



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Posted 11/15/2019
12:50 p.m.

Frederick A. Laskey
Executive Director

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

ADMINISTRATION, FINANCE & AUDIT COMMITTEE MEETING

to be held on

Wednesday, November 20, 2019

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

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

Time: 10:00 a.m.

AGENDA

A. Information

1. Delegated Authority Report – October, 2019
2. FY2020 First Quarter Orange Notebook
3. FY2020 Financial Update and Summary as of October 2019

B. Contract Amendments/Change Orders

1. Automated Vehicle Locator Tracking System: Verizon Connect NWF, Inc., Contract A606, Amendment 1

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Administration, Finance and Audit Committee

October 16, 2019

A meeting of the Administration, Finance and Audit Committee was held on October 16, 2019 at the Authority headquarters in Charlestown. Committee Chair Vitale presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cook, Foti, Pappastergion, Peña and Walsh. Messrs. Cotter and Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Thomas Durkin, Michele Gillen, Douglas Rice, Paula Weadick, John Colbert, Maureen McGuinness, Michael Cole and Kristin MacDougall. The meeting was called to order at 10:24 a.m.

Information

Delegated Authority Report – September, 2019

Staff made a verbal presentation. There was brief discussion and questions and answers. (Mr. Pappastergion briefly left and returned to the meeting during discussion.) (ref. AF&A A.1)

Update on MWRA's Integrated Financial, Procurement and Human Resources/Payroll Management System

Staff made a verbal presentation. (Mr. Carroll joined the meeting during the presentation.) There was brief discussion and questions and answers. (ref. AF&A A.2)

Update on DCR Department of Water Supply Protection Projects Undertaken by MWRA

Staff made a presentation. There was discussion and several questions and answers. (Mr. Foti left the meeting during discussion.) (ref. AF&A A.3)

FY2020 Financial Update and Summary as of September 2019

Staff made a verbal presentation. There was discussion and questions and answers. (Mr. Cook left the meeting during discussion.) (ref. AF&A A.4)

The meeting adjourned at 10:58 a.m.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 20, 2019
SUBJECT: Delegated Authority Report – October 2019

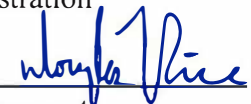


COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

Linda Grasso, Admin. Systems Coordinator
Barbara Aylward, Administrator A & F
Preparer/Title


Michele S. Gillen
Director, Administration

Douglas J. Rice 
Director of Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period October 1 - 31, 2019.

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 February 21, 2018, delegate authority to the Executive Director to approve the following:

Construction Contract Awards:

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

Change Orders:

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

Professional Service Contract Awards:

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

Non-Professional Service Contract Awards:

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

Purchase or Lease of Equipment, Materials or Supplies:

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

Amendments:

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

Amendments to the Position Control Register:

Amendments which result only in a change in cost center.

BUDGET/FISCAL IMPACT:

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

CONSTRUCTION/PROFESSIONAL SERVICES DELEGATED AUTHORITY ITEMS OCTOBER 1 - 31, 2019

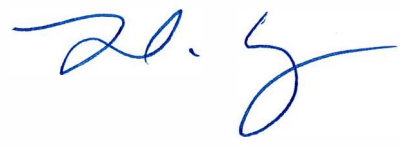
NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	10/03/19	ELEVATOR MAINTENANCE SERVICES AT VARIOUS AUTHORITY FACILITIES AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR ELEVATOR MAINTENANCE SERVICES, NON-EMERGENCY AND EMERGENCY REPAIR SERVICES FOR 14 ELEVATORS LOCATED AT VARIOUS AUTHORITY FACILITIES FOR A TERM OF 730 CALENDAR DAYS.	OP-397	AWARD	UNITED ELEVATOR COMPANY, INC.	\$216,010.00
C-2.	10/11/19	DEMOLITION OF SECTION 56 WATER MAIN GENERAL EDWARDS BRIDGE FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: MOBILIZATION/DEMOBILIZATION AT DRAW BRIDGE, TRAFFIC CONTROL, LYNN FIRE WATCH, REVERE FIRE WATCH, REVISE MASSDOT TRAFFIC MANAGEMENT; DELETE REQUIREMENT TO FURNISH AND INSTALL ISOLATION VALVE CHAMBER IN LYNN AND REVERE.	7536	2	R. ZOPPO CORP.	(\$210,711.04)
C-3.	10/11/19	GRAVITY THICKENER REHABILITATION DEER ISLAND TREATMENT PLANT FURNISH AND INSTALL EXPLOSION PROOF BOXES, FITTINGS AND FLEXIBLE COUPLINGS TO WIRE THE TORQUE MONITORING BOXES IN GRAVITY THICKENER NO. 1 AND NO. 2; FURNISH AND INSTALL EXPLOSION PROOF BOXES, STAINLESS STEEL CONDUIT, FITTINGS, FLEXIBLE COUPLINGS AND WIRE FOR MOTION SENSOR IN GRAVITY THICKENERS NO. 1 AND NO. 2; REVISE CONDUIT SIZES, WIRE TYPE AND QUANTITY FOR WIRING ANALOG AND DISCRETE SIGNALS AT GRAVITY THICKENER NO. 1 AND NO. 2; FURNISH AND INSTALL A 24-INCH BAFFLE IN LIEU OF THE 12-INCH BAFFLE AT THE SCUM BOX FOR GRAVITY THICKENER NO. 3; FURNISH AND INSTALL 1/2" THICK NEOPRENE SKIMMER BLADES IN LIEU OF THE STANDARD 3/8" THICK BLADE AS WELL AS 2" x 2" x 1/4" 316 STAINLESS STEEL ANGLE FOR THE SKIMMER BLADES IN LIEU OF THE STANDARD 2" x 1/4" 316 STAINLESS STEEL FLAT BAR FOR GRAVITY THICKENER NO. 3.	7428	4	WALSH CONSTRUCTION COMPANY II, LLC	\$25,645.65
C-4.	10/11/19	TOWABLE GENERATOR DOCKING STATIONS RELOCATE THE MANUAL TRANSFER SWITCH AND EXTEND THE ELECTRICAL CONDUITS.	7025	1	FALL RIVER ELECTRICAL ASSOCIATES CO., INC.	\$62,347.16
C-5.	10/11/19	NORTHERN INTERMEDIATE HIGH SECTION 110 - STONEHAM FURNISH AND INSTALL ADDITIONAL SIGNAGE DURING BLASTING ON MAIN STREET IN STONEHAM; INCREASE THE TOWN OF STONEHAM FIRE DEPARTMENT SERVICES ALLOWANCE; FURNISH AND INSTALL A SUMP AND AN ADDITIONAL CORPORATION;	7067	9	ALBANESE D & S, INC.	\$79,713.94
C-6.	10/11/19	MIS DATA CENTER AIR CONDITIONING UNITS REPLACEMENT - CHELSEA ADMINISTRATION BUILDING AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR THE MIS DATA CENTER AIR CONDITIONING UNITS REPLACEMENT FOR A TERM OF 240 CALENDAR DAYS.	OP-391	AWARD	CAM HVAC & CONSTRUCTION, INC.	\$475,000.00

