



MASSACHUSETTS WATER RESOURCES AUTHORITY

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Boston, MA 02129

Frederick A. Laskey
Executive Director

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WATER POLICY AND OVERSIGHT COMMITTEE MEETING

Chair: A. Blackmon
Vice-Chair: B. Peña
Committee Members:
J. Carroll
J. Foti
A. Pappastergion
H. Vitale
J. Walsh
J. Wolowicz

to be held on

Wednesday, March 21, 2018

Location: 100 First Avenue, 2nd Floor
Charlestown Navy Yard
Boston, MA 02129

Time: 10:00 a.m.

AGENDA

A. Information

1. Local Water System Assistance Program Annual Update
2. Update on Lead and Copper – Local and National Activities

B. Approvals

1. Memorandum of Agreement between MWRA and the Dedham/Westwood Water District - Contract 7505, Southern Extra High Pipeline Section 111

C. Contract Awards

1. Northern Intermediate High Section 89 Replacement Pipeline Preliminary/Final Design & ESDC: Stantec Consulting Services Inc., Contract 7116

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Water Policy and Oversight Committee

February 21, 2018

A meeting of the Water Policy and Oversight Committee was held on February 21, 2018 at the Authority headquarters in Charlestown. Chairman Blackmon presided. Present from the Board were Messrs. Carroll, Flanagan, Foti, Pappastergion, Vitale, and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Carl Leone, and Bonnie Hale. The meeting was called to order at 11:15 a.m.

Approvals

*Local Water System Assistance Program – Water Loan Program Guidelines Revision for the City of Peabody

There was brief question and answer; staff noted that the annual Program report would be on the agenda next month. The Committee recommended approval of a one-time exemption to the Program Guidelines for the City of Peabody to allow it to borrow up to its entire \$2,756,000 water loan allocation (ref. agenda item A.1).

Contract Awards


*Community Leak Detection Survey Services: LDT Solutions, LLC, Contract W322; Vital Services, Contract W322A; Arthur Pyburn & Sons, Inc., Contract 322B; and Liston Utility Services, Contract 322C

The Committee recommended approval of the four contract awards (ref. agenda item B.1).

The meeting adjourned at 11:20 a.m.

* Approved as recommended at February 21, 2018 Board of Directors meeting.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 21, 2018
SUBJECT: Local Water System Assistance Program Annual Update

COMMITTEE: Water Policy & Oversight

INFORMATION
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Carl H. Leone, Senior Program Manager, Planning
Elaine M. Donahue, Project Manager, Planning
Kristen M. Hall, Project Manager, Planning
Preparer/Title


David W. Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

For information only. MWRA's goal in providing financial assistance to member communities is to improve local water systems to help maintain high water quality as it passes from MWRA's facilities through local pipelines to customers' taps. Continued improvement of local water systems was a critical element of MWRA's Integrated Water Supply Improvement Program, which focused on cost-effective investment in water quality upgrades. Older water mains, particularly those constructed of unlined cast-iron pipe, need to be replaced or cleaned and lined to prevent tuberculation (rust build-up), loss of disinfectant residual, and potential bacteria growth. Similarly, replacement of lead service lines improves water quality by reducing the risk that lead can leach into the water consumed in customer's homes.

DISCUSSION:

Annual Update – Water Loan Program

Forty-two of the 45 eligible member water communities¹ have participated in MWRA's \$724 million Local Water System Assistance Program. Through February 2018, \$370.5 million in 10-year interest-free loans have been distributed to member communities to finance 407 projects that will help maintain high water quality in local distribution systems. Community loans are repaid to MWRA over a ten-year period. All scheduled community loan repayments have been made, more than \$234 million to date.

¹ MWRA has a total of 50 water communities (with Dedham/Westwood Water District counted as one). Under MWRA's Local Water System Assistance Program, 45 are allocated loan funds. The five ineligible water communities have special case considerations: Cambridge receives water on an emergency-only basis; Lynn receives water only for the GE plant; and Clinton, Leominster, and Worcester (also emergency only) receive untreated water from the Wachusett Reservoir. The three Chicopee Valley Aqueduct (CVA) communities (Chicopee, South Hadley FD#1, and Wilbraham) are allocated funds under Phases 2 and 3 of the Loan Program, but were not originally allocated loan funds under the Phase 1 – Local Pipeline Assistance Program, as that program was initiated as part of the treatment decision for the John J. Carroll Water Treatment Plant.

The Phase 1 - Local Pipeline Assistance Program began in FY01 and was completed at the end of FY13. It provided \$222.3 million in 10-year interest-free loans to water system communities for water main replacement, cleaning and lining projects, and lead service line replacements.

The Phase 2 - Local Water System Assistance Program commenced in FY11 and distributions are approved through FY23. The Phase 2 expansion of the water loan program added \$210 million in interest-free loans for member water communities (including a \$10 million allocation for the three Chicopee Valley Aqueduct communities – Chicopee, South Hadley FD#1, and Wilbraham). Through February 2018, \$143.6 million in Phase 2 funds have been distributed and \$66.4 million remain to be distributed. Twelve communities have received their entire Phase 2 funding allocation (see Attachment 1 - Allocation and Fund Utilization by Community).

The Phase 3 - Local Water System Assistance Program commenced in FY18 and distributions are approved through FY30. The Phase 3 expansion of the water loan program added \$292 million in interest-free loans for member water communities (including a \$14 million allocation for the three Chicopee Valley Aqueduct communities – Chicopee, South Hadley FD#1, and Wilbraham). Through February 2018, \$4.6 million in Phase 3 funds have been distributed and \$287.4 million remain to be distributed (see Attachment 1 - Allocation and Fund Utilization by Community).

The photos below are typical examples of local water system rehabilitation construction work funded through the MWRA Local Water System Assistance Program.



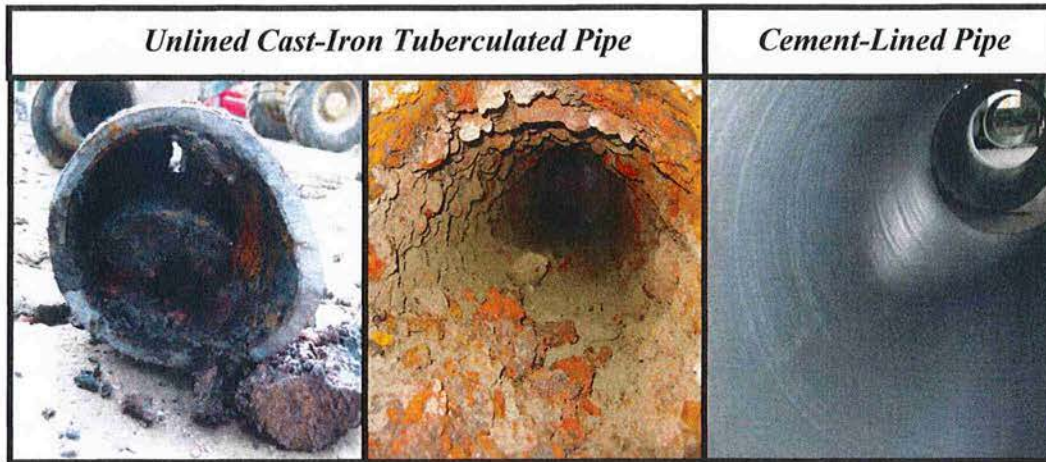
Water Main Replacement Construction



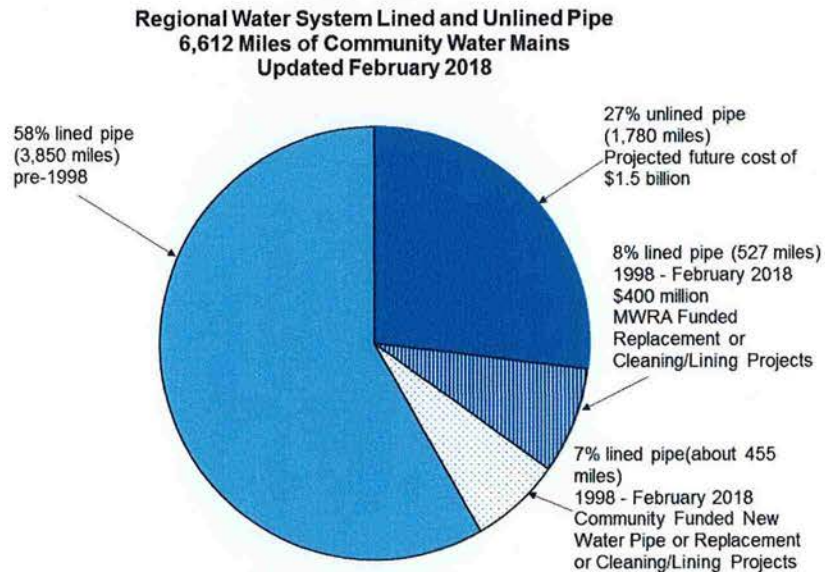
Old Unlined Cast Iron Water Main Pipe



Rehabilitated Water Storage Tank



Prior to 1998, 3,850 miles (58%) of the 6,612-mile regional distribution system was lined water pipe. Since 1998, MWRA's community financial assistance programs (including the \$30 million pilot program in 1998/99) have invested \$400 million in local water distribution systems and resulted in the replacement or cleaning and lining of 527 miles of water mains. Additional community-only funded rehabilitation or new pipeline projects have added 455 miles of lined water mains. Approximately 1,780 miles (27%) of locally-owned distribution systems remain unlined, representing a regional need of about \$1.5 billion for future water main rehabilitation. Attachment 2 provides individual statistics for the total miles of lined and unlined water main in each member water community.



Local Water System Assistance Program loan funds are allocated to member water communities based on a combination of their percent share of unlined pipe and wholesale water charge. MWRA's partially supplied communities receive pro-rated shares based on their percentage use of MWRA water. The majority of financial assistance loans (94%) under Phase 2 LWSAP have continued to fund replacement/rehabilitation of unlined water mains, lead service line replacements, water tank rehabilitation, and other water quality projects. In addition, some communities have undertaken system efficiency (Tier 2) projects such as water meter replacements, automated meter reading systems, and booster pump station rehabilitation.

Lead Service Line Replacement Loan Program

In March 2016, the Board approved an enhancement to the Local Water System Assistance Program to provide up to an additional \$100 million in 10-year interest-free loans to communities solely for efforts to fully replace lead service lines. Under MWRA's Lead Service Line Replacement Loan Program (also known as the Lead Loan Program) each community can develop its own program, tailored to its local circumstances. Through February 2018, MWRA has distributed a total of \$7.5 million in Lead Loans funds to six communities:

- Quincy \$1.5 million in FY17
- Winchester \$500,000 in FY17
- Newton \$4.0 million in FY17;
- Marlborough \$1.0 million in FY18
- Revere \$195,000 in FY18; and
- Winthrop \$284,000 in FY18

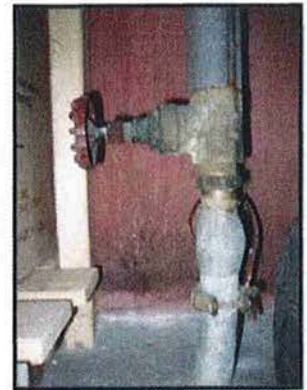
Details on individual lead service line removal projects are included in the Staff Summary *Update on Lead and Copper – Local and National Activities* that is also being presented at this meeting.

MWRA staff continue to work with communities to help finance their lead service line replacement programs. Needham has recently submitted a Lead Loan Program application for \$1.0 million targeting the May 2018 funding distribution. Winthrop may also apply for additional lead loan funding.

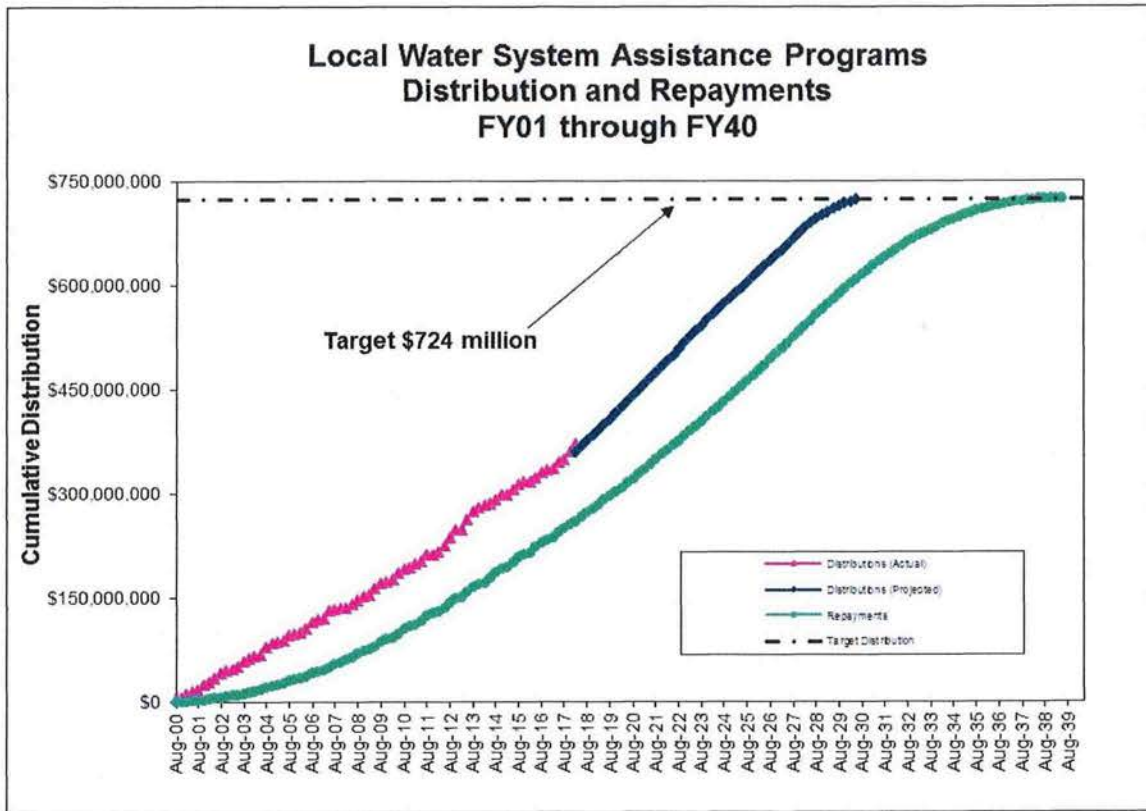
BUDGET/FISCAL IMPACT:

The FY18 CIP includes an overall net budget of zero dollars for water system financial assistance because community loans are offset by repayments over time. However, depending on the timing and level of community loan requests, annual loan distributions can fluctuate, sometimes causing over-spending or under-spending (versus budget) for any particular year. The Program Guidelines restrict each community's annual allocation to the larger of (1) 10% of their total allocation or (2) \$500,000. If not utilized in a given year, annual allocations roll-over and accumulate up to the community's total allocation. The annual allocation restrictions are intended to limit MWRA's annual financial exposure for community loan distributions.

The program budget target is \$724 million for water system rehabilitation loan distributions and repayments. An additional \$100 million is authorized for additional lead service line replacement loans. To date, \$378 million in loans have been distributed and community loan repayments to date are \$234 million. As community loans are repaid, the funds are deposited into MWRA's construction fund. The FY18 CEB budget includes \$3.8 million for the cost of the interest as a separate line item under Debt Service. The graph below presents loan funding distributions (actual and projected) and corresponding repayments for the water system loans program - FY01 through FY40.



*Lead Water Service
Entering Basement*



MBE/WBE PARTICIPATION:

MBE/WBE goals for community projects are established in the Program Guidelines.

ATTACHMENTS:

- Attachment 1 – Phase 2 and 3 - LWSAP Allocation and Fund Utilization by Community
- Attachment 2 – Lined and Unlined Pipe by Community

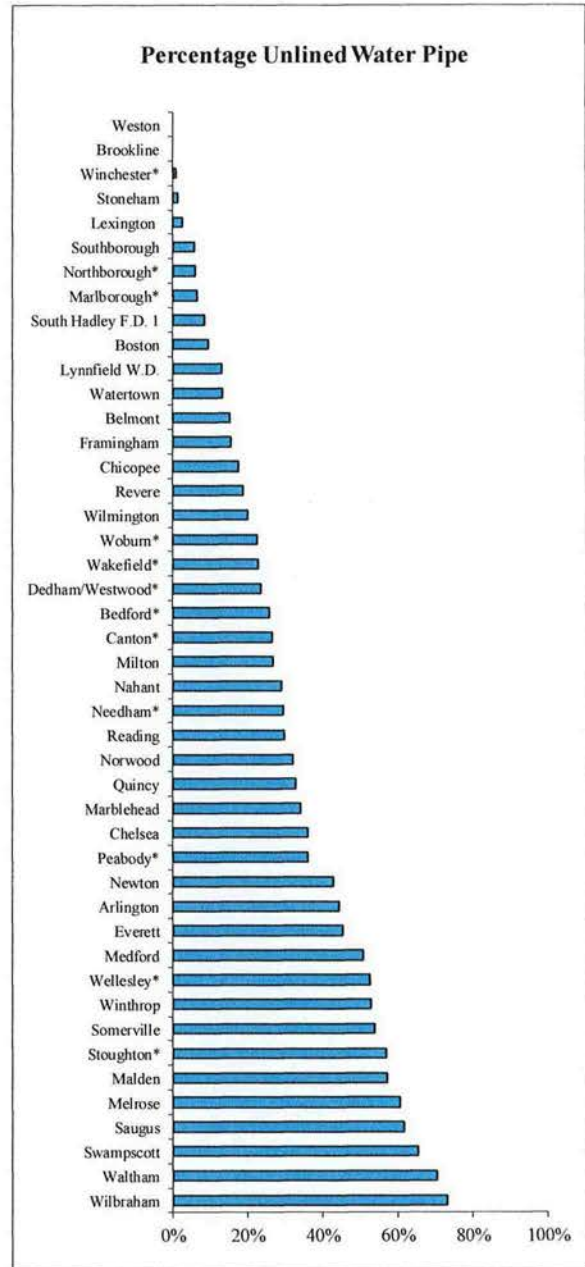
**ATTACHMENT 1
MWRA LOCAL WATER SYSTEM ASSISTANCE PROGRAM
ALLOCATION AND FUND UTILIZATION BY COMMUNITY
THROUGH FEBRUARY 2018**

Community	Community Total Phase 2 Allocation	Phase 2 Funds Distributed Thru Mar 18	Total Remaining Phase 2 Funds	Community Total Phase 3 Allocation	Community Phase 3 Annual Allocation	Phase 3 Allocation To Date (Year 1)	Phase 3 Funds Distributed Thru Mar 18	Phase 3 Funds Currently Available	Total Phase 2 and 3 Funds Available
Arlington	\$6,225,000	\$3,300,000	\$2,925,000	\$8,687,000	\$868,700	\$0	\$0	\$0**	\$2,925,000
Bedford *	\$2,418,000	\$2,418,000	\$0	\$3,649,000	\$500,000	\$500,000	\$0	\$500,000	\$500,000
Belmont	\$3,477,000	\$3,477,000	\$0	\$3,852,000	\$500,000	\$500,000	\$0	\$500,000	\$500,000
Boston	\$38,754,000	\$35,870,928	\$2,883,072	\$52,787,000	\$5,278,700	\$0	\$0	\$0**	\$2,883,072
Brookline	\$3,426,000	\$660,000	\$2,766,000	\$4,585,000	\$500,000	\$500,000	\$0	\$500,000	\$3,266,000
Canton *	\$3,216,000	\$2,000,000	\$1,216,000	\$2,971,000	\$500,000	\$500,000	\$0	\$500,000	\$1,716,000
Chelsea	\$3,814,000	\$3,011,200	\$802,800	\$5,039,000	\$503,900	\$503,900	\$0	\$503,900	\$1,306,700
Dedham/Westwood *	\$503,000	\$503,000	\$0	\$849,000	\$500,000	\$500,000	\$0	\$500,000	\$500,000
Everett	\$4,672,000	\$4,441,000	\$231,000	\$6,298,000	\$629,800	\$0	\$0	\$0**	\$231,000
Framingham	\$7,357,000	\$5,149,900	\$2,207,100	\$9,003,000	\$900,300	\$0	\$0	\$0**	\$2,207,100
Lexington	\$3,024,000	\$1,145,015	\$1,878,985	\$3,777,000	\$500,000	\$500,000	\$0	\$500,000	\$2,378,985
Lynnfield Water Dist.	\$1,396,000	\$650,000	\$746,000	\$1,678,000	\$500,000	\$500,000	\$0	\$500,000	\$1,246,000
Malden	\$7,272,000	\$1,774,000	\$5,498,000	\$10,605,000	\$1,060,500	\$0	\$0	\$0**	\$5,498,000
Marblehead	\$4,237,000		\$4,237,000	\$5,112,000	\$511,200	\$0	\$0	\$0**	\$4,237,000
Marlborough *	\$1,917,000	\$1,283,800	\$633,200	\$3,512,000	\$500,000	\$500,000	\$0	\$500,000	\$1,133,200
Medford	\$6,959,000	\$2,075,000	\$4,884,000	\$10,800,000	\$1,080,000	\$0	\$0	\$0**	\$4,884,000
Melrose	\$3,988,000	\$3,394,000	\$594,000	\$6,865,000	\$686,500	\$686,500	\$0	\$686,500	\$1,280,500
Milton	\$4,123,000	\$2,000,000	\$2,123,000	\$5,967,000	\$596,700	\$596,700	\$0	\$596,700	\$2,719,700
Nahant	\$1,490,000	\$1,142,100	\$347,900	\$1,835,000	\$500,000	\$500,000	\$0	\$500,000	\$847,900
Needham *	\$794,000		\$794,000	\$1,894,000	\$500,000	\$500,000	\$0	\$500,000	\$1,294,000
Newton	\$13,602,000	\$9,521,400	\$4,080,600	\$20,837,000	\$2,083,700	\$0	\$0	\$0**	\$4,080,600
Northborough *	\$1,048,000	\$986,053	\$61,947	\$1,450,000	\$500,000	\$500,000	\$0	\$500,000	\$561,947
Norwood	\$4,395,000	\$4,000,000	\$395,000	\$6,296,000	\$629,600	\$629,600	\$0	\$629,600	\$1,024,600
Peabody *	\$1,089,000	\$1,089,000	\$0	\$2,756,000	N/A [†]	\$2,756,000	\$0	\$2,756,000	\$2,756,000
Quincy	\$10,505,000	\$9,679,459	\$825,541	\$14,252,000	\$1,425,200	\$0	\$0	\$0**	\$825,541
Reading	\$4,146,000	\$4,146,000	\$0	\$5,073,000	\$507,300	\$507,300	\$0	\$507,300	\$507,300
Revere	\$5,034,000	\$1,850,000	\$3,184,000	\$5,315,000	\$531,500	\$0	\$0	\$0**	\$3,184,000
Saugus	\$6,621,000	\$4,012,054	\$2,608,946	\$9,688,000	\$968,800	\$0	\$0	\$0**	\$2,608,946
Somerville	\$7,419,000	\$3,355,234	\$4,063,766	\$10,791,000	\$1,079,100	\$0	\$0	\$0**	\$4,063,766
Southborough	\$1,512,000		\$1,512,000	\$1,920,000	\$500,000	\$500,000	\$0	\$500,000	\$2,012,000
Stoneham	\$2,339,000	\$2,339,000	\$0	\$2,742,000	\$500,000	\$500,000	\$0	\$500,000	\$500,000
Stoughton*	\$2,506,000	\$2,506,000	\$0	\$3,547,000	\$500,000	\$500,000	\$0	\$500,000	\$500,000
Swampscott	\$3,755,000	\$2,849,468	\$905,532	\$5,276,000	\$527,600	\$527,600	\$0	\$527,600	\$1,433,132
Wakefield *	\$2,325,000	\$1,776,250	\$548,750	\$3,356,000	\$500,000	\$500,000	\$0	\$500,000	\$1,048,750
Waltham	\$10,293,000	\$4,318,370	\$5,974,630	\$14,904,000	\$1,490,400	\$0	\$0	\$0**	\$5,974,630
Watertown	\$2,978,000	\$2,978,000	\$0	\$3,745,000	\$500,000	\$500,000	\$0	\$500,000	\$500,000
Wellesley *	\$2,350,000	\$241,569	\$2,108,431	\$3,268,000	\$500,000	\$500,000	\$0	\$500,000	\$2,608,431
Weston	\$1,625,000	\$1,005,000	\$620,000	\$2,295,000	\$500,000	\$500,000	\$0	\$500,000	\$1,120,000
Wilmington *	\$611,000	\$611,000	\$0	\$1,306,000	\$500,000	\$500,000	\$0	\$500,000	\$500,000
Winchester *	\$882,000	\$600,000	\$282,000	\$1,394,000	\$500,000	\$500,000	\$0	\$500,000	\$782,000
Winthrop	\$3,312,000	\$3,312,000	\$0	\$4,119,000	N/A [†]	\$4,119,000	\$4,119,000	\$0	\$0
Woburn *	\$2,591,000	\$2,591,000	\$0	\$3,905,000	\$500,000	\$500,000	\$0	\$500,000	\$500,000
SUBTOTAL	\$200,000,000	\$138,061,800	\$61,938,200	\$278,000,000	\$31,859,500	\$20,826,600	\$4,119,000	\$16,707,600	\$78,645,800
Chicopee	\$7,153,000	\$4,035,000	\$3,118,000	\$9,774,000	\$977,400	\$0	\$0	\$0**	\$3,118,000
South Hadley F D 1	\$1,538,000	\$1,538,000	\$0	\$2,026,000	\$500,000	\$500,000	\$500,000	\$0	\$0
Wilbraham	\$1,309,000		\$1,309,000	\$2,200,000	\$500,000	\$500,000	\$0	\$500,000	\$1,809,000
SUBTOTAL	\$10,000,000	\$5,573,000	\$4,427,000	\$14,000,000	\$1,977,400	\$1,000,000	\$500,000	\$500,000	\$4,927,000
TOTAL	\$210,000,000	\$143,634,800	\$66,365,200	\$292,000,000	\$33,836,900	\$21,826,600	\$4,619,000	\$17,207,600	\$83,572,800

* Partially Served Communities
** No Phase 3 Allocation for FY18 because Phase 2 Allocation for years 9/10 covers first year of Phase 3
[†] Exempt per Board Approval

ATTACHMENT 2
MWRA LOCAL WATER SYSTEM ASSISTANCE PROGRAM
LINED AND UNLINED PIPE BY COMMUNITY
THROUGH FEBRUARY 2018

Community	Total Miles of Pipe	Miles of Lined Pipe	Miles of Unlined Pipe	Percent Unlined
Arlington	132	74	58	44%
Bedford*	85	63	22	26%
Belmont	93	79	14	15%
Boston	1011	914	97	10%
Brookline	140	140	0	0%
Canton*	128	94	34	27%
Chelsea	59	38	21	36%
Chicopee	269	221	48	18%
Dedham/Westwood*	203	155	48	24%
Everett	68	37	31	45%
Frammingham	276	233	43	16%
Lexington	165	161	4	2%
Lynnfield W.D.	29	25	4	13%
Malden	121	52	69	57%
Marblehead	97	64	33	34%
Marlborough*	180	168	12	7%
Medford	144	71	73	51%
Melrose	82	32	50	60%
Milton	138	101	37	27%
Nahant	23	16	7	29%
Needham*	135	95	40	30%
Newton	319	182	137	43%
Northborough*	65	61	4	6%
Norwood	119	81	38	32%
Peabody*	208	133	75	36%
Quincy	240	161	79	33%
Reading	114	80	34	30%
Revere	107	87	20	19%
Saugus	125	48	77	62%
Somerville	125	58	67	54%
South Hadley F.D. I	83	76	7	9%
Southborough	87	82	5	6%
Stoneham	80	79	1	1%
Stoughton*	151	65	86	57%
Swampscott	58	20	38	65%
Wakefield*	114	88	26	23%
Waltham	150	45	105	70%
Watertown	82	71	11	13%
Wellesley*	150	71	79	53%
Weston	111	111	0	0%
Wilbraham	74	20	54	73%
Wilmington	126	101	25	20%
Winchester*	112	111	1	1%
Winthrop	45	21	24	53%
Woburn*	190	147	43	22%
TOTAL	6,612	4,832	1,780	27%



* Partially Served Communities

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 21, 2018
SUBJECT: Update on Lead and Copper - Local and National Activities



COMMITTEE: Water Policy & Oversight

X INFORMATION
 VOTE

Joshua Das, Project Manager, Public Health
Carl Leone, Senior Program Manager
Stephen Estes-Smargiassi, Director, Planning and Sustainability
Preparer/Title



David W. Coppes
Chief Operating Officer

RECOMMENDATION:

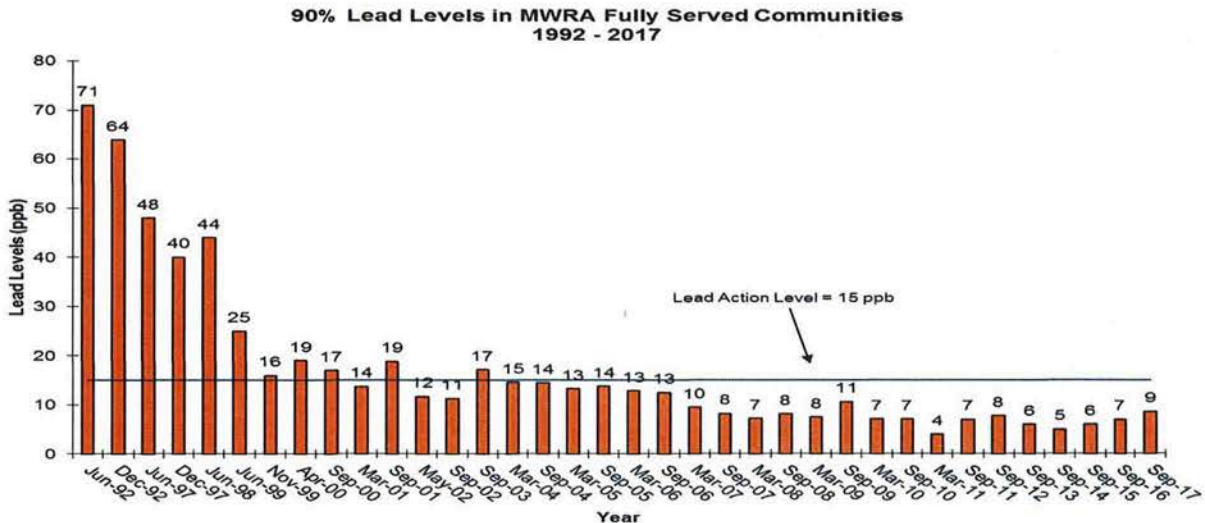
For information only.

