



MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
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Boston, MA 02129

Frederick A. Laskey
Executive Director

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REVISED

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, April 12, 2017

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

Time: 10:00 a.m.

AGENDA

A. Information

1. Delegated Authority Report – March 2017
2. FY17 Financial Update and Summary as of March 2017
3. 2016 Annual Report on New Connections to the MWRA System
4. Potential Cost Impacts of the Eversource Cable Work on the FY18 and FY19 Current Expense Budgets

B. Contract Awards

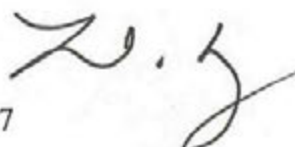
1. Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System: Infor Global Solutions

C. Approvals

1. Memorandum of Agreement with the Town of Stoneham in Connection with the Northern Intermediate High Pipeline Project

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 12, 2017
SUBJECT: Delegated Authority Report – March 2017



COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE


Michele S. Gillen

Director, Administration

Barbara Aylward, Administrator A & F
Preparer/Title


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 March 1 – 31, 2017.

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; or up to \$500,000 if the award is to other than 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; or up to \$500,000 if the award is to other than 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 MARCH 1 - 31, 2017

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	03/02/17	WACHUSETT AQUEDUCT PUMPING STATION CONSTRUCTION SUSPEND INSTALLATION OF EXTERIOR FORMWORK, REMOVE AND REPLACE FORMWORK, FURNISH AND INSTALL ADDITIONAL HORIZONTAL REINFORCING STEEL; FURNISH AND INSTALL WIRING IN AN EXISTING BURIED CONDUIT; FURNISH AND INSTALL ADDITIONAL REINFORCING STEEL IN CONCRETE BEAMS;	7157	8	BHD/BEC, JOINT VENTURE 2015	\$189,495.00
C-2.	03/02/17	FIRE ALARM SYSTEM SERVICE METRO BOSTON AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR FIRE ALARM SYSTEM TESTING AND MONITORING SERVICES, NON-EMERGENCY AND EMERGENCY REPAIR SERVICES AND REPLACEMENT PARTS FOR EQUIPMENT LOCATED AT VARIOUS MWRA FACILITIES FOR A TERM OF 730 CALENDAR DAYS.	OP-334	AWARD	SULLIVAN & MCLAUGHLIN COMPANIES, INC.	\$321,812.00
C-3.	03/13/17	NORTHERN INTERMEDIATE HIGH SECTION 110 - READING AND WOBURN FURNISH AND INSTALL RESTRAINED JOINT PIPE IN LIEU OF SPECIFIED STANDARD DUCTILE IRON PIPE AT THREE LOCATIONS; REMOVE THE EXISTING 6-INCH CAST IRON WATER MAIN WITH LEAD JOINTS AND FURNISH AND INSTALL 240 LINEAR FEET OF 8-INCH DUCTILE IRON WATER MAIN ON WASHINGTON STREET IN WOBURN; REMOVE EXISTING DRAIN LINE AND FURNISH AND INSTALL 177 LINEAR FEET OF 12-INCH DRAIN LINE AND TWO DRAIN MANHOLES ON HOPKINS STREET.	7471	9	ALBANESE D & S, INC.	\$170,463.05
C-4.	03/20/17	EMPLOYEE ASSISTANCE PROGRAM (EAP) EXERCISE THREE-YEAR OPTION TO RENEW THE CONTRACT FROM APRIL 1, 2017 TO MARCH 31, 2020.	A605	1	ALLONE HEALTH RESOURCES, INC. d/b/a ALLONE HEALTH	\$92,439.35
C-5.	03/22/17	THERMAL/POWER PLANT FUEL OIL SYSTEM UPGRADE DEER ISLAND TREATMENT PLANT FURNISH AND INSTALL ONE CONTROL PANEL AND ASSOCIATED RACEWAY SYSTEM IN EAST WALL OF THERMAL POWER PLANT IN LIEU OF THE SOUTH WALL OF THE CONTROL ROOM.	7061A	2	J.F. WHITE CONTRACTING CO.	\$45,352.57
C-6.	03/31/17	MWRA SECTION 80 EMERGENCY REPAIR AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR MWRA SECTION 80 EMERGENCY REPAIR FOR A TERM OF 7 CALENDAR DAYS (PERMANENT PAVING WILL BE PROVIDED AFTER 90 DAYS).	OP-352	AWARD	R. ZOPPO CORP.	\$209,000.00

PURCHASING DELEGATED AUTHORITY ITEMS MARCH 1 - 31, 2017

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	03/02/17	AQUATIC MACROPHYTE SURVEY AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE AQUATIC INVASIVE MACROPHYTE SURVEY AT MWRA/MDC SOURCE AND EMERGENCY RESERVOIRS FOR THE 2017 SEASON.	WRA-4328		ESS GROUP, INC.	\$64,350.00
P-2.	03/02/17	REBUILDING OF TEN MUFFIN MONSTER GRINDERS AWARD OF A SOLE SOURCE PURCHASE ORDER FOR REBUILDING TEN MUFFIN MONSTER IN-LINE SEWERAGE GRINDERS FOR THE RESIDUALS COMPLEX AT THE DEER ISLAND TREATMENT PLANT.			JWC ENVIRONMENTAL	\$99,000.00
P-3.	03/02/17	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 FOR A TERM OF ONE YEAR.	WRA-4336		UNIVAR USA, INC.	\$127,500.00
P-4.	03/03/17	NETWORK ENGINEER IV AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE NETWORK ENGINEERING IV SERVICES TO HELP SECURE AND ENHANCE THE SCADA NETWORK FOR A PERIOD OF 480 BILLABLE HOURS UNDER STATE CONTRACT.	WRA-4338		NTT DATA, INC.	\$45,600.00
P-5.	03/13/17	PURCHASE OF 120 LITHIUM BATTERY PACKS AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE PURCHASE OF 120 LITHIUM BATTERY PACKS FOR MWRA'S WASTEWATER FLOW METERS.	WRA-4349		BRAND COMPANY, INC.	\$28,154.40
P-6.	03/13/17	PURCHASE OF ONE 450HP MOTOR AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE PURCHASE OF A SPARE 450HP MOTOR FOR THE BRAINTREE WEYMOUTH INTERMEDIATE PUMP STATION.	WRA-4334		ASSOCIATED ELECTRO MECHANICS, INC.	\$87,724.43
P-7.	03/16/17	CRYPTOSPORIDIUM AND GIARDIA TESTING AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR CRYPTOSPORIDIUM AND GIARDIA TESTING FOR A TERM OF TWO YEARS.	WRA-4345		ANALYTICAL SERVICES, INC.	\$54,614.00
P-8.	03/16/17	PURCHASE OF 15 NEW ELECTRIC BURDEN CARRIERS AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE PURCHASE OF 15 NEW ELECTRIC BURDEN CARRIERS FOR THE DEER ISLAND TREATMENT PLANT, TO REPLACE 15 YEAR OLD UNITS THAT ARE NO LONGER SAFE OR REPAIRABLE.	WRA-4343		NORTHLAND INDUSTRIAL TRUCK COMPANY, INC.	\$131,907.00
P-9.	03/20/17	SUPPLY AND DELIVERY OF SODIUM HYDROXIDE AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF SODIUM HYDROXIDE TO VARIOUS WASTEWATER LOCATIONS FOR A TERM OF ONE YEAR.	WRA-4337Q		BORDEN & REMINGTON CORP.	\$55,379.05
P-10.	03/20/17	VMWARE SOFTWARE AND SUPPORT AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR VMWARE SOFTWARE AND SUPPORT FOR THE IMPLEMENTATION OF ACTIVE DIRECTORY ON THE SCADA NETWORK.	WRA-4341		PCMG, INC.	\$55,988.69
P-11.	03/22/17	SUPPLY AND DELIVERY OF CARBON DIOXIDE AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF CARBON DIOXIDE TO THE JOHN J. CARROLL WATER TREATMENT PLANT FOR A ONE YEAR TERM.	WRA-4346		PRAXAIR, INC.	\$424,850.00
P-12.	03/23/17	PURCHASE OF ONE MEDIUM VOLTAGE CIRCUIT BREAKER AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE PURCHASE OF ONE MEDIUM VOLTAGE CIRCUIT BREAKER FOR THE DEER ISLAND TREATMENT PLANT.	WRA-4335		CONTACT POWER, INC.	\$48,961.00
P-13.	03/23/17	PREFERRED SERVICE AGREEMENT INCREASE ON-SITE TECHNICAL SUPPORT ALLOWANCE RELATED TO CTG OPERATIONAL SUPPORT WHILE DEER ISLAND WAS OFF THE ELECTRIC GRID SYSTEM WHILE HEEC/EVERSOURCE CONDUCTED CROSS-HARBOR CABLE LOCATION WORK.		AMEND. 1	PW POWER SYSTEMS, INC.	\$107,500.00
P-14.	03/27/17	QUALITY ASSURANCE DIVING SERVICES AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR QUALITY ASSURANCE DIVER SERVICES FOR MWRA'S INVASIVE AQUATIC PLANT CONTROL CONTRACTS AT WACHUSETT RESERVOIR.	WRA-4339		APEX COMPANIES, INC.	\$89,000.00
P-15.	03/30/17	PURCHASE OF ONE NEW CLOSED-CIRCUIT TELEVISION/SONAR-SCANNER INSPECTION TRUCK AWARD OF A SOLE SOURCE PURCHASE ORDER FOR THE PURCHASE OF ONE NEW CLOSED-CIRCUIT TELEVISION/SONAR-SCANNER INSPECTION TRUCK TO REPLACE AN EXISTING 2005 BOX TRUCK THAT HAD BEEN RETROFITTED WITH SENSOR INSPECTION EQUIPMENT, GENERATOR AND CABLE THAT IS NOW OVER 11 YEARS OLD IN ACCORDANCE WITH THE MWRA'S VEHICLE REPLACEMENT POLICY.			CUES, INC.	\$449,000.00

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 12, 2017
SUBJECT: FY17 Financial Update and Summary



COMMITTEE: Administration, Finance & Audit

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

INFORMATION
 VOTE


Thomas J. Durkin
Director, Finance

There is a separate staff summary on the agenda which provides an in-depth discussion of the financial risks associated with the dispute with Eversource around the HEEC cross-harbor cable and the potential impacts to the FY2018 and future current expense budgets.

RECOMMENDATION:

For information only. This staff summary provides the financial update and variance highlights through March 2017, comparing actual spending and revenue to the FY17 budget.

DISCUSSION:

Total year-to-date variance is \$9.5 million lower than budget mainly due to lower direct expenses of \$3.8 million, lower indirect expenses of \$299,000, and higher revenues of \$5.3 million.

In March, \$2.8 million was transferred to the Defeasance Account as result of continued low variable rate environment, the favorable impact of the August 2016 defeasance, lower SRF funding than planned, and not borrowing senior debt scheduled for January 2017, now scheduled for May. The defeasance account balance as of March is \$11.7 million. The continued use of defeasances as part of our multi-year rates management strategy is critically important for us to meet the Advisory Board's goal of keeping annual rate increases under 4% in the out years.

Without the transfer of the \$11.7 million in debt service savings to the Defeasance Account, the total year-to-date budget variance through March would have been \$21.2 million.

Should these favorable trends continue, the year-end favorable variance is projected at \$33.0 million, of which \$22.3 million is related to debt service. Beyond debt service savings, staff project a surplus of approximately \$10.7 million at year-end of which \$3.3 million would be from lower direct expenses, \$372,000 from lower indirect expenses, and \$7.0 million from greater than budgeted revenues, mostly related to additional unbudgeted water revenue due to the drought.

Staff already identified candidates for year-end defeasance and plans to include the impact of the FY17 defeasance in the FY18 planning estimates.

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.

FY17 Current Expense Budget

The expense variances through March 2017 by major budget category were:

- Net Lower Direct Expenses of \$3.8 million or 2.4%. Spending is lower primarily for Wages and Salaries, Utilities, Other Services, and Fringe Benefits. This is offset by higher spending for Worker’s Compensation, Overtime, Other Materials, and Chemicals.
- Lower Indirect Expenses of \$299,000 or 0.1% for lower Insurance costs and Watershed reimbursements.

FY17 Budget and FY17 Actual Year to Date Variance by Expenditure Category

	FY17 Budget YTD	FY17 Actual YTD	\$ Variance	% Variance
Direct Expenses	\$163.1	\$159.3	-\$3.8	-2.4%
Indirect Expenses	\$26.0	\$25.7	-\$0.3	-1.2%
Debt Service	\$327.9	\$327.9	\$0.0	0.0%
Total	\$517.0	\$512.9	-\$4.1	-0.8%

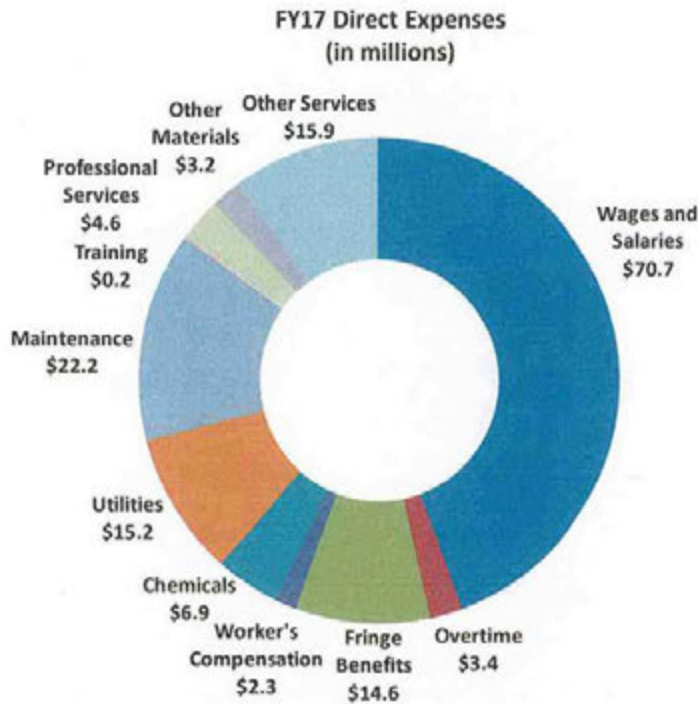
Totals may not add due to rounding

Total Revenues of \$545.0 million were \$5.3 million over budget reflecting primarily \$4.8 million receipt for water usage related to the drought, \$299,000 for a class action lawsuit settlement for derivative agreements, \$254,000 for disposal of surplus material, and \$184,000 for energy efficiency incentives from the utility companies. This is offset by lower Investment Income of \$155,000 for unanticipated calls re-invested at lower rates.

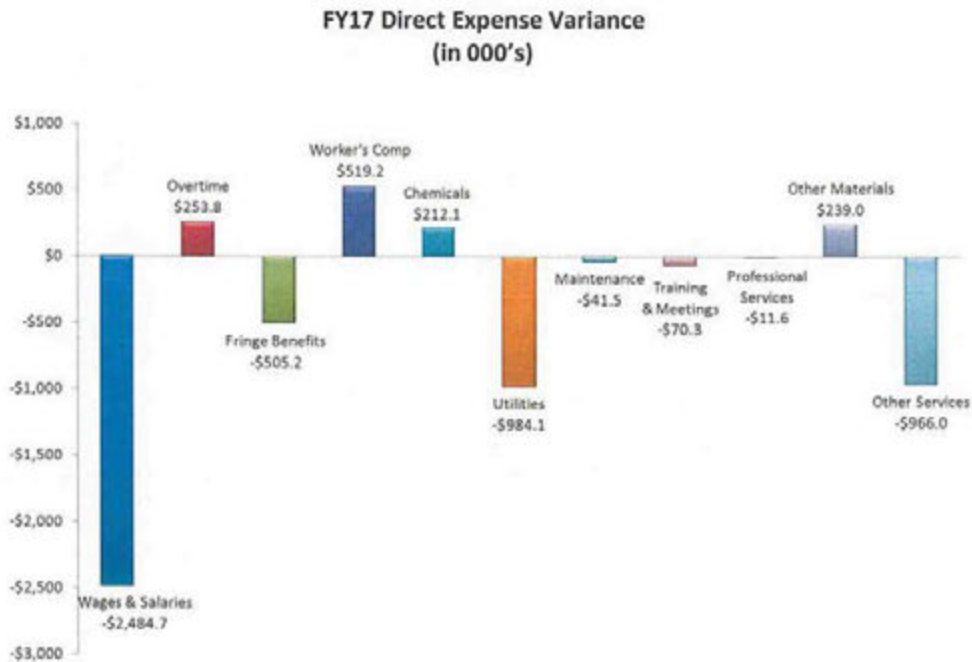
Please refer to Attachment 1 for a more detailed comparison by line item of the budget variances for the year to date.

Direct Expenses

Year-to-date direct expenses totaled \$159.3 million, \$3.8 million or 2.4% less than budgeted.



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



Wages and Salaries

Wages and Salaries were under budget by \$2.5 million or 3.4% mainly as a result of lower average Full Time Equivalent positions (FTEs) than budgeted, the timing of backfilling vacant positions, and the salary mix differential between staff retiring and new hires. The average FTEs through March were 1,137, which was 13 positions lower than the 1,150 FTEs budgeted.

FY17 MWRA Full Time Equivalent (FTE) Position Trend



Utilities

Utilities were under budget by \$984,000 or 6.1%. The major driver of the underspending is the \$1.3 million electricity cost due to lower than budgeted pricing and the Deer Island Treatment Plant and being offline during the HECC cable location work. As of the end of February (Year to Date through March is not yet available), the lower volume variance at Deer Island was approximately \$714,000, and the lower unit pricing from Direct Energy and Eversource have yielded a favorable price variance of \$232,000.

This favorable electricity variance was offset by a net higher spending of \$255,000 for diesel fuel. Deer Island had two deliveries of diesel fuel to date during FY17 versus one budgeted, resulting in \$655,000 overspending, mostly as result of the HECC cable location work. It is worthwhile mentioning that although the additional diesel purchase at Deer Island resulted in approximately \$1.0 million overspending the lower actual price of \$1.66/gal versus the budgeted \$2.10/gal had a \$345,000 favorable impact.

However, Field Operations was under budget for Diesel Fuel by \$402,000 related to lower than budgeted pricing, partially offsetting the overall increased net spending at Deer Island.

Other Services

Other Services spending was lower than budget by \$966,000 or 5.7% due to lower spending of \$356,000 for sludge pelletization services because of lower year to date quantities, and \$155,000 for Grit and Screenings disposal services also primarily due to lower quantities; \$220,000 for Space/Lease Rentals due to lower escrow payments at the Chelsea Facility for taxes and insurance, and lower than budget pass-through maintenance cost at the Charlestown Navy Yard Facility; \$177,000 for Other Services primarily for timing of community lead service assistance;

Fringe Benefits

Fringe Benefits spending was lower than budgeted by \$505,000 or 3.4% primarily for lower Health Insurance costs of \$415,000 due to fewer employees and retirees than budgeted participating in health insurance plans, and the change between family vs. individual plans.

Training & Meetings

Training & Meetings was underspent by \$70,000 or 22.1%, primarily in Fleet Services, MIS and Operations due to timing of training.

Maintenance

Maintenance was underspent \$42,000 or 0.2%. Within maintenance, MIS is underspent due to timing of Microsoft Office Suite upgrade for all PCs and laptops, Deer Island is underspent due to timing of maintenance work on the CTS to replace the monitoring systems and the door replacement project. The Nut Island fire incident which was not budgeted this year, accounts for a \$410,000 overspending. Other overspending occurred in Pipeline Services primarily for sewer manhole rehabilitation and paving.

Professional Services

Professional Services were on budget, showing a total underspending of \$12,000 or 0.3%. Within Professional Services, Other Services was underspent primarily in Finance for finance/investment services; Lab and Testing Analysis in EnQual – Wastewater for harbor monitoring; and Engineering in Office of Emergency Preparedness due to delay in Dam Emergency Action Plan updates. This was offset by higher spending for Legal Services in Law.

Worker's Compensation

Year-to-Date Worker's Compensation expenses were higher than budget by \$519,000 or 29.5%. Reserves for two claims increased \$440,000 in March.

Overtime

Overtime expenses were higher than budgeted by \$254,000 or 8.0%, mainly due to Deer Island related to the HEEC cable relocation project, Metro Maintenance due to off-hour maintenance

work, Metro Water Operations for coverage, and Water Valve maintenance. Some examples of off-hour maintenance work have been replacing cable trays and wiring for pumps at Chestnut Hill Underground Pump Station, Reservoir Road electrical switchgear replacement, carpet replacement at the Chelsea Administration building, and rollout of the MAXIMO upgrade. This is offset by lower spending in Wastewater Operations due to lower than anticipated OT associated with the North Main Pump Station Project at Deer Island.

Other Materials

Other Materials were higher than budget by \$239,000 or 8.0% mainly due to timing of Vehicle Purchases of \$397,000; Lab & Testing Supplies of \$98,000; Other Materials of \$64,000 primarily for gravel at the Clinton Landfill; and Health & Safety of \$43,000. This is offset by lower Vehicle Expenses of \$208,000 due to lower than budgeted fuel prices; Equipment/Furniture of \$56,000; Postage of \$43,000 due to timing of refilling postage meters in the mail room, and Computer Software of \$37,000.

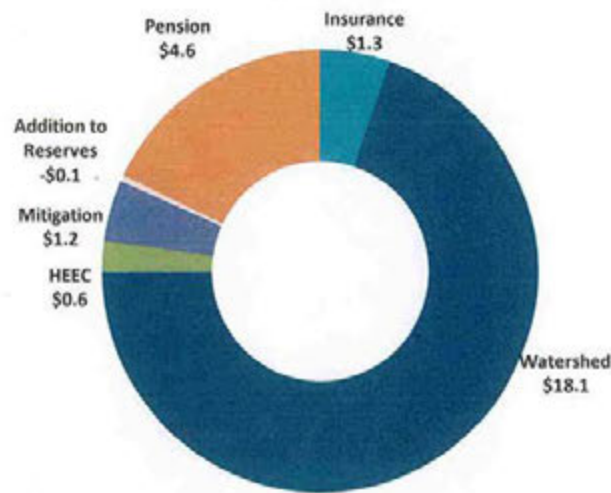
Chemicals

Chemicals expenses were higher than budgeted by \$212,000 or 3.2%. Expenses for Activated Carbon were over budget year-to-date by \$165,000 at Deer Island Treatment Plant due to the timing of the change out of West Odor Control activated carbon bed. Sodium Hypochlorite of \$122,000 due to higher than budgeted price for new contracts and timing of deliveries at Deer Island; Carbon Dioxide of \$33,000 due to lower dissolved CO₂ in raw water requiring higher dosage of Carbon Dioxide at Carroll Water Treatment Plant; and Ferric Chloride of \$27,000 at Deer Island. This is offset by lower spending on Soda ash of \$59,000 and Liquid Oxygen of \$54,000 at Carroll Water Treatment Plant of \$45,000 where the use of UV as a disinfectant is requiring less Liquid Oxygen.

Indirect Expenses

For the fiscal year to date, Indirect Expenses totaled \$25.7 million, \$299,000 or 1.2% lower than budget, related to lower than budgeted insurance claims and an over-accrual in FY16 for Watershed management operating expenses.

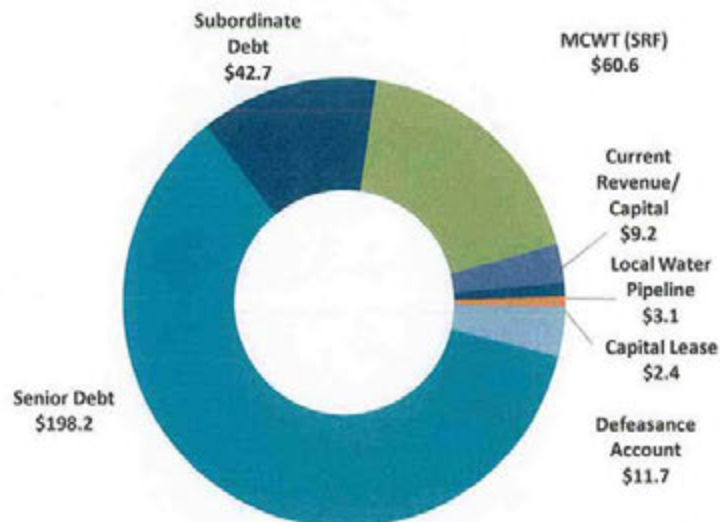
FY17 Indirect Expenses-YTD
(in millions)



Debt Service

Debt Service 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.

FY17 Debt Expenses-YTD
(In millions)

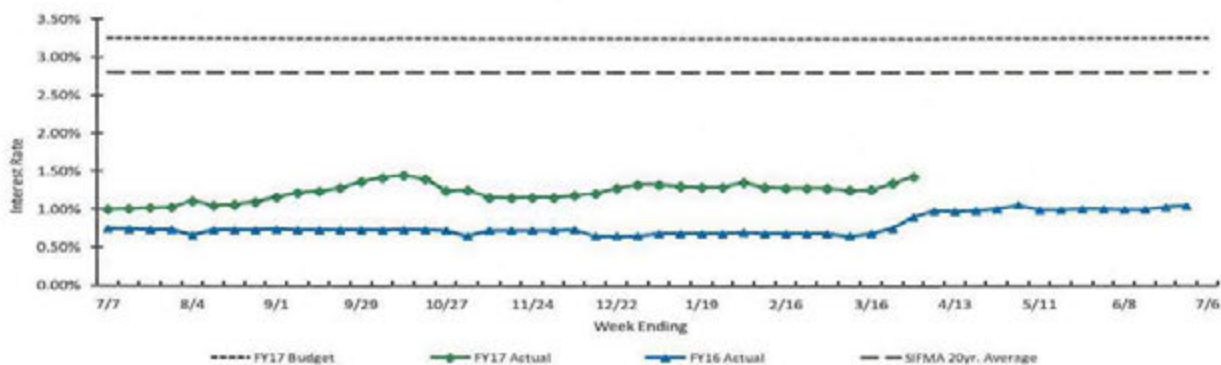


Debt Service expenses for the fiscal year totaled \$327.9 million, which is at the budgeted level after the transfer of \$11.7 million of a favorable year-to-date variance to the Defeasance Account. The short-term rates related variance is \$8.3 million year-to-date. Additionally, the

Authority recognized \$1.6 million in year-to-date underspending that is the result of the favorable impact of the August 2016 defeasance, lower SRF funding than planned, and not borrowing senior debt scheduled for January.

The graph below reflects the FY17 actual variable rate trend by week over the past year and the FY17 Budget.

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



Revenue & Income

Total Revenue for the fiscal year totaled \$545.0 million, \$5.3 million or 1.0% higher than budget.

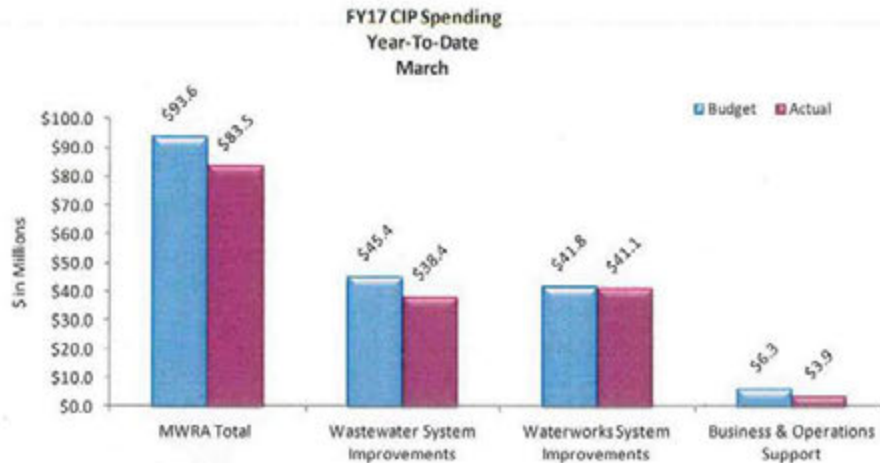
The higher than budgeted non-rate Revenue was driven by the receipt of \$4.8 million for water usage related to the summer drought; \$299,000 for a class action lawsuit settlement for derivative agreements; \$254,000 for the disposal of surplus materials; and \$184,000 for energy efficiency incentives from the utility companies. This is offset by lower Investment Income of \$155,000 for unanticipated calls re-invested at lower rates.