PURCHASING DELEGATED AUTHORITY ITEMS OCTOBER 1-31, 2019

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1	10/11/19	JANITORIAL SERVICES AWARD OF A THREE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR JANITORIAL SERVICES AT THE CLINTON WASTEWATER TREATMENT PLANT.	WRA-4755Q		COMPASS FACILITY SERVICES, INC.	\$39,759.20
P-2	10/11/19	MAINTENANCE AND SUPPORT FOR THE PORTIA INVESTMENT AND CASH MANAGEMENT SYSTEM AWARD OF A ONE-YEAR SOLE SOURCE PURCHASE ORDER FOR MAINTENANCE AND SUPPORT FOR THE PORTIA INVESTMENT AND CASH MANAGEMENT SYSTEM.			SS&C TECHNOLOGIES, INC.	\$56,573.03
P-3	10/11/19	PURCHASE OF 24 WINDOWS SERVER 2019 DATACENTER LICENSES AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR 24 MICROSOFT WINDOWS SERVER 2019 DATACENTER LICENSES.	WRA-4745Q		CDW-G LLC	\$95,201.52
P-4	10/11/19	PURCHASE OF ONE 44 TERABYTES PURE STORAGE FLASH ARRAY HARDWARE WITH THREE YEARS OF SUPPORT AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITC47 TO THE LOWEST RESPONSIVE BIDDER FOR ONE PURE STORAGE FLASH ARRAY HARDWARE WITH THREE YEARS OF SUPPORT.	WRA-4756Q		PRESIDIO NETWORKED SOLUTIONS, LLC	\$128,137.95
P-5	10/11/19	PURCHASE OF 12 HEWLETT PACKARD BLADE SERVERS WITH FIVE YEARS OF SUPPORT AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITC47 TO THE LOWEST RESPONSIVE BIDDER FOR 12 HEWLETT PACKARD BLADE SERVERS WITH FIVE YEARS OF SUPPORT.	WRA-4746Q		HUB TECHNICAL SERVICES, LLC	\$201,520.08
P-6	10/18/19	PURCHASE OF FIVE JEROME METERS AND ACCESSORIES AWARD OF A SOLE SOURCE PURCHASE ORDER FOR FIVE JEROME METERS AND ACCESSORIES FOR THE DEER ISLAND TREATMENT PLANT.			AMETEK ARIZONA INSTRUMENT, LLC	\$59,600.00
P-7	10/18/19	SUPPLY AND DELIVERY OF GRAVEL BORROW AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF GRAVEL BORROW FOR THE CLINTON WASTEWATER TREATMENT PLANT'S LANDFILL.	WRA-4748		PLANET EARTH MATERIALS	\$351,310.00
P-8	10/21/19	PURCHASE OF NINE CISCO ROUTERS AND NINE FORTINET APPLIANCES AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITT50 TO THE LOWEST RESPONSIVE BIDDER FOR NINE CISCO ROUTERS AND NINE FORTINET APPLIANCES FOR THE DEER ISLAND TREATMENT PLANT.	WRA-4735Q		EPLUS TECHNOLOGY INC.	\$32,211.00
P-9	10/21/19	PURCHASE OF SERVICES TO UPGRADE THE MICROSOFT EXCHANGE ENVIRONMENT AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITS74PROJSERVSP TO THE LOWEST RESPONSIVE BIDDER FOR SERVICES TO UPGRADE THE MICROSOFT EXCHANGE ENVIRONMENT.	WRA-4741Q		EPLUS TECHNOLOGY, INC.	\$46,802.72
P-10	10/24/19	MAINTENANCE AND SUPPORT OF PBX EQUIPMENT AWARD OF A ONE-YEAR PURCHASE ORDER UNDER STATE CONTRACT ITT50 TO THE LOWEST RESPONSIVE BIDDER FOR MAINTENANCE AND SUPPORT OF PBX EQUIPMENT.	WRA-4763Q		METROPOLITAN TELEPHONE CO. INC.	\$34,839.80
P-11	10/24/19	SUPPLY OF CLASS I BITUMINOUS CONCRETE PAVEMENT (HOT ASPHALT) AWARD OF A TWO-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY OF CLASS I BITUMINOUS CONCRETE PAVEMENT (HOT ASPHALT), WHICH WILL BE PAID FOR ONLY FOR THE ACTUAL QUANTITIES RECEIVED DURING THE TWO-YEAR CONTRACT TERM.	WRA-4758Q		M. SUSI HMA, LLC	\$43,050.00
P-12	10/30/19	PURCHASE OF SIX NEW SPORT UTILITY VEHICLES AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT VEH98 TO THE LOWEST RESPONSIVE BIDDER FOR SIX NEW SPORT UTILITY VEHICLES.	WRA-4759		LIBERTY CHEVROLET, INC.	\$191,887.68

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 20, 2019
SUBJECT: FY20 First Quarter Orange Notebook



COMMITTEE: Administration, Finance & Audit

X INFORMATION
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Stephen Estes-Smargiassi, Director, Planning & Sustainability
Preparer/Title


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

RECOMMENDATION:

For information only. The Quarterly Report on Key Indicators of MWRA Performance (the Orange Notebook) is prepared at the close of each quarter of the fiscal year.