DISCUSSION:

This staff summary highlights current activities related to lead in drinking water, and is a companion document to the annual update on Local Water System Assistance Program (“LWSAP”) also presented at this Board meeting.

Sampling for those Communities over the Action Level in September 2017

Under EPA’s Lead and Copper Rule, each year MWRA and every fully-supplied community must collect and test tap water in a sample of homes that are likely to have high lead levels. These are usually homes with lead services or lead solder. EPA requires that nine out of ten of the sampled homes must have lead levels at or below the Action Level of 15 parts per billion (ppb). Lead levels have decreased substantially since 1992 as shown in the graph below.



Starting in 2012, MWRA's fully-supplied communities were only required to sample for lead and copper once per year, as long as their 90th percentile results are below the Action Level. A community that exceeds the Action Level must sample twice per year and can return to once-per-year sampling after it has two consecutive sampling rounds under the Action Level. In September 2017, four communities, Medford, Melrose, Quincy, and Winthrop were above the Action Level. All four have sampled or are expected to sample in March or April 2018, and staff should have the results to report to the Board in April or May.

All four communities have been over the Action Level before, so they have experience successfully working with the Massachusetts Department of Environmental Protection (DEP) on meeting the requirements of the Lead and Copper Rule. All four communities have fulfilled their education requirements, including mailing lead education brochures, and are working to meet lead service line replacement requirements set by DEP.

Quincy already had an active lead service line replacement program, with funding from MWRA's Lead Service Line Replacement zero-interest loan program, and is continuing to fully remove lead service lines and lead-lined steel service lines. The other three communities are at various stages of initiating replacement programs under DEP's direction, with the requirement that each replace at least seven percent of their lead services during the current calendar year. Staff have discussed MWRA's loan program with each of the communities.

Update on School Testing Program

MWRA continues to work with MWRA communities on testing school fixtures used for drinking or cooking. DEP created a technical assistance and laboratory analysis program to test schools throughout the state, and MWRA offered laboratory services in parallel with the DEP program. The first round of the DEP Program is complete and a report has been published on the results. DEP started a second round of sampling assistance in October 2017 and MWRA again offered laboratory services to MWRA water communities. DEP recommends that all locations used for drinking or cooking be tested, and that repeat sampling be conducted on one-third of locations each year so that no location is sampled less than every three years.

From April 2016 through the end of February 2018, the MWRA Laboratory performed 32,826 tests on samples from 313 schools in 35 different MWRA communities. The number of samples the MWRA laboratory has received has slowed since the peak in the Fall of 2016. Approximately 95.3 percent of all lead samples were below the Action Level; 117 of the 313 schools had at least one sample test over the Action Level. Results from MWRA communities were somewhat better than statewide numbers from the DEP program, which seems to indicate that MWRA corrosion control is providing substantial benefit at reducing corrosivity. All communities and schools with elevated levels have been contacted and technical assistance materials provided. Results from schools have been posted by DEP on-line, and a link to the data is on the MWRA website. Most communities also have had local outreach efforts.

School systems used the information collected to take remedial action at locations where sampling indicated elevated lead levels. These remedial actions included shutting off or removing fixtures, replacing older fixtures with new lead-free ones, using bottled water until other actions could be taken, labeling bathroom sinks as for handwashing only, and developing flushing programs to clear stagnant water from plumbing systems until extensive plumbing alterations can be undertaken.

Lead Data Transparency

MWRA has been posting lead data collected under the Lead and Copper Rule on the MWRA website for over a decade, organized by community and sampling round, but with specific addresses redacted for customer privacy. Links have also been provided to the DEP website for schools' data mentioned above and to those community websites which provide information about local lead programs, or maps or databases of lead service line locations. MWRA has recently begun posting all lead sample data analyzed by the MWRA laboratory, including data collected as part of the MDPH project discussed below.

Review of Corrosion Control Technology

EPA released a guidance document on the evaluation of optimum corrosion control treatment to state primacy agencies in 2016. At DEP's request, MWRA staff reviewed historical water quality data and the most recent science on corrosion control using the tools included in EPA's guidance manual. Staff discussed the preliminary results at a regular DEP/EPA/MWRA drinking water coordination meeting in October 2017, and provided DEP with a written report in December. The report concluded that MWRA's corrosion control treatment is working well, that water quality is stable, and that changes in treatment are not warranted and may be counter-productive. Staff are awaiting review comments from DEP and will follow up appropriately once those are received.

Update on Lead Service Line Replacement Loan Program

The presence of a lead service line connecting a home to the main in the street can lead to elevated lead levels in tap water, especially if that water sits stagnant for an extended period. MWRA's stable water quality and effective corrosion control treatment reduce the risk that a lead service line will cause elevated lead levels; measured lead levels in high risk homes have decreased by 90 percent since corrosion control was brought on-line in 1996. However, the risk of elevated levels remains as long as lead service lines are in use.

The replacement of lead service lines has been eligible for community financial assistance since the program began in FY98. From FY98 through FY16, community projects that were funded by MWRA water loans included at least partial replacement of more than 6,000 lead service lines. In conformance with the EPA's Lead and Copper Rule, local projects often removed the community-owned portion of lead service lines and provided outreach/education to customers so they might replace the privately-owned portion at the same time. In March 2016, the Board approved an enhancement to the Local Water System Assistance Program to provide up to an additional \$100 million in 10-year interest-free loans to communities solely for efforts to fully replace lead service lines. Under MWRA's Lead Service Line Replacement Loan Program (also known as the Lead Loan Program) each community can develop its own program, tailored to its local circumstances.

Through February 2018, MWRA has distributed a total of \$7.5 million in Lead Loan Program funds to six communities, which has helped initiate full removal of lead water services (whether on public or private property) with around 350 water service replacements reported as having have been

completed and with substantial activity expected during the coming construction season as discussed below¹. The distributions were:

- Quincy \$1.5 million in FY17
- Winchester \$500,000 in FY17
- Newton \$4.0 million in FY17;
- Marlborough \$1.0 million in FY18
- Revere \$195,000 in FY18; and
- Winthrop \$284,000 in FY18



Replacement of Lead Water Services with Copper Service Pipe

- Quincy received a \$1.5 million loan in December 2016 targeting the removal of 141 identified public/private lead services. Quincy is paying the full cost of both public/private lead service line replacement. Quincy removed a majority of the targeted services (both lead services and lead-lined steel services) during the 2017 construction season. During 2018, Quincy will continue to follow-up with homeowners who have not yet participated and may move on to identified lead gooseneck removals and/or additional lead-lined steel service lines.



Lead-lined service line, similar to lines Quincy found during their project

- Winchester received a \$500,000 loan in March 2017 to fund the first phase of its program targeting the removal of 240 identified public/private lead services and 668 lead goosenecks. Winchester will pay all costs for replacement of lead pipe on the public portion of services and the first \$1,200 in costs on the private portion of services for homeowners who participate. The project began during the 2017 construction season with 29 water services having been worked on; some full replacements, some private-side only replacements (where the public side had

¹ Service lines replaced during community-funded infrastructure programs, or by homeowners themselves, are not included in these numbers, although the reductions are presumed to be included in updated inventory numbers provided by communities.

already been removed), and some that only needed a public side lead gooseneck removed. So far, only one homeowner with a lead service line has refused to participate in Winchester's replacement program. Costs for both engineering and construction are averaging about \$7,500 per water service. Winchester will continue construction work in 2018 and may move on to a second phase program in the future depending on the outcome of the first phase.

- Newton received a \$4.0 million loan in May 2017 to fund the replacement of up to 584 public/private services that contain some portion of lead (lead service lines, lead gooseneck connections, lead fittings, etc.). The City has offered private homeowners the option of a 10-year interest-free loan to finance the cost of lead service line replacement on private property. The project began during the 2017 construction season with 179 water services having been worked on at a cost of about \$7,900 per water service for both engineering and construction. The construction project will continue in 2018.
- Marlborough received a \$1.0 million loan in September 2017 to fund the replacement of approximately 200 lead service lines. This is the first phase of a large project targeting all of the city's 1,350 lead service lines. Marlborough is paying the full cost of both public/private lead service line replacement. Some construction began in the fall 2017 and the project will ramp-up construction in 2018.
- Revere received a \$195,000 loan in November 2017 to fund the design portion of its lead service line replacement project. The design will be complete in spring 2018 with construction to follow. Revere has obtained SRF funding for the construction project that will remove up to 282 lead service lines. Revere is paying the full cost of both public/private lead service line replacements.
- Winthrop received a \$284,000 loan in December 2017 to fund the replacement of 20 full and 17 private-side only lead service line replacements (where the public side had already been replaced). This work is Winthrop's first phase of lead service line removals associated with a current water main construction project that received MWRA Local Water System Assistance Program funding. Winthrop is paying the full cost of both public/private lead service line replacement. This project will be completed in spring 2018. Winthrop is planning a future expanded program to remove an estimated 800 public/private and 600 private-side only lead service lines, and may apply for additional funding in May 2018 or early FY19.

MWRA staff continue to work with communities to help develop their lead service line replacement programs. Needham has recently submitted a Lead Loan Program application for \$1.0 million in funding for May 2018. Somerville is developing a lead service line replacement program and staff anticipate a financial assistance application is likely during FY19. As with some of the communities already funded, staff anticipate that applications under the Lead Loan Program are likely to be phased and ramp up as communities enhance existing lead service inventories, engage individual customers via outreach and education, and show success with initial phase construction. Community decision making to identify the most appropriate community contribution for private side lead service line replacement is a key aspect of local implementation. Future EPA requirements may stimulate lead service line removal work over the next few years.

Attachment A provides a summary table of current information on the number of lead services and lead goosenecks in each community's local water system. The data was summarized from each community's response to a September 2016 DEP survey and has been updated with more current information as available from communities. The current data indicates that about 18,000 lead service lines (some full lead services and some partial lead services) remain in local water systems, representing less than four percent of total water service lines. If lead goosenecks are also included, the current data indicates that about 40,000 services lines have some lead component remaining, representing about eight percent of total water service lines. Individual community numbers have changed over time as inventories were improved (some higher and some lower) and as the communities and property owners have replaced lead service lines.

Update on MWRA Coordination with MDPH on Testing Homes

The Massachusetts Department of Public Health (MDPH) has continued with its partnership with MWRA to sample for lead in the tap water at homes where a child has an elevated lead blood level, and identify if there is a lead service line. Very few lead poisoning prevention programs around the country have collected information on lead levels in water.

MWRA staff assisted in training for the MDPH field staff that visit homes, and coordinated how to perform the sampling. Sample bottles, appropriate chain of custody forms, as well as boxes with return postage were provided to MDPH staff. Residents are provided educational information about the potential for lead in water, as well as actions they can take to reduce levels.

Samples began to arrive in early October 2016. To date, 102 households with a child having elevated lead blood levels have returned samples with 2 samples at each household. So far, all but one of the test results have been below the lead Action Level, with 74.5% percent of sample results less than the detection level of 1 ppb. MWRA reports the results back to MDPH as they are analyzed which then provides the results to the residents, preserving the required confidentiality under federal health privacy laws.

MWRA and MDPH staff continue to coordinate on the program, and anticipate an increased number of samples as MDPH is expanding the definition of "elevated blood lead level."

Service Line Detection Research

MWRA and BWSC are working with the Water Research Foundation on evaluating a potential technology for determining if a buried service line is likely to be made of lead, without having to excavate to physically inspect it. Nationally, the need to cost effectively and quickly confirm whether a service line is made of lead has been a recurring impediment to improving the accuracy of community lead service line inventories. Communities often cannot provide accurate information from their historical records, and end up excavating what they believed was a lead service line to find that it had been replaced at some time in the past and not recorded. The research project has been conducting bench scale tests in the laboratory, and it is anticipated that field testing at locations in Boston will occur this construction season. Staff are also in discussions with a university team which has an alternative detection technology that may be field tested locally.

Lead Forum

Staff conducted a second regional forum for local water department staff on lead issues in June 2017, including regulatory updates, current scientific findings, results of school testing, and updates on lead service line replacement programs. Speakers included staff from MWRA, local communities in the midst of lead service line programs, DEP and MDPH. The forum was well received, particularly the direct experience of community staff. MWRA staff are considering when it would be appropriate to conduct another one, likely as additional communities undertake lead service line replacement programs and have results and recommendations to share, or after EPA issues a draft proposal for revising the Lead and Copper Rule.

Lead Service Line Replacement Collaborative

MWRA staff have been active in working with a national group called the Lead Service Line Replacement Collaborative which is a voluntary collaborative effort of over two dozen water, environmental health and community advocacy groups. While these groups typically do not work together, they are collaborating effectively with a goal of accelerating local efforts toward full lead service line replacement. The Collaborative has launched an extensive website. MWRA and community efforts are already highlighted, and staff will be contributing additional materials and case studies from regional lead service line programs.

A link to the Collaborative's website is included on MWRA's website, and it has been highlighted in DEP's periodic newsletter to public water suppliers.

Revisions to the Lead and Copper Rule

EPA Administrator Pruitt has indicated that EPA is declaring a "war on lead" and in February 2018, he convened all of the Federal agency heads managing any aspect of mitigating and eliminating the risks of lead to children's health. In January 2018, US EPA announced a second "Federalism" review, with an opportunity for state and local stakeholders to offer comments on certain questions or options concerning possible revisions to the Lead and Copper Rule. MWRA staff have developed and submitted comments, as did the Advisory Board.

Principle themes of MWRA's comments included:

- Flexibility in timing for any mandate to replace lead service lines;
- Avoiding "one-size-fits-all" treatment requirements, particularly if they involve adding phosphate to the drinking water;
- The need to acknowledge other spending priorities and mandates under the Safe Drinking Water Act and Clean Water Act; and
- Not mandating the use of pitcher filters after a lead service line replacement or the installation and maintenance of plumbed-in filters for all homes with lead service lines.

Given the EPA Administrator's interest in lead, it is possible that EPA will meet its current target of releasing a draft rule proposal by August 2018. MWRA staff will continue to track EPA's efforts, evaluating their potential impact on MWRA and MWRA communities, and will continue to be actively involved along with the water professional associations in commenting as appropriate.

BUDGET /FISCAL IMPACT:

MWRA began modern effective corrosion control treatment to reduce lead and copper levels at the tap in 1996. MWRA's corrosion control treatment involves raising the pH and alkalinity to the water to provide a stable, non-corrosive product, reducing the potential for both lead and copper to leach from customer's home plumbing. The annual average cost for corrosion control chemicals is approximately \$3.5 million (\$3.2 million in soda ash costs, and \$0.3 million in carbon dioxide costs.)

ATTACHMENT:


Lead Service Lines by Community

Attachment A
MWRA Community Lead Service Estimates Updated March 2018
Based on Community Response to September 2016 MassDEP Survey
and Updated with MWRA Staff Information

Community	Number of Services	Estimated Lead Services	Estimated Lead Goosenecks
Arlington	12,585	100	300
Bedford	4,613	0	0
Belmont	7,745	1	15
Boston	87,638	5,013	
Brookline	10,527	25	
Canton	7,162		
Chelsea	5,100	96	
Chicopee	16,527	0	0
Dedham/Westwood	13,304		446
Everett	8,126	1,349	
Framingham	18,147	0	0
Lexington	14,145	0	
Lynnfield Water District	1,427	0	36
Malden	11,815	2,917	
Marblehead	8,065	0	0
Marlborough	10,303	1,350	
Medford	14,706	2,231	
Melrose	8,200	574	
Milton	8,473	0	4,200
Nahant	1,634	0	0
Needham	10,192	157	1,044
Newton	25,071	405	
Northborough	4,234	0	0
Norwood	8,649	36	
Peabody	13,539	0	1,600
Quincy	23,750	141*	696
Reading	7,992	300	1,580
Revere	12,000	282	
Saugus	9,331	0	0
Somerville	14,423	1,874	
South Hadley F. D. #1	4,827	0	0
Southborough	3,210	0	0
Stoneham	6,250	13	0
Stoughton	7,387	0	2,500
Swampscott	5,485	0	0
Wakefield	8,410	0	
Waltham	13,732	0	8,100
Watertown	9,165	0	1,100
Wellesley	8,324	1	
Weston	3,613	0	100
Wilbraham	3,347	0	0
Wilmington	7,469	0	
Winchester	7,215	217	663
Winthrop	4,480	1,400	
Woburn	11,447	2	30
TOTAL	503,784	18,343	22,410


* awaiting LLP Progress Report

STAFF SUMMARY

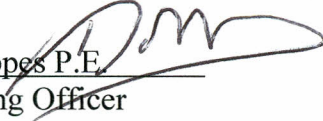
TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 21, 2018
SUBJECT: Memorandum of Agreement between MWRA and the Dedham/Westwood Water District – Contract 7505 Southern Extra High Pipeline Section 111

COMMITTEE: Water Policy & Oversight

 INFORMATION
 X VOTE


Michele S. Gillen
Director of Administration

Paul T. Rullo P.E., Program Manager
A. Navanandan P.E., Chief Engineer
Preparer/Title


David W. Coppes P.E.
Chief Operating Officer

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to execute a Memorandum of Agreement with the Dedham/Westwood Water District, substantially in the form attached hereto, related to reimbursement to the Authority for construction costs associated with the installation of a Dedham/Westwood Water District 12-inch diameter water main.

BACKGROUND:

MWRA's Southern Extra High service area includes Canton, Dedham, Norwood, Stoughton, Westwood, portions of Brookline and Milton, and the Roslindale and West Roxbury sections of Boston. The five communities in the southern portion of the service area (Canton, Norwood, Dedham, Westwood, and Stoughton) are served by a single 36-inch diameter transmission main (Section 77), which is five miles long. Canton and Stoughton are served by a branch (Section 88) off of Section 77. Although several of these communities are partially supplied by MWRA, the loss of Section 77 would result in a rapid loss of service in Norwood and Canton, and potential water restrictions for Stoughton and the Dedham/Westwood Water District. Correction of this deficiency was assigned a Priority One in MWRA's Water Master Plan due to the potential critical impact to public health that could result from a failure in this single transmission main.

On November 14, 2012, staff presented to the Board an evaluation of alternatives and a recommendation to proceed with a 5.4-mile redundant pipeline alternative from the Bellevue Water Storage Tanks in West Roxbury through Dedham to Westwood where the proposed pipeline would interconnect with existing pipeline Section 77 near the Route 95 East Street Rotary. The

route is shown on Figure 1. On January 5, 2014 the Board approved the award of the consultant contract to Fay, Spofford & Thorndike, LLC (now Stantec).

Contract Components and Schedule

The entire Southern Extra High Redundancy Pipeline Section 111 project is separated into three construction contracts as follows:

- Contract 6454, Section 111 (Boston) which consists of 11,000 linear feet of 36-inch water main, which is primarily located within the Department of Conservation and Recreation's Stony Brook Reservation in Boston. This contract was awarded in May 2016 and is scheduled for substantial completion in September 2018;
- Contract 7504, Section 111 (Dedham North), consists of 10,000 linear feet of 36-inch water main of which 3,000 linear feet is within DCR's Stony Brook Reservation in Dedham with the remaining 7,000 linear feet within residential neighborhoods of Dedham. This contract includes a new pipe bridge across Mother Brook on Sawmill Lane and coordination with MassDOT for work adjacent to its bridge on Walnut Street. This contract was awarded in July 2017 and is scheduled for Substantial Completion in November 2019; and
- Contract 7505, Section 111 (Dedham South) which consists of 6,800 linear feet of 36-inch water main in Dedham and in Westwood. Although awaiting final approval of a permit from the MBTA, this contract has been advertised based on draft permit conditions. Award is anticipated at the May 30, 2018 Board Meeting and would be scheduled for Substantial Completion in July 2020.

DISCUSSION:

A portion of proposed MWRA Section 111 crosses MassDOT Route 95 in Westwood at the East Street rotary near the border with Dedham. The Dedham/Westwood Water District (DWWD) planned to install a water main across Route 95 to improve the hydraulic capacity of its system in this area. DWWD requested that MWRA include a local water main in MWRA construction contract 7505 within Route 95 and has agreed to reimburse MWRA for the added construction cost to install approximately 560 linear feet of 12-inch water main at an estimated cost of \$540,000. Actual costs will be determined after construction bid award.

Proposed Cost Sharing Agreement

The design of the project is now complete and staff have negotiated an agreement with DWWD for the added construction cost of its work as detailed in the attached Memorandum of Agreement. The bid documents for MWRA Contract 7505 will include a separate bid item for the installation of 380 feet of DWWD's 12-inch water pipeline which will be installed by means of open cut construction adjacent to MWRA's Route 95 work. DWWD will be responsible for 100% of the contractor cost and for police detail services arising out of the work of this item. Additionally, the bid documents will include a separate bid item for a 180-foot section of DWWD's 12-inch water main that will be installed within a 66-inch casing pipe. The casing pipe will be constructed by

means of pipe jacking under Route 95. This 66-inch casing will contain MWRA's 36-inch water pipeline and DWWD's 12-inch water pipeline. DWWD will be responsible for the added construction costs incurred to install both water pipelines in the 66-inch pipe casing relative to the cost of only installing MWRA's 36-inch water pipeline in a smaller, 48-inch pipe casing. DWWD's share of this work has been determined to be 17.7% of the cost of this bid item based upon an engineering estimate.

Other Major Provisions of the Agreement

- DWWD has contracted directly with MWRA's consultant for its portion of design, construction administration, and resident inspection of their work.
- MWRA will require its selected contractor for the Project to: (i) name DWWD as an additional insured on all insurance policies required to be provided by such contractor for the Project, except for Workers Compensation; and (ii) name DWWD as an obligee on the Performance and Labor and Materials Payment Bonds provided by the contractor under the construction contract.
- DWWD will be responsible for its share of any potential construction change orders based on the predetermined cost share percentages.

BUDGET/FISCAL IMPACT:

The FY18 CIP includes a budget of \$10,000,000 for Contract 7505.

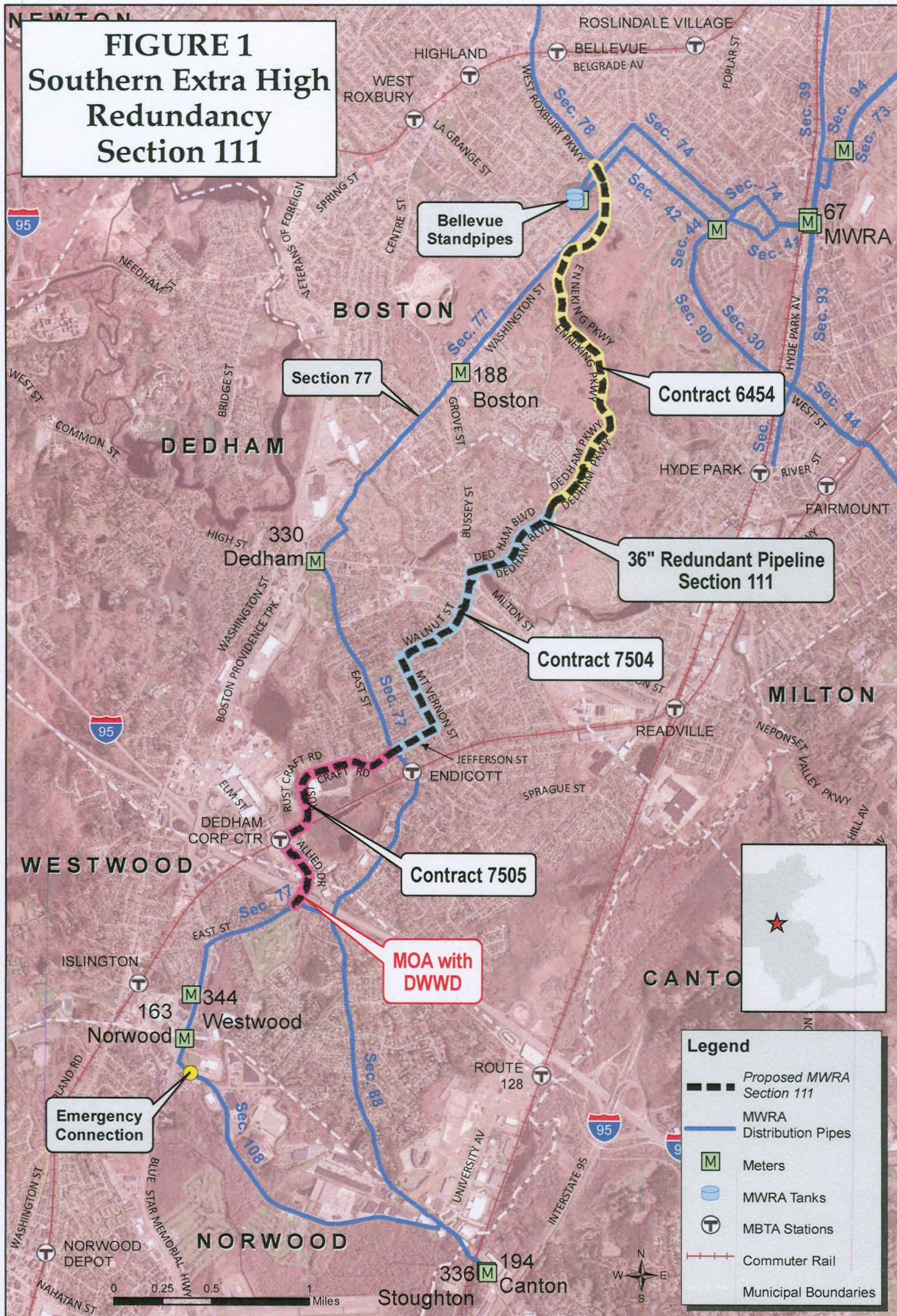
MBE/WBE PARTICIPATION:

The D/MBE and D/WBE participation requirements for this project were established at 4.2% and 4.5% respectively.