Please refer to Attachment 2 for a more detailed variance explanation by line item.

FY17 Capital Improvement Program

Capital expenditures in FY17 total \$83.5 million through the end of March, \$10.1 million or 10.8% less than budget.

After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) program, the Local Water Pipeline program, and the community managed Combined Sewer Overflow (CSOs) projects, capital spending totaled \$73.2 million, \$2.4 million or 3.4% over budget.



Overall underspending reflects the underspending of \$7.0 million in Wastewater Improvements, \$2.4 million in Business and Operations Support and \$0.7 million in Waterworks Improvements.

FY17 Year-to-date Spending By Program:

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	15.8	12.2	(3.6)	-22.8%
Treatment	11.5	18.5	7.0	60.5%
Residuals	0.0	0.0	0.0	N/A
CSO	7.1	3.1	(4.0)	-56.7%
Other	11.0	4.7	(6.4)	-57.7%
Total Wastewater System Improvements	\$45.4	\$38.4	-\$7.0	-15.4%
Waterworks System Improvements				
Drinking Water Quality Improvements	2.0	0.8	(1.1)	-57.5%
Transmission	19.6	19.0	(0.6)	-3.3%
Distribution & Pumping	11.4	14.9	3.5	31.1%
Other	8.9	6.5	(2.4)	N/A
Total Waterworks System Improvements	\$41.8	\$41.1	-\$0.7	-1.6%
Business & Operations Support	\$6.3	\$3.9	(\$2.4)	-38.0%
Total MWRA	\$93.6	\$83.5	(\$10.1)	-10.8%

Totals may not add due to rounding

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

Wastewater Treatment: Net overspending of \$7.0 million

- \$1.8 million for Deer Island Primary/Secondary Clarifier Rehabilitation legal settlement.
- \$1.4 million for Deer Island Power System Improvements, \$0.9 million for Clinton Phosphorus Reduction Construction, \$0.9 million for North Main Pump Station and Winthrop Terminal Facility Butterfly Valve Replacements, \$0.4 million for Winthrop Terminal Facility Variable Frequency Drives Replacement

Construction, and \$0.5 million for Digester Sludge Pump Phase 2 due to contractor progress.

- \$0.6 million for Electrical Upgrades Construction 4 and Secondary Reactor VFDs of \$0.6 million due to timing of final work in FY17 that had been budgeted in FY16.
- The overspending was partially offset by underspending due to less than anticipated design expenditures for Clarifier Rehabilitation Phase 2.

Other Wastewater: Net underspending of \$6.4 million

- \$6.4 million for Community Infiltration/Inflow (I/I) due to less than anticipated requests for loans and grants.

Combined Sewer Overflow: Net underspending of \$4.0 million

- \$3.9 million for Cambridge Sewer Separation Project due to timing of final restoration work.

Interception & Pumping: Net underspending of \$3.6 million

- \$3.6 million for Chelsea Creek Headworks Upgrades Construction and Engineering Services for a later Notice-to-Proceed date than budgeted.
- \$0.9 million on Caruso Pump Station Improvements Construction due to construction delays.
- The underspending was partially offset by \$0.9 million for Alewife Brook Pump Station Rehabilitation Construction due to contractor progress and \$0.5 million for Chelsea Screenhouse Upgrades due to timing of final work.

Water Distribution and Pumping: Net overspending of \$3.5 million

- \$3.2 million for Section 89/29 Redundancy Phase 1B Construction, and \$0.5 million for Southern Extra High Section 111 Construction 1 due to contractor progress.
- \$1.3 million for Spot Pond Supply Mains due to additional work for Webster Avenue Bridge Pipe Rehabilitation.
- The overspending was partially offset by underspending on Weston Aqueduct Supply Mains Section 36/C/S9-A11 Valve of \$0.4 million due to anticipated balancing credit change order for underspent items, and \$0.8 million for Section 89/29 Redundancy Phase 1C Construction for change in schedule.

Waterworks Other: Net underspending of \$2.4 million

- \$1.9 million for Local Water Community Assistance due to less than anticipated requests for loans.
- \$0.2 million for Beacon Street Line Repair due to construction issues with vaults at access pits.

Drinking Water Quality Improvements: Net underspending of \$1.1 million

- Spot Pond Covered Storage Facility Design/Build of \$0.4 million due to construction delays, and \$0.7 million for updated schedule for Marlborough

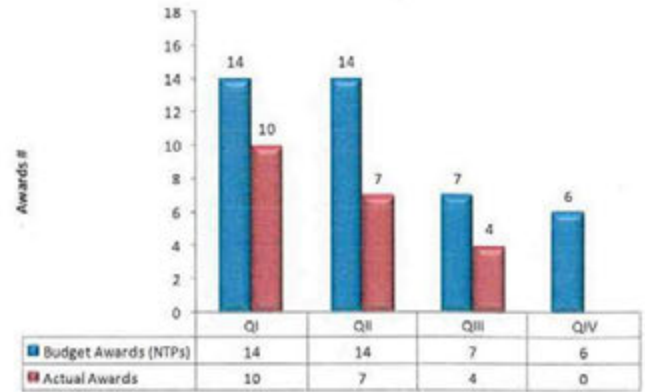
Maintenance Facility and pending final balancing change order for Southborough Water Quality Upgrades.

Waterworks Transmission: Net underspending of \$0.6 million

- \$0.8 million caused by less than anticipated progress for the Rosemary Brook Siphon Building Repairs due to delays in obtaining specialty items for work.
- \$0.5 million for Wachusett Aqueduct Pump Station Construction due to less than anticipated progress due to earlier issues with the guard shack.
- The underspending was partially offset by overspending of \$0.6 million for the Hatchery Pipeline Design and Construction due to contractor progress.

Contract Awards

41 Contracts totaling \$241.6 million are planned for FY17. Contract awards are the primary driver of future capital expenditures. Through the end of the third quarter, 21 contracts have been awarded totaling \$125.8 million or 58% of the \$215.7 million planned through March.



Construction Fund Balance

The construction fund balance was at \$35.4 million as of the end of March. Commercial Paper availability was at \$222.0 million to fund construction projects.

- Attachment 1–Variance Summary March 2017
- Attachment 2 – Current Expense Variance Explanations
- Attachment 3 – Capital Improvement Program Variance Explanations
- Attachment 4 – FY17 Budget vs. FY17 Projections

ATTACHMENT 1

	March 2017 Year-to-Date					
	Period 9 YTD Budget	Period 9 YTD Actual	Period 9 YTD Variance	%	FY17 Approved	% Expended
	EXPENSES					
WAGES AND SALARIES	\$ 73,142,901	\$ 70,658,182	\$ (2,484,719)	-3.4%	\$ 101,588,897	69.6%
OVERTIME	3,190,876	3,444,721	253,845	8.0%	4,192,676	82.2%
FRINGE BENEFITS	15,064,014	14,558,834	(505,180)	-3.4%	20,242,323	71.9%
WORKERS' COMPENSATION	1,758,143	2,277,351	519,208	29.5%	2,344,190	97.1%
CHEMICALS	6,702,165	6,914,223	212,058	3.2%	9,110,407	75.9%
ENERGY AND UTILITIES	16,169,863	15,185,757	(984,106)	-6.1%	21,541,077	70.5%
MAINTENANCE	22,278,441	22,236,896	(41,545)	-0.2%	31,080,642	71.5%
TRAINING AND MEETINGS	318,407	248,146	(70,261)	-22.1%	435,481	57.0%
PROFESSIONAL SERVICES	4,607,284	4,595,653	(11,631)	-0.3%	6,531,939	70.4%
OTHER MATERIALS	2,987,160	3,226,178	239,018	8.0%	6,219,630	51.9%
OTHER SERVICES	16,890,745	15,924,711	(966,034)	-5.7%	22,974,855	69.3%
TOTAL DIRECT EXPENSES	\$ 163,109,999	\$ 159,270,652	\$ (3,839,344)	-2.4%	\$ 226,262,117	70.4%
INSURANCE	\$ 1,498,423	\$ 1,330,106	\$ (168,317)	-11.2%	\$ 1,997,898	66.6%
WATERSHED/PILOT	18,218,451	18,089,080	(129,371)	-0.7%	24,291,268	74.5%
BEC _o PAYMENT	580,394	590,286	9,892	1.7%	773,859	76.3%
MITIGATION	1,168,500	1,157,100	(11,400)	-1.0%	1,558,000	74.3%
ADDITIONS TO RESERVES	(125,807)	(125,807)	-	0.0%	(167,742)	75.0%
RETIREMENT FUND	4,632,624	4,632,624	-	0.0%	4,632,624	100.0%
POST EMPLOYEE BENEFITS	-	-	-	---	4,876,050	0.0%
TOTAL INDIRECT EXPENSES	\$ 25,972,585	\$ 25,673,389	\$ (299,196)	-1.2%	\$ 37,961,957	67.6%
STATE REVOLVING FUND	\$ 62,365,832	\$ 60,601,451	\$ (1,764,381)	-2.8%	\$ 86,971,915	69.7%
SENIOR DEBT	199,948,307	198,248,067	(1,700,240)	-0.9%	268,472,556	73.8%
CORD FUND	-	-	-	---	-	---
DEBT SERVICE ASSISTANCE	-	-	-	---	(873,804)	---
CURRENT REVENUE/CAPITAL	9,150,000	9,150,000	-	0.0%	12,200,000	75.0%
SUBORDINATE MWRA DEBT	50,930,327	50,930,327	-	0.0%	69,997,992	72.8%
LOCAL WATER PIPELINE CP	3,111,931	3,111,931	-	0.0%	4,149,242	75.0%
CAPITAL LEASE	2,412,795	2,412,795	-	0.0%	3,217,060	75.0%
DEBT PREPAYMENT	-	-	-	---	10,994,960	0.0%
VARIABLE DEBT	-	(8,270,383)	(8,270,383)	---	-	0.0%
DEFEASANCE ACCOUNT	-	11,735,004	11,735,004	---	-	0.0%
TOTAL DEBT SERVICE	\$ 327,919,192	\$ 327,919,192	\$ -	0.0%	\$ 455,129,921	72.0%
TOTAL EXPENSES	\$ 517,001,776	\$ 512,863,233	\$ (4,138,540)	-0.8%	\$ 719,353,995	71.3%
REVENUE & INCOME						
RATE REVENUE	\$ 521,158,875	\$ 521,158,875	\$ -	0.0%	\$ 694,878,500	75.0%
OTHER USER CHARGES	6,418,831	6,486,897	68,066	1.1%	8,752,834	74.1%
OTHER REVENUE	5,234,429	10,668,844	5,434,415	103.8%	6,519,171	163.7%
RATE STABILIZATION	-	-	-	---	-	---
INVESTMENT INCOME	6,818,279	6,663,050	(155,229)	-2.3%	9,473,490	70.3%
TOTAL REVENUE & INCOME	\$ 539,630,414	\$ 544,977,666	\$ 5,347,251	1.0%	\$ 719,623,995	75.7%

**ATTACHMENT 2
Current Expense Variance Explanations**

Total MWRA	FY17 Budget YTD February	FY17 Actuals YTD February	FY17 YTD Actual vs. FY17 Budget		Explanations
			\$	%	
Direct Expenses					
Wages & Salaries	73,142,901	70,658,182	(2,484,719)	-3.4%	Underspending is mainly the result of lower average Full Time Equivalent positions (FTEs) than budgeted, the timing of backfilling vacant positions and the salary mix differential between staff retiring and new hires. The average FTEs for the fiscal year was 1,137, which was 13 positions lower than the 1,150 FTEs budgeted.
Overtime	3,190,876	3,444,721	253,845	8.0%	Higher spending at DITP related to the HEEC cable relocation project, Metro Maintenance due to off-hour maintenance work, Metro Water Ops for coverage, and Water Valve Maint. This is offset by lower spending in Wastewater Operations due to lower than anticipated OT associated with the NMPS work at DITP.
Fringe Benefits	15,064,014	14,558,834	(505,180)	-3.4%	Lower than budget mainly due to Health Insurance of \$415,000, due to fewer than budgeted participation and the changes between family and individual plans. Unemployment Insurance, Medicare, and Dental insurance also underspent due to fewer than budgeted positions.
Worker's Compensation	1,758,143	2,277,351	519,208	29.5%	Overspending due to higher compensation payments of \$785,000 and management costs of \$30,000. This is offset by lower medical payments of \$296,000. In March actual spending was \$487,000 over budget. Indemnity reserves for two claims increased \$423,000. It is important to note that spending on this line item can change significantly depending on future claims and severity of cases.
Chemicals	6,702,165	6,914,223	212,058	3.2%	Overspending on Activated Carbon of \$165,000 at DITP for odor control; Sodium Hypochlorite of \$122,000 (higher than budgeted cost for new contracts); Carbon Dioxide of \$36,000; Ferric Chloride of \$27,000; Other Oxidizers of \$25,000; Hydrogen Peroxide of \$18,000. This is offset by lower spending on Soda Ash of \$59,000; Liquid Oxygen of \$54,000; Hydrofluosilic Acid of \$34,000; and Aqua Ammonia of \$22,000.
Utilities	16,169,863	15,185,757	(984,106)	-6.1%	Underspending in Electricity of \$1.3 million primarily at DITP due to lower prices and being off grid during the HEEC cable location work; and Wastewater facilities partially for not using wet scrubbers at NI and lower flows throughout the system. This is offset by higher spending at waterworks facilities attributed to pumping more water to Bedford and higher than anticipated demand charges at the new Spot Pond Pump Station. Diesel Fuel is overspent by \$255,000 primarily related to running the CTGs at DITP during the HEEC cable location work. This is offset by lower spending in Wastewater Operations. Natural Gas is underspent \$63,000 primarily at the Carroll Plant and the Chelsea Facility, offset by overspending at B/W IPS.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY17 Budget YTD February	FY17 Actuals YTD February	FY17 YTD Actual vs. FY17 Budget		Explanations
			\$	%	
Maintenance	22,278,441	22,236,896	(41,545)	-0.2%	<p>Materials were underspent by \$251,000 and Services were overspent by \$209,000. Nut Island fire remediation efforts have costs \$410,000 in FY17 for both materials and services; primarily in Building & Grounds Services, Pipeline Services and Plant & Machinery Materials. Underspending in HVAC Materials of \$336,000 at Deer Island for timing on the purchase of HVAC material like heat exchanger, chiller & condensing unit, heating coils, etc.; Computer Software/Licenses Upgrade of \$315,000 in MIS for the timing of the MS Office Suite upgrade; Electrical Materials of \$237,000 due to timing at Deer Island for materials and Water O&M for the transformer at Oakdale scheduled to start in April; Electrical Services of \$185,000 at Deer Island and FOD Metro Maint for timing of new testing contract; Pipeline Materials of \$128,000 in Water Pipeline Maint for the purchase of valves, pipe and fittings; and Specialized Equipment Services of \$116,000 in FOD Metro Maint.</p> <p>This is offset by overspending in Pipeline Services of \$503,000 primarily for sewer manhole rehabilitation project and timing of paving of in-house work in the roadways; HVAC Services of \$166,000 primarily at the Carroll Plant; Plant & Machinery Materials of 98,000 in FOD due to timing of a spare rotating assembly at DeLauri, carbon replacement at Hough's Neck, and unbudgeted parts for the South Boston CSO pumps and Clinton, offset by lower spending at Deer Island; Plant & Machinery Services is overspent by \$97,000 at Deer Island, offset by lower spending in FOD; and Building & Ground Services of \$95,000 in FOD, offset by lower spending at Deer Island.</p>
Training & Meetings	318,407	248,146	(70,261)	-22.1%	Underspending primarily in Fleet Services and MIS due to timing.
Professional Services	4,607,284	4,595,653	(11,631)	-0.3%	Lower spending on Other Services of \$70,000 primarily in Treasury and HR; Lab & Testing Analysis of \$62,000 in EnQual - Wastewater; and Engineering of \$40,000 in Office of Emergency Preparedness for delay in Dam Emergency Action Plan updates. This is offset by higher spending for Legal Services of \$172,000 in the Law Department.
Other Materials	2,987,160	3,226,178	239,018	8.0%	Higher than budget spending for Vehicle Purchases/ Replacements of \$397,000 due to timing; Lab & Testing of \$98,000 in Operations; Computer Hardware of \$68,000 in MIS Other Materials of \$64,000 primarily for gravel for Clinton landfill; and Health/Safety of \$32,000. This is offset by underspending of \$208,000 in Vehicle Expenses primarily due to lower fuel prices and \$37,000 for Computer Software in Operations - SCADA Maintenance.
Other Services	16,890,745	15,924,711	(966,034)	-5.7%	Lower than budgeted Sludge Pelletization of \$356,000 due to lower year to date quantities; Space Lease/Rentals of \$220,000 due to lower escrow for Chelsea taxes and insurance, and pass through maintenance cost at CNY; Other Services of \$175,000 primarily for timing of community lead testing assistance; Grit and Screenings of \$155,000 due to lower quantities; and Telephone of \$67,000 in Operations associated with the SCADA data lines.
Total Direct Expenses	163,109,999	159,270,652	(3,839,347)	-2.4%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY17 Budget YTD February	FY17 Actuals YTD February	FY17 YTD Actual vs. FY17 Budget		Explanations
			\$	%	
Indirect Expenses					
Insurance	1,498,423	1,330,106	(168,317)	-11.2%	Lower Claims than budgeted of \$175,000 offset by higher premiums of \$7,000.
Watershed/PILOT	18,218,451	18,089,080	(129,371)	-0.7%	Lower Watershed Reimbursement due to over accrual at the end of FY16 as compared to actual invoiced paid.
HEEC Payment	580,394	590,286	9,892	1.7%	
Mitigation	1,168,500	1,157,100	(11,400)	-1.0%	Actual inflation rate was 1.5% vs. 2.5% used for the budget.
Addition to Reserves	(125,807)	(125,807)	-	0.0%	
Pension Expense	4,632,624	4,632,624	-	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	25,972,585	25,673,389	(299,196)	-1.2%	
Debt Service					
Debt Service	327,919,192	327,919,192	-	0.0%	Through March staff have transferred \$11.7 million of a favorable YTD variance to the Defeasance Account. The short-term rates related variance is \$8.3 million lower YTD.
Debt Service Assistance	-	-	-		
Total Debt Service Expenses	327,919,192	327,919,192	-	0.0%	
Total Expenses	517,001,776	512,863,233	(4,138,543)	-0.8%	
Revenue & Income					
Rate Revenue	521,158,875	521,158,875	-	0.0%	
Other User Charges	6,418,831	6,486,897	68,066	1.1%	
Other Revenue	5,234,429	10,668,844	5,434,415	103.8%	\$4.8 M for sale of water due to the drought; \$299k for settlement of class action lawsuit for derivative agreements; \$254k from sale of surplus equipment; and \$184,000 for energy efficiency incentives from the utility companies
Rate Stabilization	-	-	-		
Investment Income	6,818,279	6,663,050	(155,229)	-2.3%	Investment Income is under budget for unanticipated calls re-invested at lower rates.
Total Revenue	539,630,414	544,977,666	5,347,252	1.0%	
Net Revenue in Excess of Expenses	22,628,638	32,114,433	9,485,795		

ATTACHMENT 3
Capital Improvement Program Variance Explanations
(000's)

	FY17 Budget YTD March	FY17 Actuals YTD March	YTD Actuals vs. Budget		Explanations
			\$	%	
Wastewater					
Interception & Pumping (I&P)	\$15,779	\$12,189	(\$3,590)	-22.8%	<u>Underspending</u> Chelsea Creek Headworks Upgrades Construction and Resident Engineering and Inspection: \$3.6M (NTP shifted 3 months; contract is currently in submittals and Request For Information status) Caruso Pump Station Improvements Construction: \$0.9M (delayed installation of HVAC equipment due to unforeseen roof replacement) Other smaller projects totaling \$0.7M. <u>Offset Overspending</u> Alewife Brook Pump Station Rehab Construction: \$0.9M (project progress) Chelsea Screenhouse Upgrades Construction and ESDC/REI: \$0.7M (work scheduled)
Treatment	\$11,542	\$18,525	\$6,983	60.5%	<u>Overspending</u> Primary & Secondary Clarifier Rehab - Construction: \$1.8M (Portion of \$2.65M settlement with contractor. Remainder was retainage payment.) Power System Improvements - Construction: \$1.4M (project progress) Clinton Wastewater Treatment Plant Phosphorus Reduction - Construction: \$0.9M (project progress) WTF VFD Replacement - Construction: \$0.4M (spending for bonds and insurances) Electrical Equipment Upgrades Construction 4: \$0.6M (work scheduled and budgeted for FY16 performed in FY17) Digested Sludge Pump Replacement - Phase 2: \$0.5M (project progress) NMPS & WTF Butterfly Valve Replacement: \$0.9M (project progress) Scum Skimmer Replacement: \$0.3M (payment of punch list items) <u>Offset Underspending</u> Other smaller projects totaling \$0.4M.
Residuals	\$0	\$0	\$0	-	
CSO	\$7,110	\$3,077	(\$4,032)	-56.7%	<u>Underspending</u> Cambridge Sewer Separation: \$3.9M (delay in work due to Huron Avenue water main replacement by the City of Cambridge that required a six month time extension) Reserved Channel Sewer Separation Design and Construction: \$0.4M (pending reconciliation of final costs; expected in June 2017)

ATTACHMENT 3
Capital Improvement Program Variance Explanations
(000's)

	FY17 Budget YTD March	FY17 Actuals YTD March	YTD Actuals vs. Budget		Explanations
			\$	%	
Other Wastewater	\$11,012	\$4,655	(\$6,357)	-57.7%	I/I Local Financial Assistance: \$6.4M (less than anticipated requests for grants and loans). The annual CIP budget is based on prior average annual disbursements. Communities' requests for grants and loans are based on their own individual planned schedule of infiltration and inflow work and can vary greatly beyond the Authority's control.
Total Wastewater	\$45,442	\$38,445	(\$6,997)	-15.4%	

ATTACHMENT 3
Capital Improvement Program Variance Explanations
(000's)

	FY17 Budget YTD March	FY17 Actuals YTD March	YTD Actuals vs. Budget		Explanations
			\$	%	
Waterworks					
Drinking Water Quality Improvements	\$1,952	\$829	(\$1,123)	-57.5%	<u>Underspending</u> Spot Pond Covered Storage Facility: \$0.2M (Microwave tower installed. Awaiting delivery and installation of communication shelter.) CP7 Existing Facilities: \$0.7M (pending balancing change order)
Transmission	\$19,600	\$18,954	(\$646)	-3.3%	<u>Underspending</u> Wachusett Aqueduct Pump Station: \$0.5M (pending redesign of work adjacent to City of Marlborough water pipe and progress less than anticipated at the pump station) Rosemary Brook Siphon Building Repair: \$0.8M (anticipated time extension due to additional restoration work) <u>Offset Overspending</u> Hatchery Pipeline Construction and ESDC/REI: \$0.4M (project progress)
Distribution & Pumping	\$11,362	\$14,893	\$3,531	31.1%	<u>Overspending</u> Section 4 Webster Ave Bridge Pipe Rehab - Construction: \$1.2M (additional change order work based on redesign) NIH Section 89/29 Redundancy Phase 1B Construction and ESDC: \$3.6M (project progress) SEH Redundancy Pipeline Section 111 Phase 1 Construction: \$0.5M (project progress) South Segment CP3, Sections 23, 24, 47 - Final Design/CA/RI: \$0.3M (timing of payments) <u>Offset Underspending</u> NIH Section 89/29 Redundancy Phase 1C and Phase 2 Construction: \$1.2M (schedule change) Weston Aqueduct Supply Mains Section 36/C/S9 - A11 Valve: \$0.4M (anticipated credit change order for less than estimated quantities of rock and contaminated soil, and timing of valve installation work) Chestnut Hill Gatehouse No. 1 Repairs - Construction: \$0.3M (schedule change)

ATTACHMENT 3
Capital Improvement Program Variance Explanations
(000's)

	FY17 Budget YTD March	FY17 Actuals YTD March	YTD Actuals vs. Budget		Explanations
			\$	%	
Other Waterworks	\$8,887	\$6,459	(\$2,428)	-27.3%	<u>Underspending</u> Local Water System Assistance Program: \$1.9M (less than budgeted community requests for loans. The annual CIP budget is based on prior average annual disbursements. Communities' requests for loans are based on their own individual planned pipeline lining and/or replacement work and can vary greatly beyond the Authority's control.) Central Monitoring System: \$0.3M (Waterworks SCADA/PLC Upgrades schedule change and less than anticipated need for utility fees and permits)
Total Waterworks	\$41,802	\$41,136	(\$667)	-1.6%	

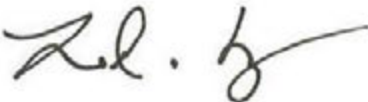
ATTACHMENT 3
Capital Improvement Program Variance Explanations
(000's)

	FY17 Budget YTD March	FY17 Actuals YTD March	YTD Actuals vs. Budget		Explanations
			\$	%	
Business & Operations Support					
Total Business & Operations Support	\$6,349	\$3,938	(\$2,411)	-38.0%	<u>Underspending</u> MIS Projects: \$0.5M (timing of IT Strategic Plan implementation) As-Needed Design: \$1.0M (less than budgeted use of these contracts) <u>Offset Overspending</u> Equipment Purchase: \$0.6M (timing of vehicle purchases)
Total MWRA	\$93,594	\$83,519	(\$10,074)	-10.8%	

ATTACHMENT 4

TOTAL MWRA	FY17 Budget	FY17 Projection	Change FY17 Budget vs FY17 Projection	
			\$	%
EXPENSES				
WAGES AND SALARIES	\$ 101,858,897	\$ 98,693,997	\$ (3,164,900)	-3.1%
OVERTIME	4,192,676	4,353,199	160,523	3.8%
FRINGE BENEFITS	20,242,324	19,588,234	(654,090)	-3.2%
WORKERS' COMPENSATION	2,344,190	2,864,190	520,000	22.2%
CHEMICALS	9,110,407	9,479,801	369,394	4.1%
ENERGY AND UTILITIES	21,541,078	20,825,402	(715,676)	-3.3%
MAINTENANCE	31,080,642	32,004,057	923,415	3.0%
TRAINING AND MEETINGS	435,481	414,086	(21,395)	-4.9%
PROFESSIONAL SERVICES	6,531,939	6,818,941	287,002	4.4%
OTHER MATERIALS	6,219,630	6,156,271	(63,359)	-1.0%
OTHER SERVICES	22,974,855	22,065,308	(909,547)	-4.0%
TOTAL DIRECT EXPENSES	\$ 226,532,117	\$ 223,263,486	\$ (3,268,631)	-1.4%
INSURANCE	\$ 1,997,898	\$ 1,932,428	(65,470)	-3.3%
WATERSHED/PILOT	24,291,268	24,000,159	(291,109)	-1.2%
HEEC PAYMENT	773,859	773,859	-	0.0%
MITIGATION	1,558,000	1,542,800	(15,200)	-1.0%
ADDITIONS TO RESERVES	(167,742)	(167,742)	-	0.0%
RETIREMENT FUND	3,132,624	3,132,624	-	0.0%
ADDITIONAL PENSION DEPOSIT	1,500,000	1,500,000	-	0.0%
POSTEMPLOYMENT BENEFITS	4,876,050	4,876,050	-	0.0%
TOTAL INDIRECT EXPENSES	\$ 37,961,957	\$ 37,590,178	\$ (371,779)	-1.0%
STATE REVOLVING FUND	\$ 86,971,915	\$ 82,906,636	(4,065,279)	-4.7%
SENIOR DEBT	268,472,557	263,027,504	(5,445,053)	-2.0%
SUBORDINATE DEBT	69,997,992	69,997,992	-	0.0%
LOCAL WATER PIPELINE CP	4,149,242	1,011,093	(3,138,149)	-75.6%
CURRENT REVENUE/CAPITAL	12,200,000	12,200,000	-	0.0%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	10,994,960	10,994,960	-	
VARIABLE RATE SAVINGS	-	(9,643,716)	(9,643,716)	
DEFEASANCE ACCOUNT	-	22,292,195	22,292,195	
DEBT SERVICE ASSISTANCE	(873,804)	(873,804)	-	0.0%
TOTAL DEBT SERVICE	\$ 455,129,920	\$ 455,129,920	\$ -	0.0%
TOTAL EXPENSES	\$ 719,623,994	\$ 715,983,584	\$ (3,640,410)	-0.5%
REVENUE & INCOME				
RATE REVENUE	\$ 694,878,500	\$ 694,878,500	-	0.0%
OTHER USER CHARGES	8,752,834	8,752,834	-	0.0%
OTHER REVENUE	6,519,171	13,719,271	7,200,100	110.4%
RATE STABILIZATION	-	-	-	
INVESTMENT INCOME	9,473,490	9,309,490	(164,000)	-1.7%
TOTAL REVENUE & INCOME	\$ 719,623,996	\$ 726,660,095	\$ 7,036,100	1.0%
VARIANCE:		\$ (10,676,511)	\$ (10,676,511)	

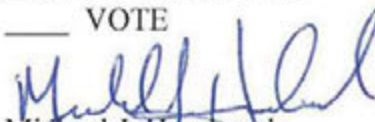
STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: 2016 Annual Update on New Connections to the MWRA System

COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Pamela Heidell, Policy & Planning Manager
 Preparer/Title


Michael J. Hornbrook
 Chief Operating Officer

RECOMMENDATION:

For information only. This *2016 Annual Update on New Connections to the MWRA System* has been prepared pursuant to the "Annual Update" requirements of MWRA's system expansion policies.

