Water plant allowance is also meant for other water operations facilities such as water booster/pump stations, and any future energy saving projects.
5. Are the metering projects (new projects for 2015/16) at Northeast and Southwest in locations where the meters would be used even if the treatment trains are taken out of service?	The metering projects proposed and planned at Northeast and Southwest do take into consideration the present operations as well as the future changes that would be made in re-purposing these plants.

Tarolyn Buckles, BOWC Technical Advisor, review comments on “Preliminary” Water CIP included the following:

Page No.	Description	Comments	DWSD Response
4 of 39	“Pending Close-out”	\$8.373M (2014-15); \$ 45 2015-16; 9 projects total. Are these Projects Substantially completed and Capitalized?	Projects shown in the pending close out category are not yet complete, but are expected to be complete in the current FY 2015. These projects are not capitalized yet.
6 of 39	Plant Replacement and Renovation: Lake Huron	The plant capacity will be reduced per the Water Master Plan. The Capital Improvements dollar amount is increasing through 2018, should the capital expenditures decrease?	There are six new capital projects totaling \$26,040,000 identified for the next five fiscal years at the Lake Huron WTP. Five of these new projects totaling \$15,240,000 are independent of the anticipated reduction of the Lake Huron WTP treatment capacity. The sixth new project, Replacement of Filter

			<p>Instrumentation and Raw Water Flow Metering Improvements, totaling \$10,800,000 will likely be reduced in scope once the master plan is complete and we know for sure what the future design treatment capacity of LH will be. Part of this project (raw water flow metering improvements), however, is independent of the reduction in plant treatment capacity because parallel raw water flow meters will still be retained for redundancy in flow metering. If the treatment capacity of Lake Huron is reduced to 300 mgd from 400 mgd (a likely scenario), then the estimated cost of this project may be lower by about 20%.</p>
6 of 39	Plant Replacement and Renovation: Northeast WTP	The \$5.033M for new projects is this amount over and above the repurposing of the plants \$60M costs category page 30?	<p>The \$5.033 million in capital improvements are spread between 3 new projects at the Northeast WTP over the next 5 fiscal years. The \$5.033 million associated with these 3 projects are in addition to the amounts in the general WTP allowance budgeted for plant repurposing. Two (2) of these new projects are independent of the planned closure of the treatment processes at the Northeast WTP while the 3rd project is necessary for the planned closure of treatment at Northeast. In the repurposing of Northeast WTP, the high-lift pumping station and finished water reservoirs will be retained and essentially used as a booster pumping station with storage. The yard piping replacement project at Northeast is the first project needed at Northeast to facilitate closure of treatment at Northeast. The "water main" replacement work mentioned under this project is again related to yard piping water</p>



			<p>main and water main in the vicinity of the State Fair Valve. The water main work associated with this project will be capitalized. Similarly, the Water Production Flow Metering Improvements at Northeast are needed to rectify apparent water losses in DWSD's non-revenue water reduction program, and these meters will serve an important purpose after repurposing. This project also involves replacing failed valves on the discharge transmission mains from the high lift pumping station that need to be done regardless of the repurposing of Northeast. The Low Lift Pumping Caisson Rehabilitation at Northeast is necessary to maintain the structural integrity of the high-lift pumping station because it is integrally constructed with the low lift station.</p>
	<p>Watermain Replacement and Repair</p>	<p><b>See attached Spreadsheet</b> for Detroit Total Watermain Replacement and Repair Costs and % Complete, Tarolyn Buckles prepared. The watermain replacement projects will be capitalized. Please confirm if the watermain repair projects will be capitalized or expensed. Costs are \$50M (\$10M each FY). Current Total of Replacement costs are \$34,436,698 and Repair costs are \$8,998,385. See Attached Buckles Spreadsheets. DWSD Departments (Maintenance and Repair and Field Services) individually have lists of projects that should be combined for planning and project management purposes. ERP system will remove siloed reporting.</p>	<p>All the water main replacement projects, WS-680, WS-648A, WS-685, WS-691, WS-686, and WS-693 currently listed in the preliminary FY 2016 CIP will be capitalized.</p>
19 of 39	<p>DWS-874 Booster Stations and Reservoir inspection and rehab project</p>	<p>Please confirm the amount of the project estimated to be capitalized and the amount to be expensed. The reservoir project has both</p>	<p>Approximately \$1-million of repairs will be performed under this contract and will likely be expensed.</p>

		replacement and repair project components (roof replacements, structural repairs).	Approximately \$9-million of replacement/asset renewal will be performed under this contract and will all be capitalized. The balance of this contract (\$3.86-million) is for management.
30 of 39	Water Meter Replacements	The \$20M in meter replacements for residential and commercial meters in Detroit. Question from customer: will DWSD consider installing master meters for Detroit-Retail customers?	The \$20 million in water meter replacement allowance is for retail residential and retail commercial/industrial accounts. The topic of installation of master meters for DWSD-R customers need to be discussed during the transition period. There are two (2) options: Option #1: Identify number of connections for DWSD-R and plan to install master meters similar to other communities. This option could be very costly because of the number of connections and cost to build meter pit, each new meter pit costs approx. \$1.0 million.  Option #2: Similar to Dearborn; DWSD-R shares the retail sales with GLWA; GLWA adds percentage for Non-Revenue (Water Loss) to the retail sales and bill DWSD-R accordingly. In this option the water loss percentage needs to be calculated and agreed to by all the parties involved.
17 of 39	CS-1433 CIP Implementation Assistance	The project is from 2006-2017 for total \$9.9M. Is the contract for preliminary studies for potential CIP projects? Who is the consultant?	This contract is a task based as needed contract for CIP projects, not specific to preliminary studies for potential CIP projects; however, studies tasks have been/can be initiated. PMA, Inc. is the consultant.
30 of 39	Energy Management	Water Treatment Plant Allowance total is \$90M. The allowance is for repurposing and/or reducing the capacities of the Water Treatment Plants per the Water Master Plan. Energy savings is noted along with critical equipment replacement/	At present, there is no specific energy savings project in the CIP. Therefore, additional capital equipment needs are unknown at this time.

		rehabilitation, asset replacement. With the Unsolicited Energy Project will there be additional capital equipment needs?	
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