ATTACHMENTS:

Figure 1: Section 111- Southern Extra High Redundancy
Draft Dedham/Westwood Water District Memorandum of Agreement

FIGURE 1
Southern Extra High
Redundancy
Section 111



Legend

- Proposed MWRA Section 111
- MWRA Distribution Pipes
- Meters
- MWRA Tanks
- MBTA Stations
- Commuter Rail
- Municipal Boundaries

0 0.25 0.5 1 Miles



MEMORANDUM OF AGREEMENT
BETWEEN
MASSACHUSETTS WATER RESOURCES AUTHORITY
AND
DEDHAM-WESTWOOD WATER DISTRICT

This MEMORANDUM OF AGREEMENT (“MOA”) is made this _____ day of _____, 2018, by and between the MASSACHUSETTS WATER RESOURCES AUTHORITY (“MWRA”), a body corporate and politic and an independent authority pursuant to St. 1984, c. 372 of the laws of the Commonwealth of Massachusetts, as amended, and the DEDHAM-WESTWOOD WATER DISTRICT (“DWWD”), a body corporate and politic and an independent authority pursuant to St. 1985, c. 193 of the laws of the Commonwealth of Massachusetts (each individually a “Party” and collectively the “Parties”).

RECITALS

WHEREAS, MWRA is planning to install a new 36-inch water pipeline in portions of Westwood, Dedham, and Boston, known as Section 111 Southern Extra High Redundancy Pipeline Project (the “Project”) to provide redundant water service to the communities of Canton, Dedham, Norwood, Stoughton, and Westwood;

WHEREAS, MWRA is planning to install approximately 7,000 linear feet of 36-inch water pipeline in portions of Westwood and Dedham as part of the Project through MWRA Contract 7505 – Dedham South (“MWRA Contract 7505”);

WHEREAS, of the 7,000 linear feet of 36-inch water pipeline to be installed by MWRA as part of MWRA Contract 7505, approximately 180 linear feet of the 36-inch water pipeline is to be installed within a 48-inch casing pipe under Interstate 95 at the East Street rotary in Dedham by means of pipe jacking and approximately 380 linear feet of the 36-inch water pipeline is to be installed by means of open cut construction in Commonwealth land on each side of Interstate 95 under the care, custody and control of the Massachusetts Department of Transportation (“massDOT”);

WHEREAS, DWWD would like to add a new 12-inch water pipeline connection to its local water system;

WHEREAS, DWWD would like to add a portion of its proposed 12-inch water pipeline parallel to the 180 linear foot and 380 linear foot portions of MWRA’s 36-inch water pipeline to be installed under Interstate 95 and in the massDOT land adjacent to Interstate 95;

WHEREAS, the installation of DWWD proposed 12-inch water pipeline parallel to the 180 linear foot portion of MWRA’s pipeline increases the to-be-installed pipe casing from 48 inches to 66 inches;

WHEREAS, DWWD has requested that MWRA install the portion of DWWD’s 12-inch water pipeline which will be parallel to the 180 linear foot and 380 linear foot portions of

MWRA's 36-inch water pipeline under Interstate 95 and in the massDOT land adjacent to Interstate 95 as part of MWRA Contract 7505;

WHEREAS, MWRA and DWWD have determined that it is in the best interest of both MWRA and DWWD to add the installation of DWWD's proposed 12-inch water pipeline that will run parallel to the 180 linear foot portions of MWRA's 36-inch water pipeline within the scope of MWRA Contract 7505, and to have MWRA advertise and accept bids for MWRA Contract 7505;

WHEREAS, MWRA plans to award MWRA Contract 7505, with a Notice to Proceed in or about May 2018; and

WHEREAS, MWRA and DWWD wish to enter into this MOA regarding certain aspects of the construction, as well as payment for and sharing of costs with respect to the installation of the sections of MWRA and DWWD water pipelines referenced above.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. PROJECT RESPONSIBILITIES AND ALLOCATION OF COSTS

1.1 MWRA will, in coordination with its design consultant, complete the design of its Project and include the scope of that work in the contract documents. DWWD has contracted with the same design consultant for the design and engineering services for its 12-inch water pipeline. DWWD shall be responsible for the construction administrative costs associated with its 12-inch water pipeline and will pay MWRA's design consultant directly for any construction administrative costs that DWWD incurs.

1.2 The bid documents for MWRA Contract 7505 will include a separate line item for the approximately 180-foot section of 66-inch pipe casing that will be installed by means of pipe jacking under Interstate 95 plus the approximately 180-foot sections of MWRA's 36-inch water pipeline and DWWD's 12-inch water pipeline to be installed within the 66-inch pipe casing. DWWD shall pay MWRA 17.7 percent of this line item, which represents the estimated difference between the cost that MWRA would have incurred had MWRA only installed its 36-inch water pipeline in a 48-inch pipe casing and the cost of installing MWRA's 36-inch pipeline and DWWD's 12-inch pipeline in the 66-inch pipe casing. All work described in this section is detailed in the plans and specifications dated February 2018 for MWRA Contract 7505. DWWD shall make payments to MWRA in accordance with Section 6. of this MOA.

1.3 The bid documents for MWRA Contract 7505 will also include a separate line item for the installation of DWWD's 12-inch water pipeline which will be installed by means of open cut construction in Commonwealth land on each side of Interstate 95 under the care, custody, and control of the massDOT. All work described in this section is detailed in of the plans and specifications dated February 2018 for MWRA Contract 7505. DWWD shall pay MWRA 100 percent of this line item. DWWD shall make payments to MWRA in accordance with Section 6. of this MOA. DWWD shall also pay MWRA for police detail services arising out of the work in this bid line item.

1.4 Consistent with the provisions of G.L. c. 44, §31C, DWWD certifies that it has duly appropriated funds for the cost of the portion of the Project that is being constructed on its behalf based upon its current cost estimate of \$540,000, plus additional costs for police detail services. MWRA shall notify DWWD of the bid results for Contract 7505 prior to award. Following the opening by MWRA of bids for Contract 7505 and prior to any contract award by MWRA, DWWD shall re-certify that it has duly appropriated funds to cover all costs for both the design and construction portions of the Project.

1.5 In the MWRA Contract 7505 materials, MWRA shall require its selected contractor for the Project to: (i) name DWWD as an additional insured on all insurance policies required to be provided by such contractor for the Project, except for Workers Compensation; and (ii) name DWWD as an obligee on all Performance and Labor and Materials Payment Bonds provided by the contractor under the construction contract.

1.6 In the MWRA Contract 7505 materials, MWRA shall cause its contractor to warrant, for the benefit of DWWD, all work related to the approximately 180 foot and 380 foot sections of DWWD's 12-inch water pipeline connection to its local water system to be installed as part of MWRA Contract 7505 against defects in materials and workmanship for a period of one (1) year from substantial completion of the Project in accordance with standard MWRA terms. Provision shall be made for the contractor to repair or replace all defective work within said one-year period.

1.7 In the MWRA Contract 7505 materials, MWRA shall cause its contractor to indemnify and hold harmless DWWD to the same extent that MWRA requires its contractor to indemnify and hold harmless the MWRA.

1.8 DWWD reserves the right to provide and pay for its own resident inspection solely for that portion of the Project concerning its 12-inch water pipeline connection to its local water system. MWRA agrees that it shall provide access to DWWD's inspector at the work site and shall cooperate with DWWD's inspector with regard to any reasonable requests for assistance in inspecting the work. All construction work necessary to interconnect the DWWD 12-inch line with DWWD's water transmission system which is not within the scope of work to be bid under Contract 7505 shall be performed and paid for solely by DWWD.

2. ADVERTISEMENT AND AWARD OF CONTRACT

2.1 In accordance with Massachusetts Public Construction Laws, MWRA shall advertise and accept bids for MWRA Contract 7505. MWRA, in its sole discretion, reserves the right to accept or reject any and all bids in accordance with Massachusetts law, including for the reasons articulated in the MWRA Contract 7505 bid solicitation materials.

2.2 If and when MWRA awards a contract for the Project, such contract shall include the installation of the section of the DWWD 12-inch water connection to its local water system, which will run parallel to a portion of MWRA's 36-inch water pipeline, in accordance with the plans and specifications dated February 2018 for Contract 7505.

MWRA will enter into a contract with the successful bidder and be responsible for construction of the Project.

3. CHANGE ORDERS

3.1 In the event of a request for a Change Order relating to the installation of the approximately 180 linear feet of 36-inch and 12-inch water pipelines to be installed in the 66-inch casing under Interstate 95 by means of pipe jacking, MWRA will provide DWWD with a copy of the proposed Change Order for review. After conferring with DWWD, MWRA shall process such change orders that MWRA approves. Payments for such Change Order shall be separately invoiced to MWRA by its contractor, which will then invoice DWWD for 17.7 percent of such change order cost. DWWD shall make payments to MWRA in accordance with Section 6. of this MOA.

3.2 In the event of a request for a Change Order relating solely to DWWD's 380-foot section of its 12-inch water pipeline connection to be installed by means of open cut construction as part of MWRA Contract 7505, MWRA will provide DWWD with a copy of the proposed Change Order for review and approval. Upon approval thereof by DWWD, MWRA shall process such change order. Payments for such Change Order shall be separately invoiced to MWRA by its contractor, which will then invoice DWWD for 100 percent of such change order cost. DWWD shall make payments to MWRA in accordance with Section 6. of this MOA.

4. HAZARDOUS MATERIALS

MWRA shall be responsible for, and shall take all actions necessary or appropriate in accordance with MGL Chapter 21E and the Massachusetts Contingency Plan ("MCP") Utility Related Abatement Measures ("URAM") necessary to conduct the work under the Project.

5. TERM

The term of this MOA shall, unless otherwise agreed to by the Parties, commence on the date written above and continue until final completion of the Project and any Warranty period in MWRA Contract 7505.

6. PAYMENT BY DWWD

DWWD shall make payment to MWRA of the amounts requested in the Contractor's monthly invoice for the work in the bid items set forth in Sections 1.3 and 1.4 above, associated with the installations of the portions of DWWD's 12-inch water pipeline referenced herein within 30 days of receiving invoices from MWRA. Payment amounts shall be in accordance with the Schedule of Values submitted by the contractor and approved by MWRA. MWRA will invoice DWWD on a monthly basis.

7. AMENDMENTS

The parties to this MOA may amend this MOA only by a writing duly executed by both Parties.

8. SEVERABILITY

If any part of this MOA is determined to be invalid, illegal, or unenforceable, such determination shall not affect the validity, legality, or enforceability of any other part of the Agreement and the remaining parts of this MOA shall be enforced as if such invalid, illegal or unenforceable part were not contained herein, unless continued performance of the remaining provisions of this MOA, which have not been determined to be invalid, illegal or unenforceable, would result in the substantial loss of the benefit of the bargain to either MWRA or DWWD.

9. NOTICE

Whenever, by the terms of this instrument, notices may or are to be given either to DWWD or MWRA, such notice shall be deemed to have been given, if in writing and either delivered by hand or by U.S. mail to the following addresses:

To DWWD: Eileen M. Commane, Executive Director
Dedham-Westwood Water District
50 Elm Street
Dedham, MA 02026

To MWRA: Anandan Navanandan, Chief Engineer
Massachusetts Water Resources Authority
2 Griffin Way
Chelsea, MA 02150

10. ENTIRE AGREEMENT

This MOA constitutes the entire agreement between the Parties with respect to the subject matter hereof and supersedes all prior agreements, understandings, expectations, negotiations, and discussions of the Parties, whether oral or written. There are no representations by either Party, which are not specifically set forth in this MOA.

11. GOVERNING LAW

This MOA shall be executed and delivered in the Commonwealth of Massachusetts and shall be construed and enforced in accordance with, and shall be governed by, the laws of the Commonwealth of Massachusetts.

12. DISPUTES/COOPERATION

The Parties shall each use their best efforts to cooperate in the performance of the Project by appointing appropriate representatives who, respectively, shall be responsible for expediting and responding to any and all inquiries, problems, and matters requiring coordination among the Parties concerning the bid pricing, scheduling, performance, progress, or completion of the Project. Any and all disputes which arise and which cannot be amicably resolved by the Parties during the course of the performance of the Project, if at all possible, be resolved after the completion of the Project.

13. COUNTERPARTS

This MOA may be executed in duplicate counterparts, each of which shall be deemed an original and both of which shall constitute one and the same instrument.

14. AUTHORITY

Each person signing in an official or representative capacity warrants that he or she is duly authorized to act for his or her principal and that he or she is so acting when signing this MOA, and that, when executed this MOA shall be a valid and binding obligation, enforceable in accordance with its terms.

IN WITNESS WHEREOF, the Parties hereto have caused the MOA to be executed as a sealed instrument and signed in duplicate by their duly authorized representatives.

EXECUTED AS A SEALED INSTRUMENT this _____ day of _____, 2018.

MASSACHUSETTS WATER RESOURCES
AUTHORITY

DEDHAM-WESTWOOD WATER
DISTRICT

By: _____
Frederick A. Laskey
Executive Director

By: _____
Eileen M. Commane
Executive Director



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 21, 2018
SUBJECT: Section 89 Replacement Project
Design and Engineering Services During Construction
Stantec Consulting Services Inc.
Contract 7116

COMMITTEE: Water Policy & Oversight

 INFORMATION
 X VOTE

John P. Vetere, Deputy Chief Operating Officer
A. Navanandan, P.E., Chief Engineer
Patrick Barrett, Program Manager
Preparer/Title


Michele S. Gillen
Director of Administration

David W. Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract 7116, Section 89 Replacement Project, Design and Engineering Services During Construction, to Stantec Consulting Services Inc. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed \$3,948,625, for a contract term of fifty-seven months from the Notice to Proceed.

BACKGROUND:

MWRA's Northern Intermediate High (NIH) service area provides water to the communities of Reading, Stoneham, Wakefield, Wilmington, Winchester, and Woburn through a single 48-inch pipeline, which is fed by the Gillis Pump Station, at Spot Pond in Stoneham. Although some of these communities are partially served by MWRA, the loss of this single transmission main would result in a rapid loss of service in Reading, Stoneham and Woburn, and potential water restrictions in Wakefield, Wilmington and Winchester.

The main pipeline that serves this area (Section 89) is a three-mile-long, four-foot-diameter, pre-stressed concrete cylinder pipe (PCCP) transmission main with no redundancy other than the low-capacity, century-old Section 29 that parallels its route for a short distance (see Figure 1 attached). The 10,500-foot length of Section 89 northwest of Spot Pond is constructed of PCCP with Class IV reinforcing wire, which was used by the now defunct Interpace Corporation for a short period of time in the 1970s. It has been well documented, based upon catastrophic pipe failures elsewhere in the country, that Class IV reinforcing wire is susceptible to hydrogen embrittlement, which can lead to premature pipe failure. In addition, records indicate that this portion of the Section 89 pipe was manufactured at Interpace's Hudson, New York Plant during a window of time when the concrete coating over the Class IV reinforcing wires was defective leading to cracking and spalling, which can accelerate the corrosion of the reinforcing wires. Due to the lack of redundancy, Section 89 cannot be taken out of service for inspection or for repairs.

The project goal has been to design and construct a new pipeline that will provide redundancy to the community meters so that Section 89 can be removed from service for replacement. The new redundant pipeline (Section 110) is currently in construction and is anticipated to be partially on line in Woburn, Reading and Stoneham in July 2108 and fully on line in May 2020.

This contract will provide design and engineering services during construction for the replacement of the 10,500-foot portion of PCCP with class IV reinforcing wire, replacement of line valves and appurtenances of the ductile iron portion of Section 89, and abandonment of the 118-year-old 24-inch diameter cast iron Section 29 pipeline.

DISCUSSION:

Contract 7116 is a fifty-seven month professional services contract for the design and engineering services during construction (24 months for design, 21 months for construction and a 12-month warranty period) of a 10,500-linear foot, 48-inch diameter water pipeline that will replace MWRA's existing Section 89 from the intersection of Main Street and North Border Road in Stoneham to the intersection of Washington Street and Montvale Ave. in Woburn. This project will also replace the line valves and appurtenances of Section 89 north of the intersection of Washington Street and Montvale Ave. in Woburn, and abandon the 118-year-old Section 29 pipeline in Stoneham.

The scope of services includes confirming the final pipeline alignment; performing a geotechnical and hazardous waste exploration/assessment program along the alignment; evaluating traffic impacts; obtaining all required permits; determining construction control measures for residents, businesses, pedestrians; and development of construction contract documents including drawings and specifications. The scope also includes engineering services during construction to review submittals, evaluate change orders and respond to contractor questions.

Staff will determine the required level of effort for Resident Engineering Services during final design and as appropriate procure these services at a later date through a competitive process.

Procurement Process

On January 18, 2018, MWRA issued a one-step Request for Qualifications Statements/Proposals (RFQ/P) that was publicly advertised in the Central Register, Boston Herald, Banner Publication and El Mundo. In addition, notice of the RFQ/P was sent directly to twenty-three engineering firms.

The RFQ/P included the following evaluation criteria and points: Cost - 25 points; Qualifications and Key Personnel - 25 points; Relevant Experience/Past Performance - 25 points; Technical Approach and Capacity/Organization and Management Approach - 20 points; and MBE and WBE Participation - 5 points.

On February 23, 2018, MWRA received proposals from the following seven firms: A I Engineers, Inc., Arcadis U.S., Inc., Green International Affiliates, Hazen and Sawyer, P.C., Kleinfelder Northeast, Inc., Parsons Transportation Group, and Stantec Consulting Services Inc.

The proposal costs and level of effort are presented below:

PROPOSER	PROPOSED CONTRACT COST	LEVEL OF EFFORT
Arcadis U.S., Inc.	\$3,406,922	13,490 hours
<i>Engineer's Estimate</i>	<i>\$3,705,444</i>	<i>18,460 hours</i>
Parsons Transportation Group	\$3,922,621	21,510 hours
Stantec Consulting Services Inc.	\$3,948,625	17,037 hours
Green International Affiliates	\$4,115,911	19,799 hours
Kleinfelder Northeast, Inc.	\$4,681,127	30,517 hours
Hazen and Sawyer, P.C.	\$4,835,462	22,383 hours
AI Engineers, Inc.	\$5,238,546*	27,860 hours

*Reflects corrections made due to mathematical errors.

The proposed costs of three of the proposers (Parsons, Stantec and Green), were within 6%-11% of the Engineer's Estimate and within 5% of each other, which gives Staff a high level of confidence in the overall cost of the project.

The five voting members on the Selection Committee reviewed, scored and ranked the proposals as follows:

PROPOSER	TOTAL POINTS	ORDER OF PREFERENCE* TOTAL SCORE	FINAL RANKING
Stantec Consulting Services Inc.	389	8	1
Green International Affiliates, Inc.	379	9	2
Parsons Transportation Group	324	15	3
Hazen and Sawyer, P.C.	290.2	24	4
Arcadis U.S., Inc.	291.4	25	5
Kleinfelder Northeast, Inc.	278	26	6
AI Engineers, Inc.	243.5	33	7

*Order of Preference represents the sum of the individual Selection Committee members' rankings where the firm receiving the highest number of points is assigned a "1" the firm receiving the next highest number of points is assigned a "2," and so on.

Stantec Consulting Services was ranked either first or second by all Selection Committee members and received the highest number of points in three out of five evaluation categories (Cost, Qualifications/Key Personnel and Technical Approach). The Selection Committee was in agreement that Stantec's proposal was excellent and included an appropriate level of effort and distribution of work, as well as key personnel with excellent qualifications and experience, and a very strong technical approach. The project team has extensive relevant experience and includes the following major subconsultants: Landtech, Inc. for surveying and mapping; Amy Green for permitting; Geologic-Earth Exploration for soil borings; Overland Engineering for subsurface utility engineering services; CorrTech for corrosion protection; AMRO Environmental Laboratories for soil and groundwater analysis and geotechnical laboratory testing; and KM Chng for air quality and noise analysis.

Stantec's past MWRA performance on water transmission main projects has been good. The firm is currently providing engineering services for the construction of 36 and 48-inch diameter redundant pipelines for the Northern Intermediate High and the Southern Extra High service

areas. Stantec's performance on these and other MWRA projects was reviewed as part of the Selection Committee's process and was considered very good for Northern Intermediate High and average for Southern Extra High. Stantec had the third lowest overall cost. Stantec's proposed level of effort is within 8% of the Engineer's Estimate and within 14% of the average level of effort of the three top ranked proposals. Stantec's adjusted cost per hour (excluding Other Direct Costs) is within 3% of the average adjusted cost per hour of all proposals. Moreover, Stantec's distribution of hours between Tasks for the project was most appropriate among all the proposals for the project.

Green International Affiliates (Green) proposed the fourth lowest cost, was ranked second overall by the Committee and received the highest number of points in two evaluation categories (experience and M/WBE participation). Green's project team includes CDM Smith as its primary subconsultant for meter design, instrumentation engineering and geotechnical engineering. Green's relevant experience also includes work on the Northern Intermediate High redundant pipeline.

Green's costs exceeded Stantec's cost by \$167,286. The Selection Committee concluded that although Green's overall level of effort was higher, its cost was also higher with no significant advantage over the proposal by Stantec. Green, as prime consultant and a certified MBE firm, offered the most significant M/WBE participation amongst all proposers.

Parsons' proposed the second lowest cost and was ranked third overall by the Committee. Parsons' proposal was \$26,000 lower than Stantec's. Parsons' proposed level of effort specific to Task 4 Engineering Services During Construction was considered by the Committee to be insufficient to complete all the services required under Task 4. Parsons' technical approach did not demonstrate as clear an understanding of the project as other proposers.

Arcadis proposed the lowest cost and the lowest level of effort of all of the proposers. Its level of effort was 4970 hours (37%) lower than the Engineer's Estimate. Arcadis' proposed cost was \$515,699 (13%) below the next lowest cost proposal. The Selection Committee concluded that Arcadis's proposed level of effort was not sufficient to complete the scope of services. Additionally, Arcadis' proposal cited project experience of the firm was not as relevant to this project as the experience of the top ranked proposers.

Kleinfelder, Hazen and Sawyer and AI Engineering proposed the fifth, sixth and seventh highest costs, respectively. The Selection Committee concluded that these three firms did not offer significant benefits to the Authority for their proposed higher costs. The design experience of these three firms was not as relevant in terms of project size and complexity as that of the top ranked proposers and the relevant project experience of the Key Personnel in large water transmission pipelines was limited.

Based on final rankings, and for the reasons set forth above, the Selection Committee recommends the award of this contract to Stantec Consulting Services, Inc. in an amount not to exceed \$3,948,625. In accordance with MWRA's procurement procedures, staff entered into discussions with Stantec to confirm costs, level of effort and project management. Based on those discussions, staff believe Stantec can successfully complete the project for the proposed cost.

BUDGET/FISCAL IMPACT:

The FY18 CIP includes a budget of \$3,200,000 for Contract 7116. The award amount is \$3,948,625, or \$748,625 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE/PARTICIPATION:

The minimum MBE and WBE participation requirements for this project were established at 7.18% and 5.77% respectively. Stantec Consulting Services has committed to 12.51% MBE and 10.46% WBE participation.

ATTACHMENTS:

Figure 1- NIH Section 89 Replacement

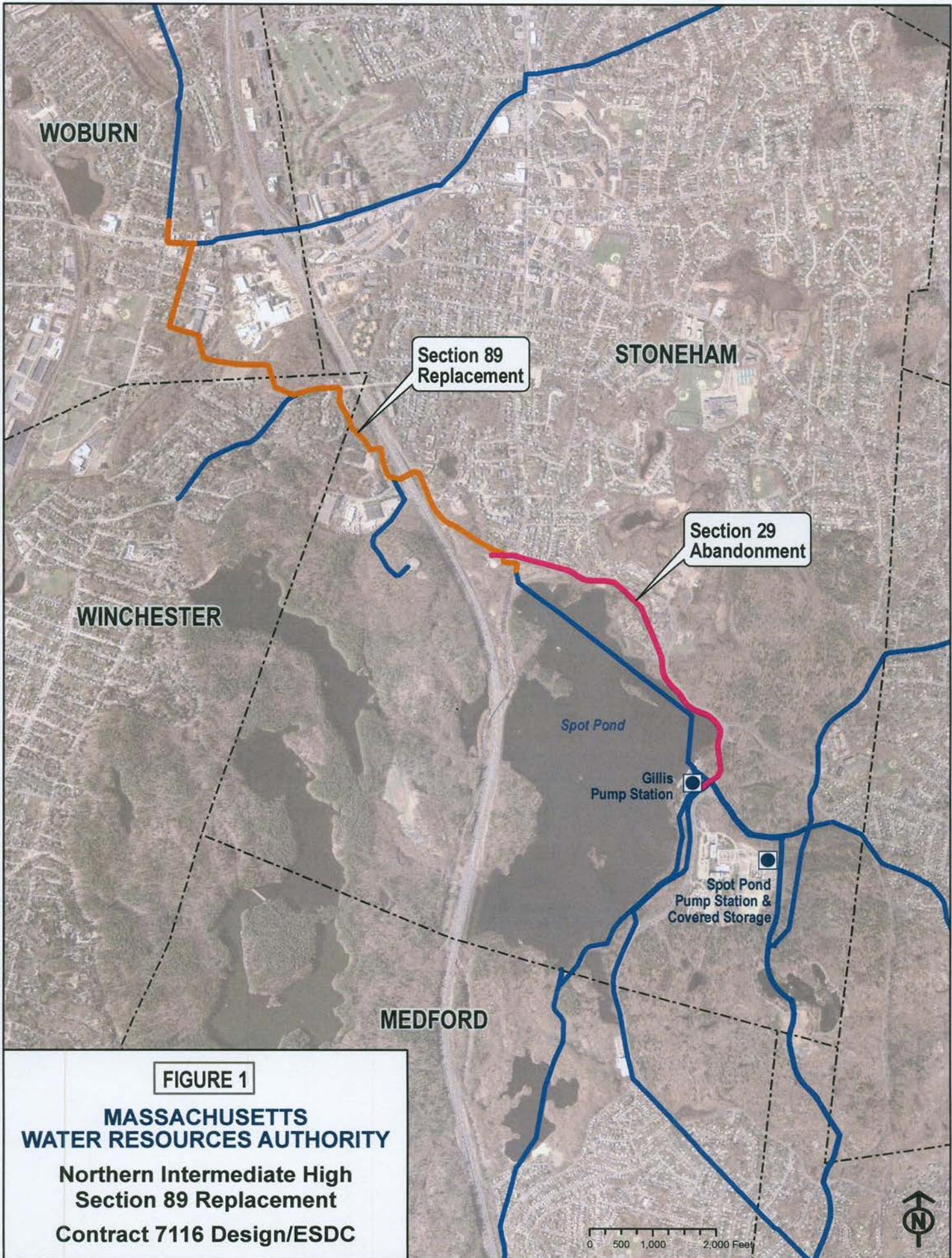


FIGURE 1

**MASSACHUSETTS
WATER RESOURCES AUTHORITY**

**Northern Intermediate High
Section 89 Replacement**

Contract 7116 Design/ESDC



MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

Frederick A. Laskey
Executive Director

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Fax: (617) 788-4899
TTY: (617) 788-4971

PERSONNEL & COMPENSATION COMMITTEE MEETING

Chair: J. Wolowicz
Vice-Chair: K. Cotter
Committee Members:
J. Carroll
P. Flanagan
J. Foti
A. Pappastergion
H. Vitale
J. Walsh

to be held on

Wednesday, March 21, 2018

Location: 100 First Avenue, 2nd Floor
Charlestown Navy Yard
Boston, MA 02129

Time: Immediately following Water Comm.

AGENDA

A. Approvals

1. PCR Amendments – March 2018

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Personnel and Compensation Committee

February 21, 2018

A meeting of the Personnel and Compensation Committee was held on February 21, 2018 at the Authority headquarters in Charlestown. Member Foti presided. Present from the Board were Messrs. Blackmon, Carroll, Flanagan, Pappastergion, Vitale and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Mike Hornbrook, Michele Gillen, Patterson Riley, Karen Gay-Valente, and Bonnie Hale. The meeting was called to order at 11:20 a.m.

Approvals

*Approval of the Affirmative Action Plan

The Committee recommended approval of the 2018 Affirmative Action Plan (ref. agenda item A.1).

*PCR Amendments – February 2018

The Committee recommended approval of amendments to the Position Control Register (ref. agenda item A.2).