DISCUSSION:

MWRA's system expansion policies require an annual update to the Board on the status of any new connections to the MWRA from outside the water and sewer service areas. This *2016 Annual Update* addresses post-2002 connections to the MWRA from outside the service areas (MWRA's system expansion policies' first prescribed update requirements in 2002). The Report focuses on each connection's compliance with requirements stipulated in its water supply or sewer use agreements. For water connections, requirements include, but are not limited to, compliance with water withdrawal limits and entrance payments due MWRA. For wastewater connections, requirements address inflow removal and any ongoing stipulations regarding management of wet weather flows, compliance with discharge limits, and entrance payments due to MWRA. This Annual Update also includes an update on inquiries from potential applicants for admission and other system expansion considerations.

The following MWRA policies govern system expansion:

- # OP.04, Sewer Connections Serving Property Partially Located in a Non-MWRA Community (the "Sewer Straddle" policy);
- # OP.05, Emergency Water Supply Withdrawals;
- # OP.09, Water Connections Serving Property Partially Located in a Non-MWRA community (the "Water Straddle" policy);
- # OP.10, Admission of New Community to MWRA Water System; and
- # OP.11, Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area.

A summary of the policies is provided in Attachment A.

Summary of Approved Connections to the MWRA System

Water System

In 2016, drought conditions prompted requests by the following entities for six-month emergency water supply withdrawal under # OP. 5, Emergency Water Supply Withdrawals:

- **Ashland:** Ashland was concerned that due to falling groundwater elevations, its wells would lock out. Consequently, the Town sought and received approval of a six-month emergency withdrawal from MWRA for the period August 22, 2016 to February 2, 2017. Actual withdrawals from MWRA occurred on only a limited number of days in September and October, for a total withdrawal of 3.095 million gallons.
- **Burlington:** Burlington relies on a mixture of ground and surface water sources and had recently removed some wells from service due to water quality reasons. The drought exacerbated water supply capacity concerns. A 6-month emergency withdrawal period extending from September 30, 2016 to March 29, 2017 was approved by MWRA. From October 24-November 4, 2016 Burlington withdrew water from MWRA via Lexington at a rate of 700,000 gallons a day for a total of 7.868 million gallons. There have been no withdrawals since early November.
- **Cherry Valley and Rochdale Water District (CVRWD):** CVRWD has an emergency interconnection with Worcester: Worcester is part of the MWRA service area but relies on MWRA only in emergencies, such as the drought conditions in 2016. Worcester withdrew MWRA water for approximately 55 days last fall. CVRWD notified MWRA that due to the declining water elevation in Henshaw Pond, its sole source of supply, an emergency connection to MWRA via Worcester was desired. The MWRA Board approved an emergency agreement with CVRWD extending from October 7, 2016 to April 6, 2017. Despite requests from MWRA staff, CVRWD had not signed the Agreement even though the District did withdraw water from Worcester. Staff have requested records from both Worcester and CWRWD regarding CVRWD's withdrawals from Worcester, so that MWRA may quantify how much water the District withdrew from Worcester on the days that Worcester was also withdrawing water from MWRA. When this information is provided, MWRA will bill CWRWD for the 10% premium payment associated with non-MWRA communities emergency water supply withdrawals (meanwhile, Worcester is billed the prevailing rate for the water it withdrew).

In terms of permanent connections to join the MWRA, there were no applications to MWRA in 2016 under OP.09, the "Water Straddle" policy, or # OP. 10, Admission of New Community to MWRA Water System.

Since 2002, Stoughton, Reading, the Dedham Westwood Water District, and Wilmington have become MWRA water-supplied communities. (Bedford was admitted into the MWRA system prior to 2002 before firm water withdrawal limits were established for new communities.)

There have also been two “straddle connections” since 2002 – Avalon in Peabody/Danvers (now called 14 North), and the YMCA in Marblehead/Salem.

The connections are shown in Figure 1 and information pertaining to these connections is provided in Table 1.

Figure 1: New Water Connections Since 2002 and Potential New Communities

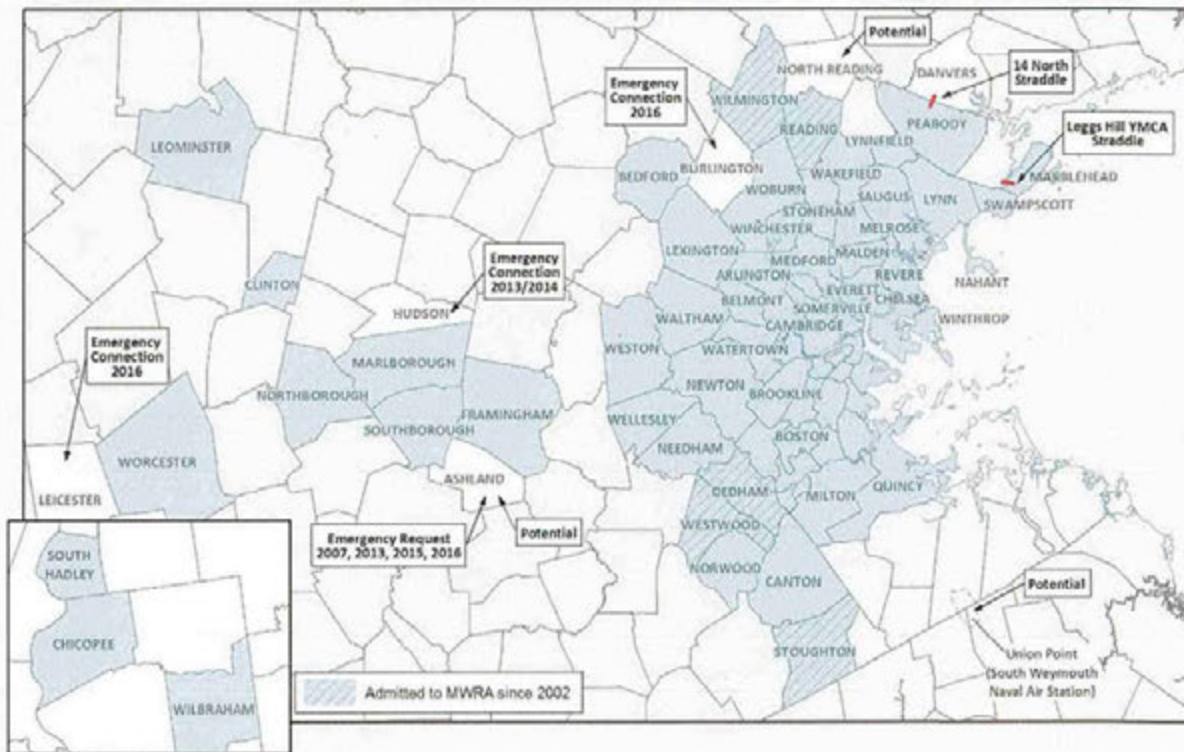


Table 1 - Approved Connections to MWRA Water System Since 2002

Applicant (location)	Applicable MWRA Policy	Approval Date or Emergency Period	Entrance Fee or Payment of Charges Under the Emergency Policy	MWRA Approved withdrawal	2016 MWRA Withdrawal
Burlington	OP.05 Emergency	9/30/16- 3/29/17	MWRA received \$30,046 for water sales to Burlington (includes prevailing rate and emergency 10% surcharge).	.7 mgd	7.860 MG total
Cherry Valley & Rochdale Water District	OP.05 Emergency	10/27/16- 4/6/17	None to date.	No maximum	Not reported
Ashland	OP.05 Emergency	8/22/16- 2/22/17	For Sept-Dec. water sales to Ashland, MWRA received \$15,997 (includes prevailing rate, 10% surcharge, and asset value contribution)	.75 mgd	3.195 MG Total

Applicant (location)	Applicable MWRA Policy	Approval Date or Emergency Period	Entrance Fee or Payment of Charges Under the Emergency Policy	MWRA Approved withdrawal	2016 MWRA Withdrawal
Hudson	OP.05 Emergency	6/13 12/13 6/14	For 3 six-month emergency withdrawal periods, MWRA received a total of \$1,033,787.	NA in 2016	0
Dedham/ Westwood W.D (partially supplied)	OP.10, New Community	12/05 12/14	Entrance fee (\$548,748) for first .1 mgd paid. Fee of \$566,727 for additional 0.1 mgd to be paid in 5 annual installments, first 3 received.	0.2 mgd	.226* mgd
Wilmington (partially supplied)	OP.10, New Community	5/09	Net Entrance Fee of \$2,809,320 w/20 year payment schedule. On-time payments.	0.6 mgd	.592 mgd
Reading	OP.10, New Community	11/05 10/07	\$3,285,242 (first 0.6 mgd) \$7,799,606 (for additional 1.5 mgd). Paid in full	2.1 mgd	1.687mgd
YMCA Salem/Marblehead	OP.09, Straddle	11/06	\$70,823 paid in full	0.0127 mgd	.009 mgd
14 North Danvers/Peabody	OP.09 Straddle	05/03	\$64,063 paid in full	0.012 mgd	.006 mgd
Stoughton (partially supplied)	OP.10, New Community	6/02	Net Entrance Fee of 5,657,117 w/ 20 year payment schedule. On time payments.	1.15 mgd	.194 mgd

*DWWD requested and was approved by the Chief Operating Officer to withdraw more than .2 mgd due to drought emergency.

The highlights of Table 1 include:

- All water supply withdrawals with the exception of Dedham-Westwood Water District are below their contract limits.
- In the summer of 2016, DWWD requested that on an emergency basis, it be allowed to withdraw water from MWRA in excess of its annual limit pursuant to a provision in the MWRA/DWWD Water Supply Agreement that states that a water supply emergency may be an appropriate reason for DWWD to temporarily increase its maximum water volume withdrawals without requiring a revision to the Agreement and entrance fee.
- For permanent connections, all entrance fees have been paid pursuant to agreed-upon schedules of payments included in the communities' Water Supply Agreements.
- At this time, Cherry Valley and Rochdale Water District has neither executed the Emergency Water Supply Agreement, nor provided MWRA with information on water use.
- Stoughton's 2016 MWRA withdrawals are substantially below the volume projected when it joined MWRA and the volumes used as the basis of its entrance fee: Stoughton has rehabilitated local wells and decreased reliance on MWRA.

Sewer System

In 2016, there were no applications to MWRA for sewer connections under either #OP.11, *Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area*, or #OP.4, the “Sewer Straddle” policy.

Figure 2 shows and Table 2 summarizes connections to the MWRA sewer system since 2002 when annual reporting requirements were established.

Figure 2: New or Increased Volume Sewer Connections Since 2002

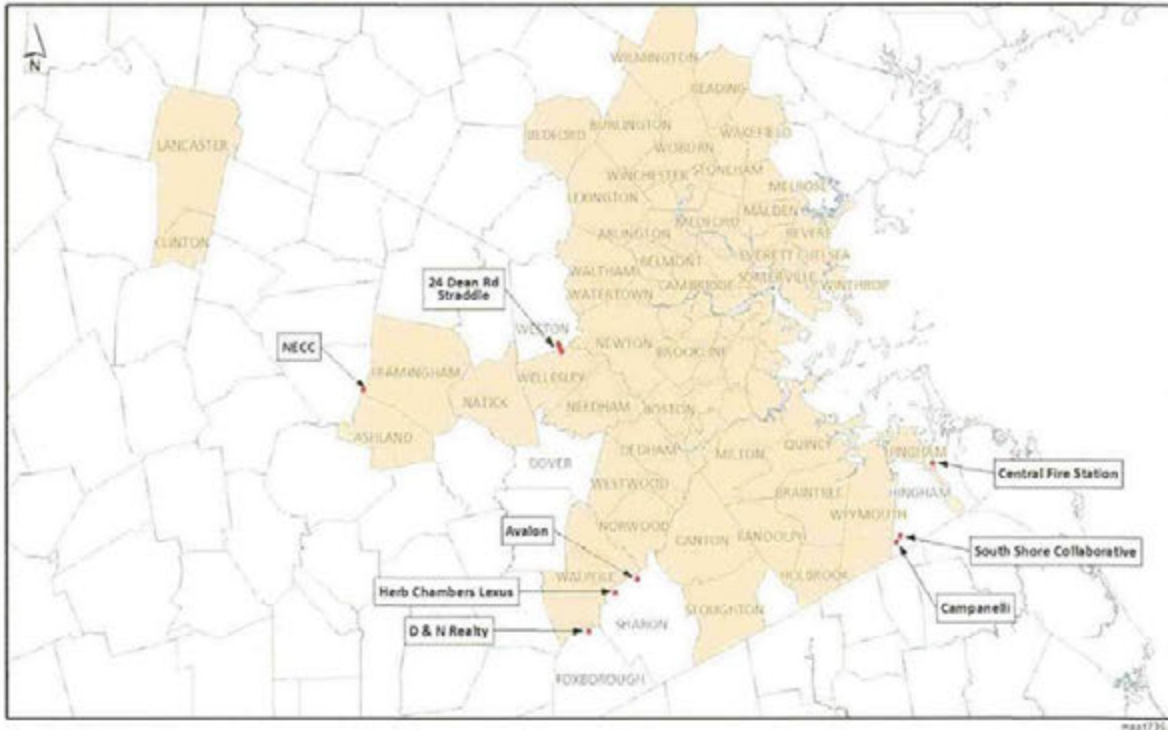


Table 2
Approved Connections to MWRA Sewer System Since 2002

Applicant (location)	MWRA Policy	Approval Date	Entrance Fee Payment	Status of Inflow Removal/Other Contract Requirements	MWRA Approved discharge	Estimated Discharge to MWRA in 2016*
New England Center for Children	OP.11	7/15/15	\$24,228 Paid in full	Inflow removal completed in December, 2016 (with formal completion report anticipated shortly).	12,500 gpd	8,460 gpd**
FoxRock Realty South Shore Collaborative, Hingham	OP.11	4/12	\$9,133 + \$ 12,750 paid in full	Inflow removal completed	5,536 gpd	2,468 gpd
24 Dean Road, Weston/Wellesley	OP.04	3/11	\$18,033 paid in full	Inflow removal completed	575 gpd	365 gpd

Applicant (location)	MWRA Policy	Approval Date	Entrance Fee Payment	Status of Inflow Removal/Other Contract Requirements	MWRA Approved discharge	Estimated Discharge to MWRA in 2016*
D&N Realty, Foxborough	OP.11	6/07	\$168,391 paid in full	Inflow removal completed; inflow dishes are periodically inspected to ensure proper operation. Owner maintains a tight tank and has emergency contracts for tank pump-out and can cease discharges if directed by MWRA during wet weather events.	13,000 gpd (average) 22,750 gpd (max day)	2,499 gpd***
Avalon Bay, (Sharon)	OP.11	6/07	\$105,586 paid in full	Storage tank per agreement with Norwood. Inflow removal completed	16,120 gpd	14,931
Herb Chambers Lexus, Sharon)	OP.11	5/07	\$40,750 paid in full.	Inflow removal completed and inflow dishes are periodically inspected to ensure proper operation	6,400 gpd (average) 10,500 gpd (max)	5,608 gpd***
Hingham Fire Station, (Hingham)	OP.11	4/07	\$8,429 paid in full	Inflow removal completed	782 gpd	220 gpd
<p>* Wastewater discharges are estimated based on water meter readings. ** NECC's daily discharge based on July-December: new building was substantially complete in July. Wastewater discharge likely less than that calculated, as discharge is estimated based on water bills and water use in summer included landscaping. ***Water consumption figures are adjusted downward by 5% to account for a certain percentage of water that is used by the facility and not returned as wastewater (such as landscaping, water consumed).</p>						

The key findings of Table 2 include:

- All connections reported that wastewater discharges in 2016 were below their approved agreement limits.
- Entities reported compliance with ongoing obligations that relate to sewer system operations. These range from inflow removal reports to ongoing inspection of the inflow dishes installed in sewer manholes to reduce inflow in Walpole to maintaining the ability to cease discharges to MWRA during severe wet weather (Avalon and D&N Realty).

Potential Future Connections

Water

In 2016, North Reading and Ashland continued to pursue admission to MWRA, as addressed below. According to a March 2017 Notice of Project Change to MEPA, Union Point

(previously referred to as Southfield and the Weymouth Naval Air Station Redevelopment Project) is weighing MWRA as well as other water supply options. Whereas in past years, MWRA had substantive discussions with Tri-Town (Braintree, Randolph, and Holbrook) regarding the possibility of joining MWRA, 2016 was marked by consistent indications that Tri-Town's intent was to construct a water treatment plant and to continue reliance on local sources. More information on North Reading, Ashland, and Union Point follows below.

North Reading: On average, North Reading purchases approximately 1 mgd of water from Andover, and derives another 0.5 mgd from its wells in the Ipswich River Basin. In order to provide a long-term, reliable and sustainable water source and to reduce stress on Ipswich River, North Reading plans to become a fully served MWRA water community. MWRA water would be wheeled to North Reading through Reading after the Towns complete necessary improvements in Reading's water system to increase hydraulic capacity including cleaning and lining portions of existing mains and replacing portions of water mains within Reading's distribution system with larger pipes. Supply of MWRA of water to North Reading via wheeling through Reading also entails North Reading's construction of a new connection/pipeline at the Reading/North Reading border.

In 2016, North Reading Town Meeting approved warrant articles for the funding of engineering, design, and permitting of water connection to MWRA. In 2016, legislation was introduced for North Reading to become a member of MWRA, and was enacted in early 2017. Submission of a FEIR is anticipated shortly. After the FEIR, North Reading plans to complete the Interbasin Transfer Act processes and formally apply to MWRA and the MWRA Advisory Board. In the mean time, the design of local pipeline improvements and a pump station is ongoing, with construction bid documents anticipated this summer. North Reading's timeline to receive MWRA water is July 2019. December 2019 is the date of MWRA's completion of its Northern Intermediate High Redundancy improvements.

Ashland: Ashland relies on three wells in a well field adjacent to the Hopkinton State Reservoir. The Town's groundwater sources can impact nearby water resources and may result in withdrawal constraints that limit groundwater pumping. Therefore, Ashland is developing a plan to diversify its water sources. Ashland and Hopkinton do share water supply wells and have an existing 25-year agreement for supply and treatment.

In Spring 2015, Ashland Town Meeting voted to approve pursuit of a connection to MWRA, including permitting. In September 2015, the Town submitted a Draft Environmental Impact Report. An FEIR has not been submitted yet. A warrant article for Ashland's Fall 2016 Town Meeting seeking approval for funding Ashland's connection to MWRA was postponed: it was reported that this was due to questions surrounding Ashland and Hopkinton water sharing and respective financial obligations, since if Ashland joins the MWRA, it would make more water from local sources available for Hopkinton. Ashland clarified in 2016 that its MWRA demand of 0.3 mgd included assumptions regarding increased water supply to Hopkinton. In turn, MWRA staff informed Ashland that regarding admission to MWRA, Ashland and Hopkinton could not be separated.

Union Point: Union Point is a mixed-use community being developed at the site of the former Weymouth Naval Air Station, which lies in Weymouth, Abington, and Rockland (Weymouth

hosts a large part of the development). On an interim basis, the three communities would supply water but at full build-out demand of 2.7 mgd, local sources are not sufficient.

In 2015, The MWRA Board of Directors previously voted to endorse Southfield's admission to the MWRA water System, contingent upon Southfield's fulfilling the requirement of OP 10, and contingent upon the support of MWRA' member communities as signified by a vote of MWRA Advisory Board. In 2016 Union Point continued to explore MWRA as a water supply option, investigating different options for conveying MWRA water to Union Point. Union Point representatives met with MWRA on several occasions, and staff provided information and insights to assist in Union Point's evaluations.

In March 2017, Union Point's Notice of Project Change to MEPA noted the following re: water supply: *"The Union Point full build-out water supply option remains, as described in the 2017 FEIR, a direct transmission pipeline from the MWRA water system to Union Point...In the years since the filing of the 2007 FEIR, background conditions in the vicinity of Union Point and in the surrounding and nearby communities have changed. In addition, the need to construct a larger transmission pipeline to accommodate the currently-proposed full-build development increases to the cost and complexity of the pipeline construction. For these reasons, the Proponent has identified and is evaluating alternative pipeline routes, in additions to the route studied in the 2007 FEIR, and water sources in addition to MWRA....the Proponent is evaluating the feasibility of purchasing water for Union Point from the Aquaria Desalinization Plant..."*

Sewer

In 2016, staff received occasional sewer system expansion inquiries, and in one instance, the inquiry resulted in the preparation of a draft sewer connection agreement, the drafting of legislation, and a vote of the Advisory Board. However, the Applicant did not proceed and the proposed connection was not brought to the Board for approval.

In 2016, Union Point representatives also met with MWRA to discuss wastewater discharge. At full build-out, Union Point estimates that up to 2.3 mgd of wastewater would be generated. MWRA staff indicated that the volume of wastewater that Union Point contemplates discharging to MWRA via the Weymouth system far exceeds the volume proposed in earlier plans and MEPA documentation since it assumed less dense development as well as on-site wastewater treatment as the preferred permanent solution. Staff acknowledged that while Weymouth is already an MWRA sewer served community and flow generated within Weymouth's municipal borders would not be subject to an entrance fee, the increased wastewater flow nevertheless has potential environmental consequences for both MWRA system and community systems downstream, including the potential for sanitary system overflows into local rivers and streams or flooding into streets or back-ups into homes. Staff also indicated that with respect to wastewater generated in the Rockland and Abington portions of Union Point, the provisions of OP#11 would apply. OP#11 requires that due consideration be given to feasible alternatives. It also requires a finding that acceptance of the discharge from outside the service area will be consistent with sound wastewater management and not jeopardize MWRA's ability to comply with state and federal regulations. Staff noted that given concerns with downstream sanitary sewer overflows, detailed mitigation would be required, including but not limited to 4:1 removal of inflow, with inflow removal projects fully identified prior to application to MWRA for a

determination of whether or not inflow reduction is feasible prior to introduction of new flows. On-site storage was also suggested. MWRA expressed skepticism that OP#11 provisions could be met.

The March 2017 NPC submitted by Union Point, LSTAR noted three wastewater management alternatives under consideration:

- All wastewater conveyed to MWRA
- All wastewater treated in new privately owned on-site wastewater treatment plant and discharged to groundwater or well or sed for irrigation of industrial uses
- Mixture: conveyed to MWRA as well as privately owned on-site wastewater (wastewater within Weymouth to MWRA, wastewater within Abington and Rockland to on-site, 830,000 gpd).

MWRA's MEPA comments stress the need to fully assess impacts of the proposed wastewater discharge and to identify feasible mitigation measures to ameliorate the system impacts of such increased flows.

ATTACHMENT A

Policies for Admission to the MWRA

- **OP. #04, Sewer Connections Serving Property Partially Located in a Non-MWRA Community.** This policy applies to persons seeking sewer services for buildings/structures that are located partially within an MWRA sewer community and partially outside an MWRA sewer community (the actual structures, not just the parcel of land on which the structure is located, must straddle the municipal boundary). It is also known as the "Sewer Straddle" policy.
- **OP#05. Emergency Water Supply Withdrawals.** This policy applies to communities outside MWRA's Water Service Area that are seeking MWRA water on an emergency basis. The MWRA may approve emergency withdrawals for no more than six months at a time, and typically, the emergency withdrawal period coincides with a DEP Declaration of Emergency for the Community.
- **OP#09, Water Connections Serving Property Partially Located in a Non-MWRA community.** This policy applies to persons seeking to obtain water for a location, building, or structure located on a parcel of land, under single ownership, and which is subject to an integrated plan for use of development, that is located partially within an MWRA water community and partially outside an MWRA water community. It is also known as the "Water Straddle" policy.
- **OP#10, Admission of New Community to MWRA Water System.** This policy applies to communities seeking admission to the MWRA water system. OP#10 also applies to any local body, institution, agency or facility of the Commonwealth or federal government seeking MWRA water for a location outside MWRA's Water Service area. Connections and withdrawals by private entities outside the water service area are prohibited, except for those that are eligible under either the water straddle policy (OP#9), or that are located contiguous to or in the vicinity of local community-owned water supply pipelines that extend from the MWRA's Chicopee Valley Aqueduct (CVA) and that receive the appropriate approvals from the CVA, host communities, and applicable regulatory bodies.
- **OP#11, Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area.** This policy applies to communities seeking admission to the MWRA sewer system and to all parties seeking sewer service for locations outside the MWRA service area that are not eligible under the Sewer Straddle Policy.

MWRA must approve all extension of service to entities outside the service area pursuant to the applicable policy noted above, with the exception of connections to local community owned water supply pipelines that extend from the Chicopee Valley Aqueduct. This is the case even when an entity outside the service area is not directly connected to the MWRA, but instead to a community local system that is part of the MWRA service area.