(Mr. Pappastergion temporarily left the meeting.)

*Appointment of Chief Operating Officer

The Committee recommended approval of the appointment of Mr. David W. Coppes (ref. agenda item A.3).

*Appointment of Senior Program Manager, Energy, Deer Island Treatment Plant

The Committee recommended approval of the appointment of Mr. John Dunn (ref. agenda item A.4).

(Mr. Pappastergion returned to the meeting.)

*Appointment of Director, Toxic Reduction and Control

The Committee recommended approval of the appointment of Ms. Rebecca M. Weidman (ref. agenda item A.5).

The meeting adjourned at 11:30 a.m.

* Approved as recommended at February 21, 2018 Board of Directors meeting.

STAFF SUMMARY

TO: Board of Director
FROM: Frederick A Laskey, Executive Director
DATE: March 21, 2018
SUBJECT: March PCR Amendments



COMMITTEE: Personnel and Compensation

K. Murphy for
Karen Gay-Valente, Director of Human Resources
Joan C. Carroll, Manager Compensation
Preparer/Title

 INFORMATION

 X VOTE

Michele S. Gillen
Michele S. Gillen
Director, Administration

RECOMMENDATION:

To approve amendments to the Position Control Register (PCR) included in the attached chart.

DISCUSSION:

The Position Control Register lists all positions of the Authority, filled and vacant. It is updated as changes occur and it is published at the end of each month. Any changes to positions during the year are proposed as amendments to the PCR. All amendments to the PCR must be approved by the Personnel Committee of the Board of Directors. All amendments resulting in an upgrade of a position by more than one grade level, and/or an amendment which creates a position increasing annual cost by \$10,000 or more, must be approved by the Board of Directors after review by the Personnel Committee.

March PCR Amendments

There is one PCR amendment to reflect organizational changes in the Operations Division.

Operations Organizational Change

The Metropolitan Tunnel Redundancy Program is a significant MWRA priority for which the addition of a Grade 17 non-union position to direct the design, construction, engineering and procurement for the Metropolitan Tunnel Water Redundancy Program is recommended. This position will report directly to the Executive Director and will supervise managers and staff assigned to the program.

The amendment is:

1. A new position in the Operations Division, Director of Tunnel Redundancy Program, NU Grade 17.

This amendment requires Board approval after review by the Personnel and Compensation Committee.

BUDGET/FISCAL IMPACT:

The annualized budget impact of this PCR amendment will range in cost from \$129,038 to \$180,970. The actual cost will depend on the hiring rate for the newly created non-union position. Staff will ensure that the cost increase associated with these PCR amendments will not result in spending over the approved FY18 Wages and Salaries budget.

ATTACHMENTS:

New Job Description

MASSACHUSETTS WATER RESOURCES AUTHORITY
 POSITION CONTROL REGISTER AMENDMENTS
 FISCAL YEAR 2018

PCR AMENDMENTS REQUIRING PERSONNEL & COMPENSATION COMMITTEE APPROVAL - March 21, 2018

Number	Current PCR #	V/F	Type	Current Title	UN	GR	Amended Title	UN	GR	Current/Budget Salary	Estimated New Salary	Estimated Annual \$ Impact	Reason For Amendment	
PERSONNEL & COMP COMMITTEE TOTAL =					0		SUBTOTAL:					\$0 - \$0		

PCR AMENDMENTS REQUIRING BOARD APPROVAL - March 2018

Number	Current PCR #	V/F	Type	Current Title	UN	GR	Amended Title	UN	GR	Current/Budget Salary	Estimated New Salary	Estimated Annual \$ Impact	Reason For Amendment	
B6	Operations	N/A	N/A	N/A	N/A	N/A	Director of Tunnel Redundancy Program	NU	17	\$0	\$129,038 - \$180,970	\$129,038 - \$180,970	To create a new position to oversee the Metropolitan Tunnel Redundancy Program	
BOARD TOTAL =					1		SUBTOTAL:					\$129,038 - \$180,970		
GRAND TOTAL =					1		TOTAL ESTIMATED COSTS:					\$129,038 - \$180,970		

**MWRA
POSITION DESCRIPTION**

POSITION: Director of Tunnel Redundancy Program

DIVISION: Operations

DEPARTMENT:

BASIC PURPOSE:

Directs the design, construction, engineering and procurement for the Metropolitan Tunnel Redundancy Program.

SUPERVISION RECEIVED:

Reports directly to and acts under the supervisions of the Executive Director.

SUPERVISION EXERCISED:

Exercises close supervision of Managers and staff assigned to the program.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Directs and controls the design, construction, engineering and procurement activities for the Metropolitan Tunnel Redundancy Program from capital delivery to operations start up and maintenance, meeting approved time, cost, environmental compliance, safety, and technical objectives.
- Establishes guidelines, and reviews plans, estimates, reports and recommendations prepared by staff and outside contractors for the Metropolitan Tunnel Redundancy Program.
- Negotiates, recommends and manages contracted services and equipment contracts.
- Develops and monitors program master schedules and budgets and coordinates program scheduling and sequencing with planned project financing.
- Ensures adequate allocation of staff and financial resources for successful implementation of capital and maintenance project delivery.
- Manages the impacts of MWRA operations and construction on community water/sewer systems, through coordination with community system managers.

- Works collegially with other MWRA divisions and departments to ensure the goals, objectives and strategies of the Metropolitan Tunnel Redundancy Program are achieved.
- Develops and directs implementation of risk management, safety and quality control programs for the project.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) A bachelor's degree in sanitary, civil or mechanical engineering, business, management or associated field. Advanced degree or other significant post-graduate educational experience in an engineering discipline preferred.
- (B) Knowledge of the principles and practices of tunnel project management as acquired by twelve (12) to fifteen (15) years experience in design and construction phase of major civil engineering projects, including a minimum of six (6) years experience in a managerial position; or
- (C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Excellent engineering and analytical skills.
- (B) Excellent oral and written communication skills required.
- (C) Familiarity with automated project management financial and CADD/CAM program preferred.
- (D) Expert familiarity and management competence in the planning, regulation and operation of water systems.
- (F) Ability to work with personnel at various organizational levels, to balance competing priorities and to manage personnel and resources as required.
- (G) Ability to provide technical leadership to subordinate employees, as well as the proven ability to inspire confidence in customers and the general public.

SPECIAL REQUIREMENTS:

Massachusetts Motor Vehicle Operators License.

Massachusetts registration as Professional Engineer or eligible through reciprocity.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computer including word processing and other software, copy and fax machine.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to stand, walk, climb or balance, stoop, kneel, crouch, or crawl, taste or smell.

The employee must frequently lift and/or move up to 10 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, depth perception, peripheral vision and the ability to adjust focus.

WORK ENVIRONMENT:

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee occasionally works in outside weather conditions. The employee occasionally works near moving mechanical parts, and is occasionally exposed to wet and/or humid conditions and vibration. The employee occasionally works in high precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals and risk of electrical shock.

The noise level in the work environment is usually loud in field settings and moderately quiet in an office setting.



MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
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Boston, MA 02129

Frederick A. Laskey
Executive Director

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ADMINISTRATION, FINANCE & AUDIT COMMITTEE MEETING

Chair: H. Vitale
Vice-Chair: J. Foti
Committee Members:
A. Blackmon
J. Carroll
K. Cotter
A. Pappastergion
B. Peña
J. Walsh

to be held on

Wednesday, March 21, 2018

Location: 100 First Avenue, 2nd Floor
Charlestown Navy Yard
Boston, MA 02129

Time: Immediately following Personnel Committee

AGENDA

A. Information

1. Delegated Authority Report – February 2018
2. FY2018 Financial Update and Summary as of February 2018

B. Approvals

1. Appointment of Proxy for the Fore River Railroad Corporation
2. Adoption of the Seventy-Eighth Supplemental Resolution
3. Amendments to Capital Finance Management Policy
4. Electronic Document Management System

C. Contract Awards

1. Metropolitan Operations Paving: Sunshine Paving Corporation, Contract OP-354

D. Contract Amendments/Change Orders

1. Assignment and Assumption of Contract OP-337, Purchase and Supply of Electric Power for MWRA Profile Accounts, from TransCanada Power Marketing Ltd. to EDF Energy Services, LLC, and Amendment 1

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Administration, Finance and Audit Committee

February 21, 2018

A meeting of the Administration, Finance and Audit Committee was held on February 21, 2018 at the Authority headquarters in Charlestown. Chairman Vitale presided. Present from the Board were Messrs. Blackmon, Carroll, Flanagan, Foti, Pappastergion, and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Mike Hornbrook, Steve Estes-Smargiassi, Carolyn Francisco Murphy, Michele Gillen, Tom Durkin, Kathy Soni, Matt Horan, Steve Perry, Steve Cullen, and Bonnie Hale. The meeting was called to order at 11:30 a.m.

Information

Second Quarter FY2018 Orange Notebook

Staff gave a presentation highlighting various portions of the Orange Notebook, and there was general discussion and question and answer.

Delegated Authority Report – January 2018

There was question and answer on vehicle purchases referenced in the report. Staff discussed the MWRA vehicle fleet and indicated that Board members would be provided with a fleet summary report. Mr. Vitale requested a copy of the MWRA vehicle policy.

Staff summarized the remaining three information items:

- FY2018 Financial Update and Summary as of January 2018
- FY2018 Sewer Assessment Adjustments
- Preliminary FY2019 Water and Sewer Assessments.

Approvals

*Transmittal of the FY2019 Proposed Current Expense Budget to the MWRA Advisory Board

The Committee recommended approval of transmittal of the FY2019 CEB to the Advisory Board for its 60-day review and comment period (ref. agenda item B.1).

* Approved as recommended at February 21, 2018 Board of Directors meeting.

(Mr. Pappastergion temporarily left the meeting.)

*Approval of the Seventy-seventh Supplemental Resolution and Award of Direct Purchase Agreements

The Committee recommended approval of the 77th supplemental resolution and award of direct purchase agreements (ref. agenda item B.2).

*Amendments to the Management Policies of the Board of Directors

The Committee recommended approval of amendments to the Management Policies, as presented and filed with the records of the meeting (ref. agenda item B.3).

Contract Awards

*Workers' Compensation Legal Services: Tentindo, Kendall, Canniff & Keefe LLP, Contract A614

The Committee recommended approval of the contract award (ref. agenda item C.1).

(Mr. Pappastergion returned to the meeting.)

*Groundskeeping Services – Metropolitan Boston: C&W Services, Inc., Contract OP-365

The Committee recommended approval of the contract award.

The meeting adjourned at 12:10 p.m.

* Approved as recommended at February 21, 2018 Board of Directors meeting.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 21, 2018
SUBJECT: Delegated Authority Report – February 2018



COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

Linda D'Addario, Admin Systems Coordinator
Barbara Aylward, Administrator A & F
Preparer/Title


Michele S. Gillen

Director, Administration


Carolyn Francisco Murphy

Director of Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period February 1 – 28, 2018.

This report is broken down into three sections:

- Awards of Construction, non-professional and professional services contracts and change orders and amendments in excess of \$25,000, including credit change orders and amendments in excess of \$25,000;
- Awards of purchase orders in excess of \$25,000; and
- Amendments to the Position Control Register, if applicable.

BACKGROUND:

The Board of Directors' Management Policies and Procedures, as amended by the Board's vote on October 14, 2009, delegate authority to the Executive Director to approve the following:

Construction Contract Awards:

Up to \$1 million if the award is to the lowest bidder.

Change Orders:

Up to 25% of the original contract amount or \$250,000, whichever is less, where the change increases the contract amount, and for a term not exceeding an aggregate of six months; and for any amount and for any term, where the change decreases the contract amount. The delegations for cost increases and time can be restored by Board vote.

Professional Service Contract Awards:

Up to \$100,000 and one year with a firm; or up to \$50,000 and one year with an individual.

Non-Professional Service Contract Awards:

Up to \$250,000 if a competitive procurement process has been conducted, or up to \$100,000 if a procurement process other than a competitive process has been conducted.

Purchase or Lease of Equipment, Materials or Supplies:

Up to \$1 million if the award is to the lowest bidder.

Amendments:

Up to 25% of the original contract amount or \$250,000, whichever is less, and for a term not exceeding an aggregate of six months.

Amendments to the Position Control Register:

Amendments which result only in a change in cost center.

BUDGET/FISCAL IMPACT:

Recommendations for delegated authority approval include information on the budget/fiscal impact related to the action. For items funded through the capital budget, dollars are measured against the approved capital budget. If the dollars are in excess of the amount authorized in the budget, the amount will be covered within the five-year CIP spending cap. For items funded through the Current Expense Budget, variances are reported monthly and year-end projections are prepared at least twice per year. Staff review all variances and projections so that appropriate measures may be taken to ensure that overall spending is within the MWRA budget

CONSTRUCTION/PROFESSIONAL SERVICES DELEGATED AUTHORITY ITEMS FEBRUARY 1 - 28, 2018

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	02/08/18	RENEWABLE AND ALTERNATIVE ENERGY PORTFOLIO SERVICES AMENDMENT 1 TO EXTEND CONTRACT TERM BY THREE MONTHS FOR THE CONTINUED MARKETING AND SALE OF MWRA CLASS I RENEWABLE ENERGY CERTIFICATES.	RPS-65	1	energyROI, LLC	\$60,160.00
C-2.	02/12/18	EMERGENCY REPAIR OF GRAVITY THICKENER NO. 5 - DEER ISLAND TREATMENT PLANT AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR THE EMERGENCY REPAIR OF GRAVITY THICKENER NO. 5 AT THE DEER ISLAND TREATMENT PLANT FOR A TERM OF 60 CALENDAR DAYS.	5576	AWARD	WALSH CONSTRUCTION COMPANY OF II, LLC	\$609,100.00
C-3.	02/13/18	CHICOPEE VALLEY AQUEDUCT INTAKE TRAVELING SCREEN REPLACEMENT FINAL BALANCING CHANGE ORDER TO DECREASE TIME AND MATERIALS REQUIRED TO CLEAN IN FRONT OF GATE VALVE PRIOR TO PUTTING CHANNEL BACK IN SERVICE.	7488	4	W.M. SCHULTZ CONST., INC.	(\$38,627.44)
C-4.	02/13/18	FUEL STORAGE TANK MAINTENANCE SERVICES FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: TANK AND LINE TIGHTNESS TESTING, SCHEDULED CATHODIC PROTECTION TESTING, SUMP PUMP-OUTS, NON-EMERGENCY AND EMERGENCY ON-CALL TESTING AND ON-CALL SERVICE, AND REPLACEMENT PARTS AND MARK-UP.	OP-233	4	COMMTANK, INC.	(\$57,573.13)
C-5.	02/13/18	METROPOLITAN OPERATIONS PAVING FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: PAVEMENT CUTTING, EXCAVATION, REMOVAL AND DISPOSAL OF EXISTING PAVEMENT, COLD PLANING, GRADING; CONTROL DENSITY FILL, DENSE GRADE CRUSHED STONE, CAST-IN-PLACE CONCRETE, BINDER COURSE, TOP COURSE, RAISING AND RESETTING GRANITE CURB, BITUMINOUS CONCRETE BERM CURB, SINGLE THERMOPLASTIC STRIPE, PAINTED TRAFFIC MARKINGS, RESETTING CASTINGS, INFRA-RED TREATMENT, TRAFFIC CONTROL AND PERMIT SERVICES.	OP-288	3	NEWPORT CONSTRUCTION CORP.	(\$488,171.90)
C-6.	02/13/18	LIQUID OXYGEN STORAGE YARD CANOPY AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR THE CONSTRUCTION OF A PERMANENT CANOPY OVER THE LIQUID OXYGEN FILL STATION AT THE CARROLL WATER TREATMENT PLANT LIQUID OXYGEN STORAGE YARD FOR A TERM OF 210 CALENDAR DAYS.	7085G	AWARD	D & C CONSTRUCTION CO., INC.	\$328,500.00
C-7.	02/28/18	FIRE ALARM SYSTEM SERVICE, CENTRAL AND WESTERN MASSACHUSETTS FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: ON-SITE TESTING OF FIRE ALARM SYSTEMS, ON-SITE NON-EMERGENCY AND EMERGENCY REPAIR SERVICE, AND REPLACEMENT PARTS AND MARK-UP.	OP-280	2	R & M ELECTRICAL CONTRACTORS, INC.	(\$44,442.51)

PURCHASING DELEGATED AUTHORITY ITEMS FEBRUARY 1 - 28, 2018

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	02/08/18	MAXIMO TECHNICAL CONSULTANT AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT #ITS63 TO THE LOWEST RESPONSIVE BIDDER FOR MAXIMO TECHNICAL CONSULTANT SERVICES.	WRA-4431Q		NTT DATA, INC.	\$98,175.00
P-2.	02/15/18	PURCHASE OF ONE TOTAL ORGANIC CARBON ANALYZER AWARD OF A SOLE SOURCE PURCHASE ORDER FOR ONE TOTAL ORGANIC CARBON ANALYZER.			SUEZ WTS ANALYTICAL INSTRUMENTS, INC.	\$30,160.00
P-3	02/15/18	PURCHASE OF ONE AUTOMATED MERCURY ANALYZER AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ONE AUTOMATED MERCURY ANALYZER.	WRA-4469Q		TELEDYNE INSTRUMENTS, INC.	\$37,915.25
P-4	02/15/18	SUPPLY AND DELIVERY OF SODIUM BISULFITE AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF SODIUM BISULFITE TO THE DEER ISLAND TREATMENT PLANT.	WRA-4477		SOUTHERN IONICS, INC.	\$136,500.00
P-5	02/28/08	PURCHASE OF ONE CAGE DRIVE AND ADAPTER PLATE AWARD OF A SOLE SOURCE PURCHASE ORDER FOR ONE CAGE DRIVE AND ADAPTER PLATE FOR EMERGENCY REPAIR OF GRAVITY THICKENER 6 FOR DEER ISLAND TREATMENT PLANT.	S577		WESTECH ENGINEERING, INC.	\$81,232.00
P-6	02/28/18	DIVER ASSISTED SUCTION HARVESTING AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR DIVER ASSISTED SUCTION HARVESTING OF INVASIVE AQUATIC PLANTS AT STILLWATER BASIN, WACHUSETT RESERVOIR 2018 SEASON.	WRA-4476		AE COMMERCIAL DIVING SERVICES	\$93,000.00
P-7	02/28/18	INSTALLATION AND CONFIGURATION OF MCAFEE ANTI-VIRUS SOFTWARE AND SERVER AWARD OF A SOLE SOURCE PURCHASE ORDER FOR INSTALLATION AND CONFIGURATION OF MCAFEE ANTI-VIRUS SOFTWARE AND SERVER FOR PROCESS INSTRUMENTATION AND CONTROL SYSTEM AT THE DEER ISLAND TREATMENT PLANT.			EMERSON PROCESS MANGEMENT POWER & WATER SOLUTIONS, INC.	\$115,338.00

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 21, 2018
SUBJECT: FY18 Financial Update and Summary through February



COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

Kathy Soni, Budget Director
Louise L. Miller, Budget Manager
Preparer/Title


Thomas J. Durkin
Director, Finance

RECOMMENDATION:

For information only. This staff summary provides the financial results and variance highlights for Fiscal Year 2018 through February, comparing actual spending to the budget.

DISCUSSION:

In February, MWRA set aside \$770,000 favorable Capital Finance variance into the Defeasance Account with the intention of using these funds to defease debt and provide rate relief in future years. Targeted defeasances are a critical component of the Authority's multi-year rate management strategy. As of February, the defeasance account balance is \$5.3 million. This favorable variance is the result of the lower than budgeted variable rates. Staff have already identified candidates for year-end defeasance and included the impact of the FY18 defeasance in the Proposed FY19 budget and planning estimates.

The year-end favorable variance is projected at \$25.2 million, of which \$15.2 million is related to debt service. Beyond debt service savings, staff project a surplus of approximately \$10.0 million at year-end of which \$3.6 million would be from lower direct expenses, \$5.6 million from greater than budgeted revenues, and potential receipt of \$0.8 million Debt Service Assistance. The higher than budgeted revenue is related to a \$4.2 million receipt from the settlement between various State Attorneys General and Barclays PLC for attempting to manipulate the LIBOR market, and higher investment income of approximately \$1.4 million.

As the year progresses and more actual spending information becomes available, staff will continue to refine the year-end projections and update the Board accordingly.

Total year-to-date variance for the FY18 CIP is \$6.9 million or 6.5% over budget.

FY18 Current Expense Budget

The CEB expense variances for Fiscal Year 2018 through February by major budget category were:

- Net Lower Direct Expenses of \$4.6 million, or 3.1% under budget. Spending was lower for Wages & Salaries, Maintenance, Fringe Benefits, Worker's Compensation, Chemicals, Professional Services, and Training and Meetings. This is offset by higher spending on Overtime, Other Services, Other Materials and Utilities.
- Net Higher Indirect Expenses of \$293,000, or 1.2%, due to higher spending for Insurance offset by lower Watershed reimbursements and lower expenses for the existing HEEC cable.
- Debt spending is at budget level after transferring \$5.3 million to the defeasance account, representing the favorable year-to-date variance.

FY18 Budget and FY18 Actual Year-to-Date Variance by Expenditure Category
(in millions)

	FY18 Budget YTD	FY18 Actual YTD	\$ Variance	% Variance
Direct Expenses	\$146.9	\$142.3	-\$4.6	-3.1%
Indirect Expenses	\$23.8	\$24.1	\$0.3	1.2%
Debt Service	\$299.7	\$299.7	\$0.0	0.0%
Total	\$470.5	\$466.2	-\$4.3	-0.9%

Totals may not add due to rounding

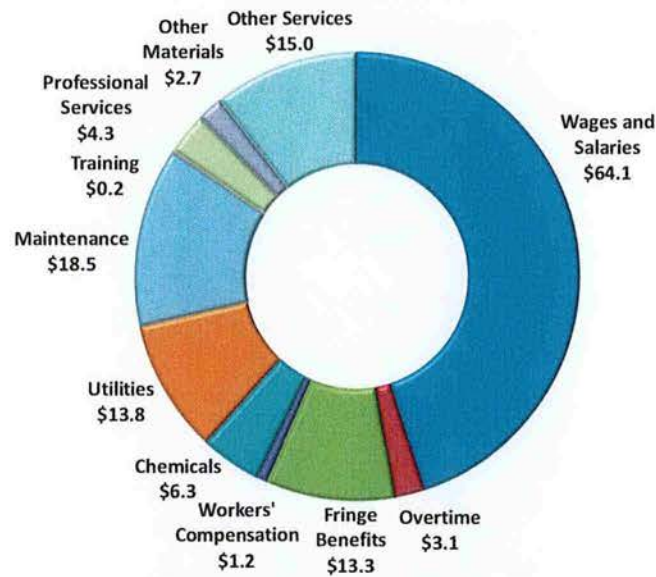
Year-to-date Revenues of \$506.6 million were \$5.9 million, or 1.2%, over budget reflecting a \$4.2 million receipt from the settlement between various State Attorneys General and Barclays PLC for attempting to manipulate the LIBOR market. LIBOR is a standard financial index used to set the cost of various variable-rate loans. Revenues were also over budget by \$971,000 for favorable returns on investment income, \$228,000 for the final payment of a class action lawsuit settlement for derivative agreements, \$190,000 for disposal of surplus material and \$163,000 for revenue attributable to renewable energy credits and energy rebates.

Please refer to Attachment 1 for a more detailed comparison by line item of the budget variances for the year to date.

Direct Expenses

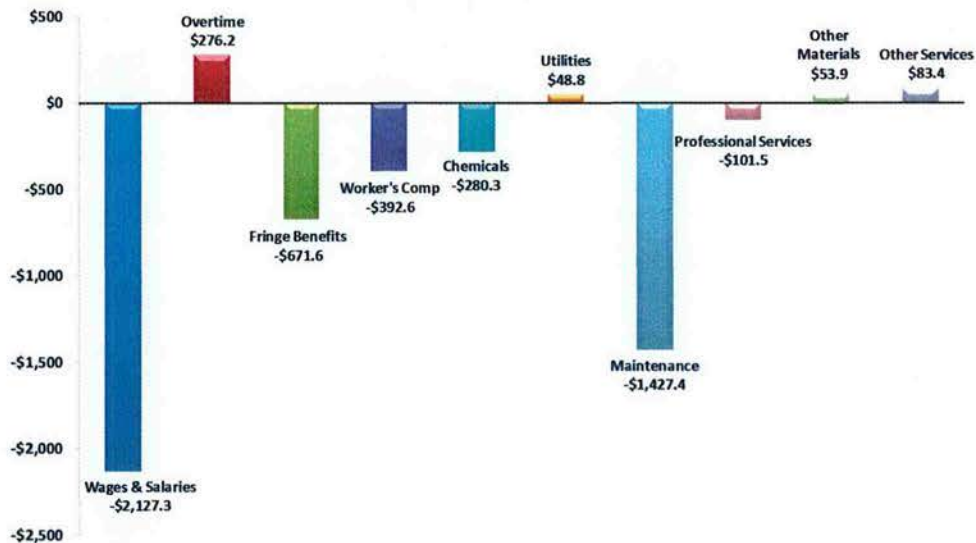
Year-to-date direct expenses totaled \$142.3 million, \$4.6 million, or 3.1%, less than budgeted.

**FY18 Year-to-Date Direct Expenses
(in millions)**



Lower than budgeted spending for Wages & Salaries, Maintenance, Fringe Benefits, Worker's Compensation, Chemicals, Professional Services, and Training and Meetings was partially offset by higher spending for Overtime, Other Services, Other Materials and Utilities.

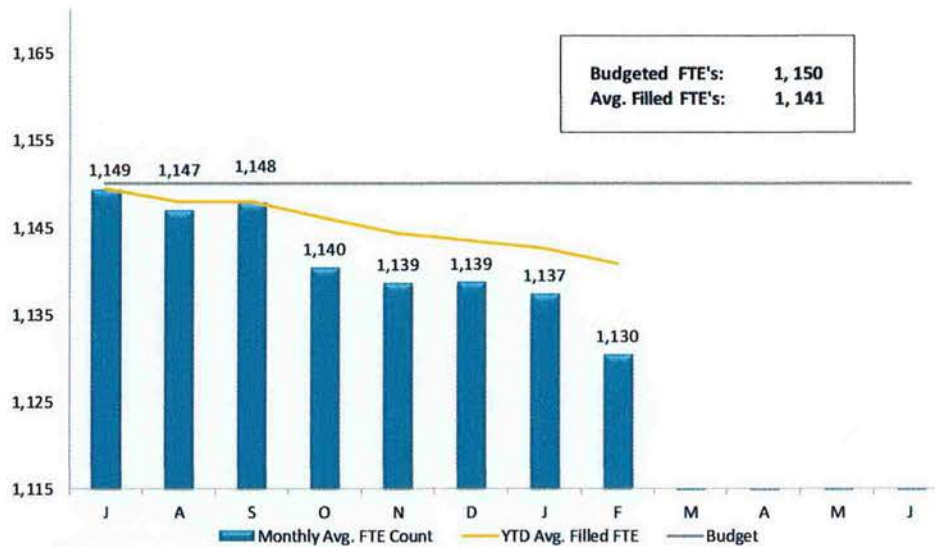
**FY18 Year-to-Date Direct Expense Variance
(in thousands)**



Wages and Salaries

Wages and Salaries are under budget by \$2.1 million, or 3.2%. Year to date, there have been 9 fewer average FTEs (1,141 versus 1,150 budget), lower average new hire salaries versus retirees and the timing of backfilling vacant positions, which has contributed to Regular Pay being under budget.

FY18 MWRA Full Time Equivalent (FTE) Position Trend



Maintenance

Maintenance was under budget by \$1.4 million, or 7.2%. While there were numerous components to the underspending for Maintenance year-to date, \$1.2 million was at Deer Island including timing of the door replacement project and of the PICS upgrade, \$125,000 of the underspending was in Field Operations due in part to timing of the HVAC upgrades at the Braintree-Weymouth Pump Station and Chelsea facility, offset by overspending for Pipeline Materials primarily for Water Pipeline Maintenance and Pipeline Services for timing of manhole replacement contract.

Fringe Benefits

Fringe Benefit spending was lower than budgeted by \$672,000, or 4.8%, primarily for lower Health Insurance costs of \$530,000 due to fewer employees and retirees than budgeted participating in health insurance plans, and the shift from family to individual plans, which are less expensive.

Worker's Compensation

Through February, Worker's Compensation expenses were lower than budget by \$393,000, or 25.4%. The lower Worker's Compensation expenses were primarily due to

reductions in payments and reserves resulting from settlement of five claims and resolution of a number of claims through return to work. Medical payments and reserves were lower than budget by \$262,000. Compensation payments and reserves were lower than budget by \$74,000. In February, compensation reserves were increased on a number of claims and there will be several more adjustments before the end of the fiscal year. Expense payments and reserves were lower than budget by \$56,000. It should be noted that the Worker's Compensation budget is spread evenly every month during the course of the year and can result in wide monthly variations which cannot be predicted.

Chemicals

Year-to-date, Chemicals were lower than budget by \$280,000, or 4.3%. The majority of the variance for Chemicals was the result of lower flows both at Deer Island and the Carroll Plant, 13% and 5% respectively, the quality of the influent at Deer Island and the water quality at the Carroll Plant. Underspending for Soda Ash of \$274,000 primarily at JCWTP; Activated Carbon of \$96,000 at DITP; Carbon Dioxide of \$65,000 at JCWTP; Sodium Hypochlorite of \$59,000 primarily at DITP, offset by over spending at JCWTP; Hydrofluosilic Acid of \$58,000 at JCWTP; and Sodium Bisulfite of \$55,000 primarily at DITP. This is offset by over spending on Hydrogen Peroxide of \$297,000 at DITP and Ferric Chloride of \$85,000 also at DITP. It is important to note that Chemicals variances are also based on deliveries which in general reflect the usage patterns. However, the timing of deliveries is an important factor. For instance, the underspending for Activated Carbon is due to the timing of the change out of carbon beds at DITP later in the year than budgeted.

Professional Services

Professional Services are under budget by \$101,000, or 2.3%. The overall underspending year-to-date is due to timing of services in Operations Administration for Engineering Services, Law for expert legal services for ongoing litigation; and the Treasury Department due to timing of legal services. The underspending is offset by earlier overspending in the year for unbudgeted testing for algae at Chestnut Hill Reservoir and red tide study.

Training & Meetings

Training & Meetings expenses are less than budgeted by \$34,000 or 14.0% due to timing.

Overtime

Overtime expenses year-to-date are higher than budgeted by \$276,000 or 9.9%, which is a decrease since January. The overspending year-to-date was mainly in Water Operations and Metro Maintenance for maintenance and emergency leak repairs, wet weather and snow removal; and Wastewater Operations for wet weather events. Field Operations performed off-hours maintenance work, reported in prior monthly financial staff summaries, to alleviate project backlogs due to staff vacancies in Western Water Operations, replaced manhole covers and frames prior to a major repaving project, and the

replacement of a HVAC unit at the Chelsea facility. The overspending was offset by year-to-date lower spending for Laboratory Services, DITP, and Administration.

Other Services

Other Services were essentially on budget with overspending of \$83,000, or 0.6%. There were numerous components over budget in Other Services, including Sludge Pelletization of \$193,000 due to higher year-to-date quantities related to struvite control during the cleaning of one digester. This was offset by items that were under budget including \$115,000 for timing of the remediation projects managed by Real Property/Environmental Management and \$50,000 for technical assistance for lead issues.

Other Materials

Other Materials were higher than budgeted by \$54,000, or 2.1%. A variety of items are over budget including Computer Hardware in MIS; Postage for the postage meter in the mail rooms; and Lab and Testing Materials at Department of Lab Services due to timing of purchases. There were various items under budget, including Vehicle Expenses due to lower than budgeted fuel prices.

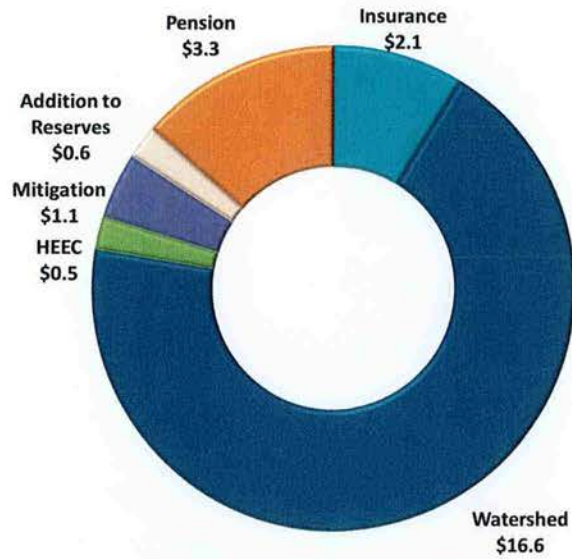
Utilities

Utilities were essentially on budget with overspending of \$49,000, or 0.4%. Diesel Fuel was over budget by \$513,000 due to timing of a delivery at Deer Island prior to the start of the winter season, which was budgeted for May 2018, offset by lower pricing than budgeted for diesel fuel in Field Operations. Utilities were further offset by lower electricity bills of \$462,000 due to favorable pricing for Field Operations facilities and for DITP.

Indirect Expenses

Year-to-date Indirect Expenses totaled \$24.1 million, which is \$293,000 or 1.2% greater than budgeted, due to higher Insurance claims of \$794,000 resulting from the outcome of a recent litigation, offset by lower Insurance premiums of \$30,000. Indirect Expenses are further offset by lower Watershed costs of \$336,000 resulting from an over-accrual at the end of FY17 of Watershed operating expenses of \$286,000 and lower than budgeted PILOT payments of \$50,000; and lower HEEC charges than budgeted of \$120,000 for the existing cross-harbor cable.

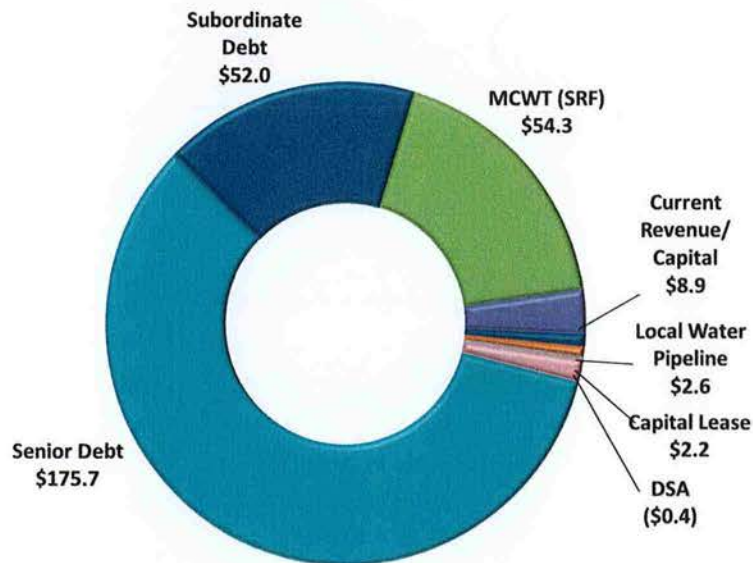
FY18 Year-to-date Indirect Expenses-YTD
(in millions)



Capital Financing

Capital Financing expenses include the principal and interest payment for fixed debt, the variable subordinate debt, the Massachusetts Clean Water Trust (SRF) obligation, the commercial paper program for the local water pipeline projects, current revenue for capital, and the Chelsea facility lease payment.

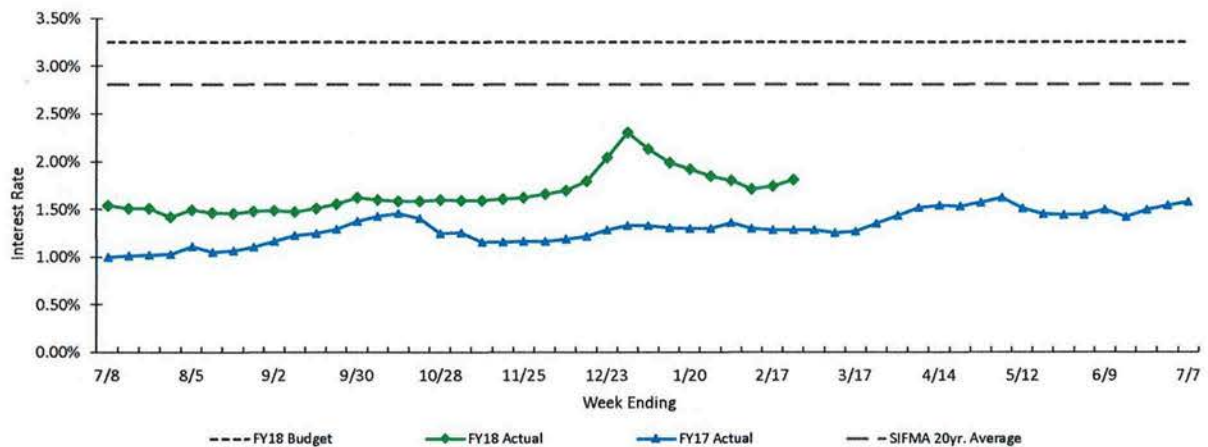
Year-to-date FY18 Capital Finance
(in millions)



Year-to-date Capital Financing expenses for FY18 totaled \$299.7 million, which was on budget after the transfer of \$5.3 million of year-to-date surplus to the Defeasance Account. The entire surplus is related to short-term variable rates. As in the past, staff have already identified candidates for the planned FY18 defeasance which will have favorable impacts in the FY19-22 period.

The graph below reflects the FY18 actual variable rate trend by week year-to-date against the FY18 Budget.

**Weekly Average Interest Rate on MWRA Variable Rate Debt
(Includes liquidity support and remarketing fees)**



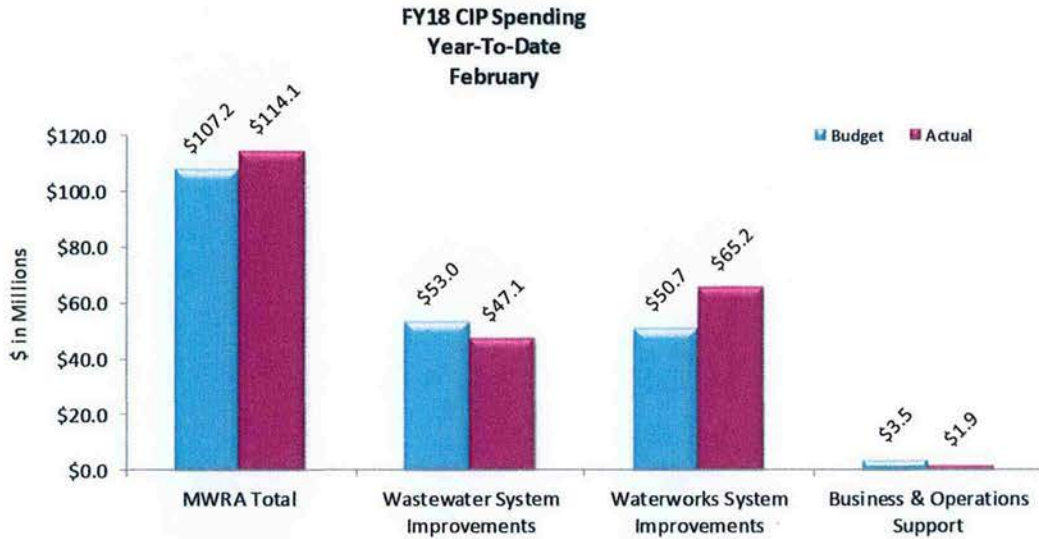
Revenue & Income

Year-to-date Revenues of \$506.6 million were \$5.9 million or 1.2% over budget, reflecting a \$4.2 million receipt from the settlement between various State Attorneys General and Barclays PLC for attempting to manipulate the LIBOR market. LIBOR is a standard financial index used to set the cost of various variable-rate loans. Revenues were also over budget by \$971,000 mostly for favorable returns on investment income (short term rates were higher than budgeted: 1.36% vs. 1.05%), \$228,000 for the final payment of a class action lawsuit settlement for derivative agreements, \$190,000 for disposal of surplus material; and \$163,000 for revenue attributable to renewable energy credits and energy rebates.

FY18 Capital Improvement Program

Capital expenditures in Fiscal Year 2018 through February total \$114.1 million, \$6.9 million, or 6.5%, over budget.

After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) grant/loan program, the Local Water Pipeline loan program, and the community managed Combined Sewer Overflow (CSOs) projects, capital spending totaled \$86.8 million, \$3.3 million, or 4.0%, over budget.



Overall CIP spending reflects the overspending of \$14.5 million in Waterworks Improvements, and underspending of \$5.9 million in Wastewater Improvements and of \$1.6 million in Business and Operations Support.

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	29.4	25.4	(4.0)	-13.7%
Treatment	8.0	7.2	(0.8)	-10.1%
Residuals	0.3	0.2	(0.1)	-22.8%
CSO	1.5	1.5	(0.1)	-4.2%
Other	13.8	12.8	(0.9)	-6.8%
Total Wastewater System Improvements	\$53.0	\$47.1	(\$5.9)	-11.1%
Waterworks System Improvements				
Drinking Water Quality Improvements	2.3	2.5	0.2	6.9%
Transmission	16.6	20.4	3.8	23.1%
Distribution & Pumping	23.1	28.9	5.8	25.3%
Other	8.8	13.4	4.6	52.7%
Total Waterworks System Improvements	\$50.7	\$65.2	\$14.5	28.5%
Business & Operations Support	\$3.5	\$1.9	(\$1.6)	-46.5%
Total MWRA	\$107.2	\$114.1	\$6.9	6.5%

Totals may not add due to rounding

FY18 Year-to-date Spending by Program:

The main reasons for the project spending variances in order of magnitude are:

Water Distribution and Pumping: Net overspending of \$5.8 million

- \$6.0 million for Section 89/29 Redundancy Phase 1C Construction and \$2.3 million for SEH Redundancy Pipeline Section 111 Phase 1 Construction, \$0.6 million for NIH Section 89 & 29 Redundancy Phase 2 Construction, and \$0.2 million for NIH Section 89 & 29 Redundancy Phase 1B due to contractor progress.
- The overspending was partially offset by underspending \$0.6 million for Chestnut Hill Gatehouse #1 Repairs and \$0.3 million for SEH Redundancy Pipeline Section 111 Phase 2 due to later than budgeted notices-to-proceed, and \$0.7 million Section 14 Water Pipe Relocation (Malden) due to delay in commencing pipe installation, and \$0.6 million for SEH Redundancy Pipeline Section 111 Phase 3 due to delay in award as a result of permit issues.

Other Waterworks: Net overspending of \$4.6 million

- \$4.7 million for Local Water System Assistance Program due to greater than anticipated community requests for loans. The overspending was partially offset by \$0.1 million for Quabbin Power, Communication & Security – Construction partially due to reimbursement from DCR Office of Watershed Management for work at the boat cove.

Interception & Pumping: Net underspending of \$4.0 million

- \$2.8 million for Alewife Brook Pump Station Construction due to bypass pumping delays.
- \$1.1 million for Chelsea Creek Upgrades Construction due to delays with water main and fuel oil system installations.
- \$0.1 million for Prison Point Design/CA/REI due to delay pending an amendment, and \$0.2 million for Wastewater Metering/Study/Design due to the contract award being less than budgeted, and \$0.1 million for DeLauri Pump Stations Screens and Security due to later than budgeted notice-to-proceed.
- This underspending was partially offset by overspending of \$0.2 million for Cambridge Study Sections 186, 4, 5, and 6, and \$0.2 million for Chelsea Upgrades Design/Construction Administration; and \$0.1 million for Quincy and Hingham Pump Station Fuel Storage upgrades due to contractor progress.

Waterworks Transmission: Net overspending of \$3.8 million

- \$2.6 million for Wachusett Aqueduct Pump Station Construction and Engineering Services due to contractor progress, \$1.4 million for Watershed Land due to timing of land purchases, and \$0.5 million for WASM 3 MEPA/Design/CA/RI for timing of boring work.

- This overspending was partially offset by underspending of \$0.2 million for CVA Motorized Screen Replacement due to work scheduled for FY18 performed in FY17, and \$0.1 million for time extension for the Evaluation of Farm Pond Buildings and Waban Arches.

Other Wastewater: Net underspending of \$0.9 million

- \$0.9 million for Community Infiltration/Inflow (I/I) due to less than anticipated requests for grants and loans.

Wastewater Treatment: Net underspending of \$0.8 million

- Clinton: \$0.3 million for Phosphorus Reduction Construction due to less than anticipated progress including testing delays.
- Deer Island: \$0.4 million for Digester Sludge Pump Replacement Phase 2 and \$0.3 million for Fuel System Upgrades for work scheduled for FY18 performed in FY17, and for less than anticipated progress due to increase in scope of \$0.1 million for the Clarifier Rehabilitation Phase 2 Design. The underspending was partially offset by overspending of \$0.3 million for Winthrop Terminal Facility VFD Replacement Construction due to progress and \$0.2 million for the Personnel Dock Rehabilitation due to additional work required.

Drinking Water Quality Improvements: Net overspending of \$0.2 million

- \$0.3 million for contractor progress for the Marlborough Maintenance Facility.

Combined Sewer Overflow: Net underspending of \$0.1 million

- Underspending of \$0.2 million for Cambridge Sewer Separation Project due to updated final cost of restoration work, partially offset by \$0.1 million of CSO Performance Assessment due to consultant progress.

Residuals: Net underspending of \$0.1 million

- \$0.1 million primarily for delay in contract award for mechanical improvements and Sludge Tank & Silo Coating work that was postponed for the winter and will resume in April.

Construction Fund Balance

The construction fund balance was \$61.7 million as of the end of February. Commercial Paper/Revolving Loan availability was \$121.0 million to fund construction projects.

ATTACHMENTS:

- Attachment 1 – Variance Summary February 2018
- Attachment 2 – Current Expense Variance Explanations
- Attachment 3 – Capital Improvement Program Variance Explanations
- Attachment 4 – FY18 Budget vs. FY18 Projections

ATTACHMENT 1
FY18 Actuals vs. FY18 Budget

	February 2018 Year-to-Date				
	Period 8 YTD Budget	Period 8 YTD Actual	Period 8 YTD Variance	%	FY18 Approved
EXPENSES					
WAGES AND SALARIES	\$ 66,197,648	\$ 64,070,339	\$ (2,127,309)	-3.2%	\$ 104,286,370
OVERTIME	2,797,229	3,073,434	276,205	9.9%	4,110,637
FRINGE BENEFITS	13,981,881	13,310,266	(671,615)	-4.8%	20,997,975
WORKERS' COMPENSATION	1,548,653	1,156,063	(392,590)	-25.4%	2,322,980
CHEMICALS	6,578,462	6,298,163	(280,299)	-4.3%	9,836,933
ENERGY AND UTILITIES	13,716,546	13,765,364	48,818	0.4%	21,735,222
MAINTENANCE	19,882,307	18,454,949	(1,427,358)	-7.2%	32,200,785
TRAINING AND MEETINGS	241,956	208,149	(33,807)	-14.0%	406,269
PROFESSIONAL SERVICES	4,439,520	4,338,063	(101,457)	-2.3%	7,221,622
OTHER MATERIALS	2,623,693	2,677,546	53,853	2.1%	6,692,660
OTHER SERVICES	14,908,559	14,992,006	83,447	0.6%	22,764,526
TOTAL DIRECT EXPENSES	\$ 146,916,454	\$ 142,344,342	\$ (4,572,113)	-3.1%	\$ 232,575,979
INSURANCE	\$ 1,355,208	\$ 2,118,802	\$ 763,594	56.3%	\$ 2,013,452
WATERSHED/PILOT	16,937,312	16,601,521	(335,791)	-2.0%	25,164,006
HEEC PAYMENT	644,434	524,826	(119,608)	-18.6%	957,445
MITIGATION	1,074,870	1,060,022	(14,848)	-1.4%	1,596,950
ADDITIONS TO RESERVES	552,675	552,675	-	0.0%	821,116
RETIREMENT FUND	3,277,369	3,277,369	-	0.0%	3,277,369
POST EMPLOYEE BENEFITS	-	-	-	---	5,035,422
TOTAL INDIRECT EXPENSES	\$ 23,841,868	\$ 24,135,215	\$ 293,346	1.2%	\$ 38,865,760
STATE REVOLVING FUND	\$ 54,275,490	\$ 54,275,490	\$ -	0.0%	\$ 84,931,906
SENIOR DEBT	175,713,642	175,713,642	-	0.0%	264,560,267
CORD FUND	-	-	-	---	-
DEBT SERVICE ASSISTANCE	(391,580)	(391,580)	-	0.0%	(391,580)
CURRENT REVENUE/CAPITAL	8,884,615	8,884,615	-	0.0%	13,200,000
SUBORDINATE MWRA DEBT	56,516,230	56,516,230	-	0.0%	85,443,447
LOCAL WATER PIPELINE CP	2,554,289	2,554,289	-	0.0%	3,794,944
CAPITAL LEASE	2,165,329	2,165,329	-	0.0%	3,217,060
DEBT PREPAYMENT	-	-	-	---	10,900,000
VARIABLE DEBT	-	(5,309,910)	(5,309,910)	---	-
HEEC CABLE CAPACITY RESERV	-	-	-	---	6,532,146
DEFESANCE ACCOUNT	-	5,309,910	5,309,910	---	-
TOTAL DEBT SERVICE	\$ 299,718,015	\$ 299,718,015	\$ -	0.0%	\$ 472,188,190
TOTAL EXPENSES	\$ 470,476,337	\$ 466,197,572	\$ (4,278,766)	-0.9%	\$ 743,629,929
REVENUE & INCOME					
RATE REVENUE	\$ 482,632,500	\$ 482,632,500	\$ -	0.0%	\$ 717,054,000
OTHER USER CHARGES	6,274,142	6,259,260	(14,882)	-0.2%	9,011,070
OTHER REVENUE	5,436,787	10,350,823	4,914,036	90.4%	7,359,078
RATE STABILIZATION	-	-	-	---	-
INVESTMENT INCOME	6,398,589	7,369,388	970,799	15.2%	10,205,781
TOTAL REVENUE & INCOME	\$ 500,742,018	\$ 506,611,971	\$ 5,869,953	1.2%	\$ 743,629,929

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY18 Budget YTD February	FY18 Actuals YTD February	FY18 YTD Actual vs. FY18 Budget		Explanations
			\$	%	
Direct Expenses					
Wages & Salaries	66,197,648	64,070,339	(2,127,309)	-3.2%	Wages and Salaries are under budget by \$2.1million. Year to date, there have been 9 fewer average FTEs (1,141 versus 1,150 budget), lower average new hire salaries versus retirees and the timing of backfilling vacant positions, which has contributed to Regular Pay being under budget.
Overtime	2,797,229	3,073,434	276,205	9.9%	Higher spending mainly in Water Operations of \$174,000 and Metro Maintenance of \$156,000, both for off-hours maintenance, wet weather events, and snow removal and Wastewater Operations of \$42,000 for wet weather events. Some examples of off-hour maintenance work include off-hours work to alleviate a project backlog in western ops due to staff vacancies, replacement of manholes in a community prior to a major repaving job, and crane rigging to hoist replacement HVAC units into place at the Chelsea maintenance facility. The higher spending is offset by lower spending for Laboratory Services of \$32,000, DITP of \$30,00 and Administration of \$21,000.
Fringe Benefits	13,981,881	13,310,266	(671,615)	-4.8%	Lower than budget mainly in Health Insurance of \$530,000, due to fewer than budgeted participants in health insurance plans, and the shift from family to individual plans which are less expensive; lower Unemployment Insurance of \$47,000; lower Medicare payments of \$45,000; and lower Tuition Reimbursement of \$26,000.
Worker's Compensation	1,548,653	1,156,063	(392,590)	-25.4%	Underspending due to lower Medical Payments of \$262,000 compensation payments of \$74,000, and management costs of \$56,000. Medical payments were lower due to adjustments to reserves for claims resolved through return to work. Compensation Payments were lower due to a reductions of reserves primarily due to settlements of five claims and lower reserves for claims resolved through returns to work. In February a number of claims had their indemnity reserves increased and there were will be several more over the coming months. The total net increase to indemnity reserves in February was \$340,000. Expense Costs were adjusted as well to reflect resolution of outstanding cases. It is important to note that spending on this line item can change significantly depending on future claims and severity of cases.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY18 Budget YTD February	FY18 Actuals YTD February	FY18 YTD Actual vs. FY18 Budget		Explanations
			\$	%	
Chemicals	6,578,462	6,298,163	(280,299)	-4.3%	Underspending for Soda Ash of \$274,000 primarily at JCWTP; Activated Carbon of \$96,000 at DITP; Carbon Dioxide of \$65,000 at JCWTP; Sodium Hypochlorite of \$59,000 primarily at DITP, offset by over spending at JCWTP; Hydrofluosilic Acid of \$58,000 at JCWTP and Sodium Bisulfite of \$55,000 primarily at DITP. This is offset by over spending on Hydrogen Peroxide of \$297,000 at DITP and Ferric Chloride of \$85,000 also at DITP. The majority of underspending for Chemicals is the result of lower flows both at DITP and JCWTP, 13% and 5% respectively through February and the quality of the influent both at DITP and JCWTP. It is important to note that Chemicals variances are also based on deliveries which in general reflect the usage patterns. However, the timing of deliveries is an important factor. For instance, the underspending for Activated Carbon is due to the timing of the change out of carbon beds at DITP later in the year than budgeted.
Utilities	13,716,546	13,765,364	48,818	0.4%	Overspending in Diesel Fuel of \$513,000. \$689,000 overspending in Diesel Fuel at DITP due to timing of delivery in December 2017 versus budgeted in May of 2018, offset by \$176,000 underspending in FOD due to favorable pricing. Diesel Fuel spending further is offset by underspending in Electricity of \$462,000 primarily in FOD due to favorable pricing (approx. 2¢ under budget per kwh) resulting in \$370,000 under budget and DITP of \$72,000 also due to favorable pricing.
Maintenance	19,882,307	18,454,949	(1,427,358)	-7.2%	Materials were underspent by \$1.3 million and Services were underspent by \$136,000. Underspending in Plant & Machinery Materials of \$843,000 in DITP for timing on various items like the replacement electric maintenance vehicles, CTG spare parts, and the W3 strainer; HVAC Materials of \$670,000 primarily in FOD for the timing of the B/W IPS and Chelsea HVAC upgrades and DITP for timing of purchases; Specialized Equipment Services of \$629,000 in DITP for timing of PIC upgrade, FOD for instrumentation service contract, OEP & DLS; Building & Grounds Services of \$435,000 for timing of door replacement contract at DITP, and at the Chelsea Facility for carpet replacement and service contracts; Electrical Materials of \$170,000 in DITP for timing of instrumentation upgrades; Computer Materials of \$119,000 for an inventory issuance credit in MIS; and Computer Licenses/Upgrades of \$76,000 in MIS for timing of software maintenance agreements. Overspending in Plant & Machinery Services of \$916,000 mostly at DITP for timing of Cryo and CTG maintenance; Pipeline Materials of \$125,000 primarily for Water Pipeline Maintenance; and Pipeline Services of \$88,000 for timing of manhole replacement contract.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY18 Budget YTD February	FY18 Actuals YTD February	FY18 YTD Actual vs. FY18 Budget		Explanations
			\$	%	
Training & Meetings	241,956	208,149	(33,807)	-14.0%	Underspending in Operations, MIS and Procurement due to timing of training.
Professional Services	4,439,520	4,338,063	(101,457)	-2.3%	Other Professional Services was underspent by \$74,000 primarily in Op Admin, Law due to timing of expert services needed for ongoing litigation, and Treasury for timing of legal services, offset by over spending in MIS due to the transfer of spending from the CIP budget; Legal Services was underspent by \$70,000 in Human Resources and the Law Division for outside legal fees for litigation; Engineering Services by \$36,000 in OEP and Operations; and Resident Inspection by \$15,000 related to lower spending on Diver Assisted Suction Harvesting (DASH) Quality Assurance/Quality Control diver associated with the invasive species control of the water reservoirs. This is offset by higher spending for Lab & Testing of \$58,000 in Dept. Lab Services for unplanned algae testing for Chestnut Hill Reservoir and ENQUAL for unbudgeted red tide study.
Other Materials	2,623,693	2,677,546	53,853	2.1%	Higher than budgeted spending for Computer Hardware of \$128,000 in MIS due to timing of purchases; Postage of \$66,000 due to timing of filling postage meters in Admin, and Lab & Testing Supplies of \$58,000 primarily in Dept. of Lab Services (DLS). This is offset by lower spending for Health and Safety of \$94,000 primarily at DITP, DLS and Op Support; and Vehicle Expenses of \$69,000 due to lower prices for fuel than budgeted.
Other Services	14,908,559	14,992,006	83,447	0.6%	Higher than budgeted spending for Sludge Pelletization of \$193,000 due to higher year to date quantities related to Struvite control; Space Lease/Rentals of \$114,000 primarily due to Internal Audit's completing their annual audit of CY16 operating expenses and FY17 property taxes which determined we owe the landlord \$41,000 and increased the common area maintenance and property taxes portions of the monthly bill for FY18; and Telephone of \$45,000 in MIS. This is offset by lower spending in Other Services of \$161,000 for a number of services, including timing of remediation projects managed by Real Property/Environmental Management and timing of Technical Assistance for Lead issues; Police Details of \$48,000 primarily in Meter Maintenance, Wastewater Pipeline Maintenance, Water Valve Maintenance, and Pipeline Maintenance and Other Rentals of \$30,000 primarily in MIS.
Total Direct Expenses	146,916,454	142,344,342	(4,572,113)	-3.1%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY18 Budget YTD February	FY18 Actuals YTD February	FY18 YTD Actual vs. FY18 Budget		Explanations
			\$	%	
Indirect Expenses					
Insurance	1,355,208	2,118,802	763,594	56.3%	Higher claims than budgeted of \$794,000 due to recent adverse court case decision, offset by lower premiums of \$30,000.
Watershed/PILOT	16,937,312	16,601,521	(335,791)	-2.0%	Lower Watershed Reimbursement of \$286,000 due to over accrual at the end of FY17 as compared to the actual amount paid in the first quarter of FY18 and \$50,000 in lower PILOT payments.
HEEC Payment	644,434	524,826	(119,608)	-18.6%	Lower than budgeted charges for O&M charges for existing HEEC cable.
Mitigation	1,074,870	1,060,022	(14,848)	-1.4%	Actual inflation rate was 2.08% vs. 2.5% used for the budget.
Addition to Reserves	552,675	552,675	-	0.0%	
Pension Expense	3,277,369	3,277,369	-	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	23,841,868	24,135,215	293,347	1.2%	
Debt Service					
Debt Service	300,109,595	300,109,595	-	0.0%	Through February staff have transferred \$5.3 million of a favorable YTD variance to the Defeasance Account. The short-term rates related variance is \$5.3 million lower YTD.
Debt Service Assistance	(391,580)	(391,580)	-	0.0%	
Total Debt Service Expenses	299,718,015	299,718,015	-	0.0%	
Total Expenses					
Total Expenses	470,476,337	466,197,572	(4,278,766)	-0.9%	
Revenue & Income					
Rate Revenue	482,632,500	482,632,500	-	0.0%	
Other User Charges	6,274,142	6,259,260	(14,882)	-0.2%	
Other Revenue	5,436,787	10,350,823	4,914,036	90.4%	\$4.4 million for two settlements, \$4.2 million receipt for settlement between various State Attorneys General and Barclays PLC for attempting to manipulate the LIBOR market and \$228,000 for the final payment of a class action lawsuit settlement for derivative agreements; \$190,000 for disposal of surplus material; \$163,000 for revenue attributable to renewable energy credits and energy rebates.
Rate Stabilization	-	-	-		
Investment Income	6,398,589	7,369,388	970,799	15.2%	Investment Income is over budget mostly due to short term rates higher than budget (1.36% vs. 1.05% budget). Of this amount ~\$800k is interest rate and ~\$170k is due to higher average daily balances as compared to budget.
Total Revenue	500,742,018	506,611,971	5,869,953	1.2%	
Net Revenue in Excess of Expenses	30,265,681	40,414,399	10,148,719		