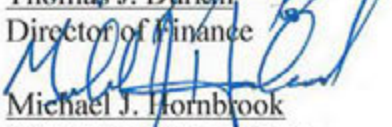
STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Potential Cost Impacts of the Eversource Cable Work on the FY18 and FY19 CEB

COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

David Duest, Director, Deer Island
Kathy Soni, Budget Director
Louise L. Miller, Budget Manager
Preparer/Title


Thomas J. Durkin
Director of Finance

Michael J. Hornbrook
Chief Operating Officer

The following staff summary discusses the substantial financial risks the Authority faces in regards to the cost associated with the HEEC cable and the Boston Harbor dredging project. Almost at every turn, the potential range of financial risks grows wider and larger. MWRA staff continue to negotiate and yes, fight on multiple fronts. While we are confident in the strength of our position in the judicial proceedings and yes, in the court of public opinion, it is important to realize that there is over \$90 million at risk, if the worst case scenario plays out.

RECOMMENDATION:

For information only. This staff summary describes the potential cost impacts of the Harbor Electric Energy Company Cable work on the FY18 and FY19 Current Expense Budgets and Community Assessments.

BACKGROUND:

Massport and the U.S. Army Corp of Engineers are moving forward with a dredging improvement project for Boston Harbor including the Reserved Channel. The goal of the project is to deepen the harbor to allow deep draft ships to enter Boston Harbor and the Reserved Channel.

Deer Island's primary electric power source is a submerged marine cable (115 kW) commencing at K Street in South Boston and located in the Reserved Channel and Boston Harbor. The submerged cable is owned and maintained by the Harbor Electric Energy Company (HEEC), a subsidiary of NSTAR both operating as Eversource Electric. The cable was installed by HEEC in 1989-90 at depths, shallower in some locations, than depths required by its Army Corps permit.

According to the Army Corps, with the HEEC cable at its present non-permit compliant locations, the dredging work cannot be performed without endangering the cable. The Army

Corps has demanded that the cable be protected to allow the Boston Harbor improvement dredging work to proceed. The U.S. Attorney's Office, on behalf of the Army Corps, brought suit against MWRA and HEEC in federal court arising out of the improper location of the cross harbor cable.

Staff believe that HEEC continues to work on finalizing plans towards dredging over the cable, armoring the cable by installing protective mats above the cable and performing dredging within a one hundred foot corridor on either side of the cable's location. To complete this work, the cross harbor cable will need to be de-energized to allow the contractor to work safely (when dredging within a defined distance of the cable and when the protective mats are placed over the cable).

Deer Island is required by its NPDES permit to have adequate backup power to provide full treatment at all times.

DISCUSSION:

Deer Island Energy During Dredging

MWRA intends to meet its primary energy requirement needs during these dredging activities and when utility cable power is unavailable through the use of MWRA's permanently installed backup generators, two 26-MW Combustion Turbine Generators ("CTGs"):

- 1 CTG is required at all times for normal plant flows (normal loads around 12 megawatts ("MW"), plant flow 360 million gallons per day); and
- 2 CTGs are required during storm conditions (up to 46 MW max demand at 1.3 billion gallons per day).

Backup Power Deer Island Energy During Dredging

Scenario 1

During most dredging days and during the installation of protective mats, MWRA will utilize one MWRA CTG to provide all power necessary to run Deer Island and the second MWRA CTG will be available for backup generation. During these days the cross harbor cable will be de-energized. During periods of extreme high flows or if MWRA experiences mechanical problems with a CTG, MWRA will request HEEC to reenergize the cable for primary power and MWRA will utilize the MWRA generators for backup power. This will require HEEC to include a small number of days in each dredging season schedule to reenergize the cable.

Scenario 2

Under this scenario, the cross harbor cable will remain de-energized during the entire two seasons that dredging and installation of mats will occur thereby requiring the need for two temporary backup generators on Deer Island. One MWRA CTG will be utilized to provide all power necessary to run Deer Island during dry weather and the second MWRA CTG will be utilized for larger wet weather events or if mechanical issues occur with one of the CTGs. With

both CTGs in operation and the cross harbor cable not energized and not available, temporary backup generators (two 25 MW generators) would be necessary on Deer Island.

The current best estimate of the time period when these activities will occur is August 1, 2017 to February 15, 2018 (7 months), and resuming July 1, 2018 to February 15, 2019 (8 months) for a total of 15 months, impacting both the FY18 and FY19 Current Expense Budgets.

COSTS:

The potential costs to MWRA of the HEEC cable work during FY18 and FY19 can be broken down into three categories:

1. Operating costs of Deer Island's two 26-MW CTGs
 - a. Net Energy costs
 - b. Overtime costs
 - c. CTG consultant/CTG contractor

2. Other costs of running the two CTGs
 - a. Loss of Demand Response revenue
 - b. Cost of Direct Energy electricity supply contract penalty
 - c. Additional CO₂ allowances required to comply with Massachusetts CO₂ Budget Trading Program

3. Cost of back-up power
 - a. Possibility of no cost if the cable is re-energized
 - b. Mobilization and installation of temporary back-up CTGs
 - c. Rental of back-up CTGs

As previously described, staff have run two scenarios that quantify the potential costs of the HEEC cable work and include the initial project cost estimate of \$4.4 million, which was included in the FY18 Proposed budget for comparison. The first scenario estimates the likely cost impact in each of the cost categories and assumes no additional temporary back-up CTGs. The second case scenario is a worst case scenario for costs and assumes the leasing of two temporary back-up CTGs.

FY18	FY18 Proposed	Scenario 1	Scenario 2
Operating Costs	4,419,140	8,050,599	11,426,895
Other Costs		1,697,755	3,559,938
Back-up CTGs		-	17,000,000
Total FY18	4,419,140	9,748,354	31,986,833
FY19	FY19	Scenario 1	Scenario 2
Operating Cost		9,758,785	12,826,927
Other Costs		1,454,726	3,054,472
Back-up CTGs		-	8,000,000
Total FY19	-	11,213,512	23,881,399
Total Cost	4,419,140	20,961,866	55,868,233

Assumptions and back-up for calculations are provided in Attachment A

BUDGET/FISCAL IMPACTS:

Based on information at the time the Proposed FY18 CEB budget was established, the HEEC dredging and cable protection work was estimated at 4 months from July 1, 2017 through end of October. Staff included an estimated cost of \$4.4 million in the Proposed FY18 CEB to cover the net cost of diesel used to run the CTGs offset by the savings in electricity while Deer Island is off the grid, the estimated overtime, and the third party contractor maintenance costs for the 4 month window. However, based on the latest estimates from HEEC, the estimated time of completion of the work is now 15 months over two fiscal years with an estimated project cost of \$21.0 million and a worst case scenario of \$55.9 million. In addition to the above operating costs, the budget will be impacted by other costs including additional operating reserve requirements as a result of higher direct costs associated with the cable project.

FY19 projections did not have any futures cable project costs included, given that the assumption at that point was that all construction work will be done in FY18.

Impact on Assessments

Incremental Costs (millions)

	FY18	FY19
FY18 Proposed Budget	\$4.4	\$0
Scenario 1	\$9.7 (\$4.4 + \$5.3M)	\$11.2
Scenario 2	\$32.0 (\$4.4 + \$27.6)	\$23.9

Annual Assessment Changes

	Combined Utilities		Sewer Utility	
	FY18	FY19	FY18	FY19
FY18 Proposed Budget	3.8%	3.8%	3.7%	3.7%
Scenario 1	4.7%	4.8%	5.2%	5.1%
Scenario 2	8.4%	2.9%	11.3%	2.2%

Dredging Costs Increase

Eversource recently informed MWRA that its estimated costs for performing dredging and the cable protection work is approximately \$40.0 million, a significant increase versus previous cost estimates provided by Eversource.

The primary reasons are the increasing width and length to be dredged, survey costs, and updated cable protection mat costs, which makes the (combined MWRA and Eversource) cost of this project in the range of \$61.0-\$96.0 million.

MWRA has cross-claimed against Eversource and HEEC in the pending federal court enforcement suit brought by the United States on behalf of the Army Corps for all costs that MWRA and/or Eversource incurs, and Eversource attempts to assess to MWRA that arise out of the mis-positioned cable.

Staff are currently considering and evaluating multiple options for mitigating the impact of this significant cost increase on the Sewer Community Assessments in FY18 and FY19.

Attachment A - Assumptions and Back-up calculations

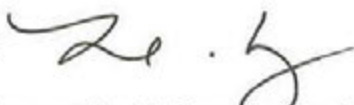
		Scenario 1	Scenario 2
FY18	1, Operating Costs		
	Diesel Fuel		
	Estimated use in gallons	4,823,280	4,823,280
	Estimated cost per gallon	\$2.30	\$3.00
	Total Diesel Fuel Cost	\$11,093,544	\$14,469,840
	Avoided Electricity		
	kWh	50,992,200	50,992,200
	kWh Cost	\$0.085	\$0.085
	Total Estimated Avoided Electricity Cost	(\$4,334,337)	(\$4,334,337)
	Net Energy Costs	\$6,759,207	\$10,135,503
	Overtime Cost		
	Weekdays - Overtime includes 2- Med Voltage Electrician (16 hours for five days)		
	Weekends - Overtime includes 2- Med Voltage Electrician (24 hours for two days)		
	24X7 Coverage one 2nd Class Engineer	\$784,092	\$784,092
	CTG Consultant/CTG Contractor		
	CTG Consultant		
	Weekdays - Pratt & Whitney on-island weekdays (8hrs per day)	\$399,000	\$399,000
	CTG Contractor		
	Weekdays - CTG Maintenance contractor on-island (8hrs per day)	\$108,300	\$108,300
	Total Operating Costs:	\$8,050,599	\$11,426,895
	2, Other costs of running two CTGs		
	Loss of Demand Response Revenue	\$997,617	\$2,059,527
	Cost of Direct Energy Supply Contract Penalty	\$528,528	\$1,255,254
	Additional CO2 Allowances ~ 49,000 metric tons @ \$3.50 and \$5.00/metric ton	\$171,610	\$245,157
	Total Other Costs of running two CTGs:	\$1,697,755	\$3,559,938
3, Cost of back-up power			
Mobilization and Installation of 2 temporary back-up CTGs		\$5,000,000	
Rental of back-up 2 CTGs (\$1 million/month 8 months)		\$12,000,000	
Total back-up CTGs:		\$17,000,000	
Total FY18	\$9,748,354	\$31,986,833	

Attachment A - Assumptions and Back-up calculations

FY19

	Scenario 1	Scenario 2
1, Operating Costs		
Diesel Fuel		
Estimated use in gallons	5,578,440	5,578,440
Estimated cost per gallon	\$2.45	\$3.00
Total Diesel Fuel Cost	\$13,667,178	\$16,735,320
 kWh	 58,149,000	 58,149,000
kWh Cost	\$0.093	\$0.093
Total Estimated Avoided Electricity Cost	(\$5,407,857)	(\$5,407,857)
 Net Energy Costs	 \$8,259,321	 \$11,327,463
Overtime Costs		
Weekdays - Overtime includes 2- Med Voltage Electrician (16 hours times five days)		
Weekends - Overtime includes 2- Med Voltage Electrician (24 hours for two days)		
24X7 Coverage one 2nd Class Engineer	\$920,964	\$920,964
CTG Consultant/CTG Contractor		
CTG Consultant		
Weekdays - Pratt & Whitney on-island weekdays (8hrs per day)	\$455,000	\$455,000
CTG Contractor		
Weekdays - CTG Maintenance contractor on-island (8hrs per day)	\$123,500	\$123,500
Total Operating Costs:	\$9,758,785	\$12,826,927
2, Other costs of running two CTGs		
Loss of Demand Response Revenue	\$646,408	\$1,322,562
Cost of Direct Energy Supply Contract Penalty	\$609,840	\$1,448,370
Additional CO2 Allowances -57,000 metric tons @ \$3.50 and \$5.00/metric ton	\$198,478	\$283,540
Total Other Costs of running two CTGs:	\$1,454,726	\$3,054,472
3, Cost of back-up power		
Mobilization and Installation of 2 temporary back-up CTGs		
Rental of back-up 2 CTGs (\$1 million/month 8 months)		\$8,000,000
Total FY19	\$11,213,512	\$23,881,399
Total FY18	\$9,748,354	\$31,986,833
Total FY19	\$11,213,512	\$23,881,399
Project Grand Total	\$20,961,866	\$55,868,233


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: One Year Sole Source Purchase Order Contract for Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System
Infor Global Solutions

COMMITTEE: Administration, Finance, & Audit

 INFORMATION

 X VOTE


Russell J. Murray, MIS Director
Giri Narayanan, App & Sys Development Manager
Carolyn Francisco Murphy, Director, Procurement
Preparer/Title


Thomas Durkin
Director, Finance


Michele S. Gillen
Director, Administration

RECOMMENDATION:

To approve the award of a sole source purchase order contract for the annual maintenance and support of the integrated financial, procurement and human resources/payroll management system to Infor Global Solutions (formerly Lawson Associates, Inc.), and to authorize the Executive Director to execute said purchase order contract in an amount not to exceed \$402,983.77 for a period of one year, from June 1, 2017 through May 31, 2018.

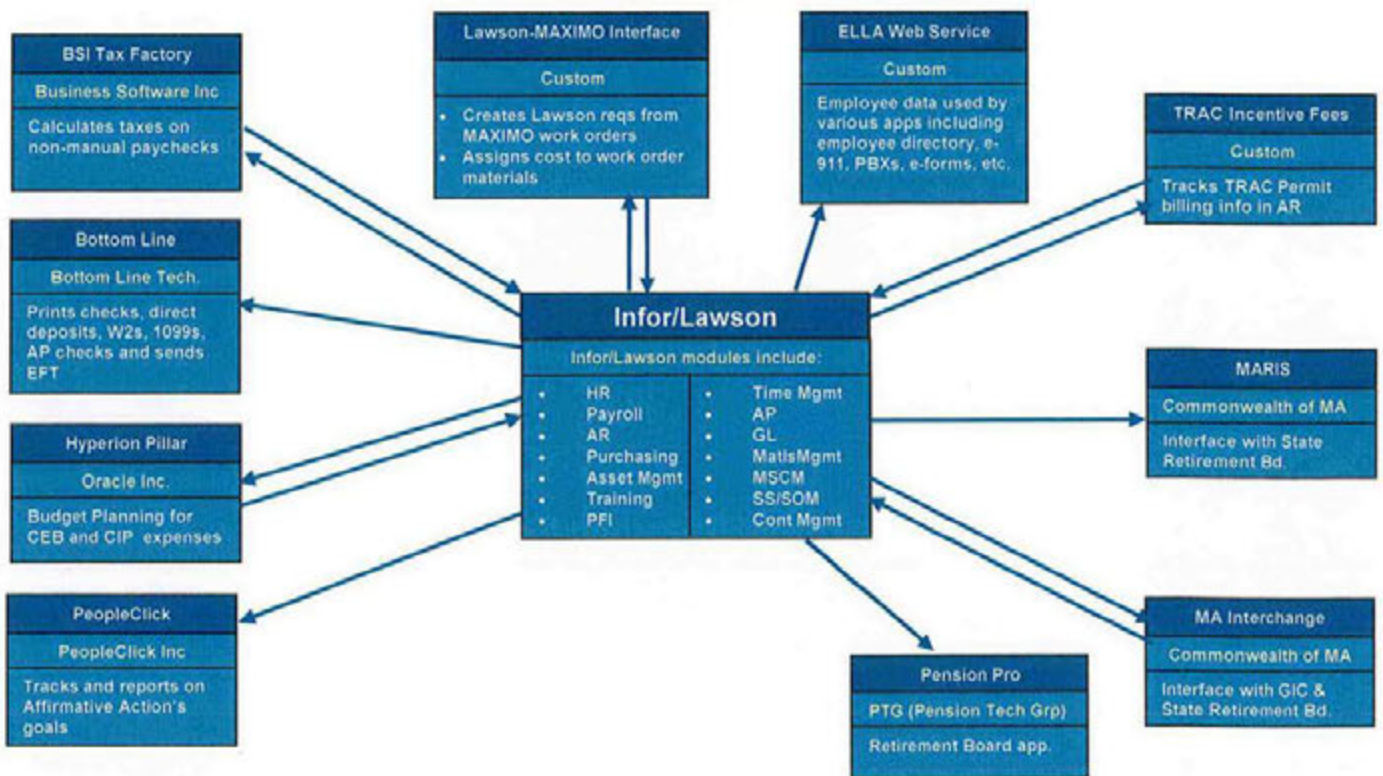
DISCUSSION:

On March 24, 1999, the Board of Directors approved Contract 6362 with Lawson Associates (now Infor Global Solutions) to implement an integrated financial and procurement management system. In May 2000, the implementation of a Human Resources/Payroll module was included as part of the Lawson System. Today this set of application modules represents the core administrative and financial management functionality for the MWRA (Human Resources, Payroll, Finance, Procurement, and Materials Management).

In October 2012, as part of an effort to reduce the use of customized applications, use more off-the-shelf products, and respond to the MIS 5-Year Strategic Plan recommendations (including enhancing e-Procurement functionality and reducing paper), the Board of Directors approved the implementation of the Strategic Sourcing, Supplier Order Management and Contracts Management modules.

The illustration on the next page shows the significant Infor/Lawson modules in use and interfaces with other applications.

Infor/Lawson Dependent Systems



*The new Massachusetts Retirement Information System (MARIS) interface went into production in Q3 FY17.

This maintenance and support agreement is an essential tool to protect the MWRA's Lawson software investment. The Lawson support agreement ensures that the MWRA receives vendor support including:

- Access to product patches, version releases, software upgrades and documentation; "How To" assistance, remote diagnosis, priority case queuing, e-mail notifications, Lawson Global Support, hot topics web discussion groups and electronic self-service case logging, tracking and management.
- Access to support engineers twelve hours a day, five days a week and twenty-four hour, seven day a week support for critical issues.

Staff have thoroughly reviewed the sole source nature of this procurement. Infor Global Solutions is the manufacturer of this software and while there are third party vendors who provide support for various applications, they do not have the ability to change standard code or provide upgrades or fixes to the application. This ability is important to the MWRA to ensure that it is able to maximize its use of Lawson.

Non-renewal of the maintenance and support agreement would place the MWRA at risk since no further support will be provided on the existing applications. Therefore, staff recommend that the MWRA renew the annual maintenance agreement to provide ongoing support for the Lawson System.


BUDGET/FISCAL IMPACT:

This year's request of \$402,983.77 represents a 6% increase over last year's not-to-exceed amount of \$380,173.37. There are sufficient funds available in the FY17 CEB for this renewal.

MBE/WBE PARTICIPATION:

Infor Global Solutions is not a certified Minority or Woman Owned business.

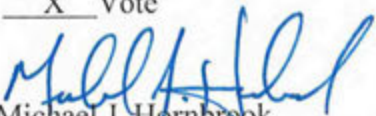
STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Memorandum of Agreement with the Town of Stoneham in Connection with the Northern Intermediate High Pipeline Project

COMMITTEE: Administration, Finance & Audit

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

 Information
 X Vote


Michael J. Hornbrook
Chief Operating Officer

On May 11, 2016 the Board authorized the Executive Director to enter into a Memorandum of Agreement with the Town of Stoneham for the lease of a 2.6-acre Town-owned parcel as a staging area for the Northern Intermediate High Pipeline Project and the Reading Extension Sewer Rehabilitation Project in the amount of \$500,000 for a term of four years with a month by month holdover at the end of the initial term at no additional cost, payable at least 30 days prior to the commencement of construction; and further, to make a payment to the Town of Stoneham in the amount of \$429,450 at the mid-point of construction of MWRA Contract 7478 to be used by the Town for the sole purpose of performing final paving and restoration of the street and installation of sidewalks on portions of Oak Street affected by the project.

The Town of Stoneham's Board of Selectmen on May 10, 2016 did not accept the Terms and Conditions of the proposed Memorandum of Agreement. MWRA staff have negotiated a revised Memorandum of Agreement that eliminates the proposed MWRA lease of a construction staging area and adds the MWRA design and construction of a new MWRA revenue meter to improve water quality and provides redundancy on the north side of the Town of Stoneham.

RECOMMENDATION:

That the Board authorize the Executive Director, on behalf of the Authority, to execute and enter into a Memorandum of Agreement with the Town of Stoneham, substantially in the form attached to this staff summary, to make a payment to the Town of Stoneham in the amount of \$429,450 at the mid-point of construction of MWRA Contract 7478 to be used by the Town for the sole purpose of performing final paving and restoration of the street and installation of sidewalks on portions of Oak Street affected by the project; and, further, at the request of Stoneham, MWRA will design and construct a new revenue meter near the intersection of North Street and Forest Street in an effort to improve water distribution and water quality on the northwest side of the Town and provide further redundancy of water supply for the Town.

DISCUSSION:

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 and the new Spot Pond Pump Station off of Woodland Road 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 Northern Intermediate High Pipeline Project includes four construction contracts:

- The first construction contract, Contract 7066, consisted of 2,400 linear feet of 36-inch water transmission main in the Town of Reading coordinated with the MassDOT road reconstruction project on West Street. This contract was completed in May 2015;
- The second construction contract, Contract 7471, approved by the Board in November 2015, includes the construction of 8,800 linear feet of 36-inch water transmission main in the City of Woburn and the Town of Reading and to be completed March 2018;
- The third construction contract, Contract 7478, includes the construction of 7,800 linear feet of 48-inch diameter transmission main in the Town of Stoneham and 2,600 linear feet of 12-inch diameter transmission main to provide redundancy for Wakefield Meter 229. This contract was issued a Notice to Proceed effective January 12, 2017 and is expected to be completed June 2018; and
- The fourth construction contract, Contract 7067, will include the construction of 14,000 linear feet of 48-inch diameter transmission main in the Town of Stoneham. Construction of this contract is expected to commence in June 2017 and be completed by December 2020.

The Reading Extension Sewer Rehabilitation Project, Contract 7164, consists of the rehabilitation of approximately 10,800 linear feet of sewer and is the subject of another staff summary for this Board meeting.

The NIH Redundancy Pipeline Contracts 7478 and 7067 and the Reading Extension Sewer Rehabilitation Contract 7164 are within the Town of Stoneham, where MWRA has recently completed construction of the Spot Pond Covered Storage Tank and Pump Station. Over the last several months leading up to the award of these contracts, MWRA and the Town have discussed a number of issues which would ensure MWRA could proceed with construction with as little disruption to residents as possible and with assurances from the Town that construction could proceed unimpeded without any further requests for mitigation. This proposed Memorandum of Agreement seeks to codify issues identified during those discussions.

Final Paving on Oak Street, Stoneham

The Town has requested that, in lieu of the final paving and restoration of the street and installation of sidewalks on the water pipeline portions of Oak Street affected by the project, funds be provided to the Town so that other planned improvements by the Town can be made at

the same time. The cost of this work is \$429,450 and would be paid to Stoneham at the mid-point of construction of MWRA Contract 7478.

New Revenue Meter, Stoneham

The Town of Stoneham is currently serviced through five MWRA revenue meters (Meters 53, 70, 138, 141, and 228). These meters are located at the southern end of the community and/or have limited services areas. The Town of Stoneham has experienced water quality issues in the Northwest Section of the town due to the long time of travel from MWRA's Meters on the South side of the town. In order to reduce the detention period, a new revenue meter connection located at the intersection of North Street and Forest Street is proposed. The MWRA will complete construction of the new meter through a Change Order to Contract 7478.

BUDGET/FISCAL IMPACT:

The FY17 Capital Improvement Program includes sufficient funds for the design of the new meter and funds for paving restoration are included in the construction contracts for the water pipeline project. Any additional spending above this amount will be absorbed within the current Cap.

ATTACHMENT:

Draft Memorandum of Agreement

MEMORANDUM OF AGREEMENT
BETWEEN
MASSACHUSETTS WATER RESOURCES AUTHORITY
AND
TOWN OF STONEHAM

This MEMORANDUM OF AGREEMENT is made this _____ day of _____, 2017, is made by and between the Town of Stoneham, a municipal corporation duly organized and existing under the laws of the Commonwealth of Massachusetts having an address of 35 Central Street, Stoneham, Massachusetts 02180 (hereinafter referred to as "STONEHAM") and the MASSACHUSETTS WATER RESOURCES AUTHORITY, a body corporate and politic and an instrumentality of the Commonwealth of Massachusetts established pursuant to Chapter 372 of the Acts of 1984 having an address of Charlestown Navy Yard, 100 First Avenue, Boston, Massachusetts 02129 (hereinafter referred to as "MWRA") (collectively, the "Parties").

RECITALS

WHEREAS, MWRA's Northern Intermediate High service area provides water to the communities of Reading, Stoneham, Wakefield, Wilmington, Winchester, and Woburn through a single 48-inch water transmission main ("Section 89"), which is fed by MWRA's Gillis Pump Station and the new Spot Pond Pump Station located off of Woodland Road in Stoneham, Massachusetts; and

WHEREAS, MWRA is designing and constructing a new water transmission main that will provide redundancy to the community meters so that Section 89 can be removed from service for inspection and rehabilitation as part of four separate contracts; and

WHEREAS, MWRA plans to install 7,800 linear feet of new 48-inch water transmission main in the Town of Stoneham, 1,700 linear feet of 16-inch water transmission main and 1,100 feet of 12-inch water transmission main to service a new Wakefield Revenue Meter for Contract 7478 and 13,200 linear feet of new 48-inch water transmission main in the Town of Stoneham for Contract 7067 as part of the Northern Intermediate High Pipeline Project and MWRA plans to rehabilitate approximately 10,800 linear feet of existing sewer main located primarily in the Town of Stoneham, Contract 7164 (the "Pipeline Project"); and

WHEREAS, MWRA and STONEHAM have been engaged in discussions concerning the performance of the Pipeline Project in an effort to minimize impacts upon the Town and its residents; and

WHEREAS, STONEHAM and MWRA have agreed upon items, described below, which will serve to reduce and/or mitigate the impacts of the Pipeline Project which will mutually benefit both the Town and MWRA; and

WHEREAS, STONEHAM and MWRA desire to enter into this Memorandum of Agreement ("MOA") regarding the Pipeline Project and memorializing MWRA's willingness to provide certain elements of mitigation to the Town which the Town has agreed upon as acceptable; and

WHEREAS, STONEHAM and MWRA, in the interests of continuing the positive and cooperative working relationship between the Parties, wish to use this opportunity to confirm the resolution of all other prior construction mitigation claims which STONEHAM may ever have had in connection with any and all past MWRA projects, including construction of the Spot Pond covered drinking water storage tank off Woodland Road in the Town ("Tank Project"); and

WHEREAS, STONEHAM and MWRA have reached agreement upon the items and dollar value of construction mitigation which will serve as the final and complete compensation to the Town for all adverse impacts resulting from all MWRA projects, including without limitation, both the Tank Project and the Pipeline Project and wish to memorialize those terms in a written agreement.

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

I. ELEMENTS OF MITIGATION FOR THE PIPELINE PROJECT

1.1 Services/Infrastructure Provided to the Town. At the request of STONEHAM, MWRA will, at its cost, design and construct a new revenue meter near the intersection of North Street and Forest Street in an effort to improve water distribution and water quality on the north side of the town and provide further redundancy of water supply for the Town.

1.2 Payment to the Town. In addition, at the mid-point of progress payments made by MWRA to its contractor under Contract 7478, MWRA shall pay the lump sum of \$429,450 to STONEHAM to be used solely and exclusively by STONEHAM to make such roadway, sidewalk and related improvements to portions of Oak Street affected by the Pipeline Project as STONEHAM deems appropriate. A current estimate of the costs of such improvements as prepared by STONEHAM is attached hereto as Exhibit A. To the extent that those estimated costs increase, MWRA shall not be required to pay any further sums to STONEHAM.