ATTACHMENT 3
FY18 CIP Year-End Variance Report (000's)

	FY18 Budget YTD February	FY18 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Wastewater					
Interception & Pumping (I&P)	\$29,443	\$25,414	(\$4,029)	-13.7%	<u>Underspending</u> Alewife Brook Pump Station Rehab - Construction: \$2.8M (testing of dry and wet weather bypass pumps had been delayed. Construction is now progressing on schedule) Chelsea Creek Headworks Upgrades - Construction: \$1.2M (delays of water main installation due to pile testing and the concrete channel lining due to service preparation. Also, exterior paneling work delayed due to timing of materials.) Wastewater Meter System Planning/Study/Design: \$228k (less than budget award) Prison Point Rehab - Design/CA/RI: \$107k (design delayed pending out of scope design amendment approved in January.) Other smaller projects totaling \$164k. <u>Offset Overspending</u> Sections 4, 5, 6, 186 - Study: \$210k, (consultant progress) Quincy/Hingham Pump Station Fuel Storage Upgrades - Construction: \$140 (project progress) Caruso Pump Station Improvements - Construction: \$120k (additional change order work)
Treatment	\$8,003	\$7,192	(\$812)	-10.1%	<u>Underspending</u> Digested Sludge Pump Replacement - Phase 2: \$396k and Power System Improvements - Construction: \$283k (for work scheduled for FY18 performed in FY17) Clinton Wastewater Treatment Plant Phosphorus Reduction - Construction: \$296k (up to a six-month time extension due to delays including preliminary testing) NMPS and WTF Valve & Piping Replacement - ESDC/REI: \$106k (less than anticipated engineering services) Other smaller projects totaling \$169k. <u>Offset Overspending</u> WTF VFD Replacement - Construction: \$328k (contractor progress) Personnel Dock Rehab: \$156k (additional rehab work required)
Residuals	\$261	\$201	(\$59)	-22.8%	Delay in contract award for mechanical improvements
CSO	\$1,532	\$1,467	(\$65)	-4.2%	<u>Underspending</u> Cambridge Sewer Separation: \$198k (pending final cost reconciliation) <u>Offset Overspending</u> CSO Performance Assessment: \$135k (consultant progress greater than planned)

**ATTACHMENT 3
FY18 CIP Year-End Variance Report (000's)**

	FY18 Budget YTD February	FY18 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Other Wastewater	\$13,759	\$12,823	(\$935)	-6.8%	<u>Underspending</u> I/I Local Financial Assistance: \$935k (less than budgeted requests for grants and loans)
Total Wastewater	\$52,998	\$47,098	(\$5,900)	-11.1%	
Waterworks					
Drinking Water Quality Improvements	\$2,292	\$2,450	\$159	6.9%	
Transmission	\$16,578	\$20,405	\$3,826	23.1%	<u>Overspending</u> Wachusett Aqueduct Pump Station - Design/ESDC and Construction: \$2.6M (due to project progress) Watershed Land Acquisition: \$1.4M (timing of land purchases) WASM 3 - MEPA/Design/CA/RI: \$540k (field work scheduled for FY17 performed in FY18) <u>Offset Underspending</u> CVA Motorized Screens Replacement - Construction: \$208k (work scheduled for FY18 performed in FY17) Shaft 12 Isolation Gates - Design/CA/RI: \$161k (preliminary design report indicates construction costs to be greater than anticipated and therefore project to be reevaluated) Evaluation of Farm Pond Buildings & Waban Arches: \$132k (project is substantially complete and will be less than budgeted. Decision pending on demolition vs. rehabilitation as next phase.) Other smaller projects totaling \$213k

ATTACHMENT 3
FY18 CIP Year-End Variance Report (000's)

	FY18 Budget YTD February	FY18 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Distribution & Pumping	\$23,077	\$28,914	\$5,838	25.3%	<u>Overspending</u> NIH Section 89/29 Redundancy Phase 1B and 1C and Phase 2 : \$6.8M, and SEH Redundancy Pipeline Section 111 Phase 1 - Construction: \$2.3M (due to project progress) <u>Offset Underspending</u> Section 14 Water Pipe Relocation (Malden): \$666k (Delay in commencing pipe installation due to third party building construction. Work to commence next month.) Chestnut Hill Gatehouse No. 1 Repair - Construction: \$597k, and SEH Redundancy Pipeline Section 111 Construction 2: \$331k (due to delayed notices-to-proceed) SEH Redundancy Pipeline Section 111 Phase 3 - Construction: \$572k (due to schedule change) NIH Redundancy & Storage Easements: \$500k (timing of payment for the meter vault based on MOA with Town of Stoneham) CP3, Sections 23, 24, 47 Rehab - Final Design/CA/RI: \$193k (Delay due to coordination of field work to determine pipe condition and establish test pits. Progress is anticipated in the coming months with Final Design stage.) Sections 50 & 57 Water & 19/20/21 Sewer Rehab - Design/ESDC: \$178k (delay in field testing) Other smaller projects totaling \$225k
Other Waterworks	\$8,792	\$13,423	\$4,631	52.7%	<u>Overspending</u> Local Water System Assistance Program: \$4.7M (greater than budgeted community requests for loans) <u>Offset Underspending</u> Quabbin Power, Communication & Security - Construction: \$122k (partially due to reimbursement from DCR Office of Watershed Management for work at boat cove)
Total Waterworks	\$50,738	\$65,192	\$14,454	28.5%	

ATTACHMENT 3
FY18 CIP Year-End Variance Report (000's)

	FY18 Budget YTD February	FY18 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Business & Operations Support					
Total Business & Operations Support	\$3,472	\$1,856	(\$1,616)	-46.5%	<u>Underspending</u> Security Equipment: \$1.2M (delay in implementing equipment initiatives) MIS Projects: \$427k (timing of IT Strategic Plan implementation) Fish Hatchery Pipeline Hydro: \$129k (timing of final work. Project is substantially complete) Other smaller projects totaling \$123k <u>Offset Overspending</u> Vehicle Purchases: \$263k (timing of vehicle purchases)
Total MWRA	\$107,208	\$114,146	\$6,938	6.5%	


ATTACHMENT 4

FY18 Budget vs FY18 Projection

TOTAL MWRA	FY18 Budget	FY18 Projection	Change FY18 Budget vs FY18 Projection	
			\$	%
EXPENSES				
WAGES AND SALARIES	\$ 104,286,370	\$ 101,500,450	\$ (2,785,920)	-2.7%
OVERTIME	4,110,637	4,377,713	267,076	6.5%
FRINGE BENEFITS	20,997,975	20,283,585	(714,390)	-3.4%
WORKERS' COMPENSATION	2,322,980	1,922,980	(400,000)	-17.2%
CHEMICALS	9,836,933	9,619,775	(217,158)	-2.2%
ENERGY AND UTILITIES	21,735,222	21,184,157	(551,065)	-2.5%
MAINTENANCE	32,200,786	33,327,083	1,126,297	3.5%
TRAINING AND MEETINGS	406,269	452,531	46,262	11.4%
PROFESSIONAL SERVICES	7,221,622	6,897,493	(324,129)	-4.5%
OTHER MATERIALS	6,692,659	6,638,525	(54,134)	-0.8%
OTHER SERVICES	22,764,526	22,700,168	(64,358)	-0.3%
TOTAL DIRECT EXPENSES	\$ 232,575,979	\$ 228,904,460	\$ (3,671,519)	-1.6%
INSURANCE	\$ 2,013,452	\$ 2,805,581	792,129	39.3%
WATERSHED/PILOT	25,164,006	24,557,126	(606,880)	-2.4%
HEEC PAYMENT	957,445	877,030	(80,415)	-8.4%
MITIGATION	1,596,950	1,574,890	(22,060)	-1.4%
ADDITIONS TO RESERVES	821,116	821,116	-	0.0%
RETIREMENT FUND	3,277,369	3,277,369	-	0.0%
POSTEMPLOYMENT BENEFITS	5,035,422	5,035,422	-	0.0%
TOTAL INDIRECT EXPENSES	\$ 38,865,760	\$ 38,948,534	\$ 82,774	0.2%
STATE REVOLVING FUND	\$ 84,931,906	\$ 80,637,871	(4,294,035)	-5.1%
SENIOR DEBT	264,560,267	263,760,267	(800,000)	-0.3%
SUBORDINATE DEBT	85,443,447	85,443,447	-	0.0%
LOCAL WATER PIPELINE CP	3,794,944	1,482,833	(2,312,111)	-60.9%
CURRENT REVENUE/CAPITAL	13,200,000	13,200,000	-	0.0%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	10,900,000	10,900,000	-	
VARIABLE RATE SAVINGS	-	(7,818,562)	(7,818,562)	
DEFEASANCE ACCOUNT	-	15,224,708	15,224,708	
DEBT SERVICE ASSISTANCE	(391,580)	(1,191,580)	(800,000)	204.3%
HEEC CABLE CAPACITY RESERVE FUND	6,532,146	6,532,146	-	0.0%
TOTAL DEBT SERVICE	\$ 472,188,190	\$ 471,388,190	\$ (800,000)	-0.2%
TOTAL EXPENSES	\$ 743,629,929	\$ 739,241,184	\$ (4,388,745)	-0.6%
REVENUE & INCOME				
RATE REVENUE	\$ 717,054,000	\$ 717,054,000	-	0.0%
OTHER USER CHARGES	9,011,070	9,011,070	-	0.0%
OTHER REVENUE	7,359,078	11,559,078	4,200,000	57.1%
RATE STABILIZATION	-	-	-	
INVESTMENT INCOME	10,205,781	11,605,781	1,400,000	13.7%
TOTAL REVENUE & INCOME	\$ 743,629,929	\$ 749,229,929	\$ 5,600,000	0.8%

VARIANCE: \$ (9,988,745) \$ (9,988,745)

STAFF SUMMARY

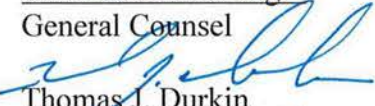
TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 21, 2018
SUBJECT: Appointment of Proxy for Fore River Railroad Corporation

COMMITTEE: Administration, Finance & Audit

VOTE
 INFORMATION


Steven A. Remsberg
General Counsel

Sean R. Cordy, Senior Financial Analyst *SR*
Matthew R. Horan, Treasurer *MH*
Preparer/Title


Thomas J. Durkin
Director of Finance

RECOMMENDATION:

That the MWRA Board of Directors, as holder of all voting rights of all the issued and outstanding shares of stock of the Fore River Railroad Corporation, vote to appoint Kathy Soni, with the power of substitution, to vote as proxy at the next annual meeting and any special meeting of the stockholders for the Fore River Railroad Corporation in accordance with the form of proxy attached hereto and filed with the records of this meeting. In addition, the MWRA Board of Directors directs the proxy to elect the following board members:

David W. Coppes
Michele S. Gillen
Brian Peña
John J. Walsh

Thomas J. Durkin
Lisa R. Grollman
Steven A. Remsberg

Godfrey O. Ezeigwe
Frederick A. Laskey
John P. Vetere

DISCUSSION:

In 1987, MWRA purchased the Fore River Staging Area from General Dynamics. Included in the sale was the purchase of the Fore River Railroad Corporation (FRRC). The railroad operates during weekdays and services MWRA's Residuals Plant and Twin Rivers Technologies, Inc. Since July 2001, FRRC has leased its operating rights to Fore River Transportation Corp., a short-line railroad operator. Pursuant to the by-laws of the FRRC, an annual meeting of the shareholders must be held in the first quarter of each calendar year to elect the Board of Directors. MWRA is the sole stockholder of the Fore River Railroad Corporation.

The primary purpose of the proxy for the stockholders at the Annual Stockholders' meeting is to elect the FRRC Board of Directors as set forth on the Shareholder's Annual Meeting Agenda. Each Director's term extends until the next annual meeting. The FRRC by-laws state that the Board

shall consist of a minimum of five members. The current Board Members are listed below:

Thomas J. Durkin
Lisa R. Grollman
Brian Peña
John J. Walsh

Godfrey O. Ezeigwe
Michael J. Hornbrook
Steven A. Remsberg

Michele S. Gillen
Frederick A. Laskey
John P. Vetere

With the retirement of Michael J. Hornbrook, staff recommend that David W. Coppes be appointed to fill the vacancy on the Board. Staff recommend that the remaining current members be reappointed to serve on the FRRC Board in 2018.

ATTACHMENT:

Form of Proxy

FORE RIVER RAILROAD CORPORATION
PROXY

The undersigned, on behalf of MWRA's Board of Directors and duly representing the holder of all the issued and outstanding shares of stock of the Fore River Railroad Corporation hereby appoints Kathy Soni to vote as proxy for the undersigned at the upcoming Annual Meeting of the Stockholders and at any Special Meeting of the Stockholders of the Fore River Railroad Corporation. The proxy is instructed to vote on all business as may properly come before the stockholders meetings and to sign any waivers of notice to be taken thereat, with all the powers the undersigned would possess if personally present. In addition, the Board of Directors directs the proxy to elect the following board members:

David W. Coppes
Michele S. Gillen
Brian Peña
John J. Walsh

Thomas J. Durkin
Lisa R. Grollman
Steven A. Remsberg

Godfrey O. Ezeigwe
Frederick A. Laskey
John P. Vetere


MASSACHUSETTS WATER RESOURCES
AUTHORITY

By: _____
Matthew A. Beaton
Chairman
Board of Directors

Dated: Boston, Massachusetts
March 21, 2018

Massachusetts Water Resources Authority: 1,470 Shares


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 21, 2018
SUBJECT: Approval of the Seventy-Eighth Supplemental Resolution

COMMITTEE: Administration, Finance & Audit

X VOTE
INFORMATION

Matthew R. Horan, Treasurer *MH*
Sean R. Cordy, Sr. Financial Analyst *SR*
Preparer/Title


Thomas J. Durkin
Director of Finance

RECOMMENDATION:

To adopt the Seventy-Eighth Supplemental Resolution authorizing the issuance of up to \$150,000,000 of Massachusetts Water Resources Authority General Revenue Bonds and Massachusetts Water Resources Authority General Revenue Refunding Bonds and the supporting Issuance Resolution.

DISCUSSION:

The bonds to be issued under this authorization include \$125.0 million in new money and \$25.0 million in refunding bonds. The \$125.0 million in new money will be used to fund ongoing capital improvements including the Chelsea Creek Upgrades, Alewife Brook Pump Station Rehabilitation, Wachusett Aqueduct Pump Station and to permanently finance \$51.0 million of outstanding Commercial Paper. In addition to the new money, this authorization would allow for the issuance of up to \$25 million in General Revenue Refunding Bonds. The following table provides a breakdown of the new money and refunding components of the proposed transaction.

	Proposed Issuance Amount
New Money Bonds	\$ 125,000,000
Interest Savings Refunding	\$ 25,000,000
Total Authorization	\$ 150,000,000

In addition to adjustments to corporate and individual tax rates, the Tax Reform and Jobs Act of 2017 eliminated the ability to use tax-exempt debt to advance refund outstanding tax-exempt bonds. As a result, the use of tax-exempt debt for refundings is limited to current refundings which means the new debt is issued within 90-days of the call date. Staff considered both the new advance refunding restriction, and MWRA's debt policy's parameters when reviewing candidates for a refunding for interest rate savings. The criteria are as follows:

- overall savings has a present value of 4.0% or greater;

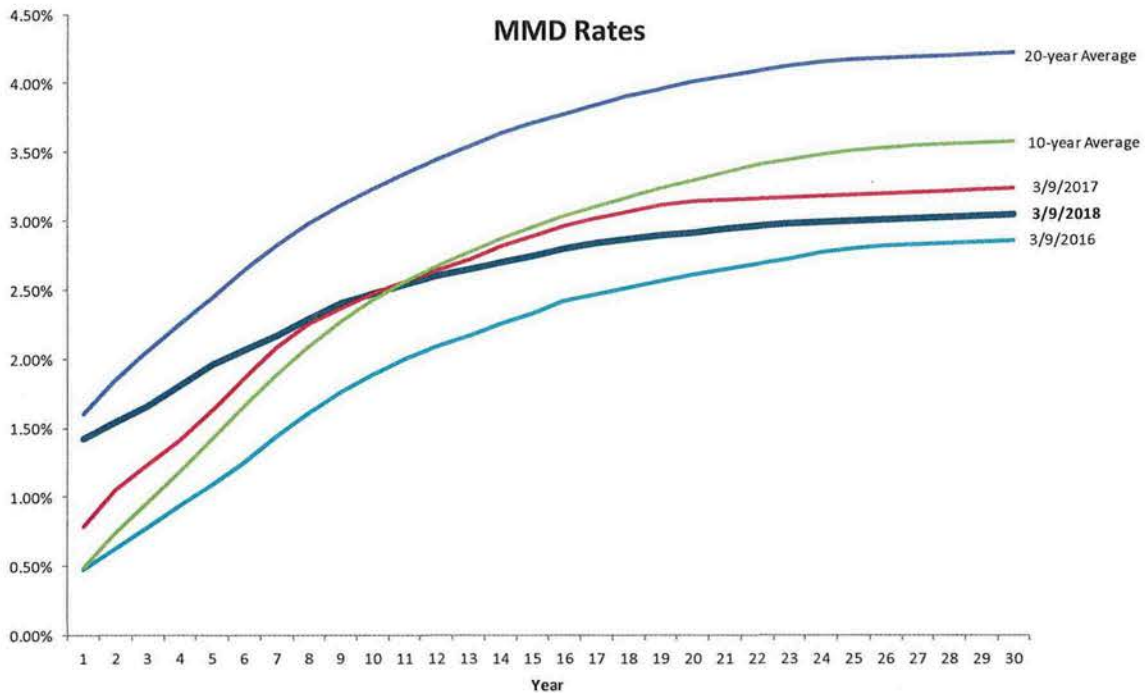
- individual maturities have a 3% present value savings or an option value above 70%; and
- the efficiency of the escrow is greater than 50%.

In addition to these criteria, bonds may be refunded or restructured to meet particular organizational and/or strategic needs when it is advantageous to do so. All refunding transactions require the approval of the Board of Directors.

Currently, 2006 Series B are the only fixed rate bonds that meet both the current refunding restriction and the refunding threshold. The limited number of candidates remaining available for refunding is a result of MWRA previously taking advantage of the historically low interest rates over the last several years. Since May 2016, MWRA has advanced and currently refunded over \$1.2 billion in outstanding bonds for approximately \$178.6 million in present value interest rate savings.

In addition to being refunding candidates, the 2006 Series B bonds are excellent targets for defeasance. As a result, the 2022 maturity of the 2006 Series B bonds (\$5.5 million) is not included in the proposed refunding. Staff anticipate including these bonds as part of the 2018 defeasance which will be presented to the Board for approval in May 2018.

While interest rates have risen over the historic lows experienced in 2016, long-term interest rates (years 11-30) are still at relatively low levels when compared to the same period in 2017, and the average 10 and 20-year Municipal Market Data (MMD) fixed rates. Shorter term interest rates (years 1 to 10) are presently higher than the same period in 2016 and 2017, as well as the 10-year average MMD. The following graph details the relationship between the current and historic rates.



As of March 13, 2018, the refunding of the 2006 Series B bond is projected to result in approximately \$3.5 million in gross savings and \$3.0 million or 12.1% present value savings. The following table presents the savings by fiscal year.

Fiscal Year	Prior Debt Service	Refunding Debt Service	Savings
2018	\$ 623,375	\$ 565,500	\$ 57,875
2019	\$ 1,246,750	\$ 1,131,000	\$ 115,750
2020	\$ 1,246,750	\$ 1,131,000	\$ 115,750
2021	\$ 1,246,750	\$ 1,131,000	\$ 115,750
2022	\$ 1,246,750	\$ 1,131,000	\$ 115,750
2023	\$ 7,021,750	\$ 6,371,000	\$ 739,502
2024	\$ 7,028,000	\$ 6,374,000	\$ 742,752
2025	\$ 7,034,500	\$ 6,383,750	\$ 739,502
2026	\$ 7,045,500	\$ 6,389,250	\$ 745,001
		Total	\$ 3,487,633

Long-term fixed interest rates would have to increase by 179 basis points for this transaction to fall below the 4% threshold. Similar to the 2016 and 2017 bonds, staff intend to issue the 2018 refunding bonds as “Green Bonds”. Green Bonds are marketed to environmentally responsible investment funds. While there is no required certification for Green Bonds, MWRA will be required to document that the funds were used to pay for projects that provided an environmental benefit. Given MWRA’s mission its projects are green by their nature.


As a result of the new restrictions on tax-exempt advance refundings, staff are evaluating options for incorporating shorter call dates than the traditional 10-year call. Based on information from recent bonds transactions for Massachusetts School Building Authority, City of New York and State of California, it appears that investors in the municipal markets are accepting calls dates ranging from 5 to 10 years without an additional cost to the issuer. Staff will continue to work with MWRA’s financial advisor and banking partners to provide the most flexibility without significant additional costs.

Under the terms of the last procurement approved by the Board in January 2016, Bank of America Merrill Lynch. will serve as the lead underwriter for this transaction. Staff will continue to work with MWRA’s financial advisor to determine the most appropriate size and structure for the transaction.

BUDGET/FISCAL IMPACT:



There are sufficient funds available in the FY18 and Proposed FY19 CEBs to pay the debt service costs associated with these borrowings. The potential refunding for savings component will reduce future debt service. The amount of the potential reduction will be determined based on market conditions and the ultimate pricing of the refunding transaction.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 21, 2018
SUBJECT: Amendments to Capital Finance Management Policy

COMMITTEE: Administration, Finance & Audit

VOTE
 INFORMATION

Matthew R. Horan Treasurer 
Sean R. Cordy, Sr. Financial Analyst 
Preparer/Title


Thomas J. Durkin
Director of Finance

In July 2010, the Commonwealth's Finance Advisory Board, which became the State Finance and Governance Board (SFGB) in 2013, required that all quasi-public and state level debt issuers, including MWRA, formally adopt a debt management policy. The Board of Directors first approved that policy on October 13, 2010. The SFGB regulations previously required that all issuers review their Policy and present it to their governing body for adoption every two years. The new regulations require that the policy be provided to the SFGB in the event substantial revisions are made. After review by various parties, including MWRA's Financial Advisor, Disclosure and Bond Counsels, staff are proposing a few changes to the Policy to reflect new derivative regulations, disclosure training, and update the post issuance compliance section to reflect new regulations related to management contracts.

RECOMMENDATION:

That in compliance with the State Finance and Governance Board's regulations (976 CMR 2.04), the Board adopt the amendments to the Capital Finance Management Policy, substantially in the form filed with the records of the meeting.

DISCUSSION:

In October 2010, the Board approved a Capital Finance Management Policy to provide a framework regarding the administration and internal policy for the issuance, management, and reporting on all debt obligations of MWRA. The issuance of MWRA debt is governed by the conditions set forth in the Enabling Act and the General Revenue Bond Resolution, as well as federal and state laws and regulations. All debt issuances require the approval of the Board. Once the debt has been issued, these documents continue to provide direction on the use and investment of funds as well as continuing compliance requirements. The Policy is designed to be a distilled version of the General Revenue Bond Resolution, as well as to detail some of the procedural steps taken prior to and after the issuance of debt. The document contains many of MWRA's standard


policies related to debt issuance including call options and refunding savings threshold standards. It will be available for Board Members' review at the meeting.

A copy of the approved Policy was first provided to the Commonwealth's Finance Advisory Board (FAB) in 2010 to comply with its regulations (976 CMR 2.04). As originally drafted, the FAB regulations required that the debt policy be adopted by the Board of Directors every two years and submitted to the FAB. MWRA complied with that requirement in 2012, 2014 and 2016. Last year, the Commonwealth's State Finance and Governance Board, which replaced the FAB, amended 976 CMR 2.04 to require that policy be submitted only upon adoption of substantive revisions. Staff will continue to periodically review the policy and recommend amendments as necessary.

The majority of the updates are related to new requirements related to restrictions placed on swap counterparties and swap advisors under the Dodd-Frank Wall Street Reform and Consumer Protection Act. Dodd-Frank required that the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission produce regulations to govern the interactions between issuers, swap advisors and swap counterparties. While there are currently no plans to issue new swaps, the regulations limit communications associated with existing swap agreements. The regulations allow for communications between issuers and swap counter parties if the issuer has a swap advisor and written swap procedures. These amendments to the swap policy will meet the requirements of the regulations. The revisions also incorporated the SEC's best practice recommendation to conduct disclosure training for staff involved in developing the Authority's primary disclosure document and other public information. The last set of changes are contained in Tab I and relates to new guidance from the Internal Revenue Service related to safe harbor procedures for management, service or incentive contracts that do not result in private business use. These changes to regulations are unlikely to have any impact on MWRA, but Bond Counsel believed the update should be reflected in the policy.