1.3 Existing Utilities. MWRA acknowledges that there may be surface and/or subsurface utilities on and adjacent to the areas where its contractors will perform the Pipeline Project and agrees to exercise caution in the performance of its activities. Any damage to such utilities resulting from the acts or omissions of MWRA or of any its agents, contractors or consultants shall be the sole responsibility of MWRA.

1.4 Conduct/Cooperation. In the conduct of all Pipeline Project work, neither party shall unreasonably interfere with the business, operations or access of the other party, its employees, invitees or contractors, or any other person having an interest in the Pipeline Project. Both parties to this Agreement shall provide its reasonable cooperation to the other in connection with MWRA's performance of the Pipeline Project.

1.5 Compliance with Laws. MWRA and STONEHAM shall each comply with all applicable federal, state and other governmental statutes, laws, rules, orders, regulations and ordinances relative to their respective activities under this Agreement. MWRA shall conduct all of its activities so as not to exceed any reasonable noise restrictions imposed by STONEHAM.

1.6 Termination. The provisions of this MOA shall be considered concluded and terminated following the completion of the Pipeline Project and followed by completion by MWRA of the items of mitigation described in paragraphs 1.1 and 1.2 hereof.

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

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

1.9 Disputes/Cooperation. STONEHAM and MWRA shall each use their best efforts to cooperate in the performance of the Pipeline 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 scheduling, performance, progress or completion of the Pipeline Project. Any and all disputes which arise and which cannot be amicably resolved by the Parties during the course of the performance of MWRA work shall, if at all possible, be resolved after the completion of that work.

1.10 No Further Construction Mitigation Claims by the Town of Stoneham. In consideration of the variety of past efforts by MWRA to mitigate the adverse impacts of MWRA construction projects affecting the Town, including the completed water tank project (the "Tank Project") off Woodland Road, coupled with the items of construction mitigation to be provided hereunder, STONEHAM hereby remises, discharges and releases MWRA from any and all claims for further monetary or in-kind mitigation of any type or description from MWRA arising out of any past projects including both the Tank Project and the Pipeline Project. In particular, MWRA has provided STONEHAM with benefits as the Tank Project proceeded including the following improvements completed at MWRA's cost: (i) modifications to an emergency communications tower which allows STONEHAM to share in increased communication capabilities provided by the tower, (ii) replacement of antiquated and undersized water transmission lines on MWRA's Tank Project site and installation new replacement water lines and fire hydrants for STONEHAM residents, including connections to MWRA's Gillis Pump Station together with a new water meter, and (iii) replaced or relocated all infrastructure disturbed, destroyed or removed by MWRA during the course of the Tank Project.

II. NOTICES

For purpose of this MOA, the Parties shall be deemed duly notified in accordance with the terms and provisions hereof, if written notices are mailed to the following addresses:

STONEHAM: Town of Stoneham
35 Central Street
Stoneham, Massachusetts 02180
Attention: Town Administrator

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

These addresses are subject to change, and the Parties hereto agree to inform each other of such changes as soon as practicable.

III. EXHIBITS AND ATTACHMENTS

Any and all exhibits and attachments referenced herein or attached hereto are duly incorporated within and are made a part of this agreement.

IV. MISCELLANEOUS

4.1 Entire Agreement. This MOA constitutes the entire agreement between the Parties hereto, and all prior agreements between the Parties hereto concerning the activities permitted herein are superseded by this MOA.

4.2 Governing Law. This MOA shall be deemed to be made and construed in accordance with the laws of the Commonwealth of Massachusetts.

4.3 Invalid Provision. If any provision of this MOA or any application thereof shall be held to be invalid by a court of competent jurisdiction, the remainder of this MOA shall not be affected thereby, unless, one or both Parties would be substantially and materially prejudiced.

V. 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 May, 2017.

TOWN OF STONEHAM

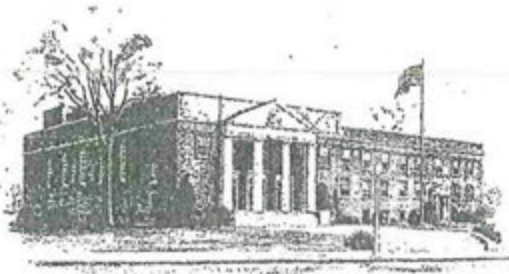
**MASSACHUSETTS WATER
RESOURCES AUTHORITY**

By: _____

Town Administrator

By: _____

Frederick A. Laskey
Executive Director



TOWN OF
S T O N E H A M

MASSACHUSETTS 02180

Public Works Department

16 Pine Street

781-438-0760

Fax 781-438-8183

Oak Street Roadway and Sidewalk Estimate

3,920ft x 30ft (average width)

Cold Plane Roadway:		
13,100 s. yd. @ \$3.25	=	\$42,575
Asphalt Roadway:		
2" = 1,625 tons @ \$75	=	\$121,875
Adjust Casting: 10 @ 260	=	\$2,600
Granite Curbing: Buy and Installed		
3,100ft/ @ \$42 per ft.	=	\$130,200
Concrete Sidewalks and Driveway	=	\$120,200
Police Details	=	\$12,000
Total	=	\$429,450





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, April 12, 2017

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

Time: Immediately following AF&A Comm.

AGENDA

A. Approvals

1. Approval of One New Member of the Wastewater Advisory Committee

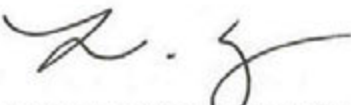
B. Contract Awards

1. Grit and Screenings Hauling and Disposal: W.L. French, Contract S564
2. Technical Assistance Consulting Services - Surveying: Bryant Associates, Inc., Contract 602TA
3. Reading Extension Sewer and Metropolitan Sewer Rehabilitation (Sections 73/74/75/46): Green Mountain Pipeline Services, Inc., Contract 7164
4. Sole-Source Extended Warranty, Service and Maintenance Agreement for the Process Information and Control System (PICS) - Deer Island Treatment Plant: ABB Automation, Inc.

C. Contract Amendments/Change Orders

1. Alewife Brook Pump Station Rehabilitation: Stantec Consulting Services, Inc., Contract 7034, Amendment 3

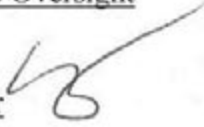
STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Approval of One New Member of the Wastewater Advisory Committee

COMMITTEE: Wastewater Policy & Oversight

INFORMATION

VOTE

Wendy Leo, Senior Program Manager 
Preparer/Title

Sean Navin 
Director, Intergovernmental Affairs

RECOMMENDATION:

To approve the addition of one new member, Dr. Karen Heinze, to the Wastewater Advisory Committee.

DISCUSSION:

In addition to the critical oversight functions of the Advisory Board, many of MWRA's policy decisions are made with advice and support from two standing citizens' advisory committees, the Water Supply Citizens Advisory Committee (WSCAC) and the Wastewater Advisory Committee (WAC).

The Wastewater Advisory Committee was created in 1990 to offer independent recommendations on wastewater programs and policies; it is a successor to the Facilities Planning Citizen Advisory Committee, which was established during the planning of the new Deer Island Treatment Plant. WAC's members include citizen advocates, representatives from the Metropolitan Area Planning Council, watershed associations, the engineering and business communities, environmental law, and the science and education fields. The Advisory Board has historically appointed a member as well.

WAC elects its chairman and employs an Executive Director (selected by WAC's membership with the concurrence and approval of MWRA's Public Affairs Department). WAC's current chairman is Taber Keally and WAC's current Executive Director is Andreae Downs.

The WAC Contract provides that WAC shall have a maximum of twenty members approved by MWRA's Board of Directors; the Contract prohibits alternates or designees.

Dr. Heinze is a biochemical engineer with Xyleco in Wakefield, MA, which develops technology for patents. She has over 30 years of experience as a scientist and engineer in private industry in Illinois, Michigan and Massachusetts. WAC has few representatives with engineering, scientific and private industry experience, and Dr. Heinze will be a valuable addition to the committee.

The current thirteen members on WAC are: Mary Adelstein, citizen advocate; Craig Allen, Commonwealth Research Group, Inc. (vice chair); Adriana Cillo, Boston Water and Sewer Commission; Wayne Chouinard, Town of Arlington DPW; Zhanna Davidovitz, Massachusetts Institute of Technology; Karen Golmer, Water Strategies, LLC; Stephen Greene, Howland-Greene Consultants; James Guiod, MWRA Advisory Board; Taber Keally (chair), Neponset River Watershed Association; Karen Lachmayr, Harvard University; Beth Miller, independent engineer; Martin Pillsbury, Metropolitan Area Planning Council; Dan Winograd, Woodard & Curran.

In accordance with the current Agreement, WAC unanimously nominated Dr. Heinze for membership at its last meeting.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 12, 2017
SUBJECT: Grit and Screenings Hauling and Disposal
W. L. French Excavating Corporation
Contract S564



COMMITTEE: Wastewater Policy & Oversight

 INFORMATION

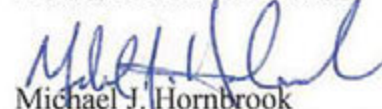
 X VOTE



Michele S. Gillen

Director of Administration

David Duest, Director, Deer Island
Ethan Wenger, Deputy Director, Deer Island
Timothy Beaulieu, Program Manager, Process Engineering
Preparer/Title



Michael J. Hornbrook

Chief Operating Officer

RECOMMENDATION:

To approve the award of Contract S564, Grit and Screenings Hauling and Disposal, to W. L. French Excavating Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$3,898,210.00, for a contract term of 1,096 calendar days from the Notice to Proceed.

BACKGROUND:

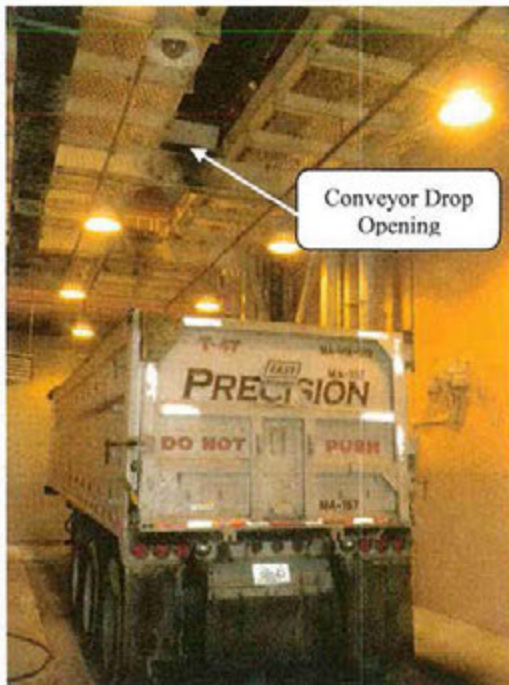
Contract S564 is a replacement three-year contract to haul and dispose "minor residuals" from various MWRA wastewater facilities. Minor residuals are by-products of wastewater pre-treatment and primary/secondary treatment processes, and include grit, screenings, floatable scum and scum screenings. Grit and screenings are essentially all the solids that are captured when the largest items, such as rags, wood, plastics and other larger floating material are removed from the wastewater. These solids are removed by bar screens that filter the material. Heavier material, such as sand and gravel, is removed by settling in the grit chambers. Scum typically refers to material that floats and congeals on the surface of tanks, such as fats, oils, and greases, as well as some plastic and rubber products.

In a typical year, approximately 7,000 tons of material are collected and disposed of, a third of which originates from Deer Island, and the balance from various other wastewater facilities, including: Caruso Pump Station, Chelsea Creek Headworks, Chelsea Creek Screenhouse, Braintree-Weymouth Intermediate Pump Station, Columbus Park Headworks, North Dorchester Bay CSO Facility, DeLauri Pump Station, Union Park CSO Facility, Nut Island Headworks, Somerville Marginal CSO Facility, and Ward Street Headworks.

The following pictures depict some of the equipment utilized at Deer Island to capture and store the grit and screenings:



Partially Filled Roll-Off Containers Receiving Washed Screenings from the Removal System Conveyor (Not Shown) Discharge Piping at the Winthrop Terminal Facility



Contractor-Owned Grit Trailer Underneath Conveyor Drop Opening in the DITP West Grit Facility



View of Grit Trailer from above Conveyor Drop Opening. Trailer Contains Approximately One Week's Accumulation



Grit Being Removed by the Belt Scraper and Dropping into Trailer Below. Conveyor Operates 24/7 and the Entire Belt Assembly Moves Fore and Aft to Distribute the Grit Evenly in the Trailer.



Shown are Two of 16 Grit Classifiers in the Grit Facility that Deposit the Grit onto the Conveyor



One of Deer Island's Four Primary Scum Screens for Removing Inorganic, Largely Indigestible Material from the Wastewater Prior to Gravity Thickening

DISCUSSION:

Contract S564 will replace the current two-year contract (Contract S536), which will expire on June 5, 2017. The terms, conditions, and scope of work for the new contract have not significantly changed, with the exception that the term was extended to three years. The contract requires the vendor to pick up screenings, grit, and scum at the various MWRA facilities. Typically this requires pickups from one to six times per month depending on the facility. Each pickup ranges from about ten to forty tons of material. In addition the contractor is responsible for monthly laboratory testing to confirm that the material meet regulatory requirements for landfill disposal. The contractor is responsible for finding a landfill that will accept the material, but intends to use a landfill in New Hampshire at this time.

Procurement Process

Contract S564 was advertised in Goods and Services, the Boston Herald, Banner Publication and El Mundo and bid as a non-professional services contract. On March 9, 2017, only one bid was received as follows:

W.L. French Excavating Corp.	\$3,898,210
<i>Revised Staff Estimate</i>	<i>\$3,924,000</i>

The quantities of scum and grit that were used to generate the original estimate were changed immediately prior to the bid process to reflect actual recent historic quantities of materials actually bid.

This contract contained a modest number of changes to the specifications from the previous contract, particularly at the Chelsea Creek Headwork, where an ongoing construction project commenced in November, 2016. The nature of the changes resulting from the construction will cause changes to the size of the containers used at the facility. The new containers will be essentially identical to those used at Columbus Park and Ward St but are smaller than those currently in use at Chelsea Creek and may require more frequent servicing by the contractor.

W.L. French's bid is approximately \$25,000 or less than 1% lower than the Engineer's Estimate. Staff estimated an average cost per ton of \$155; the actual bid amount was \$165. However, W.L. French's bid for the other services provided under the contract was lower than the staff estimate. After reviewing the bid, and after follow-up discussions with the Contractor, staff have determined that the bid price is reasonable. On an annual basis, the bid is actually slightly (approximately \$10,000/year) less than the current contract.

Only one bid was received for this contract. Staff contacted the two other contractors that received copies of the bid documents to determine why no other bids were received. D&R Equipment, LLC (formerly R. Zoppo Company), who has been awarded this contract in previous years, stated they did not feel optimistic that they could bid competitively since they have been underbid by others in recent procurements. A second company, ATL Construction of Bridgewater, MA, attended the pre-bid meeting, but stated they chose not to bid. No reason was given.

The bid price is based on estimated quantities (in tons) of grit and screenings to be hauled and disposed of during the three-year contract duration. Also included are monthly laboratory analyses, a standard requirement of landfill operators. W. L. French intends to dispose of MWRA's grit and screenings in the same landfill (located in New Hampshire) that it currently utilizes, which has been the landfill of choice for the past several contracts. The unit bid prices will be fixed for the three-year contract term with no escalation.

References were checked and found to be favorable. This award will be W. L. French's fourth MWRA contract for grit and screenings hauling including the current Contract S536, and staff have been satisfied with the company's performance. After reviewing the bid and follow-up discussions with the contractor, staff are of the opinion that the bid price is reasonable and that W. L. French understands the full nature and scope of the work under this contract, can perform the work for the bid price, and is qualified to do so. Therefore, staff recommend the award of this contract to W. L. French Excavating Corporation as the lowest responsive bidder.

BUDGET/FISCAL IMPACT:

There are sufficient funds available for the first portion of this contract in the Proposed FY18 Current Expense Budget. Appropriate funding also will be included in subsequent CEB requests for the remaining term of the contract.

MBE/WBE PARTICIPATION:

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


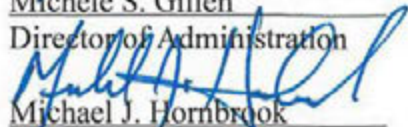
STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Technical Assistance Consulting Services - Surveying
Bryant Associates, Inc.
Contract 602TA

COMMITTEE: Wastewater Policy & Oversight

A. Navanandan, P.E., Chief Engineer
Meredith R. Norton, Program Manager
Preparer/Title

INFORMATION
 VOTE


Michele S. Gillen
Director of Administration

Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to select Bryant Associates, Inc. to provide surveying technical consulting services, and to authorize the Executive Director, on behalf of the Authority, to execute Contract 602TA in an amount not to exceed \$100,000, for a contract term of three years from the Notice to Proceed.

DISCUSSION:

The purpose of this technical assistance contract is to make available, on a continuing, as-needed basis, the services of a qualified, professional survey engineering firm to assist MWRA staff on small, unanticipated or urgent projects.

Examples of recent surveying task orders include:

- Researching, surveying and staking in the field the property lines/boundaries along Building 11 at the Fore River Shipyard in Quincy, Massachusetts;
- Providing settlement and groundwater level monitoring services in Weston, Massachusetts to safeguard the integrity of existing critical water infrastructure facilities at the site; and
- Researching, surveying, and preparing an easement drawing for MWRA Water Meter Number 130 to accurately document easements, road, and meter chamber locations.

Procurement Process

Staff utilized a one-step/two-envelope Request for Qualifications/Proposals (RFQ/P) process, seeking one consultant, to be selected on an all-qualified low-cost basis, with sealed cost proposal envelopes submitted separately from qualification submissions. Qualification requirements were established and set forth in the RFQ/P which detailed the requisite experience and qualifications required for the work. Proposers meeting all qualification requirements were deemed qualified and were then ranked on the basis of cost, according to a pre-determined formula. The qualified Proposer with the lowest cost is recommended for contract award.

Seven firms submitted proposals. The Selection Committee reviewed the qualification submissions to determine compliance with the Qualification Requirements. The following four firms did not meet the specified qualification requirements, and their cost proposals remained sealed: Allen & Major Associates, Inc.; Brennan Consulting; D. O'Brien Land Surveying; and Green Seal Environmental, Inc. The current survey firm, GEOD Consulting, Inc., did not submit a proposal.

Three firms were deemed qualified by the Selection Committee, and their cost proposals were opened. Cost was evaluated using a predetermined formula to compare Proposers' pricing by applying a level of effort for each labor category and for field crews, according to anticipated usage. Proposers' submitted rates were inserted into the formula and the results are as follows:

Consulting Firm	Sample Cost Exercise	Final Rank
Bryant Associates, Inc.	\$77,887.05	1
CHA Consulting, Inc.	\$82,123.18	2
Nitsch Engineering, Inc.	\$97,096.32	3

The sample cost exercise estimates are used for comparison purposes only in order to identify the firm with the lowest overall pricing. The contract will be awarded in an amount not to exceed \$100,000; MWRA will incur costs under these contracts only for work requested via Task Order which has been satisfactorily performed.

Bryant Associates, Inc. is the qualified Proposer with the lowest proposed cost. The firm has qualified surveying personnel with many years of experience providing professional land surveying services in Massachusetts and throughout New England. The firm's experience includes MWRA projects such as Southern Extra High Redundancy, Chelsea Interceptor Relief Project, Lynnfield/Saugus Pipeline, and Shaft 7 to WASM 3 Connecting Mains. The firm has also worked on projects at several other government agencies, including DCR, MassDOT, MBTA, ASCE, and a city sewer department.

Based on its evaluation of the qualifications of the firms and the results of the cost exercise, the Selection Committee recommends that the Board approve the award of Contract 602TA to Bryant Associates, Inc. as the qualified Proposer with the lowest cost, in an amount not to exceed \$100,000 and for a contract term of three years from the Notice to Proceed.


BUDGET/FISCAL IMPACT:

The FY17 Capital Improvement Program budget includes \$75,000 for a three-year Survey Services Technical Assistance contract.

MBE/WBE PARTICIPATION:

There were no MBE or WBE Participation Requirements established for this contract due to limited opportunities for subcontracting. However, Bryant Associates, Inc. is a certified MBE firm.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Reading Extension Sewer and Metropolitan Sewer Rehabilitation (Sections 73/74/75/46)
Green Mountain Pipeline Services, Inc.
Contract 7164

COMMITTEE: Wastewater Policy & Oversight

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

 INFORMATION

 X VOTE


Michele S. Gillen

Director of Administration


Michael J. Hornbrook

Chief Operating Officer

This staff summary was initially submitted for the March 15, 2017 Meeting and was postponed, at the request of the Board, to allow additional time for Board review.

RECOMMENDATION:

To approve the award of Contract 7164, Reading Extension Sewer and Metropolitan Sewer Rehabilitation (Sections 73/74/75/46), to the lowest responsible and eligible bidder, Green Mountain Pipeline Services, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$2,048,945, with a contract term of 487 calendar days from the Notice to Proceed. Contract 7164, a DEP SRF funded project, received Authorization to Award from the DEP on March 21, 2017.

BACKGROUND:

MWRA's Reading Extension Sewer and Metropolitan Sewer are a part of MWRA's Northern Collection System serving the communities of Wakefield,



Construction of a section of the Reading Extension Sewer (circa. 1919) along Prospect Street near the Stoneham/Wakefield town line.

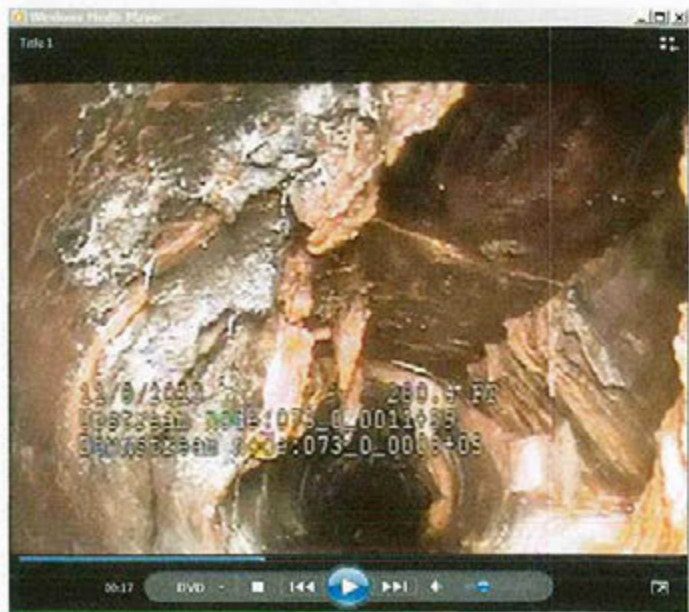
Stoneham, and Woburn. The 12,240-linear foot, 98-year old Reading Extension Sewer (Section 73, 74, and 75) consists of 15, 18 and 20-inch vitrified clay (VC) pipe with 90% of the pipeline located in the Town of Stoneham. An adjacent MWRA sewer, the 24- and 36-inch North Metropolitan Relief Sewer, which staff consider to be in good condition, parallels the Reading Extension Sewer for most of its alignment and will be used for flow diversion and bypass pumping, minimizing temporary overland piping.

A second sewer, a portion of the Metropolitan Sewer included in this project is a 2,280-linear foot vitrified clay pipe segment (the upstream end of Section 46) constructed in the late 1800s. Recent inspections of this sewer segment, which is 15-inches in diameter and runs parallel to a portion of the Reading Extension Sewer, revealed both structural and non-structural deficiencies.

Internal television inspections of the Reading Extension Sewer in 2013 and 2015, performed by MWRA staff (shown right), revealed that many segments of the pipeline had cracked, were broken, or had partially deformed segments. In addition, numerous areas of heavy root intrusion and light-to-heavy infiltration also exist. Manholes along the Reading Extension Sewer are mostly of brick construction with infiltration/inflow and deteriorating mortar issues. The Metropolitan Sewer Section 46 was also inspected and deteriorating conditions were similarly noted.

DISCUSSION:

On July 15, 2015, the Board approved the award of Contract 7163 to Arcadis U.S., Inc to provide design, construction administration and resident engineering/inspection services for the rehabilitation of the Reading Extension Sewer (Sections 73, 74 and 75) and Section 46 of the Metropolitan Sewer. The scope of services included one construction contract, MWRA Contract 7164. Investigation design services identified a continuous 1,410-foot segment of Reading Extension Sewer (Section 74) in very good condition, and with Authority approval, recommended it not be included in the 12,240-foot rehabilitation of the Reading Extension



Reading Extension Sewer – Section 73

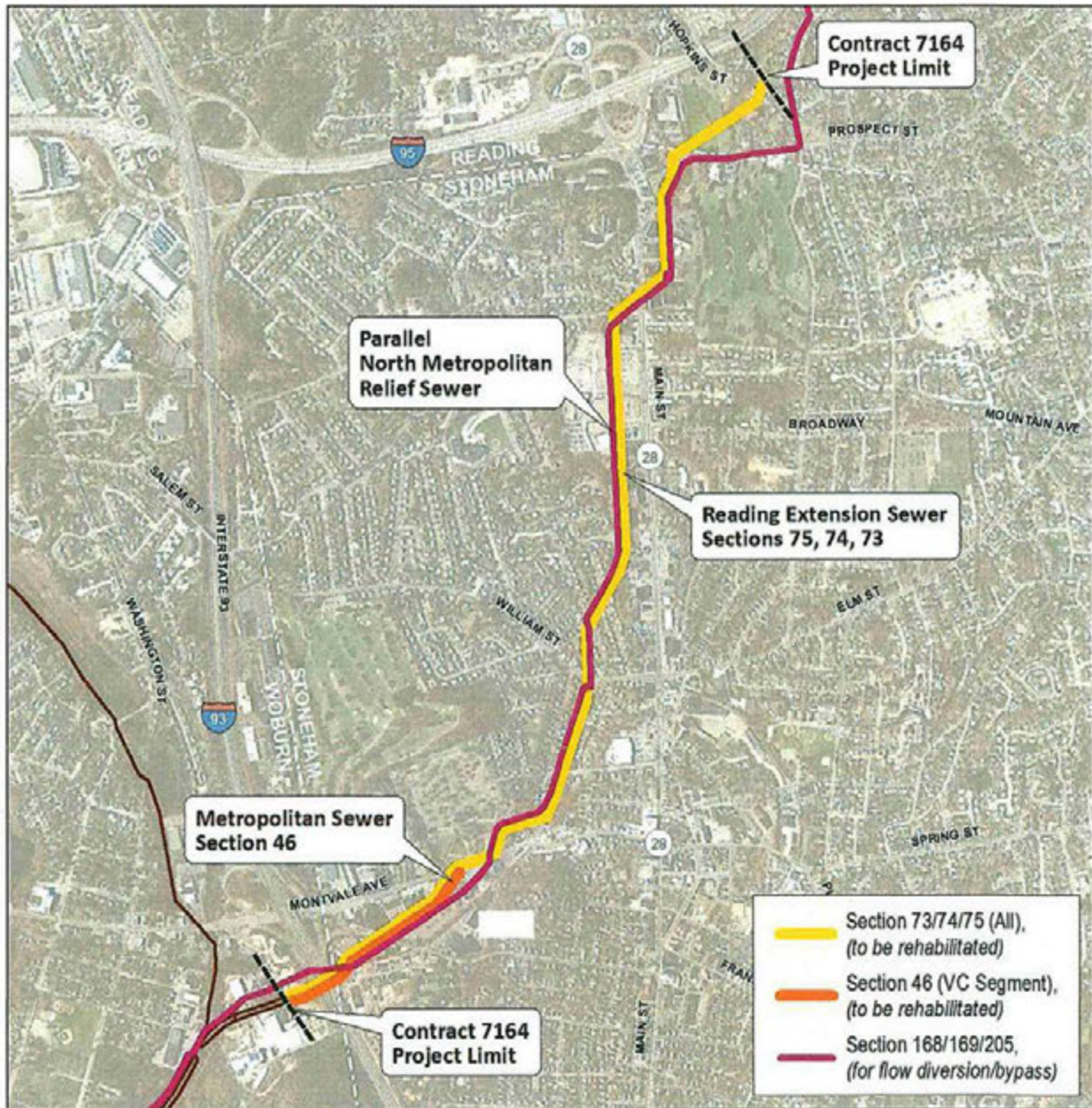


Reading Extension Sewer – Section 75

Sewer. The project limits for construction Contract 7164 are outlined in Figure 1.

FIGURE 1

MWRA CONTRACT 7164 PROJECT LOCATION/LIMITS AND ADJACENT SEWERS



MWRA Construction Contract 7164 includes: pipeline trenchless technology rehabilitation by Cured-in-Place Pipe (CIPP) structural liner of 13,100-linear foot of 15, 18 and 20-inch VC Pipe for the Reading Extension Sewer (10,820-linear feet) and Metropolitan Sewer (2,280-linear feet); spot repairs to prepare existing pipe for CIPP lining; rehabilitation/lining of 62 associated manholes/structures; bypass pumping and flow diversion; participation in assisting MWRA with coordination of other agencies and projects (e.g. MWRA Northern Intermediate High water

project in Stoneham), community officials and property owners; and associated site and restoration work.

Procurement Process

Contract 7164 was advertised in the Boston Herald, El Mundo, Banner Publications, Central Register and COMMBUYS, and bid in accordance with Massachusetts General Laws, Chapter 30. Bids were received and opened on February 23, 2017 with the following results:

<u>Contractor</u>	<u>Bid Amount</u>
Green Mountain Pipeline Services, Inc	\$2,048,945
Insituform Technologies, LLC	\$2,154,000
Layne Inliner, LLC	\$2,891,160
<i>Engineer's Estimate</i>	<i>\$4,240,000</i>

Green Mountain Pipeline Services' bid is the lowest at \$2,048,945, which is \$2,191,055, (52%) below the Engineer's Estimate; however the bid is only \$105,055 (5.1%) below the second lowest bid, and \$842,205 (30%) below the third lowest bid. The average of the bids is \$2,364,702 and within 15.4% of the low bid. It is staff's determination that the Engineer's Estimate was too conservative for the reasons outlined below.

The major differences between the Engineer's Estimate and the low bid are: inherent cost savings in overhead being a lining company with the ability to bid as a general contractor; the Contractor's higher assumed rate of productivity resulting in lower cost; and familiarity with the Authority on past projects allowing a more aggressive bid by Green Mountain Pipeline Services. Staff noted that the calculated unit price from Green Mountain Pipeline Services bid for the cured-in-place pipe lining items are comparable at the lower end of recent bids provided on other projects in the greater Boston area. The close range of bids by the three lining company bidders is believed to be the correct level of effort to successfully complete this project.

MWRA staff and Arcadis have reviewed Green Mountain Pipeline Services' bid in detail and discussed the major bid items with the company. Based on the bid review and subsequent discussions with Green Mountain Pipeline Services, staff are satisfied that Green Mountain Pipeline Services understands the full scope of work and can perform the work for the bid price, which includes the payment of prevailing wages and all police services required in its lump sum bid. Green Mountain Pipeline Services affirmatively stated that it bid competitively and aggressively, based on its staff's familiarity with previous MWRA projects. Green Mountain Pipeline Services is a pipeline and full service general contracting company that has completed many projects in New England. It has been in business for over 60 years in the pipeline rehabilitation and lining market.

Green Mountain Pipeline Services indicated that its skill, experience and efficiency in this type of work will result in a more aggressive installation rate, which includes longer lining reaches up to 1,000-linear feet per setup, a rate that it has regularly achieved on other projects. The Engineer's Estimate conservatively estimated pipeline rehabilitation reaches and corresponding lining set-ups, with a typical set-up of approximately 500 to 600 feet which is achievable by all cured-in-place pipe materials and curing methods and able to be executed by most contractors.

The Engineer's Estimate also conservatively assumed lining setups at most pipeline direction changes at manholes, which Green Mountain Pipeline Services' indicated it can line through greater changes in direction than the Engineer estimated. Longer reaches minimize the number of lining set-ups, lowering equipment time and direct labor costs; reduces bypass pumping time; results in less traffic maintenance; and creates other associated efficiencies. The extended installation reaches will reduce the Engineer's Estimate from 31 setups to near 20 setups. Staff are of the opinion that the estimated rate of production is achievable based on Green Mountain Pipeline Services past completed projects and experience. These are the primary reasons the Engineer's Estimate was significantly higher than the Contractor's bid price.

References were checked and found to be favorable. Green Mountain Pipeline Services has successfully completed several past MWRA projects since 2006 as an on-call pipeline maintenance repair contractor, sub-contractor and general contractor on rehabilitation projects of similar pipe size to the Reading Extension Sewer and Metropolitan Sewer Rehabilitation project. Past MWRA projects include: cured-in-place pipe lining in Reading; manhole rehabilitation project in multiple towns/cities including Arlington, Cambridge and Medford; and a service contract with MWRA Wastewater Operations for manholes and pipeline rehabilitation. All MWRA references cited satisfactory to very good in all categories with excellent evaluation scores for on-site supervisory personnel. Outside references noted very good to excellent evaluations on projects of similar length and size to MWRA's Contract 7164 in Danvers, Wakefield, Arlington and Shrewsbury, and also noted very good to excellent on-site field personnel.

Staff are of the opinion that Green Mountain Pipeline Services possesses the skill, ability, and integrity necessary to perform the work under this contract and is qualified to do so. Staff recommend the award of this contract to Green Mountain Pipeline Services, Inc. as the lowest responsible and eligible bidder.

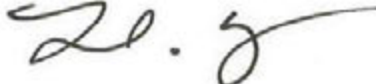
BUDGET/FISCAL IMPACT:

The FY17 CIP includes a budget of \$4,266,542 for Contract 7164. The contract award amount is \$2,048,945. It should be noted that Contract 7164 will receive funding through the DEP State Revolving Fund.

MBE/WBE PARTICIPATION:

The D/MBE and D/WBE participation requirements for this contract were established at 3.4% and 3.8%, respectively. Green Mountain Pipeline Services submitted a Schedule of Participation indicating a 15% participation commitment as an D/MBE by GVC Construction (a certified D/M/WBE firm). On March 10, 2017 Green Mountain Pipeline Services submitted a Request for Waiver to DEP for waiver of the D/WBE participation requirements. On March 21, 2017, subsequent to it's request, the DEP approved authorization to award Contract 7164 to Green Mountain Pipeline Services on March 21, 2017.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Three-Year, Sole-Source Extended Warranty, Service and Maintenance Agreement for the Process Information and Control System at the Deer Island Treatment Plant
ABB Automation, Inc.

COMMITTEE: Wastewater Policy & Oversight

INFORMATION

VOTE


Michele S. Gillen

Director, Administration

David Duest, Director, Deer Island WWTP
Lisa Wong, Manager, Process Control
Patrick Phillips, Program Manager, Process Engineering
Carolyn Francisco Murphy, Director of Procurement
Preparer/Title


Michael J. Hornbrook

Chief Operating Officer

RECOMMENDATION:

To approve the renewal of a sole-source extended warranty, service and maintenance contract for the Process Information and Control System at the Deer Island Treatment Plant, with ABB Automation, Inc., and authorize the Executive Director, on behalf of the Authority, to execute said contract in the amount of \$1,095,164, for a contract term of three years, from July 1, 2017 through June 30, 2020.

BACKGROUND:

The Deer Island Treatment Plant is controlled by a \$24 million Process Information and Control System (PICS), which was originally procured competitively and installed under the Boston Harbor Project between 1995 and 2000. Staff estimate the current replacement value to be approximately \$40 million. That original contract was awarded to Bailey Controls Company, now known as ABB Automation, Inc. PICS provides a means for Deer Island staff to execute overall plant-wide process control as well as centralized monitoring, enabling the operation of the facility with less staffing. Process data from PICS is also available throughout MWRA via the MIS network and is essential for permit compliance reporting, plant optimization efforts, budgeting, and "event" evaluations.

MWRA's PICS system is among the most expansive of any wastewater plant in the United States. Thousands of field instrumentation devices are used to gather process information, such

as: temperatures, pressures, flows, and on/off statuses of remote equipment. These devices are wired back to 65 control cabinets, commonly referred to as DPUs, located at various locations around the 150-acre site. There are more than one thousand control modules of various types used in these DPUs to gather inputs from process sensors and to send control signals back to Operations resulting in more than 30,000 input/output points in the PICS system.

All of the information gathered from the process equipment is sent to primary and back-up control rooms and is displayed through a human machine interface (HMI) supplied by Emerson Process Management Power & Water Solutions, Inc. The plant operators use this HMI as the main tool for monitoring and control of the process at both the treatment plant and the Thermal/Power Plant. The HMI sits on top of the control system and is the direct interface between Operations staff and the process equipment. The HMI gathers information from all the processes and presents that information to staff through control graphics. The HMI includes hardware (computer servers, operator workstations, and security appliances), software, and control graphics.

The HMI has an estimated value of less than 4% of the total value of the entire PICS system in today's dollars. This proposed ABB maintenance contract will provide maintenance and parts for the remaining 96% of the control system. Staff anticipate that continued routine maintenance and evolution of the "control" portion of the system will keep it viable for the foreseeable future. Items in the proposed contract have been included specifically to keep this system up-to-date and maximize its useful life.

Service and maintenance of PICS is critical to its reliable operation. MWRA staff perform all "first response" functions in terms of maintaining PICS in a fully functional configuration, responding to needs and requests from Operations staff, and implementing process automation changes driven by changing operational strategies.

DISCUSSION:

For the past eighteen years, PICS has been serviced and maintained under a sole-source contract with the original equipment manufacturer ABB Automation, Inc. The current contract, in the amount of \$1,186,776, will expire on June 30, 2017. The new contract amount is \$1,095,164, which represents a 7.72 % decrease in price from the current three-year contract price.

Due to the magnitude of the entire PICS system and its critical role in the overall operation of Deer Island, staff are of the opinion that it remains in MWRA's best interest to continue to contract directly with the original equipment manufacturer to maintain the extended warranty to provide service and maintenance on the system.

Staff have thoroughly researched the sole-source nature of this procurement. The ABB equipment is of proprietary design and manufacture - there are no third-party vendors of new ABB replacement parts. There are suppliers of reconditioned parts and there are vendors who can provide preventive maintenance on any electronic control equipment. These vendors, particularly in the parts area, tend to rely on recently retired or former vendor personnel to troubleshoot or provide services. Staff believe that the long-term consistency of this type of

support is unreliable. Staff's experience has been that the most reliable, consistent and in-depth support can only be obtained from the manufacturer of the specific control system.

Staff recommend that MWRA again contract with the original equipment vendor to provide the extended warranty and the ongoing service and maintenance of the PICS system. Combined with the efforts of in-house staff, this will ensure an uninterrupted supply of replacement parts and up-to-date, system-wide technical information and documentation, and will minimize downtime by ensuring the committed availability of an extensive and qualified field engineering staff, within required response-time parameters, necessary for optimum system-wide performance.

ABB Automation has provided excellent service during all past and current three-year contracts. The vendor's workmanship has been excellent and ABB's technical support has been responsive in all ways to MWRA's needs. ABB's parts replacement has been timely and professional.

Contract Components

The contract scope and cost elements can be broken down into five categories as follows:

Extended Warranty Service \$558,000

A major element of the contract is the extended warranty program for the entire PICS system. Under the extended warranty program, ABB will replace any hardware component that fails up to a maximum total of \$900,000. The previous contract also provided \$900,000 in replacement parts for a cost of \$623,294, a 30.75% discount off list price. This contract will maintain replacement parts at \$900,000 for a cost of \$558,000, a 38% discount. This warranty coverage has been an effective way to ensure that the original manufacturer's spare parts are replenished and the system remains fully functional at all times, with the added benefit of substantial cost savings.

On-site Field Service & On-Site Support Services \$443,700

The installed PICS hardware is running well and is in excellent condition because of current maintenance efforts which include: cleaning, changing filters, replacing corrosion inhibitors, checking voltage levels and indicator lights. ABB will provide 600 on-site field services hours per year, to perform these control system maintenance services as well as other duties as assigned. This represents a reduction in hours from the past contract, because more hours were allocated to field service than MWRA required. The contractor raised the hourly rate for this service, but it was offset substantially by the increased discount in the Extended Warranty Service Line Item.

Included under this agreement is up to thirty-six days (96 hours per year, taken from the 600 hours of FSE) of Field Service Engineering and Afterhours support. Staff have utilized these services for additional engineering/programming support for PICS projects and to supplement MWRA staff in the Thermal/Power Plant (where continuous operation is critical). This function also provides vendor back-up to MWRA staff in the event that severe problems are encountered anywhere on the island.

Internet Subscription Service, Telephone Consultation Service

\$49,122

This has proven to be a valued function by which the vendor provides e-mail notices of new software and firmware updates, and notices of newly identified problems and software bugs, pre-release fixes and workarounds for these problems between major releases. In addition, this function provides MWRA staff with both Internet and telephone access to ABB technical support staff 24 hours per day, 365-days per year; a critically important way to receive technical support with problems that may arise.

Software Maintenance Program

\$44,342

The software maintenance program is necessary to keep the system engineering software and module firmware up-to-date so that staff can take advantage of improvements and fixes to software implemented by the vendor.

BUDGET/FISCAL IMPACT:

Sufficient funds for this contract have been included in the Proposed FY18 Current Expense Budget. Appropriate funding will be included in subsequent Proposed CEB requests for the remaining two years of the contract.

MBE/WBE PARTICIPATION:

ABB Automation, Inc. is not a certified Minority- or Women-owned business.

STAFF SUMMARY

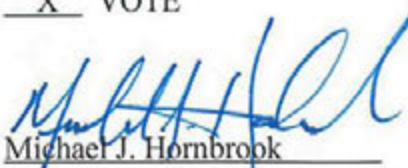
TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 12, 2017
SUBJECT: Alewife Brook Pump Station Rehabilitation
Stantec Consulting Services, Inc.
Contract 7034, Amendment 3



COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE

John P. Vetere, Deputy Chief Operating Officer
A. Navanandan, P.E., Chief Engineer
David K. Pottle, P.E., Program Manager
Preparer/Title



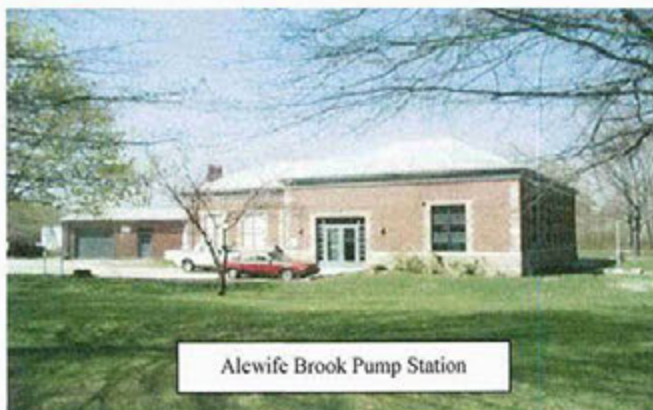
Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 3 to Contract 7034, Alewife Brook Pump Station Rehabilitation, with Stantec Consulting Services, Inc., in the amount of \$95,266, increasing the contract amount from \$1,813,025.63 to \$1,908,291.63, with no increase in contract term.

DISCUSSION:

The Alewife Brook Pump Station in Somerville (shown on the right), constructed in 1951, receives wastewater from portions of Arlington, Belmont, Cambridge, Medford, and Somerville. All flow is pumped to the North Metropolitan and North Metropolitan Relief Sewers, and ultimately conveyed to Deer Island for treatment.



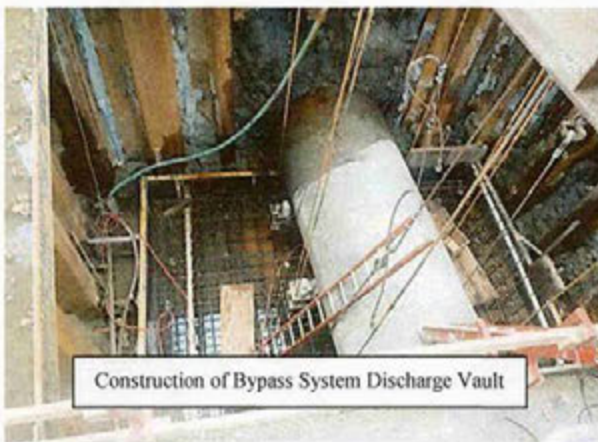
On February 15, 2012, the Board approved the award of Contract 7034 to Fay, Spofford & Thorndike, LLC, (now Stantec) in an amount not to exceed \$1,558,446.39, for a term of 1,703 calendar days for final design, and construction administration and resident engineering services for the Alewife Brook Pump Station Rehabilitation project.

The project includes: replacement of wet-weather pumps, motors, gear drives, variable frequency drives, motor control center, influent screens, sluice gates, standby generator, roof, programmable logic controller, air handling and air conditioning units; remediation of PCB-

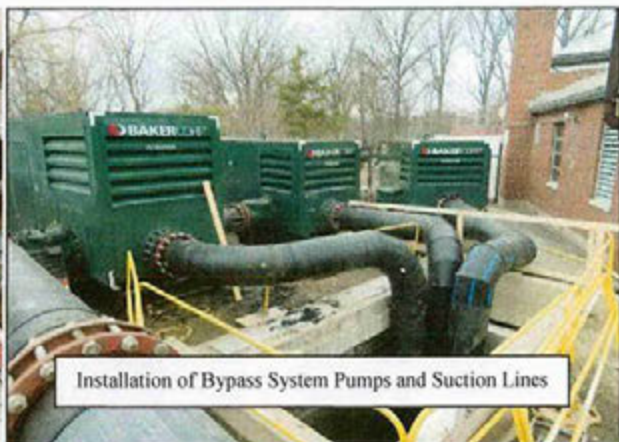
containing paints; remediation of asbestos-containing roofing and insulation materials; installation of a flow meter on the 66-inch downstream Alewife Brook Conduit; flood control measures; and energy efficiency improvements.

The Consultant completed the rehabilitation design and on November 18, 2015 the Board approved the award of Contract 6797 to Barletta Engineering Corporation for construction of the improvements with a contract term of 853 days. The Notice to Proceed for construction was issued on January 29, 2016 and Substantial Completion is to be achieved by May 31, 2018.

To date, the construction work is approximately 21% complete. The work performed to date includes installation of flood protection measures, installation of the bypass pumping system including the discharge vault, pumps, piping and valves, and commencement of PCB remediation.



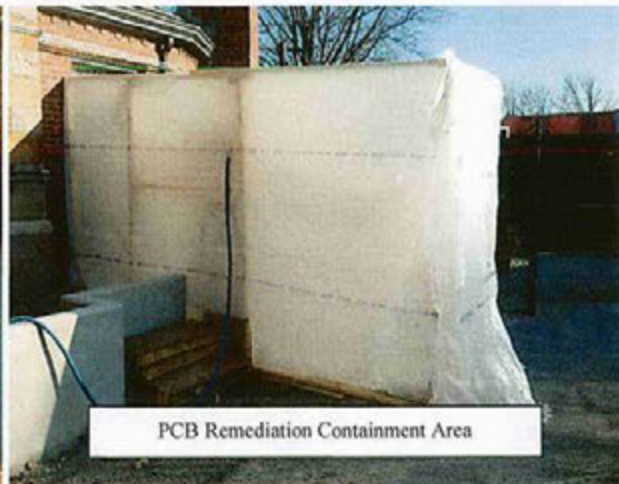
Construction of Bypass System Discharge Vault



Installation of Bypass System Pumps and Suction Lines



Flood Plank Frames Installed at Screen Room Door



PCB Remediation Containment Area

Previously, Amendment 1 increased the contract value by \$181,274.24 and extended the term by 182 days to add design services for flood protection measures, replacement of the programmable logic controller, energy efficiency improvements, modifications to the generator exhaust and chimney, review of additional contractor submittals and preparation of additional record drawings associated with the added design; and additional project administration services

associated with the extended term. Amendment 2 increased the contract value by \$73,305.00 and extended the term by 748 days to add time due to an increased construction documents review, comments and revisions process associated with the added design and due to an extended construction contract bid protest, design services to account for statutory and regulatory changes, bid protest assistance services, building permit assistance services; and additional project administration services and hourly rate escalation associated with the extended term.

This Amendment

Contract 7034 provides construction administration services during construction of Contract 6797. Proposed Amendment 3 provides funding for additional contractor submittal review services by the design consultant.

Additional Contractor Submittal Review Services \$95,266

Included in Contract 7034 is the quantity of contractor submittals to be reviewed, established by MWRA, of 220 submittals. This quantity has been reached, and it is estimated an additional 167 submittals will need to be reviewed through the end of construction. Based on costs incurred for review of the initial 220 submittals, the estimated cost to review the projected 167 submittals is \$95,266.

CONTRACT SUMMARY:

	<u>AMOUNT</u>	<u>TIME</u>	<u>DATED</u>
Contract Amount:	\$1,558,446.39	1,703 Days	03/01/12
Amendment 1:*	\$181,274.24	182 Days	07/31/13
Amendment 2	\$73,305.00	748 Days	12/16/15
Proposed Amendment 3	<u>\$95,266.00</u>	<u>0 Days</u>	Pending
Adjusted Contract Amount:	\$1,908,291.63	2,633 Days	

*Approved under delegated authority

BUDGET/FISCAL IMPACT:

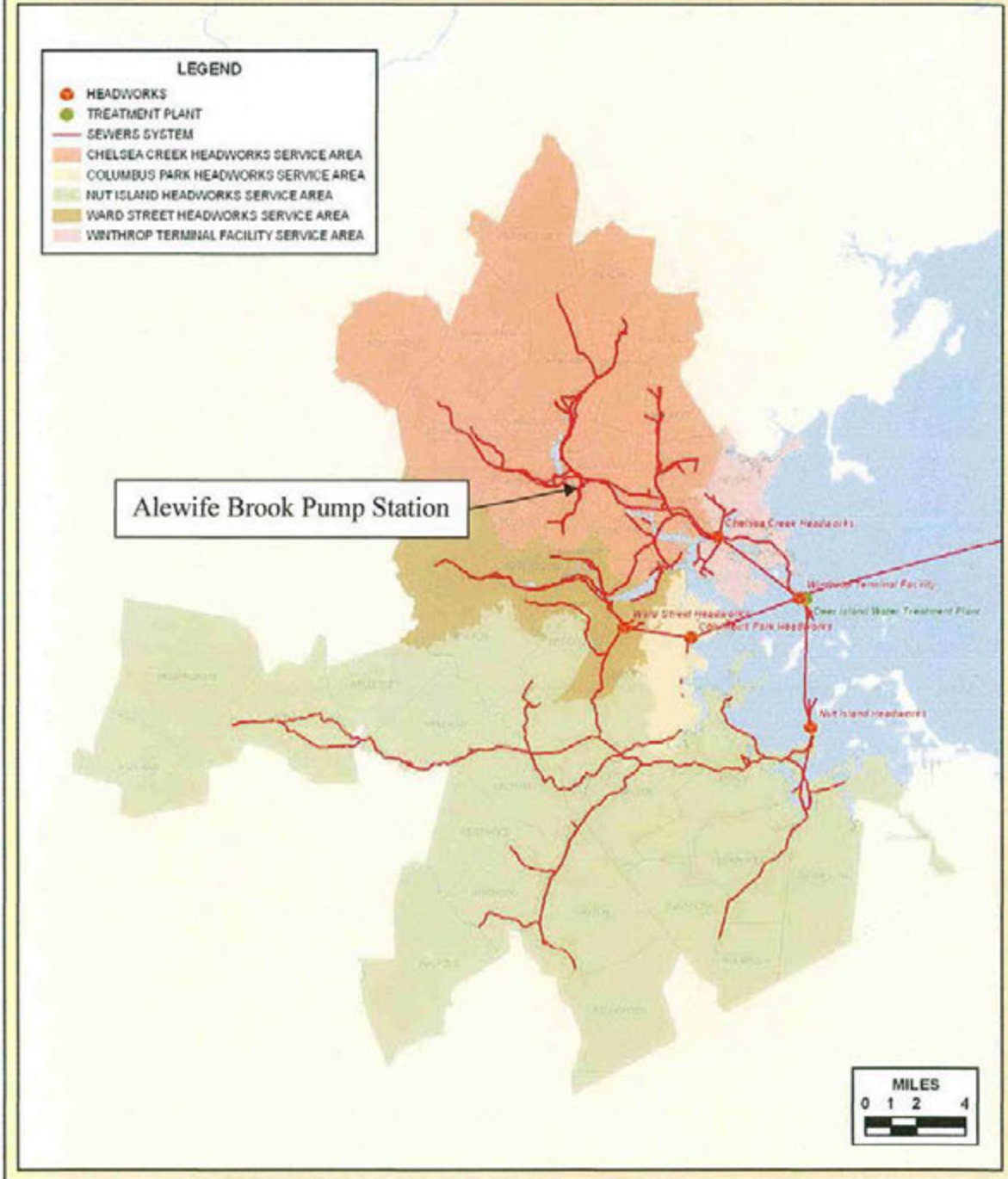
The FY17 CIP includes a budget of \$1,813,026.00 for Contract 7034. Including this amendment for \$95,266.00 the adjusted contract total will be \$1,908,291.63 or \$95,265.63 over budget. This amount will be covered within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

Stantec Consulting Services, Inc. has committed to 9.84% MBE and 6.76% WBE participation; these percentages will be unchanged by Amendment 3.

Attachment A

Location of Alewife Brook Pump Station





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

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, April 12, 2017

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

Time: Immediately following Wastewater Comm.

AGENDA

A. Information

1. Reservoir and Drought Status Update (materials to follow)

B. Contract Awards

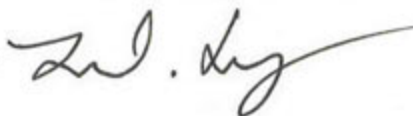
1. Emergency Action Plan Updates for Western Dams and Dikes: GZA GeoEnvironmental, Inc., Contract EXE-040

C. Contract Amendments/Change Orders

1. Northern Intermediate High Section 110 – Reading and Woburn: Albanese D&S, Inc., Contract 7471, Change Order 10
2. Section 80 Repair: P. Caliacco Corp, Contract 7532, Change Order 1

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 12, 2017
SUBJECT: Reservoir and Drought Status Update



COMMITTEE: Water Policy & Oversight

INFORMATION
 VOTE

Carolyn Fiore, Deputy Chief Operating Officer
Daniel Nvule, Senior Program Manager
David Coppes, Director of Waterworks
Stephen Estes-Smargiassi, Director, Planning
Preparer/Title



Michael J. Hornbrook
Chief Operating Officer

At the beginning of March, as a result of Secretary Beaton's declaration, all drought regions in the Commonwealth were either in the Watch or Advisory category, marking an improvement over the previous months. However, Quabbin Reservoir's status has not changed and has been in "Below Normal" status since November 12, 2016. Historically, the Reservoir's recovery begins to pick up pace in the February to April period. So far this year, Quabbin recovered slightly in February and essentially flat-lined in March. With April much wetter and 4.6 billion gallons diverted from the Ware River Watershed, Quabbin has recovered to 84.2% full as of April 10, 2017. Despite this slow recovery, adequate supply exists in Quabbin and Wachusett Reservoirs to meet the needs of MWRA fully and partially supplied water communities and also, if needed, to augment the supplies of some of the adjacent communities, should they become stressed. While no water use restrictions are in place for MWRA fully supplied customers, MWRA continues to urge consumers to use water wisely and is continuing to provide conservation information. Ironically, while Quabbin continues in Below Normal status, with the heavy rains during early April, MWRA has needed to release excess water from Wachusett Reservoir to minimize the possibility of downstream flooding if the reservoir were to completely fill and begin spilling.