While this Policy will provide a framework for the management of MWRA's debt portfolio, it is not designed to replace the requirements put forth in the Enabling Act and General Revenue Bond Resolution. Attached is a red-lined version of the Policy showing the proposed changes. Acceptance of the amendments to this Policy will not constitute a change to the Authority's procedures for issuing debt and all new and refunding debt issuances will continue to require prior Board approval.


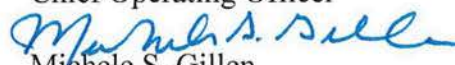
STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 21, 2018
SUBJECT: Electronic Document Management System

COMMITTEE: Administration, Finance & Audit

X INFORMATION
 VOTE

John P. Vetere, Deputy Chief Operating Officer
A. Navanandan, P.E. Chief Engineer
Corinne M. Barrett, Director, Construction
Russell J. Murray, Jr. Director, MIS
Preparer/Title


David W. Coppes, P.E.
Chief Operating Officer

Michele S. Gillen
Director of Administration

RECOMMENDATION:

To authorize staff to proceed with the procurement of an electronic document management system.

DISCUSSION:

At a future meeting, it is staff's hope to make a recommendation that a state-of-the-art document management system be procured and implemented. The current records management system (InfoStar) is a 25-year-old application that is very limited in functionality and is no longer supported by the original software manufacturer. There are currently a number of off-the-shelf products that provide a comprehensive set of options that could be implemented across the Authority. It is staff's hope to implement e-construction, e-engineering, and e-procurement as the first three modules (see below).

Today, the collection, review, approval, and distribution of engineering, construction and procurement documents is a largely paper based, time intensive process. Electronic applications, widely known as e-construction, and increasingly used in the engineering and construction industries, automate the process, providing time efficiencies, document tracking, improved access to documents and a reduction in the amount of paper generated. There are many document content management applications available that can provide e-Construction services.

Staff would propose e-Construction as the first phase of an overall document content management implementation.

InfoStar only tracks physical records, it does not store documents electronically. The actual records are stored in boxes in a "Records Center" in leased space in Marlborough. In order to access these paper documents, staff use InfoStar to identify which box the documents are in. The box is then retrieved from the records center and delivered to staff requesting it. A document management application would replace InfoStar and would allow for the electronic storage of future documents,

7

increased functionality and ongoing software support. There are many document content management applications that, in addition to e-Construction, can also provide records management.

Staff propose replacing InfoStar as the second phase of the overall document content management implementation.

Staff are piloting a limited e-Construction system as part of the construction phase of the Chelsea Headworks Rehabilitation Project to understand the benefits and possible issues with these types of systems. The pilot included only three document types (there are typically thirty-three document types for construction projects). Document types that are being processed are: Requests for Information (RFIs), Submittals and Daily Reports.

The three-document pilot has demonstrated improved manageability, accountability and productivity on this project. Staff believe that the expansion of e-construction to include all of the engineering, construction and procurement documents and review processes will result in significantly greater efficiencies.

There are a number of products currently available that can provide the functionality required for both records management and e-Construction that would also allow for future expansion for other processes and system integrations. However, the amount of effort required to accomplish full functionality varies from product to product and that would likely be reflected in proposal costs.

Staff recommend that a competitive best value procurement process be undertaken to purchase and implement a document content management application to satisfy both c-Construction and records management. The scope of work for this procurement will include the software, installation, configuration, testing, and training. Staff will return to the Board for award of a document content management contract.

BUDGET IMPACT

The estimated cost to provide software licenses and implementation services for Engineering, Procurement, Construction, and Document Control processes is approximately \$1,000,000.00 (\$325,000 software licenses and \$675,000 services). The annual maintenance is estimated to be \$50,000.

The FY19 Proposed CIP has funding for the implementation of document and records management (replacement of InfoStar) and Engineering, Procurement, Construction and Document Control Process Automation and includes \$1,313,437 for this work.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 21, 2018
SUBJECT: Metropolitan Operations Paving
Sunshine Paving Corporation
Contract OP-354



COMMITTEE: Administration, Finance & Audit

 INFORMATION
 VOTE


Michele S. Gillen
Director, Administration

John P. Vetere, Deputy Chief Operating Officer
Mark H. Johnson, Director, P.E., Metro. Water Operations
Kathleen M. Pearson, Project Manager
Preparer/Title


David W. Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

To approve the award of Contract OP-354, Metropolitan Operations Paving, to the lowest responsible and eligible bidder, Sunshine Paving Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$1,277,568.50 for a contract term of 970 days from the Notice to Proceed.

DISCUSSION:

Contract OP-354 is a replacement paving services contract to provide permanent paving on an as-needed basis at locations where roadways have been excavated and temporarily patched due to maintenance, repair, or new construction work performed by MWRA staff. Typically, these projects include valve replacement, leak repair, blow-off retrofit, sewer pipe repair and water and wastewater facility pavement repair. As locations requiring permanent paving are identified, the contractor will complete the work within 20 calendar days after the original notification from MWRA.

All paving performed under this contract will comply with MWRA's mitigation policy concerning paving. Paving shall be limited to areas that have been excavated or otherwise damaged by MWRA operation, maintenance, repair, and new construction work.

Procurement Process:

Contract OP-354 was publically advertised in the Boston Herald, Banner Publications, El Mundo, Central Register, and COMMBUYS and bid in accordance with Chapter 30 of the Massachusetts General Laws. In addition, bids were made available for public downloading on MWRA's e-procurement system (Event #3132). A pre-bid meeting was held on January 24, 2018. Bids were opened on February 8, 2018 and the results are presented below.

<u>Bidders</u>	<u>Bid Amount</u>
Sunshine Paving Corporation	\$1,277,568.50
Newport Construction Corporation	\$1,471,499.50
E.J. Paving Company	\$1,616,810.00
<i>Engineer's Estimate</i>	<i>\$2,027,382.60</i>

Sunshine Paving's bid is 37.0% lower than the Engineer's Estimate, and approximately 13% lower than the next lowest bidder. Staff developed the Engineer's Estimate by escalating the pricing from the previous three paving contracts. Upon a review of the bid results, it is evident that the market in this area is not escalating to the extent that staff believed. Staff contacted Sunshine Paving to discuss its bid. Sunshine's representative explained that the bidding event in January allowed it to be more aggressive and competitive in pricing since it was the beginning of the paving season and the company was eager to book work for the coming year(s). Sunshine also pointed to its "leaner" company and experience as reasons for its low bid. Staff believe that Sunshine Paving's bid was much lower than the Engineer's Estimate due to staff's assumption regarding the escalation of pricing for this work and the contractor's aggressive unit price bids on several of the larger quantity bid items. Staff have determined that Sunshine Paving's bid price is reasonable, complete, and includes the payment of prevailing wage rates, as required.

References were checked and found to be favorable. This contractor has experience with similar multi-year contracts with the towns of Bedford, Pepperell and Groton, Massachusetts. The three towns were satisfied with the quality of Sunshine's work and compliance with all their requirements. Sunshine Paving held paving contract OP-15 from FY03 – FY06 and staff are of the opinion that Sunshine Paving possesses the skill, ability, and integrity necessary to perform the work under this contract, and is qualified to do so. Therefore, staff recommend the award of this contract to Sunshine Paving Corp. as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

Funding for the first portion of this contract is included in the FY18 Current Expense Budget. Appropriate funding will also be included in subsequent Proposed CEB requests for the remaining term of the contract.

MBE/WBE PARTICIPATION:

There were no MBE or WBE participation requirements established for this contract due to the limited opportunities for subcontracting.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 21, 2018
SUBJECT: Assignment and Assumption of Contract OP 337, Purchase and Supply of Electric Energy for MWRA Profile Accounts, from TransCanada Power Marketing Ltd. to EDF Energy Services, LLC; and Amendment 1



COMMITTEE: Administration, Finance & Audit

 INFORMATION
 X VOTE



Michele S. Gillen
Director of Administration

Carolyn M. Fiore, Deputy Chief Operating Officer
Michael McDonald, Manager, Energy
Preparer/Title



David W. Coppes
Chief Operating Officer

A recent acquisition involving TransCanada Power Marketing Ltd. and EDF Energy Services, LLC, effective March 1, 2018, requires that the energy supply contract originally awarded to TransCanada Power Marketing Ltd. (Contract OP 337) be assigned to and assumed by EDF Energy Services, LLC. This staff summary recommends the approval of the assignment for the contract, and further recommends the approval of Amendment 1 to incorporate into the contract a financial guarantee from its parent company, EDF Trading Limited.

RECOMMENDATION:

To approve the assignment and assumption of Contract OP 337 from TransCanada Power Marketing Ltd. to EDF Energy Services, LLC, and further, to authorize the Executive Director, on behalf of the Authority to approve Amendment 1 to Contract OP 337, incorporating a financial guarantee from its parent company, EDF Trading Limited, as part of the terms and conditions of the contract, with no increase in price or contract term.

DISCUSSION:

MWRA entered into Contract OP 337 with TransCanada Power Marketing Ltd. in November 2016 for a 31-month supply of electric power, commencing March 2017, to 43 small non-time-of-use accounts, known as "Profile" accounts (e.g., CSO facilities, pump stations and the Charlestown Navy Yard), representing an approximate annual consumption of 5,700,000 kWh, or 4% of MWRA's total purchased load.

On March 1, 2018, EDF Energy Services, LLC completed a transaction to acquire the Profile Accounts from TransCanada. Pursuant to this transaction, TransCanada will transfer and assign all of its rights, title, benefits and interests in Contract OP 337 to EDF Energy Services. MWRA's written consent to assign the contract is required by the terms of the supply contract.

All terms, conditions, price, liabilities, and performance obligations of the original contract will remain in full force and effect. Further, the terms and conditions of the contract expressly provide that, the Supplier, or a Guarantor for the Supplier, possess an investment grade credit rating of its long-term Senior Unsecured Debt, or, alternatively, provide a financial guarantee from a firm with investment grade debt. A financial guarantee in the amount of \$100,000 will be provided by EDF Energy Services' parent company, EDF Trading Limited, a public limited company that presently carries a Baa2 credit rating from Moody's. Based upon a review of EDF Trading Limited's most recent audited financial statements it appears to have sufficient financial capacity to provide the guarantee. Staff are of the opinion that the supply of electric power under Contract OP 337 will not be impacted by this acquisition as EDF Energy Services is ranked as one of the largest energy service providers in North America. Therefore, staff recommend that the Board approve the assignment of Contract OP 337 to EDF Energy Services, LLC.

Amendment 1 to Contract OP 337 will incorporate a financial guarantee from EDF Trading Limited as part of the terms and conditions.

BUDGET/FISCAL IMPACT:

There are no changes in the material terms or conditions of Contract OP 337, including price or duration of the supply term, as a result of this assignment nor is there a budgetary impact as a result of Amendment 1 to Contract OP 337.

MBE/WBE/PARTICIPATION:

There are no M/WBE participation requirements for MWRA Contract OP 337 due to limited opportunities for subcontracting.



MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

Frederick A. Laskey
Executive Director

Telephone: (617) 242-6000
Fax: (617) 788-4899
TTY: (617) 788-4971

WASTEWATER POLICY & OVERSIGHT COMMITTEE MEETING

Chair: P. Flanagan
Vice-Chair: J. Walsh
Committee Members:

A. Blackmon
J. Carroll
J. Foti
A. Pappastergion
B. Peña
H. Vitale

to be held on

Wednesday, March 21, 2018

Location: 100 First Avenue, 2nd Floor
Charlestown Navy Yard
Boston, MA 02129

Time: Immediately following AF&A Comm.

AGENDA

A. Information

1. Update on Deer Island Storm Impacts (Presentation)
2. Infiltration/Inflow Local Financial Assistance Program Annual Update

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Wastewater Policy and Oversight Committee

February 21, 2018

A meeting of the Wastewater Policy and Oversight Committee was held on February 21, 2018 at the Authority headquarters in Charlestown. Chairman Flanagan presided. Present from the Board were Messrs. Blackmon, Carroll, Foti, Pappastergion, Vitale and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Mike Hornbrook, Brian Kubaska, Steve Cullen, Steve Estes-Smargiassi, Dave Duest, Carolyn Francisco Murphy, Cori Barrett, Marty McGowan, and Bonnie Hale. The meeting was called to order at 10:20 a.m.

Information

Recent Storms Impacts on MWRA's Wastewater System

Staff gave a presentation on the impacts of two January 2018 storms on the wastewater system. There was general discussion and question and answer.

Emergency Repairs to Gravity Thickeners 5 and 6, Deer Island Treatment Plant

Staff gave a presentation summarizing recent mechanical failures in portions of the gravity thickener complex and steps being taken to recover and accelerate repairs. There was general discussion and question and answer.

Contract Awards

*Supply and Delivery of Hydrogen Peroxide to the Deer Island Treatment Plant: U.S. Peroxide, LLC, Bid WRA-4459

The Committee recommended approval of the contract award (ref. agenda item B.1).

Contract Amendments/Change Orders


*Chelsea Creek Headworks Upgrade: BHD/BEC 2015, A Joint Venture, Contract 7161, Change Order 8

Staff gave a presentation on the project and the work to be performed under the change order. The Committee recommended approval of Change Order 8 (ref. agenda item C.1).

The meeting adjourned at 11:15 a.m.

* Approved as recommended at February 21, 2018 Board of Directors meeting.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 21, 2018
SUBJECT: Infiltration/Inflow Local Financial Assistance Program Annual Update

COMMITTEE: Wastewater Policy & Oversight

X INFORMATION
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Carl H. Leone, P.E., Senior Program Manager, Planning
Jon F. Szarek, P.E., Project Manager, Planning
Preparer/Title


David W. Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

For information only. MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program was initiated in May 1993 to provide funding to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned collection systems. The program's goal is to assist member communities in improving local sewer system conditions to reduce I/I and ensure ongoing repair/replacement of the collection system. The financial assistance program is a critical component of MWRA's Regional I/I Reduction Plan.¹ Specifically, local sewer system rehabilitation projects are intended to offset ongoing collection system deterioration to prevent a net increase in regional I/I. In the long-term, system rehabilitation should result in lower I/I, which will allow for future increases in sanitary flows (residential, commercial, industrial, and institutional) without a net increase in total wastewater flow to the Deer Island Treatment Plant. Regional I/I reductions ensure that dry weather wastewater discharge does not exceed the 436 mgd NPDES permit limit. The financial assistance program also fosters efficient operation and maintenance of local sewer systems.

DISCUSSION:

Annual Update

A total of \$460.75 million in grant and loan funds have been allocated to member sewer communities based on their respective share of sewer charges. All 43 sewer customer communities are participating in the financial assistance program. Through February 2018, a total of \$352 million has been distributed to member communities to fund 541 local sewer rehabilitation projects over 25 years. The remaining \$108.75 million is approved for distribution through FY25. Attachment 1 provides a summary of funds allocated, distributed, and remaining for each member community. Attachment 2 provides more detail on community distributions by program phase including the most recent addition of Phases 9 and 10 funds at \$80 million each. All scheduled community loan repayments have been made, a total of \$162 million to date.

¹ As required by the National Pollutant Discharge Elimination System Permit for the Deer Island Plant, MWRA's Regional Infiltration/Inflow Reduction Plan was approved by MassDEP in November 2002. MWRA is required to report annually on the I/I Reduction Plan and present estimates of I/I. The Regional I/I Reduction Plan and Annual I/I Reduction Report are available on MWRA's website.

Program funds are allocated based on respective share of wholesale sewer charges. In FY15, the grant/loan split was reconfigured for Phases 9 and 10 to 75% grant and 25% interest-free loan (previously 45% grant and 55% loan) and the loan repayment period was extended to 10 years (previously 5 years). Phase 9 funds began to be distributed in FY15. Phase 10 funds become available to each community in the fiscal year following distribution of 50% or more of that community's Phase 9 funds.

As recommended by the Advisory Board, sunset provisions for the grant portion of funding for Phases 6 and 7 were added in April 2014. The sunset provisions have proven successful in motivating communities to continue to invest in local sewer rehabilitation projects. The grant portion of Phase 6 and 7 funds will sunset at the end of FY18 and FY21, respectively. A status update on community funding by Phase is provided in the table below.

Funding Phases	Year Initiated	Total Funding (\$ millions)	Funds Distributed (\$ millions)	Funds Remaining (\$ millions)	Number of Communities with Funds Remaining
1-5	FY93-FY05	\$ 180.75	\$ 180.75	\$ 0.00	0 of 43
6	FY07	\$ 40.00	\$ 38.63	\$ 1.37	2 of 43
7	FY10	\$ 40.00	\$ 38.34	\$ 1.66	4 of 43
8	FY13	\$ 40.00	\$ 33.34	\$ 6.66	10 of 43
9	FY15	\$ 80.00	\$ 40.94	\$ 39.06	19 of 43
10	FY15	\$ 80.00	\$ 20.41	\$ 59.59	37 of 43
TOTAL		\$ 460.75	\$ 352.41	\$ 108.34	

Two member communities (Malden and Needham) are in jeopardy of relinquishing the grant portion (45%) of their Phase 6 allocation if not applied for and distributed by the end of June 2018. For Malden, the grant portion in jeopardy is \$471,600. For Needham, the grant portion in jeopardy is \$146,902. MWRA staff continue to coordinate with local representatives to provide assistance for the development of project applications.

Grant and loan funding is provided to local communities for eligible I/I reduction projects including planning, design, construction, and engineering services during construction. These projects generally take one to three years to complete. Seventy-seven percent of the funds distributed to date have financed local construction projects. The table below details funds distributed by project phase for both completed and ongoing projects.

PROJECT PHASE	COMPLETED PROJECTS (\$ millions)	ONGOING PROJECTS (\$ millions)	TOTAL (\$ millions)
Planning/Study:	\$ 39.3	\$ 7.6	\$ 46.9 (13%)
Design:	12.5	2.8	15.3 (5%)
Construction:	204.5	66.9	271.4 (77%)
Eng. Services During Const.:	14.0	4.8	18.8 (5%)
TOTAL	\$ 270.3 (77%)	\$ 82.1 (23%)	\$ 352.4 (100%)

Potential Additional Phase 11 and 12 Funding

As listed on Attachment 1, 13 of the 43 sewer communities have received all of their allocated grant/loan funds under the I/I Local Financial Assistance Program. The FY19 proposed CIP includes a staff recommendation for an additional \$120 million to fund new Phases 11 and 12 of the Program, each phase at \$60 million. The proposed FY19 CIP will be reviewed by the Advisory Board this spring and will be presented to the Board for consideration in June 2018.

Program Results

Through February 2018, a total of 541 local I/I reduction and sewer system rehabilitation projects have been funded through the MWRA's grant/loan program. Cumulative results for the program are summarized below.

Results for planning/inspection projects:

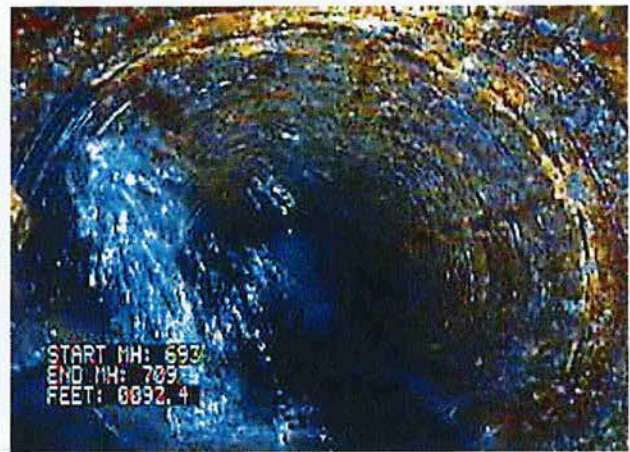
- 1,957 miles of sewer TV inspected
- 1,392 miles of sewer flow isolated
- 1,308 miles of sewer smoke tested
- 56,223 sewer manholes inspected
- 77,894 buildings inspected



Smoke Testing Confirms House Downspout is an Inflow Source Connected to the Sewer



Sewer TV Inspection



Infiltration Source Identified by Sewer TV Inspection

Results for projects targeting infiltration reduction:

- 60 miles of sewer replaced
- 191 miles of cured-in-place-pipe (CIPP) liner installed
- 162 miles of sewer tested/chemically sealed
- 2,431 sewer spot repairs
- 12,481 service connection repairs
- 4.8 miles of underdrains sealed



Installation of New PVC Sewer Pipe



Installation of Cured-In-Place-Pipe Liner



Cured-In-Place-Pipe Liner

Results for projects targeting inflow reduction:

- 1,060 catch basins disconnected
- 44 miles of new or replaced storm drains
- 16,804 manholes rehabilitated/sealed
- 3,074 manhole covers replaced or inflow seals installed
- 433 sump pumps redirected
- 5,292 downspouts/area drains disconnected



Sewer Manhole at Beach - Raised and Sealed

I/I and Stormwater Impacts on the Collection System

Wastewater discharged by member sewer communities to MWRA is influenced by seasonal and wet-weather conditions related to infiltration, inflow, and storm water in combined sewer systems. Infiltration/Inflow is extraneous water that enters all wastewater collection systems through a variety of sources. I/I and stormwater from combined sewers reduce pipeline capacity in the collection system that would otherwise be available to transport sanitary flow. The result may be sewer system surcharging and sanitary sewer overflows (SSOs) during extreme storm events and periods of high groundwater. I/I also results in the transport of groundwater and surface water out of the natural watershed.

Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes/manholes or deteriorated joints. Typically, many sewer pipes and sewer service laterals are below the surrounding groundwater table. Therefore, leakage into the sewer (infiltration) is a broad problem that is difficult and expensive to identify and reduce.



Infiltration in a Sanitary Sewer

Inflow is extraneous flow entering the collection system through point sources and may be directly related to storm water run-off from sources such as roof leaders, yard and area drains, basement sump pumps, manhole covers, cross connections from storm drains or catch basins, leaking tide gates, etc. Inflow causes a rapid increase in wastewater flow that occurs during and after storms. The volume of inflow entering a collection system typically depends on the magnitude and duration of a storm event, as well as related impacts such as snowmelt and flooding from severe rainfall and/or storm tides.



Inflow into a Manhole

Storm Water in Combined Sewers is, by design, collected in the combined sewer system to be transported to a downstream treatment facility. Additional system capacity is available via combined sewer overflow (CSO) outfalls and storage facilities that are needed during extreme events. Storm water collected in the combined sewer system that is tributary to the Deer Island Treatment Plant is generally included in the *inflow* component of wastewater flow.

Review of South and North System Flows

MWRA staff develop I/I estimates for each sewer community (annual and monthly) as required under the NPDES permit and as technical assistance to the communities for their use. Community flow estimates are included in MWRA's annual I/I reduction report submitted to EPA and MassDEP. Attachments 3 and 4 are graphs of the South and North systems estimated infiltration and inflow, as well as annual rainfall. The estimated annual infiltration component, which accounts for about 35 to 45% of total flow, displays a steady downward trend demonstrating a slow improvement over time. The annual inflow component, which accounts for only about 12 to 14% of total flow, is relatively flat over time displaying little annual decrease. Since stormwater inflow impacts the collection system over short intervals (a few days or a week) during storm events, it is reasonable to not see a significant reduction in annual inflow. However, regional inflow reduction can be considered successful if the frequency and duration of SSOs gradually decline.

Staff have reviewed SSO events over the last 20 years and the analysis shows that the frequency and duration of SSOs has gradually declined. For instance, during 1996 and 1998 (high rainfall years), SSOs in the South system occurred during five different months in each of these years. From 1999 through 2010, there were SSOs in the South system during three different months in one year (2008); there were SSOs in the South system during two different months in four years (2002, 2003, 2006, 2010); there were SSOs in the South system during one month in six years; and only during 2009 were there no SSOs in the South system. During the last eight years (2011 through 2017); there were five years with a SSO in one month and three years with no SSOs. The frequency of SSO events in the North system has similarly declined.

SSOs in both the South and North systems also last for shorter durations when they do occur. As an example, the duration of SSOs at MWRA's upstream siphon headhouse at Smelt Brook (South system at the Weymouth/Braintree Town line) were reviewed. During 1996 and 1998, SSOs at this location could last as long as 4-8 days. From 1999 through 2010, SSOs at this location typically lasted 2-5 days. During 2011 through 2017, the five separate SSO events at this site lasted between 4 and 11 hours. The most recent SSO at this site lasted for 26 hours during the March 2-3, 2018 large storm event which included multiple extreme high tides and significant coastal flooding.

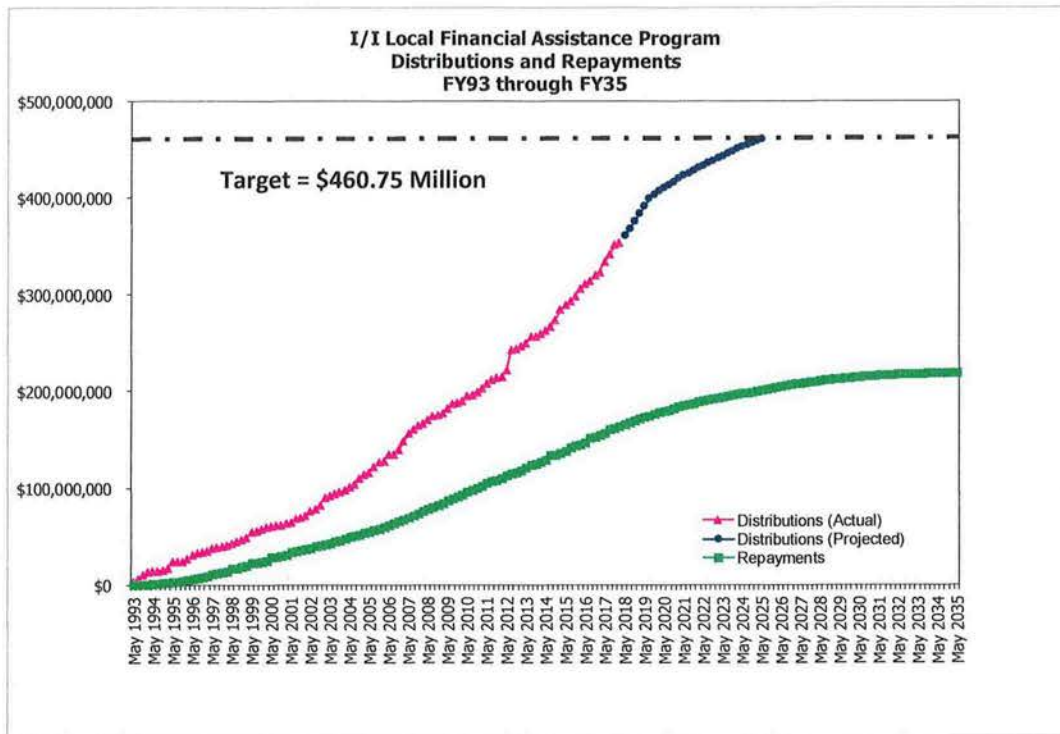
Staff believe MWRA's financial assistance for local I/I reduction and collection system rehabilitation projects are providing gradual improvements for the regional wastewater collection system. I/I reduction estimates for individual projects represent groundwater and stormwater that no longer enters the collection system at the point of repair; however, project results are difficult to substantiate through end-of-the-collection-system meter data. Some of the factors that are in play are noted below:

- Wastewater flows within the collection system vary dramatically due to changes in precipitation from year to year and season to season;
- MWRA's numerous pumping and interceptor upgrades, as well as some CSO optimization projects, have resulted in significant increases in the transport and treatment of wastewater flow in the collection system. When reviewing end-of-the-collection system meter data, the increased flows captured in the collection system masks upstream I/I reductions; and,
- Per capita indoor water use has declined as the result of the installation of more efficient water fixtures and appliances. The decline in water use returned to the sewer system is generally offset by the increase in sewered population in MWRA's service area over the last 20 years (about a 15 to 20 mgd impact). Note that significant improvements in water system leak reductions, as well as the decline in outdoor water use conservation, do not impact wastewater flows.