DISCUSSION:

MWRA Supply Outlook

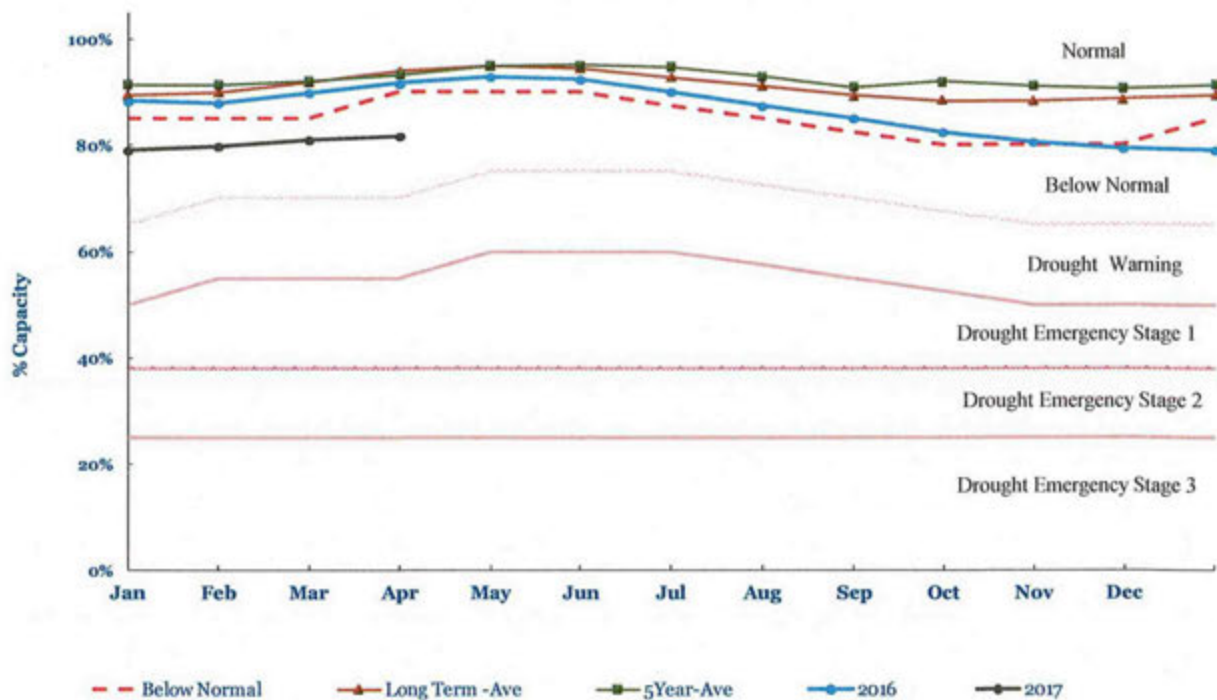
With below normal precipitation and dry soil conditions, particularly in the watershed of Quabbin Reservoir, the MWRA system fell to Below Normal on November 12, 2016. Below Normal is the second of six drought plan statuses in MWRA's drought plan, as shown on Figure 1 on the next page.

As a result of the status change, MWRA undertook a number of actions to increase customers' awareness about the drought, reminding them of the importance of water conservation, and suggesting voluntary actions they can take to improve their water use efficiency. The target for Below Normal in the Drought Plan is to maintain use at the previous year's level without issuing mandatory use restrictions.

Staff contacted communities' chief elected officials and water superintendents reminding them that our website has many tips on how to save water indoors and outdoors which they should share with their customers, and that MWRA has conservation brochures, as well as low-flow replacement aerators for kitchen and bathroom faucets, and low-flow shower heads, available to member communities (and individual customers) free of charge. Outreach to water departments this winter stressed providing conservation information to customers, and demand by communities for conservation brochures is higher than usual.

MWRA sent out Public Service Announcements and utilized its website and social media to ask residents and businesses in our service area to save water wherever they can. The website has been refreshed regularly with new tips, and MWRA's twitter account has been used for outreach as well.

**Figure 1: Quabbin Reservoir Volume
First of the Month**



The three-month period that starts in February each year has historically marked the largest gains in Quabbin Reservoir volume. This is due to a combination of low demands, minimal evapotranspiration, and plenty of runoff from rainfall and snowmelt. So far this year has been different and the typical bump-up in Reservoir volume had not yet materialized by the beginning of April. Since April 1, Quabbin watershed has received 2 inches of rain which has increased the volume of Quabbin to 84.2% full as of April 10, 2017 which is 5.8% lower than Normal. Modeling of the reservoir system indicates the level will likely stay in Below Normal status for at least three months if yield conditions remain below average (See Table 1).

Staff have been running the drought simulations each month, and will continue to do so until conditions no longer warrant.

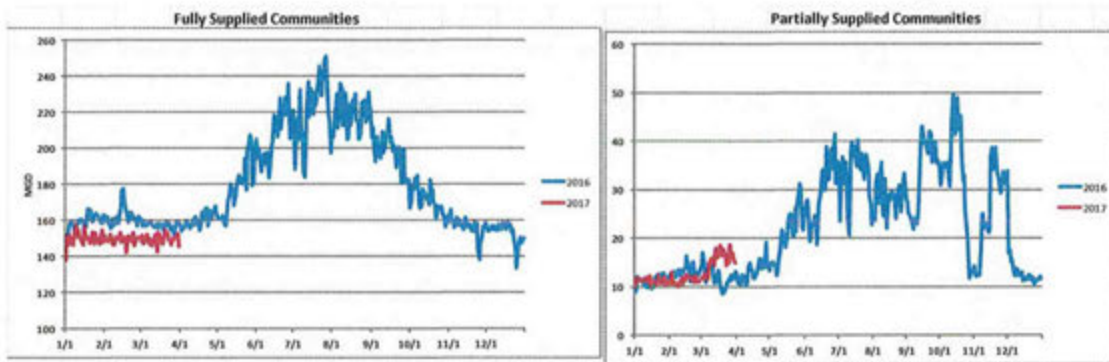
Table 1: Quabbin Reservoir Ending Status with Varying Reservoir Yield Scenarios Looking Forward from April 1, 2017

	1-Month	3-Months	6-Months	12-Months
Median Yield	Below Normal	Normal	Normal	Normal
Dry (75th Percentile)	Below Normal	Below Normal	Normal	Below Normal
Driest (of Record)	Below Normal	Below Normal	Below Normal	Drought Warning

Change in Community Status Since Last Meeting

Drought-induced demand has tapered off. Worcester stopped pumping from Shaft 3 on December 2nd while Cambridge stopped taking MWRA water in mid-December. Demand in the fully supplied communities is tracking lower than last year while that in the partially supplied communities is tracking slightly higher. This is shown in Figure 2 below. (Note the scale difference.)

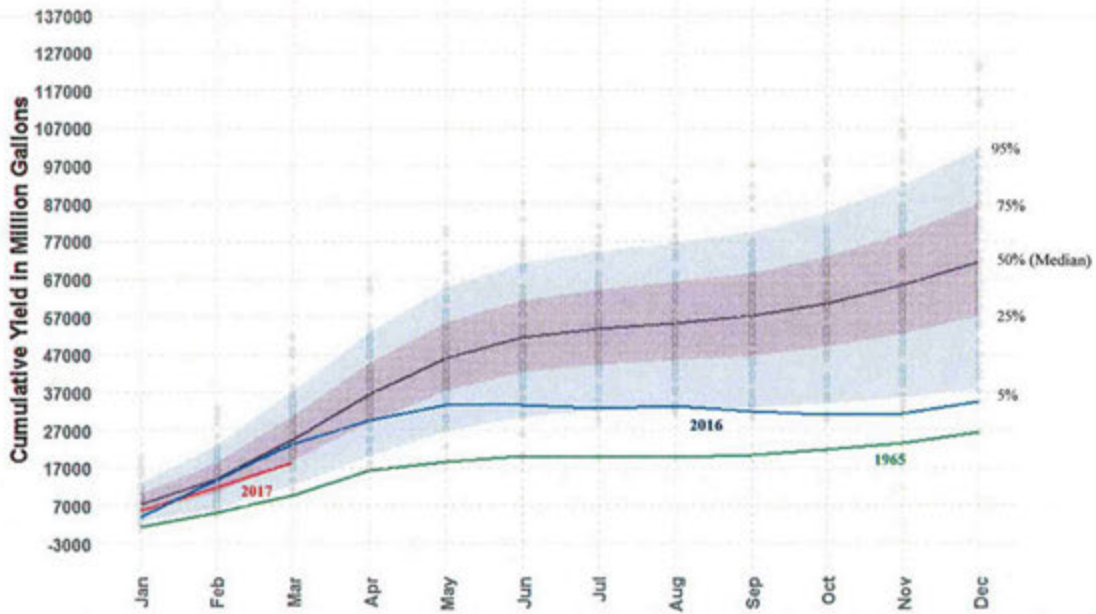
Figure 2: Comparison of 2016 and 2017 Demand Levels



Low Watershed Yield Conditions Have Continued

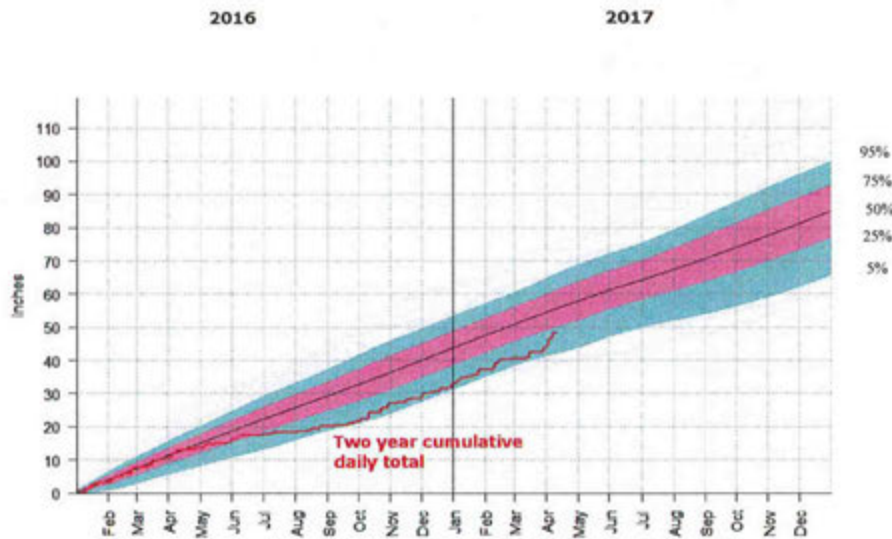
Low yields (amount of water produced) continue to persist in the watershed. Figure 3 on the following page shows the percentile distribution of the monthly cumulative yields. As of the end of March, this year's total yields are tracking below last year. The yields for 1965 are also shown on the Figure.

Figure 3: Quabbin Watershed Yields



In terms of rainfall, the service area had before April 1, 2017 experienced rain at roughly the expected average normal rate (cumulative total amount almost parallel to long-term average on Figure 3 below.) The rains of early April, broke that trend. The period of March 31, 2017 to April 6, 2017 recorded more rainfall than the entire Summer of 2016. Figure 4 shows actual rainfall at Logan Airport as of April 9, 2017 compared to the long term two-year average beginning in January of 2016. The Figure shows a deficit at the end of 2016 which explains why the local sources in our partially supplied communities were severely stressed in 2016. Since most surface supply reservoirs in the service area can hold at most a year's worth of supply, their recovery is quicker than Quabbin and if current rainfall patterns continue to hold during the year, the likelihood of another year of emergency assistance diminishes.

Figure 4: Logan Airport Precipitation




Lynn's reservoirs were at 86% at the beginning of April, well above the 65 percent full trigger for normal operating status. Worcester's reservoir capacity stood at 83% at the end of March with the Quinnapoxet Reservoir full and overflowing. As of April 3, 2017, the City of Cambridge's reservoir capacity stood at 66% and the City doesn't anticipate the need to use MWRA water in the near term.

Next Steps

MWRA staff will continue outreach and education about the importance of conservation, and will work with any neighboring communities which are having supply difficulties. The Annual Water Quality Report (Consumer Confidence Report) mailed in June will include additional conservation messaging.

Staff will also continue to participate in the state Drought Management Task Force, including its meeting on April 11th, will coordinate with other state agencies to periodically assess the status of the drought and the ongoing needs of the partial users and emergency connections, and will report to the Board of Directors if conditions change.

STAFF SUMMARY


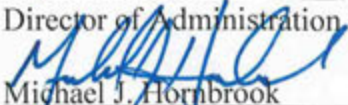
TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Emergency Action Plan Updates for Western Dams and Dikes
GZA GeoEnvironmental, Inc.
Contract EXE-040

COMMITTEE: Water Policy & Oversight Committee

 INFORMATION

 X VOTE

Joseph Bibbo, Program Manager, Security/Safety, OEP
Andrew Hildick-Smith, Director, OEP
Preparer/Title


Michele S. Gillen
Director of Administration

Michael J. Hornbrook
Chief Operating Officer

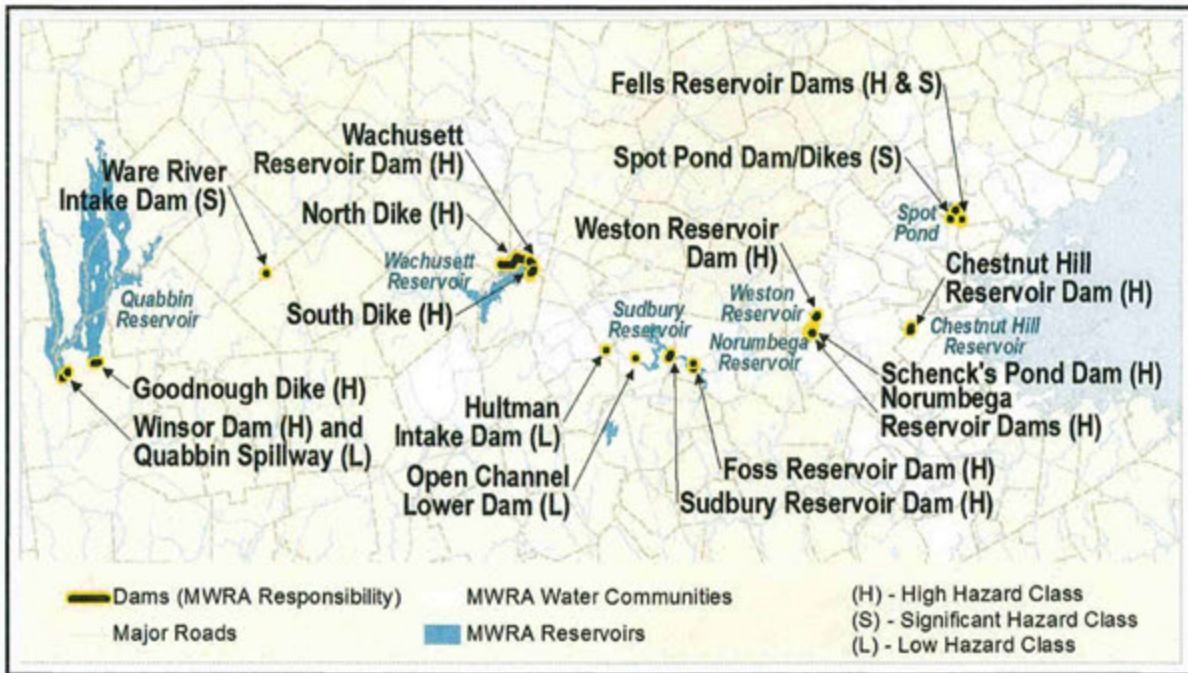
RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract EXE-040, Emergency Action Plan Updates for Western Operations Dams and Dikes, to GZA GeoEnvironmental, Inc. and execute said contract in the lump sum amount of \$153,050, for a term of one year from the Notice to Proceed.

DISCUSSION:

The development of Emergency Action Plans (EAPs) for all High and Significant Hazard potential dams is required by MGL Chapter 253 and 302 CMR 10.00 and is critical to reducing the risks of loss of life and property damage from dam failures. MWRA has entered into a Memorandum of Understanding with the Department of Conservation and Recreation, Division of Watershed Management to assume emergency planning responsibilities for the High and Significant Hazard class dams within the MWRA water supply, transmission and distribution systems.

Under a previous contract, inundation mapping and Dam EAPs were prepared for these western reservoirs: Wachusett Reservoir, Norumbega Reservoir, Sudbury Reservoir, Foss Reservoir, Quabbin Reservoir, and Weston Reservoir. This new work is necessary in order to update these Dam EAPs to the latest Federal Guidelines for Dam Safety (known as "FEMA 64") and to update all inundation modeling/mapping. The Metropolitan Boston area High and Significant Hazard class dams were last updated to FEMA 64 in 2015.

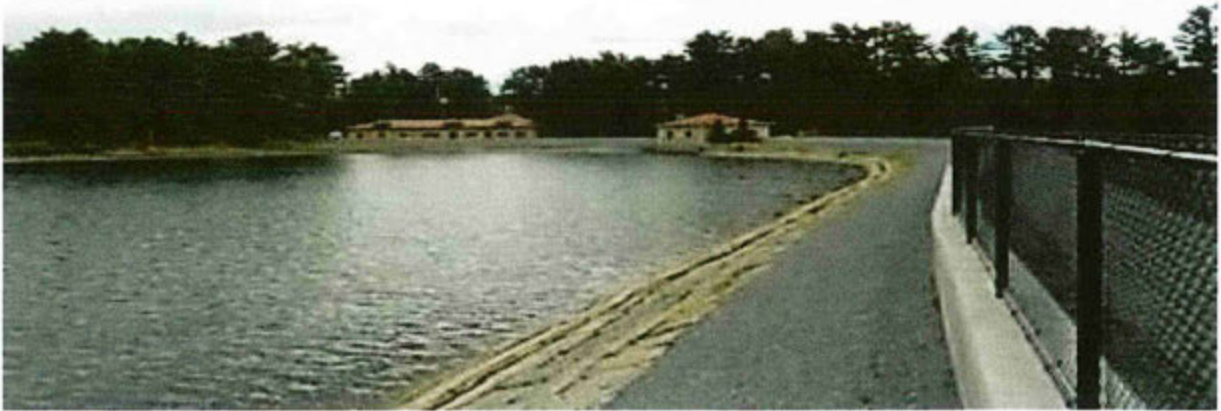


Geographic Presentation of MWRA Dams

For this new work, the Consultant will use the existing engineering studies, dam breach modeling, inundation mapping data, and investigate whether new or significant changes have occurred within the inundation areas to develop all notification flowcharts, all inundation maps, all supplemental tables and all appendices. The Consultant will also adjust the format of the EAPs to be consistent with the current version of FEMA 64, Massachusetts Office of Dam Safety regulations and the EAP style developed for the MWRA's Metropolitan Reservoir Dams. The Consultant will provide copies for distribution to all required agencies and downstream communities per the governing regulations, and then the Consultant will provide required training regarding the EAPs to MWRA staff and officials of affected local communities.



Wachusett Reservoir Dam and North Dike



Weston Reservoir Dam

Procurement Process

On February 13, 2017, MWRA issued a one-step Request For Qualifications/Proposals (RFQ/P) procurement process. Four firms submitted Statements of Qualifications and Proposals prior to the submission deadline on March 17, 2017. The proposals were first evaluated for compliance with Threshold Requirements relating to the firms' demonstrated experience in inundation modeling and development of EAPs, and the firms' financial stability. The four firms were found to have met the Threshold Requirements and had their proposals further evaluated by the Selection Committee against six Evaluation Criteria, which were assigned the following points: Cost (25); Experience/Past Performance on Similar Non-Authority Projects (20); Experience and Qualifications of the Key Personnel (15); Past Performance on Authority Projects (15); Capacity, Project Organization and Management Approach (15); and Technical Approach (10).

The Committee met on March 23, 2017 to score and rank proposals. The four proposals were reviewed in depth, and scored using each of the six Evaluation Criteria. The results including the proposed costs are listed below followed by a discussion of each proposal.

	<u>Total Points</u>	<u>Order of Preference*</u>	<u>Final Ranking</u>	<u>Lump Sum Price</u>	<u>Total Hours</u>
GZA GeoEnvironmental	476	5	1	\$153,050.00	1,115
GEI Consultants, Inc.	410	11	2	\$277,075.00	1,620
Pare Corp.	393	15	3	\$424,070.40	2,993
Wright-Pierce	374	19	4	\$187,580.00	1,426

*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.

The Engineer's Estimate of \$190,000 was based on the cost of the original work of the 2013 Dam EAPs conservatively reduced to reflect the savings from the MWRA's requested reuse of

past plans' foundational elements, including existing engineering studies, dam breach modeling and inundation mapping data.

The Selection Committee unanimously selected GeoEnvironmental (GZA) as the first ranked proposal. GZA had the lowest lump sum cost proposal. Its bid is 19.5% lower than MWRA staff's cost estimate for the project. GZA has prior similar MWRA experience on other dam projects and has also prepared numerous Dam EAPs for Department of Conservation and Recreation, Providence, RI and Springfield, MA on Large High Hazard class dams. Its team consists of highly-qualified personnel and has substantial experience on numerous MWRA dam projects. GZA is well-qualified and capable of doing the work at the proposed cost. Part of its lower cost is derived from efficient approaches to model updating and EAP distribution.

Reference checks with the recommended Consultant's prior clients indicate that the firm is held in high regard. GZA is currently under contract with other dam projects for the MWRA and is performing well.

GEI Consultants prepared the prior 2013 MWRA Western Dam EAPs and has done geotechnical work on many MWRA projects. Its estimate of the labor and proposed cost to do the modeling was high, compared to GZA's.

Pare Corporation has done dam inspections and studies for MWRA as a subconsultant. Its proposed hours and cost are substantially higher than the first ranked firm.

Wright-Pierce has less EAP experience than the other three firms. Its proposed hours and cost are higher than the low cost proposal.

Based upon GZA's proposal and prior work history, staff are confident that GZA understands the full nature and scope of work and recommends award of this contract to GZA in an amount not to exceed \$153,050.


BUDGET/FISCAL IMPACT:

There are sufficient funds for this contract in Office of Emergency Preparedness FY17 and FY18 Current Expense Budget.

MBE/WBE PARTICIPATION:

There were no MBE/WBE participation requirements established for this contract due to the limited opportunities for subcontracting. GZA GeoEnvironmental, Inc. is not an MBE or WBE business, and did not include any MBE/WBE subcontractor participants in its Proposal.

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Northern Intermediate High Section 110 – Reading and Woburn
Albanese D&S, Inc
Contract 7471, Change Order 10

COMMITTEE: Water Policy and Oversight

Jeremiah Sheehan, Construction Coordinator
Corinne M. Barrett, Director, Construction
Preparer/Title

 INFORMATION

 X VOTE


Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 10 to Contract 7471, Northern Intermediate High Section 110 – Reading and Woburn, with Albanese D&S, Inc., for an amount not to exceed \$300,000.00 increasing the contract amount from \$10,771,797.23 to \$11,071,797.23, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7471 in an amount not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

DISCUSSION:

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 existing 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 limited redundancy other than the low-capacity, century-old Section 29 that parallels its route for a short distance. Due to the lack of redundancy, Section 89 cannot be taken out of service for inspection or repairs. The project goal is 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 inspection and rehabilitation. The route includes a 48-inch pipeline that will extend from Gillis Pump Station to the Reading/Stoneham emergency connection;

and a 36-inch pipeline which will extend from the Reading/Stoneham interconnection to Meter 240 in Woburn, completing a looped service area in four construction phases.

Under Contract 7471, or Contract 2, the Contractor is constructing 8,800 linear feet of 36-inch water transmission main in the City of Woburn and the Town of Reading.

This Change Order

Change Order 10 consists of the following item:

Furnish and Install 12-inch and 18-inch PVC Drain Line

Not-to-Exceed \$300,000

The Design Engineer was responsible for the design of a new 36-inch MWRA water main on Oak Street in Reading among all the existing utilities. Limited by only a 40-foot wide street, the Design Engineer deemed it necessary to relocate or remove and replace several existing utilities including water and drainage systems in order to install the 36-inch water main. The Design Engineer obtained the as-built information for existing utilities on Oak Street during the design phase of the project. The final design included relocation of the local water main, replacement of the existing drainage system at a higher elevation and installation of a cured-in-place liner inside of the clay sewer lines for added structural integrity.



Tree to be removed on Oak Street



Installation of drain across Pine Ridge Road

After construction began and the new drainage system was installed and active, residents on an adjacent street, Scotland Road, complained of abnormally high groundwater levels and water entering their basements which never occurred prior to the construction on Oak Street. MWRA, the Design Engineer and the Town of Reading collectively investigated and determined that the new drainage system on Oak Street did not incorporate a critical connection, a 12-inch drain connection into a 12-inch drain line to an existing Scotland Road drain pipe causing the groundwater problem. Because the new drain line on Oak Street was installed several feet higher than the existing drain line elevations, it is necessary to furnish and install approximately 408 linear feet of new

drain line at a lower elevation so that the Scotland Road drainage will successfully flow by gravity into the Oak Street drainage similar to the existing condition. Additionally, because of where the new drain line is being installed the sidewalk and a pine tree must be removed and replaced. Temporary pavement will be required over all trenches.

The Designer erred by not incorporating the information represented on the Town's as-built drainage drawings into the new design.

The approved PCO for this item has been identified by MWRA staff as a design error. MWRA staff, the Consultant, and the Contractor have agreed to an amount not to exceed \$300,000.00 for this additional work with no increase in contract term. The Contractor proceeded with this work at its own risk in order to proceed with the remainder of the contract work.

Staff are compiling a list of all change order items that have resulted from an error or omission on the part of the Design Consultant, and have notified Stantec Consulting Services, in writing, of the current status of these findings and of MWRA's intention to seek appropriate cost recovery.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract:	\$9,888,000.00	808 Days	12/07/15
Change Orders:			
Change Order 1*	\$0.00	0 Days	03/09/16
Change Order 2*	\$0.00	0 Days	03/23/16
Change Order 3*	\$11,211.37	0 Days	08/12/16
Change Order 4*	\$7,368.81	0 Days	09/06/16
Change Order 5*	\$9,500.00	0 Days	09/19/16
Change Order 6*	\$97,015.00	0 Days	12/07/16
Change Order 7	\$564,239.00	0 Days	01/24/17
Change Order 8*	\$24,000.00	0 Days	02/02/17
Change Order 9*	\$170,463.05	0 Days	03/20/17
Change Order 10	<u>\$300,000.00</u>	<u>0 Days</u>	Pending
Total of Change Orders:	\$1,183,797.23	0 Days	
Adjusted Contract:	\$11,071,797.23	808 Days	

*Approved under delegated authority

If Change Order 10 is approved, the cumulative value of all change orders to this contract will be \$1,183,797.23 or 12% of the original contract amount. Work on this contract is approximately 90% complete.

BUDGET/FISCAL IMPACT:

The FY17 Capital Improvement Program budget includes \$9,893,000 for Contract 7471. Including this change order for \$300,000, the adjusted subphase total is \$11,071,797.23 or \$1,178,797.23 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The MBE/WBE participation requirements for this project were established at 7.24% and 3.6%, respectively. The Contractor has been notified that these requirements are still expected to be met.

STAFF SUMMARY

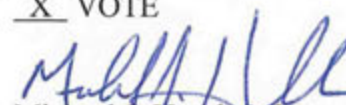
TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 12, 2017
SUBJECT: Section 80 Repair
P. Caliacco Corp.
Contract 7532, Change Order 1



COMMITTEE: Water Policy and Oversight

Jeffrey Bina, P.E. Construction Coordinator
Corinne M. Barrett, Director, Construction
Preparer/Title

INFORMATION
 VOTE



Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 1 to Contract 7532, Section 80 Repair, with P. Caliacco Corporation, for a lump sum amount of \$81,870, increasing the contract amount from \$1,828,409 to \$1,910,279, and extending the contract term by 335 calendar days from July 22, 2017 to June 22, 2018.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7532 in amounts not to exceed the aggregate of \$250,000, and 180 days in accordance with the Management Policies and Procedures of the Board of Directors.

DISCUSSION:



Section 80 – Test Pit of 48-inch Steel Pipe

MWRA's Section 80 water main was constructed in 1959 and consists of approximately 10,000 linear feet of 48-inch diameter welded steel pipe and approximately 5,000 linear feet of 36-inch diameter welded steel pipe. It starts at Shaft 5/5A in Weston and terminates at the Saint Mary Street Pump Station in Needham. The water main partially supplies the towns of Wellesley and Needham through meters 203 and 160 respectively.

The portion of Section 80 that crosses the Charles River

by DCR's Riverside Park in Weston has had a long history of leaks. The earliest noted leak appeared 10-years after the pipe was installed in 1969 and most recently leaks occurred in September 2015, March of 2016 and March of 2017. Three leaks were located on a section of pipe on the bank of the Charles River where the pipe is not encased in concrete, is exposed to ground water and has corroded. A recent inspection of the pipe in this area showed that the pipe is severely pitted, and in some spots, there is only 1/16 of an inch of steel remaining (See photo below).



Pipe showing corrosion

This project will replace 160 linear feet of the 48-inch diameter steel pipe in this area with new 48-inch diameter steel pipe. Also, as part of the project, two 48-inch butterfly valves and appurtenances will be installed. (The valves were added to the project to allow for the isolation of the repair section and to facilitate installing a 20-inch diameter water by-pass system which will allow the Authority to continue to supply water during the lower demand period to the communities of Wellesley and Needham during the repair).

Historically, Section 80 has been utilized to supplement Wellesley's and Needham's local supplies during summer high demand periods only. Wellesley and Needham have relied only on their own wells during the winter lower demand months. During the last several years, both communities have increasingly relied upon Section 80 to supply water even during the lower demand periods. This winter, use increased with the recent drought conditions. During design coordination for this project, the communities indicated their need for continued water from MWRA even during this winter's low demand period resulting in the need for a temporary bypass around the section to be replaced.

The new 48-inch diameter pipe will be coated with polyurethane and encased in concrete. Replacing this section of pipe will stop the persistent leaks in this portion of Section 80 and provide reliable water service to the towns of Needham and Wellesley.

This Change Order

Change Order 1 consists of the following item:

Suspend Contract Work as of March 28, 2017 and Recommence Fall 2017; <u>Extend the Contract Term by 335 Calendar Days</u>	\$81,870.00
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The contract requires a one-time 14-day shutdown of Section 80 pipeline to complete the work associated with constructing a 20-inch bypass pipeline in order to provide the Contractor with a 75-day duration to repair the leak on Section 80. The bypass will provide an uninterrupted service to the communities during the leak repair. The communities of Wellesley and Needham are MWRA partial water users with ground water wells located within their towns and partially supplemented by MWRA's water supply through the Section 80 pipeline. When awarded in November 2016, the 14-day shutdown was anticipated to start in the beginning of March, at a time when demand is sufficiently low to allow work to proceed. In late January the contractor

submitted a schedule showing the shutdown in late April based on critical path analysis of materials delivery. At the time, staff did not recognize that this later start of the shutdown could not be supported by the communities supplied by the line as it was assumed that demand would not pick up until May. Through recent consultation with the communities, it was determined that postponing the Section 80 shutdown until November will minimize impacts to, and the possibility of, water stresses for these communities as their demand can pick up as early as mid-April and they rely on water from MWRA to meet that demand. Therefore, staff recommend delaying the start of the 14-day shutdown by 7-months to allow the shutdown to occur during periods of lower demand. This results in a contract completion within winter conditions and as a result additional time is required in order to complete site restoration activities within the spring growing seasons. The Contractor has requested compensation resulting from demobilization and remobilization activities, labor and material escalations, rental costs for field office and bypass piping, and removal and reinstallation of siltation control.

The approved PCO for this item has been identified by MWRA staff as an unforeseen condition. MWRA staff and the Contractor have agreed to extending the contract term by 335 calendar days from July 22, 2017 to June 22, 2018 and a lump sum amount of \$81,870 for the suspension of work and time extension.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract:	\$1,828,409.00	212 Days	12/22/16
Change Orders:			
Change Order 1	<u>\$81,870.00</u>	<u>335 Days</u>	Pending
Total of Change Orders:	\$81,870.00	335 Days	
Adjusted Contract:	\$1,910,279.00	547 Days	

*Approved under delegated authority

If Change Order 1 is approved, the cumulative total value of all change orders to this contract will be \$81,870 or 4.48% of the original contract amount. Work on this contract is 5% complete.

BUDGET/FISCAL IMPACT:

The FY17 CIP includes a budget of \$700,000 for Contract 7532. Including this change order for \$81,870, the adjusted subphase total will be \$1,910,279 or \$1,210,279 over budget. The amount that was budgeted in the FY17 CIP did not include the cost of the of the 20-inch diameter by-pass and 48-inch diameter valves that were added to the project in August of 2016. The bid price of \$1,828,409 is \$1,128,409 over the CIP budget. This amount will be absorbed within the five year CIP spending cap.

MBE/WBE PARTICIPATION:

There were no MBE/WBE participation requirements established for this contract due to the 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
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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, April 12, 2017

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


Time: Immediately following Water Comm.

AGENDA

A. Approvals

1. Appointment of Assistant Director, Internal Audit

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2017
SUBJECT: Appointment of Assistant Director, Internal Audit

COMMITTEE: Personnel & Compensation

 INFORMATION
X VOTE


Brian A. Rozowsky, Director, Internal Audit
Preparer/Title

RECOMMENDATION:

To approve the appointment of Cheryl King to the position of Assistant Director, Internal Audit (Non-Union, Grade 13), at an annual salary of \$107,880 commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Assistant Director, Internal Audit became vacant in March 2015 upon the appointment of the incumbent to Director, Internal Audit. The position reports to the Director and manages, reviews and assists in independent reviews of the Authority's internal audits, which include operations and related management systems and financial and performance audits which encompass these operations. The position assists in the development and implementation of comprehensive and effective audit programs, planning, organizing, directing and conducting audits, investigations and special assignments to identify weaknesses and evaluate the effectiveness of internal control systems. The Assistant Director, Internal Audit supervises a staff of five and monitor audit staffs' adherence to established audit policies and procedures, including preparation of work papers, reporting of audit findings and follow-up on audit recommendations.

Selection Process

The position was posted internally and two candidates applied. The Director, Internal Audit, Controller and a representative from Affirmative Action interviewed the candidates. Upon completion of those interviews, Cheryl King was identified as the most qualified candidate based on her education, certifications, experience and knowledge of the requirements of the position.

Ms. King has more than thirty years experience in the auditing field. Since starting with the MWRA in 1989 as a contracted staff auditor, she has held various positions with the Internal Audit Department, each subsequent position with increased responsibility. In 1998, she was promoted to Supervisory Auditor, which she held until being placed in the position of Acting

Assistant Director, Internal Audit in November 2015. During her career at MWRA, Ms. King has conducted many internal audits of the Authority's programs such as AVL devices, Facility Card Access Controls, and Vehicle Maintenance. She has conducted numerous MIS related audits including controls over hardware and mobile assets, and Deer Island and Chelsea Facility Data Center Physical Security Controls. She has performed many data analyses using the ACL data analytics software including overtime analysis. Prior to her employment at the MWRA, Ms. King worked as a Senior Internal Auditor for the MBTA and Raytheon Company. She is diligent and hard-working and is well-respected at the MWRA.

Ms. King possesses a Bachelor of Science degree, majoring in Accounting from Stonehill College. She holds certificates as a Certified Internal Auditor, Certified Information Systems Auditor and a Certified Fraud Examiner.

BUDGET/FISCAL IMPACT

There are sufficient funds available for this position in the FY17 Current Expense Budget.

ATTACHMENTS:

Resume of Cheryl King
Position Description
Organization Chart

CHERYL A. KING

Internal Audit professional with extensive experience planning, organizing, and conducting independent internal audits of Authority's operations and related management systems, which include performing compliance reviews, special management advisory services, and risk assessments for fraud, waste, and abuse to identify weaknesses and to evaluate effectiveness of internal system controls. Sound knowledge of internal auditing standards and information security standards (ISO/IEC 27002). Proficient with Audit Command Language (ACL) data analytics software and other Microsoft Office programs. Excellent oral and written communication and interpersonal skills.

EXPERIENCE **Massachusetts Water Resources Authority, Boston, MA**

2015-Present: Acting Assistant Director, Internal Audit / 1998-2015: Supervisory Auditor, Internal Audit

- Ability to exercise judgment in selecting audit techniques, methods and evaluation in developing and implementing comprehensive and effective audit programs.
- Assists in planning, organizing, and conducting internal audits, compliance reviews, performance audits, special assignments, and systems reviews to evaluate effectiveness of internal system controls.
- Performs audits and management advisory services as required.
- Assists in development and implementation of Annual Internal Audit Work Plan.
- Supervised, assisted and worked on numerous audit assignments including FMLA Analysis, MIS assets verification controls, AVL installations and controls, and MIS software controls review.
- Audit of DITP Data Center Physical Security Controls – Recommendations increased security of Data Center by removing Master Keyed locks and reviewing card holder access lists to MIS restricted areas. Recommended required safety training for all staff working in Halon fire protected DITP Data Center.
- Facility Card Access Controls Review - Recommended deactivating 530 Contractor ID badges since they no longer work at MWRA facilities. Recommended utilizing Expiration Date Field for contractor and Non-Employee ID badges which would automatically deactivate badge and card access privileges.
- Chelsea Data Center Physical Controls – Recommended review of card holders with access rights to MIS Restricted Areas. Recommended replacing master keyed locks and restricting key distribution. All visitors should be escorted and use sign-in log book. Recommended required safety training for all staff working in Inergen fire protected Data Center to be in compliance with National Fire Protection Assoc. standards.
- IT Hardware Equipment Management Software/Asset Life Cycle – Recommended increasing controls over MIS equipment during asset life cycle including installing Cyber Angel tracking devices on laptops.
- Information Security – Recommended Draft of General IT Security Policy be developed and finalized in accordance with Information Security Standards ISO/IEC 27001 and 27002.
- Review of Fleet Services Activity - Recommended maintenance of all vehicles and equipment to adhere to the manufacturer's recommended preventive maintenance schedule, and ensure that each vehicle repair staff person has required licenses and Automotive Service Excellence (ASE) certifications on file in HR.

1989-1998: Staff Auditor/Senior Staff Auditor, MWRA

- Conducted performance and operational audits of various functions throughout the Authority.
- Performed Management Advisory Services and Special Projects in direct response to management requests at resolving specific problems.
- Identified control issues and reported audit findings. Assisted in drafting audit reports.

ADDITIONAL RELATED EXPERIENCE

Massachusetts Bay Transportation Authority, Boston, MA: Senior Auditor

McCormack & Dodge Corp., Natick, MA: Application Consultant/Fixed Asset Software

Raytheon Company, Lexington, MA: Corporate Internal Auditor

PROFESSIONAL CERTIFICATIONS

Certified Internal Auditor (CIA)
Certified Information Systems Auditor (CISA)
Certified Fraud Examiner (CFE)

Certified Software Asset Manager (CSAM)
Certified Hardware Asset Manger Professional (CHAMP)
Certified Mobile Asset Manager (CMAM)

PROFESSIONAL MEMBERSHIPS/AFFILIATIONS

Boston Chapter Institute of Internal Auditors (IIA)
New England Chapter Information Systems Audit and Control Association (ISACA)
Boston Chapter Association of Certified Fraud Examiners (ACFE)
International Association of IT Asset Managers (IAITAM)

EDUCATION

Stonehill College, N. Easton, MA
Bachelor of Science, Accounting Major

Babson College, Wellesley, MA
MBA Program – partially completed

Bentley University, Waltham, MA
Additional coursework in ACL, Computer Information and Accounting Information Systems

COMPUTER SKILLS

Audit Command Language (ACL) Data Analytics Software
Microsoft Office Suite (Advanced Excel, Visio, Word, Access, Power Point)

**MWRA
POSITION DESCRIPTION**

POSITION: Assistant Director, Internal Audit

DIVISION: Internal Audit

DEPARTMENT: Internal Audit

BASIC PURPOSE:

Manages, reviews and assists in the independent reviews of the Authority's internal audits which include operations and related management systems and financial and performance audits which encompass these operations, as defined in Section 7(h) of the Authority's enabling legislation. Acts as Director, Internal Audit in his/ her absence.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, Internal Audit.

SUPERVISION EXERCISED:

Assists in the supervision of the Department's staff of professionals assigned to internal audits, and oversees audits of the Authority's operations.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Assists in the development and implementation of comprehensive and effective audit programs to meet the specific needs of an assignment with modification as the audit progresses.
- Assists in planning, organizing, directing and conducting internal financial and performance audits, investigations and special assignments to identify weaknesses and to evaluate the effectiveness of internal system controls..
- Performs audits and management advisory services as required.
- Monitors the audit staffs' overall adherence to established audit policies and procedures, including the proper preparation of working papers, reporting of audit findings, and follow-up on audit recommendations.
- Provides technical guidance to the Law Division and other MWRA managers, as required. Presents oral and written audit results and recommends a course of action to management and department personnel, and assists and prepares formal written reports of audit results,

recommendations and responses.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) A four (4) year college degree in business, public administration or a related field. Graduate degree preferred; and
- (B) Seven (7) to ten (10) years of auditing experience, of which at least five (5) years must be in a supervisory or managerial capacity; including three (3) years of supervisory experience; or
- (C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Knowledge of business principles.
- (B) Understanding of auditing practices, program evaluation and management analysis.
- (C) Knowledge of construction, engineering, and procurement practices.
- (D) Excellent verbal and written communication skills and interpersonal skills.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators License.

Certification as a Certified Public Accountant (CPA), Certified Internal Auditor (CIA), or Certified Systems Auditor (CISA) preferred.

TOOLS AND EQUIPMENT USED:

Office machines as normally associated with the use of multiple-line 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 sit and talk or hear, to use hands to feel, finger, handle or operate objects, including office equipment or controls and reach with hands and arms. The employee is frequently required to stand and walk; and occasionally climb or balance; stoop, kneel, crouch, crawl, or smell.

The employee must frequently lift and/or move up to 10 pounds, occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, peripheral vision, distance vision, depth perception and the ability to adjust focus.

WORK ENVIRONMENT:

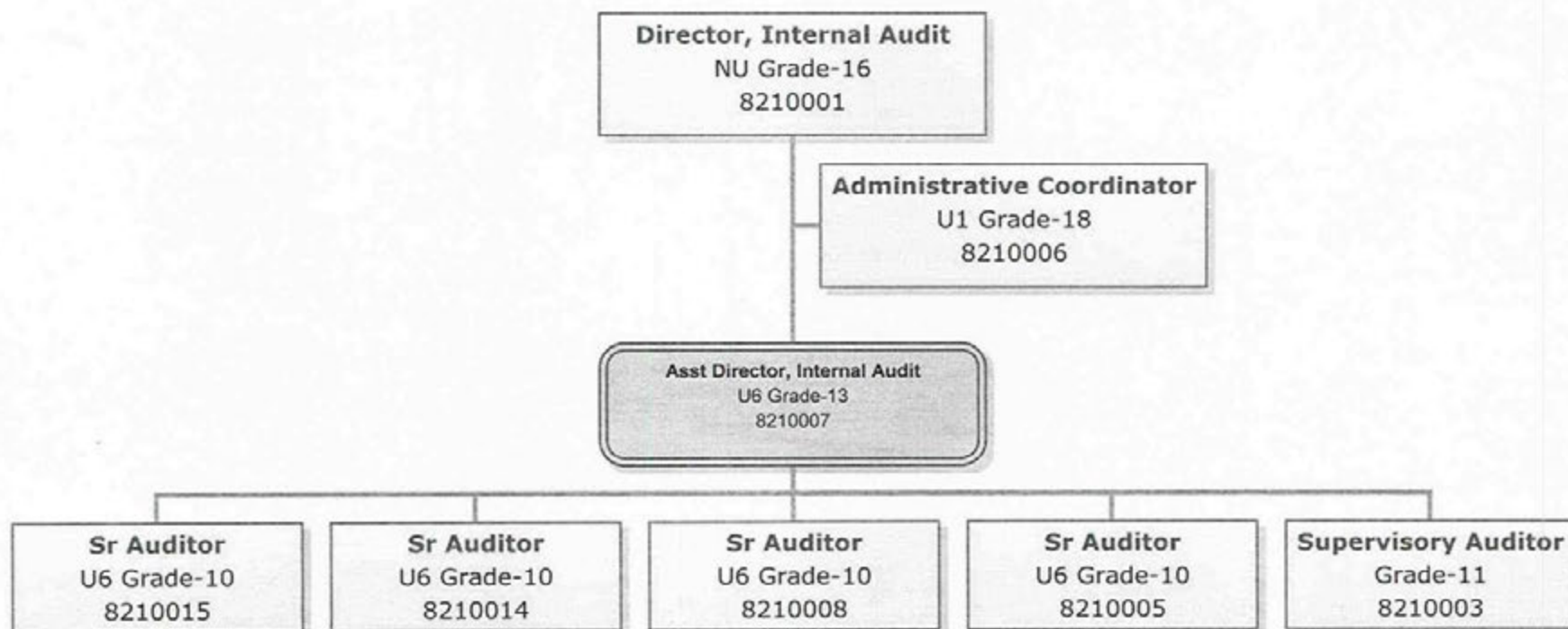
The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee regularly works in an office environment. The employee occasionally makes visits to operating facilities and construction sites. In these situations the employee is occasionally exposed to outdoor weather conditions, extreme heat or cold and wet, humid conditions (non-weather) and vibration. The employee occasionally works near moving mechanical parts, and in high precarious places. The employee is occasionally exposed to fumes, toxic or caustic chemicals and airborne particles. The employee occasionally exposed to risk of electrical shock and radiation.

The noise level in the normal work environment is a moderately quiet office setting. Visits made to operating facilities and construction sites include noise levels at the site that could range from loud to very loud.

Internal Audit Department

April 2017





MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
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Boston, MA 02129

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Executive Director

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REVISED

BOARD OF DIRECTORS' MEETING

to be held on

Wednesday, April 12, 2017

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. Approval of One New Member of the Wastewater Advisory Committee (ref. WW A.1)
2. Appointment of Assistant Director, Internal Audit (ref. P&C A.1)
3. Memorandum of Agreement with the Town of Stoneham in Connection with the Northern Intermediate High Pipeline Project (ref. AF&A C.1)

B. Contract Awards

1. Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System: Infor Global Solutions (ref. AF&A B.1)

2. Grit and Screenings Hauling and Disposal: W.L. French, Contract S564 (ref. WW B.1)
3. Technical Assistance Consulting Services - Surveying: Bryant Associates, Inc., Contract 602TA (ref. WW B.2)
4. Reading Extension Sewer and Metropolitan Sewer Rehabilitation (Sections 73/74/75/46): Green Mountain Pipeline Services, Inc., Contract 7164 (ref. WW B.3)
5. Sole-Source Extended Warranty, Service and Maintenance Agreement for the Process Information and Control System (PICS) at Deer Island Treatment Plant: ABB Automation, Inc. (ref. WW B.4)
6. Emergency Action Plan Updates for Western Dams and Dikes: GZA GeoEnvironmental, Inc., Contract EXE-040 (ref. W B.1)

C. Contract Amendments/Change Orders

1. Alewife Brook Pump Station Rehabilitation: Stantec Consulting Services, Inc., Contract 7034, Amendment 3 (ref. WW C.1)
2. Northern Intermediate High Section 110 – Reading and Woburn: Albanese D&S, Inc., Contract 7471, Change Order 10 (ref. W C.1)
3. Section 80 Repair: P. Caliacco Corp, Contract 7532, Change Order 1 (ref. W C.2)

V. CORRESPONDENCE TO THE BOARD

VI. OTHER BUSINESS

VII. EXECUTIVE SESSION

A. Litigation

1. Cross Harbor Cable Litigation

B. Security

1. Wachusett Reservoir Railroad

VIII. ADJOURNMENT

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Board of Directors

March 15, 2017

A meeting of the Board of Directors of the Massachusetts Water Resources Authority was held on March 15, 2017 at the Authority headquarters in Charlestown. Vice-Chair Carroll presided. Present from the Board were Messrs. Blackmon, Cotter, Flanagan, Foti, Pappastergion, Peña, Vitale and Walsh. Ms. Wolowicz and Mr. Beaton 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, Carl Leone, Senior Program Manager, John Vetere, Deputy Chief Operating Officer, David Duest, Director, Deer Island Treatment Plant, Karen Gay-Valente, Director of Human Resources, Anandan Navanandan, Chief Engineer, 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 February 15, 2017, as presented and filed with the records of the meeting.

REPORT OF THE EXECUTIVE DIRECTOR

Mr. Laskey congratulated Board member Austin Blackmon on being named as a "Harbor Hero" by Save the Harbor/Save the Bay to be honored at its annual gala on March 29th.

APPROVALS

Amendments to Investment Policy

Upon a motion duly made and seconded, it was

In compliance with the State Finance and Governance Board's regulations (976 CMR 2.03), voted to adopt amendments to the Investment Policy substantially in the form presented and filed with the records of the meeting.

Approval of the Seventy-fifth Supplemental Resolution

Upon a motion duly made and seconded, it was

Voted to adopt the Seventy-Fifth Supplemental Resolution authorizing the issuance of up to \$391,415,000 of Massachusetts Water Resources Authority General Revenue Bonds and Massachusetts Water Resources Authority General Revenue Refunding Bonds and the supporting Issuance Resolution, as presented and filed with the records of the meeting.

Approval of Advisory Board Recommended Modifications to the Program Guidelines and Annual Update for the Infiltration/Inflow Local Financial Assistance Program

Upon a motion duly made and seconded, it was

Voted to approve modifications to the Infiltration/Inflow Local Financial Assistance Program Guidelines to expand project funding eligibility, substantially as detailed in the MWRA Advisory Board's summary presented and filed with the records of the meeting as Attachment 1; modifications to the Program Guidelines are recommended to be retroactively effective as of January 1, 2017.

Delegation of Authority to Execute a Contract for Temporary Back-up Generators for the Deer Island Treatment Plant

Staff gave a presentation and there was detailed discussion and question and answer, including grave concerns about the potential costs of ensuring back-up power during the harbor dredging scheduled to begin in July 2017 by NSTAR and opposition to

MWRA and its rate payers bearing the responsibility for those costs. Board members requested that staff return with an alternate recommendation to that contained in the staff summary for consideration later in the meeting.

PCR Amendments – March 2017

Upon a motion duly made and seconded, it was

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

CONTRACT AWARDS

Combustion Turbine Generator Maintenance – Deer Island Treatment Plant: O'Connor Corporation, Contract S549

Upon a motion duly made and seconded, it was

Voted to approve the award of Contract S549, Combustion Turbine Generator Maintenance, Deer Island Treatment Plant, to the lowest responsible and eligible bidder, O'Connor Corporation, and to authorize the Executive Director, on the behalf of the Authority, to execute and deliver said contract in an amount not to exceed \$2,125,700, for a term of 1,096 calendar days.

Reading Extension Sewer and Metropolitan Sewer Rehabilitation (Sections 73/74/75/46): Green Mountain Pipeline Services, Contract 7164

Board member Walsh suggested that consideration of this late-distributed staff summary be postponed as there had not been sufficient time to review it; the Board concurred and the item was postponed.

Dorchester Interceptor Sewer (Sections 240/241/242) Rehabilitation Design, Construction Administration and Resident Engineering/Inspection Services: CDM Smith Inc., Contract 7512

Staff gave a presentation on the project and there was considerable discussion and question and answer, particularly on the Selection Committee rankings, as well as the costs, levels of effort, key personnel, and technical approaches submitted by the

bidders. An initial vote to approve the contract award failed to pass due to lack of a six affirmative votes, and there was further discussion and question and answer. Mr. Laskey suggested that the Board consider forming a sub-Committee to review the Authority's consultant selection guidelines and/or that staff be directed to prepare a summary that would elaborate on the MWRA procurement policy. Board member Vitale strongly affirmed CDM Smith's knowledge and experience working on complex sewer projects in congested urban areas and BWSC's endorsement of its selection.

A motion to reconsider was approved, and upon a subsequent motion duly made and seconded, it was

Voted to approve the recommendation of the Consultant Selection Committee to select CDM Smith Inc. to provide Design, Construction Administration and Resident Engineering/Inspection Services for the Dorchester Interceptor Sewer (Sections 240/241/242) Rehabilitation project, and to authorize the Executive Director, on behalf of the Authority, to execute Contract 7512 with CDM Smith in the amount of \$1,496,354, for a term of 54 months from the Notice to Proceed.

Western Operations Maintenance Facility – Marlborough: E. A. Colangeli Construction Company, Inc., Contract 6650B

Upon a motion duly made and seconded, it was

Voted to approve the award of Contract 6650B, Western Operations Marlborough Maintenance Facility, to the lowest responsible and eligible bidder, E.A. Colangeli Construction Co., Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$3,367,000 for a term of 365 calendar days from the Notice to Proceed.

CONTRACT AMENDMENTS/CHANGE ORDERS

Wachusett Aqueduct Pumping Station: BHD/BEC JV 2015, A Joint Venture: Contract 7157, Change Order 9

Upon a motion duly made and seconded, it was

Voted to authorize the Executive Director, on behalf of the Authority, to approve Change Order 9 to increase the amount of Contract 7157 with BHD/BEC JV 2015, A Joint Venture, Wachusett Aqueduct Pumping Station, in a lump sum amount of \$100,079.80, with no increase in contract term; further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7157 in an amount not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

Delegation of Authority to Execute a Contract for Temporary Back-up Generators for the Deer Island Treatment Plant

Upon a motion duly made and seconded, it was

Voted to direct staff to negotiate with the parties involved in the Boston Harbor dredging project to obtain flexibility in the dredging schedule so as to not require temporary backup generators on Deer Island which might add \$43M to the project and to seek alternative funding sources.

EXECUTIVE SESSION

It was moved to enter executive session for litigation and security.

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

YesNoAbstain

Blackmon
Cotter
Flanagan
Foti
Pappastergion
Peña
Vitale
Walsh
Carroll

Voted to enter executive session for the purpose of discussing strategy with respect to litigation, in that such discussion may have a detrimental effect on the litigating position of the Authority, and to consider the deployment of security personnel or devices, or strategies with respect to security.

It was stated that the meeting would return to open session for the possible consideration of additional business.

DRAFT

EXECUTIVE SESSION

The meeting returned to open session at 2:25 p.m. and adjourned.