BUDGET/FISCAL IMPACT:

The FY18 CIP includes an overall budget of \$242.6 million for the grant portion of the I/I Local Financial Assistance Program. An additional \$218.2 million is budgeted for the loan portion of the program. However, the loan portion is offset by an equal amount of loan repayments over time. Depending on the timing and level of community loan requests, annual loan distributions can fluctuate, sometimes causing over-spending or under-spending (versus budget) for any particular fiscal quarter or year.

For the total program, the budget target is \$460.75 million for grant and loan distributions. To date, \$352 million in grants and loans (\$164 million in grants and \$188 million in loans) have been distributed. The program has a remaining balance of \$109 million in future community grants and loans through FY25. Community loan repayments to date are \$162 million. As community loans are repaid, the funds are deposited into MWRA's construction fund. Community grants and loans are financed through MWRA 30-year bonds. The graph below presents grant and loan distributions and loan repayments (actual and projected) for all ten phases of the program (FY93 through FY35).



MBE/WBE PARTICIPATION:

MBE/WBE participation goals are included in the Financial Assistance Program agreements.

ATTACHMENTS:

- Attachment 1 – Community Funding Summary
- Attachment 2 – Community Funding Summary by Program Phase
- Attachment 3 – South System Infiltration and Inflow Estimates
- Attachment 4 – North System Infiltration and Inflow Estimates

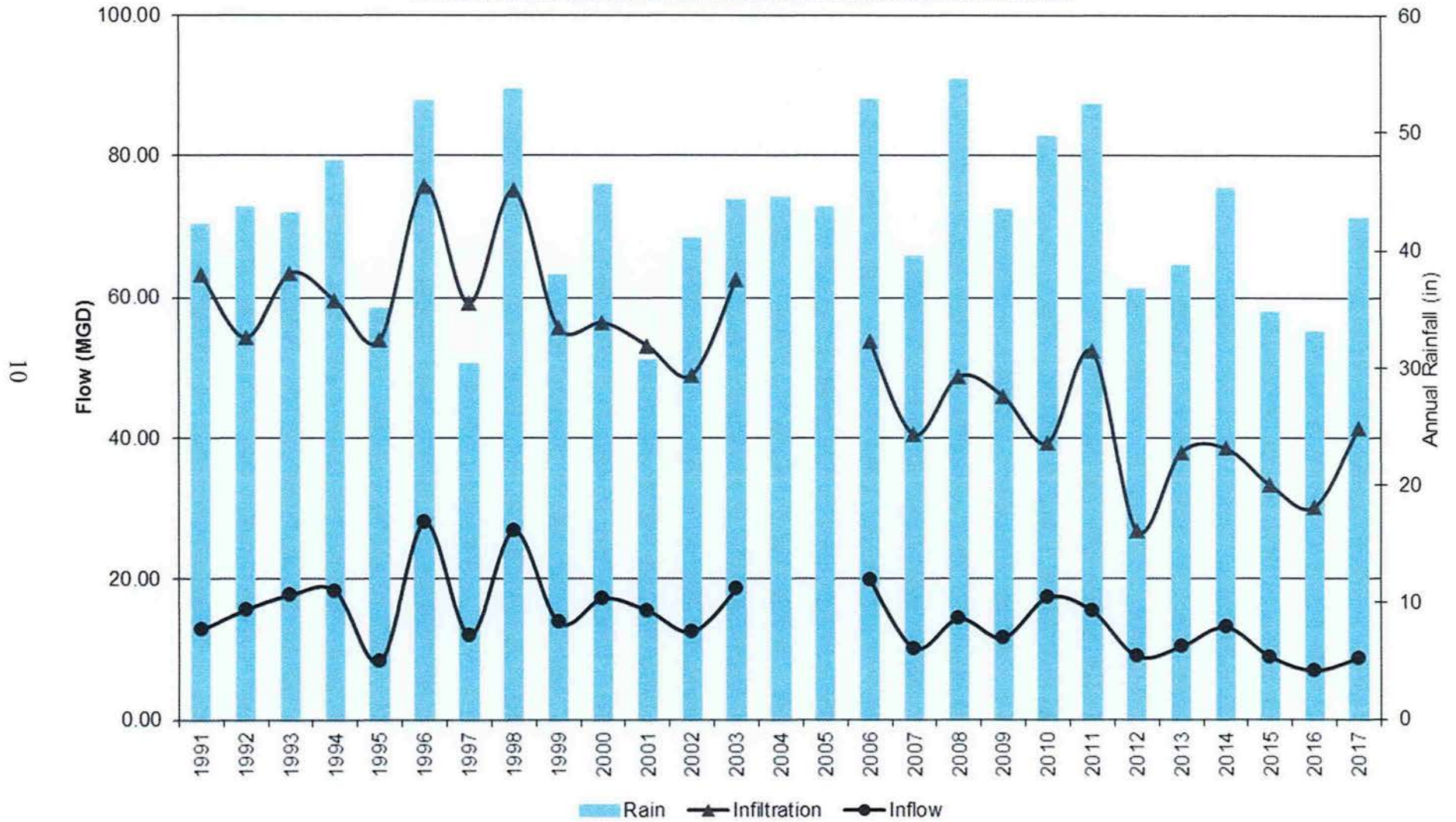
ATTACHMENT 1
MWRA I/I LOCAL FINANCIAL ASSISTANCE PROGRAM
FUNDING SUMMARY AS OF FEBRUARY 2018

Community	Total Allocations (Phases 1 - 10)	Total Distributions (Phases 1 - 10)	Percent Distributed	Funds Remaining
Arlington	\$8,423,000	\$8,213,000	98%	\$210,000
Ashland	\$2,168,500	\$1,742,450	80%	\$426,050
Bedford	\$3,404,600	\$1,999,600	59%	\$1,405,000
Belmont	\$5,135,100	\$2,992,100	58%	\$2,143,000
Boston	\$132,171,200	\$92,678,406	70%	\$39,492,794
Braintree	\$8,359,000	\$7,480,800	89%	\$878,200
Brookline	\$13,165,200	\$7,666,200	58%	\$5,499,000
Burlington	\$5,102,800	\$5,102,800	100%	\$0
Cambridge	\$23,620,100	\$17,579,600	74%	\$6,040,500
Canton	\$3,965,900	\$2,675,900	67%	\$1,290,000
Chelsea	\$6,870,100	\$5,551,100	81%	\$1,319,000
Dedham	\$5,740,000	\$5,740,000	100%	\$0
Everett	\$8,071,500	\$6,650,500	82%	\$1,421,000
Framingham	\$12,125,000	\$7,255,910	60%	\$4,869,090
Hingham	\$1,632,500	\$1,632,500	100%	\$0
Holbrook	\$1,639,600	\$896,562	55%	\$743,038
Lexington	\$7,445,300	\$7,445,300	100%	\$0
Malden	\$12,283,900	\$4,593,900	37%	\$7,690,000
Medford	\$11,987,600	\$6,914,600	58%	\$5,073,000
Melrose	\$6,076,300	\$6,076,300	100%	\$0
Milton	\$5,564,500	\$4,650,500	84%	\$914,000
Natick	\$5,582,600	\$4,613,600	83%	\$969,000
Needham	\$6,257,600	\$2,892,150	46%	\$3,365,450
Newton	\$21,197,400	\$21,197,400	100%	\$0
Norwood	\$6,879,400	\$6,879,400	100%	\$0
Quincy	\$19,790,000	\$19,656,000	99%	\$134,000
Randolph	\$6,050,800	\$3,894,800	64%	\$2,156,000
Reading	\$4,629,100	\$4,629,100	100%	\$0
Revere	\$10,130,900	\$5,502,900	54%	\$4,628,000
Somerville	\$15,515,800	\$10,117,800	65%	\$5,398,000
Stoneham	\$4,919,900	\$4,919,900	100%	\$0
Stoughton	\$4,722,900	\$4,722,900	100%	\$0
Wakefield	\$5,966,900	\$5,966,900	100%	\$0
Walpole	\$3,680,000	\$3,042,000	83%	\$638,000
Waltham	\$13,732,400	\$11,377,400	83%	\$2,355,000
Watertown	\$6,285,800	\$4,185,800	67%	\$2,100,000
Wellesley	\$5,709,700	\$3,256,224	57%	\$2,453,476
Westwood	\$2,532,300	\$2,091,300	83%	\$441,000
Weymouth	\$11,480,900	\$8,635,900	75%	\$2,845,000
Wilmington	\$2,462,000	\$1,606,000	65%	\$856,000
Winchester	\$4,183,000	\$4,183,000	100%	\$0
Winthrop	\$3,393,400	\$2,807,400	83%	\$586,000
Woburn	\$10,695,500	\$10,695,500	100%	\$0
Totals	\$460,750,000	\$352,411,402	76%	\$108,338,598

ATTACHMENT 2
MWRA I/I LOCAL FINANCIAL ASSISTANCE PROGRAM
FUNDING SUMMARY BY PROGRAM PHASE (AS OF FEBRUARY 2018)

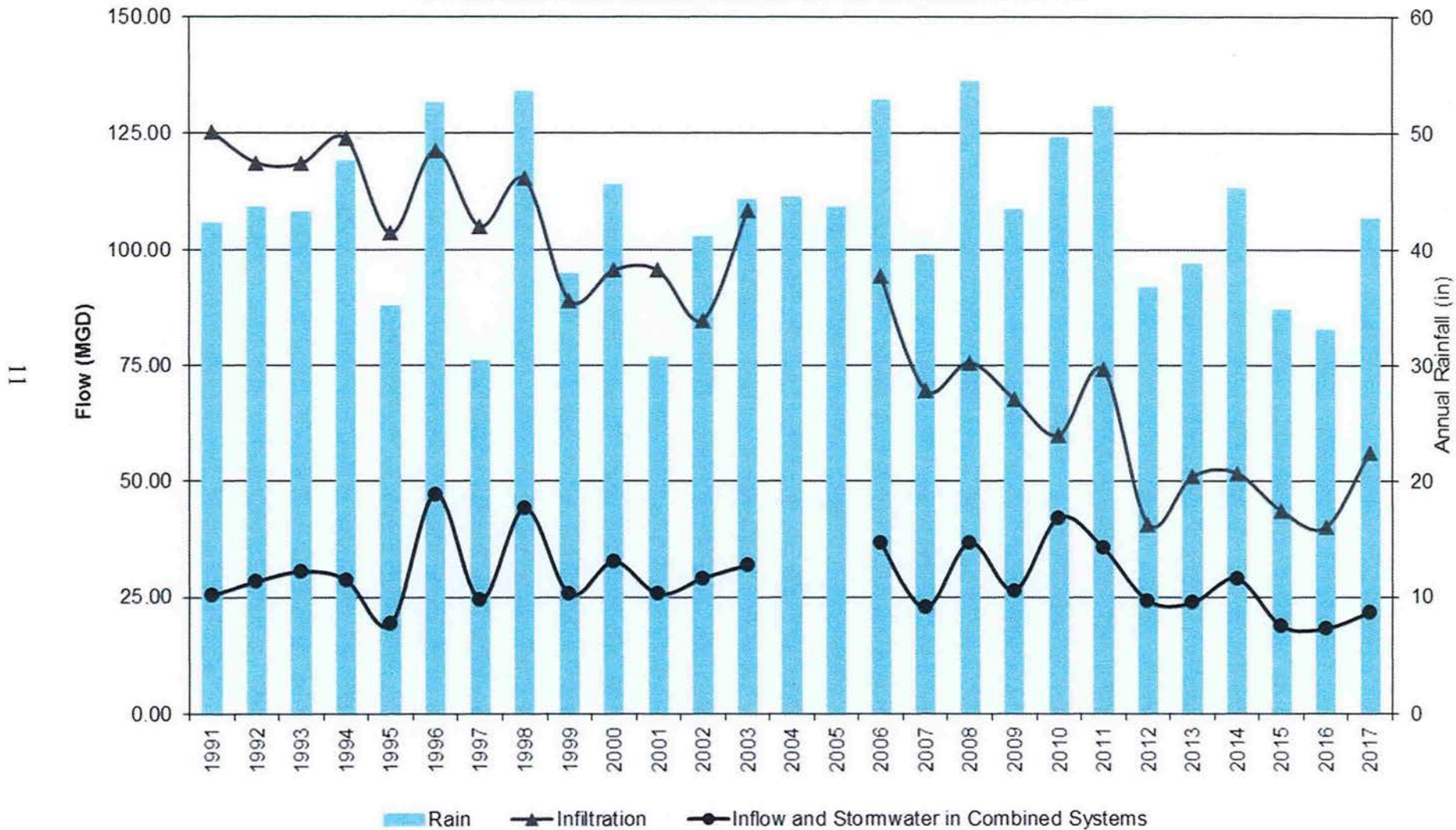
Community	Phase 10 Funds Distributed	Phase 10 Funds Remaining	Phase 9 Funds Distributed	Phase 9 Funds Remaining	Phases 6 - 8 Funds Distributed	Phases 6 - 8 Funds Remaining
Arlington	\$1,195,000	\$210,000	\$1,405,000	\$0	\$2,164,000	\$0
Ashland	\$0	\$420,000	\$413,950	\$6,050	\$594,000	\$0
Bedford	\$0	\$561,000	\$0	\$561,000	\$616,000	\$283,000
Belmont	\$0	\$848,000	\$0	\$848,000	\$884,000	\$447,000
Boston	\$0	\$23,293,000	\$7,093,206	\$16,199,794	\$33,967,000	\$0
Braintree	\$641,800	\$878,200	\$1,520,000	\$0	\$2,210,000	\$0
Brookline	\$0	\$2,280,000	\$0	\$2,280,000	\$2,554,000	\$939,000
Burlington	\$899,000	\$0	\$899,000	\$0	\$1,355,000	\$0
Cambridge	\$0	\$4,027,000	\$2,013,500	\$2,013,500	\$6,243,000	\$0
Canton	\$0	\$645,000	\$0	\$645,000	\$1,030,000	\$0
Chelsea	\$0	\$1,319,000	\$1,319,000	\$0	\$1,763,000	\$0
Dedham	\$913,000	\$0	\$913,000	\$0	\$1,533,000	\$0
Everett	\$0	\$1,421,000	\$1,421,000	\$0	\$2,088,000	\$0
Framingham	\$0	\$2,050,000	\$0	\$2,050,000	\$2,252,910	\$769,090
Hingham	\$300,000	\$0	\$300,000	\$0	\$443,000	\$0
Holbrook	\$0	\$290,000	\$0	\$290,000	\$255,962	\$163,038
Lexington	\$1,305,000	\$0	\$1,305,000	\$0	\$2,008,000	\$0
Malden	\$0	\$2,229,000	\$0	\$2,229,000	\$0	\$3,232,000
Medford	\$0	\$2,013,000	\$0	\$2,013,000	\$2,120,000	\$1,047,000
Melrose	\$1,081,000	\$0	\$1,081,000	\$0	\$1,613,000	\$0
Milton	\$0	\$914,000	\$914,000	\$0	\$1,457,000	\$0
Natick	\$0	\$969,000	\$969,000	\$0	\$1,374,000	\$0
Needham	\$0	\$994,000	\$0	\$994,000	\$261,550	\$1,377,450
Newton	\$3,668,000	\$0	\$3,668,000	\$0	\$5,596,000	\$0
Norwood	\$1,180,000	\$0	\$1,180,000	\$0	\$1,804,000	\$0
Quincy	\$3,320,000	\$134,000	\$3,454,000	\$0	\$5,217,000	\$0
Randolph	\$0	\$1,078,000	\$0	\$1,078,000	\$1,540,000	\$0
Reading	\$844,000	\$0	\$844,000	\$0	\$1,205,000	\$0
Revere	\$0	\$1,853,000	\$0	\$1,853,000	\$1,752,000	\$922,000
Somerville	\$0	\$2,699,000	\$0	\$2,699,000	\$3,962,000	\$0
Stoneham	\$814,000	\$0	\$814,000	\$0	\$1,248,000	\$0
Stoughton	\$798,000	\$0	\$798,000	\$0	\$1,274,000	\$0
Wakefield	\$1,017,000	\$0	\$1,017,000	\$0	\$1,576,000	\$0
Walpole	\$0	\$638,000	\$638,000	\$0	\$957,000	\$0
Waltham	\$0	\$2,355,000	\$2,355,000	\$0	\$3,630,000	\$0
Watertown	\$0	\$1,050,000	\$0	\$1,050,000	\$1,604,000	\$0
Wellesley	\$0	\$970,000	\$0	\$970,000	\$1,000,524	\$513,476
Westwood	\$0	\$441,000	\$441,000	\$0	\$677,000	\$0
Weymouth	\$0	\$1,995,000	\$1,145,000	\$850,000	\$2,961,000	\$0
Wilmington	\$0	\$428,000	\$0	\$428,000	\$638,000	\$0
Winchester	\$703,000	\$0	\$703,000	\$0	\$1,073,000	\$0
Winthrop	\$0	\$586,000	\$586,000	\$0	\$879,000	\$0
Woburn	\$1,733,000	\$0	\$1,733,000	\$0	\$2,927,000	\$0
Totals	\$20,411,800	\$59,588,200	\$40,942,656	\$39,057,344	\$110,306,946	\$9,693,054

ATTACHMENT 3 South System Infiltration and Inflow Estimates and Annual Rainfall



*No I/I estimates for 2004-2005 due to wastewater metering system replacement project

ATTACHMENT 4 North System Infiltration and Inflow Estimates and Annual Rainfall



*No I/I estimates for 2004-2005 due to wastewater metering system replacement project



MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

Frederick A. Laskey
Executive Director

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Chair: M. Beaton
Vice-Chair: J. Carroll
Secretary: A. Pappastergion
Board Members:
A. Blackmon
K. Cotter
P. Flanagan
J. Foti
B. Peña
H. Vitale
J. Walsh
J. Wolowicz

BOARD OF DIRECTORS' MEETING

to be held on

Wednesday, March 21, 2018

Location: 100 First Avenue, 2nd Floor
Charlestown Navy Yard
Boston, MA 02129

Time: 1:00 p.m.

AGENDA

I. APPROVAL OF MINUTES

II. REPORT OF THE CHAIR

III. REPORT OF THE EXECUTIVE DIRECTOR

IV. BOARD ACTIONS

A. Approvals

1. Memorandum of Agreement between MWRA and the Dedham/Westwood Water District - Contract 7505, Southern Extra High Pipeline Section 111 (ref. W B.1)
2. PCR Amendments – March 2018 (ref. P&C A.1)
3. Appointment of Proxy for the Fore River Railroad Corporation (ref. AF&A B.1)
4. Adoption of the Seventy-Eighth Supplemental Resolution (ref. AF&A B.2)
5. Amendments to Capital Finance Management Policy (ref. AF&A B.3)
6. Electronic Document Management System (ref. AF&A B.4)

B. Contract Awards

1. Northern Intermediate High Section 89 Replacement Pipeline Preliminary/Final Design & ESDC: Stantec Consulting Services Inc., Contract 7116 (W C.1)
2. Metropolitan Operations Paving: Sunshine Paving Corporation, Contract OP-354 (AF&A C.1)

C. Contract Amendments/Change Orders

1. Assignment and Assumption of Contract OP-337, Purchase and Supply of Electric Power for MWRA Profile Accounts, from TransCanada Power Marketing Ltd. to EDF Energy Services, LLC, and Amendment 1 (ref. AF&A D.1)

V. CORRESPONDENCE TO THE BOARD

VI. OTHER BUSINESS

VII. EXECUTIVE SESSION

A. Litigation:

1. DaPrato v. MWRA – Status of Post-Trial Proceedings

VIII. ADJOURNMENT

Meeting of the Board of Directors**February 21, 2018**

A meeting of the Board of Directors of the Massachusetts Water Resources Authority was held on February 21, 2018 at the Authority headquarters in Charlestown. Vice-Chair Carroll presided at the outset. Present from the Board were Messrs. Blackmon, Flanagan, Foti, Pappastergion, Vitale and Walsh; Chairman Beaton joined the meeting in progress. Ms. Wolowicz and Messrs. Cotter and Peña were absent. Among those present from the Authority staff were Frederick Laskey, Executive Director, Steven Remsberg, General Counsel, Michael Hornbrook, Chief Operating Officer, Thomas Durkin, Director of Finance, Michele Gillen, Director of Administration, and Bonnie Hale, Assistant Secretary. The meeting was called to order at 1:00 p.m.

APPROVAL OF MINUTES

Upon a motion duly made and seconded, it was

Voted to approve the minutes of the Board of Directors' meeting of January 17, 2018, as presented and filed with the records of the meeting.

REPORT OF THE EXECUTIVE DIRECTOR**Presentation of 2017 Extraordinary Service Awards**

Mr. Laskey presented Extraordinary Service Awards to individual employees and project teams that went above and beyond their routine responsibilities in service to the MWRA. Nominations submitted by employees were reviewed by the Employee Recognition Committee, which chose the winners. Award recipients included Bill Hanley, Paul Porter, Michael Patenaude, Richard Sudanowicz, Jerry Sheehan, and Alejandro Alvarez, as well as numerous members of the Deer Island Valve Replacement Team. (Details and a list of contributing employees are on file with the records of the meeting.)

(Chairman Beaton joined the meeting.)

Mr. Laskey and Board members congratulated Chief Operating Officer Michael J. Hornbrook on his upcoming retirement after 29 years at MWRA, reviewed the many major projects completed during his tenure, presented him with commendations from Governor Baker and the State Senate, and thanked him for his exemplary service to the MWRA. Staff and audience members joined them in a hearty standing ovation for Mr. Hornbrook.

(Mr. Foti left the meeting.)

BOARD ACTIONS

APPROVALS

Local Water System Assistance Program – Water Loan Program Guidelines Revision for the City of Peabody

Upon a motion duly made and seconded, it was

Voted to approve a one-time exemption to the Program Guidelines for the Local Water System Assistance Program to waive the annual allocation restriction for the City of Peabody to allow the City to borrow up to its entire \$2,756,000 MWRA water loan allocation, contingent upon a Peabody City Council water bond authorization to meet this request.

Approval of the Affirmative Action Plan

Upon a motion duly made and seconded, it was

Voted to approve the Massachusetts Water Resources Authority's Affirmative Action Plan effective for a one-year period from January 1, 2018 through December 31, 2018.

PCR Amendments – February 2018

Upon a motion duly made and seconded, it was

Voted to approve amendments to the Position Control Register, as presented and filed with the records of the meeting.

Appointment of Chief Operating Officer

Upon a motion duly made and seconded, it was

Voted to approve the Executive Director's recommendation to appoint Mr. David W. Coppes to the position of Chief Operating Officer (Non-Union, Grade 18) at an annual salary of \$180,612, commencing on a date to be determined by the Executive Director. Mr. Coppes will also be paid a \$700 per month (taxable) car allowance in lieu of an MWRA vehicle.

Appointment of Senior Program Manager, Energy, Deer Island Treatment Plant

Upon a motion duly made and seconded, it was

Voted to approve the Executive Director's recommendation to appoint Mr. John Dunn to the position of Senior Program Manager, Energy, Deer Island (Unit 9, Grade 30) at an annual salary of \$126,607.94, commencing on a date to be determined by the Executive Director.

Appointment of Director, Toxic Reduction and Control

Upon a motion duly made and seconded, it was

Voted to approve the Executive Director's recommendation to appoint Ms. Rebecca M. Weidman to the position of Director, Toxic Reduction and Control (Non-Union, Grade 15) in the Operations Division, at an annual salary of \$135,553, commencing on a date to be determined by the Executive Director.

Transmittal of the FY2019 Proposed Current Expense Budget to the MWRA Advisory Board

Upon a motion duly made and seconded, it was

Voted to approve transmittal of the FY19 Proposed Current Expense Budget to the MWRA Advisory Board for its 60 day review and comment period.

Approval of the Seventy-seventh Supplemental Resolution and Award of Direct Purchase Agreements

Upon a motion duly made and seconded, it was

Voted to approve the recommendation of the Selection Committee to award Direct Purchase Agreements in the principal amount not-to-exceed \$50,000,000 to U.S. Bank, N.A. and in the principal amount not-to-exceed \$50,610,000 to TD Bank, N.A.; and to adopt the Seventy-Seventh Supplemental Resolution authorizing the issuance of up to \$100,610,000 of Massachusetts Water Resources Authority Multimodal Subordinated General Revenue Refunding Bonds and the supporting Issuance Resolution.

Proposed Amendments to the Management Policies of the Board of Directors

Upon a motion duly made and seconded, it was

Voted to adopt amendments to the Management Policies of the Board of Directors to clarify the Executive Director's delegated authority when award is recommended to other than the lowest bidder, substantially in the form presented and filed with the records of the meeting.

CONTRACT AWARDS

Supply and Delivery of Hydrogen Peroxide to the Deer Island Treatment Plant: U.S. Peroxide, LLC, Bid WRA-4459

Upon a motion duly made and seconded, it was

Voted to approve the award of Purchase Order Contract WRA-4459, Supply and Delivery of Hydrogen Peroxide to the Deer Island Treatment Plant, to the lowest

eligible and responsible bidder, U.S. Peroxide, LLC, and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed \$1,656,000 for a period of two years, from April 2, 2018 through March 31, 2020.

Community Leak Detection Survey Services: LDT Solutions, LLC, Contract W322; Vital Services, Contract W322A; Arthur Pyburn & Sons, Inc., Contract 322B; and Liston Utility Services, Contract 322C

Upon a motion duly made and seconded, it was

Voted to approve the recommendation of the Consultant Selection Committee to select four firms to provide leak detection survey task order services for MWRA's water communities, and to authorize the Executive Director, on behalf of the Authority, to execute four task order contracts, each for a not-to-exceed amount of \$350,000 and a term of three years from the date of Notice to Proceed, to the following firms:

Contract W322, LDT Solutions, LLC, Comprehensive Listening Surveys; Contract W322A, Vital Services, Comprehensive Listening Surveys and Leak Correlation Surveys; Contract W322B, Arthur Pyburn & Sons, Incorporated, Leak Correlation Surveys; and Contract W322C, Liston Utility Services, Leak Correlation Surveys.

Workers' Compensation Legal Services: Tentindo, Kendall, Canniff & Keefe LLP, Contract A614

Upon a motion duly made and seconded, it was

Voted to approve the recommendation of the Consultant Selection Committee to select Tentindo, Kendall, Canniff & Keefe LLP to provide Workers' Compensation Legal Services and execute and deliver Contract A614 with Tentindo, Kendall, Canniff & Keefe LLP in an amount not to exceed \$350,000 for a term of three years from the Notice to Proceed.

Groundskeeping Services – Metropolitan Boston: C&W Services, Inc., Contract OP-365

Upon a motion duly made and seconded, it was

Voted to approve the award of Contract OP-365, Groundskeeping Services - Metropolitan Boston, to the lowest eligible and responsible bidder, C&W Facility Services, Inc., and authorize the Executive Director, on behalf of the Authority, to execute and deliver said contract in the bid amount of \$355,000 for a term of 730 calendar days from the Notice to Proceed.

CONTRACT AMENDMENTS/CHANGE ORDERS

Chelsea Creek Headworks Upgrade: BHD/BEC 2015, A Joint Venture, Contract 7161, Change Order 8

Upon a motion duly made and seconded, it was

Voted to authorize the Executive Director, on behalf of the Authority, to approve Change Order 8 to increase the amount of Contract 7161 with BHD/BEC 2015, A Joint Venture, Chelsea Creek Headworks Upgrade, in an amount not to exceed \$937,267.00, with no increase in contract term; further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7161 in amounts not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

EXECUTIVE SESSION

It was moved to enter executive session to discuss litigation and real estate.

Upon a motion duly made and seconded, it was, upon a roll call vote in which the members were recorded as follows:

Yes

No

Abstain

Blackmon
Carroll
Flanagan
Pappastergion
Vitale
Walsh
Beaton

Voted to enter executive session for the purpose of discussing strategy with respect to litigation, and to consider the purchase, exchange, lease or value of real property, in that such discussion in open session may have a detrimental effect on the litigating and negotiating positions of the Authority.

It was stated that the meeting would return to open session solely for the consideration of adjournment.

* * * *

EXECUTIVE SESSION

* * * *

The meeting returned to open session at 1:50 p.m. and adjourned.