DISCUSSION:

The Orange Notebook presents performance indicators for operational, financial, workforce, and customer service parameters tracked by MWRA management each month. Noteworthy outcomes for the first quarter are highlighted below.

Drinking Water Complaints

As previewed in last quarter's Orange Notebook staff summary and presentation, there were numerous taste and odor complaints in the three CVA communities during August and September caused by an algae bloom in the Quabbin reservoir. (See page 23). The algae, *Chrysophaerella*, is a golden brown algae that typically grows deep in the water column and can produce a metallic taste when exposed to chlorine disinfection. When taste and odor complaints were reported to MWRA on August 6th, staff coordinated with DCR staff and both agencies increased monitoring within the reservoir. Staff also contacted each community daily to relay current information and collect complaint data. Unfortunately, this particular algae, growing at depths of about 16 to 20 meters (50 to 65 feet) below the surface, is very difficult to treat for in a reservoir and is not very responsive to copper sulfate treatment. By early September, the bloom had naturally run its course and complaints lessened. The last significant algae bloom in Quabbin Reservoir resulting in taste and odor complaints was in 1996 for another golden brown algae, *Synura*. Staff continue to evaluate water quality data: initial indications are that that the bloom may have been related to the rapid refilling of Quabbin after the recent drought.

Chrysophaerella levels in Wachusett Reservoir were also elevated during the quarter, but there did not appear to be any related complaints. This is most likely due to the effectiveness of MWRA's ozonation treatment process at the Carroll Water Treatment Plant that destroys most taste and odor compounds. In late August, staff received a few taste and odor complaints that may have been related

to the bloom and proactively increased the ozone dose to further increase its effectiveness (See page 22).

Disinfection Byproducts Levels

Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine. These disinfection byproducts (DBPs) are of concern due to their potential adverse health effects at high levels. EPA had established regulatory limits for each based on locational running annual averages, calculated quarterly at each individual sampling location.

Disinfection byproduct results for the Chicopee Valley Aqueduct system were elevated during the quarter due to higher UV254 levels (measuring reactive organic matter in the source water), the algae bloom and the required higher chlorine doses needed due to those two factors. No community exceeded the regulatory limits, but two of the CVA communities were required to conduct an Operation Evaluation examining the causes of the higher levels. MWRA staff provided substantial technical assistance to the communities in producing the reports, have conducted additional monitoring, and managed disinfection processes at the Brutsch Water Treatment Facility to balance disinfection effectiveness with DBP formation. Staff also contacted the two communities that rechlorinate, South Hadley and Chicopee, to suggest that they also balance their chemical feed addition with DBP formation. With the end of the algae bloom, lower raw water UV254 and cooler water temperatures, chlorine demand and DBP production are now lower. Staff anticipate that fourth quarter results will be much lower, and that the communities will continue to meet the regulatory limits. (See page 25, but note that the locational running annual average is for the single highest result from all three communities, and did not exceed the regulatory limit.)

Staff have also provided data and technical assistance to Westover Air Base, which is a customer system of Chicopee, as it has been having a longer term water quality problem with low disinfection residuals and elevated HAA5s due to its oversized water mains and resulting very long detention time and water age. The reservoir and treatment conditions that affected the CVA communities exacerbated those existing longer-term issues, and Westover again exceeded the HAA5 standard.

Clinton Wastewater Treatment Plant

Last quarter, staff reported on NPDES permit exceedances at the Clinton Wastewater Treatment Plant, most of which were flow related. The plant continued to exceed its permit-required 12-month rolling average flow limit this quarter, but the average has been declining, ending the quarter slightly over the permit limit. With continued dryer conditions, in October, the 12-month rolling average will fall back within the permit limit. No other permit exceedances occurred this quarter (See page 28).

MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

for

First Quarter FY2020

Q1	Q2	Q3	Q4



Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
November 20, 2019

Board of Directors Report on Key Indicators of MWRA Performance

1st Quarter FY20

Table of Contents

Operations and Maintenance

DITP Operations-	1
Total Power Use/Self-Generation	
Plant Flow & Precipitation	
Total Cost of Electricity/Pricing	
DITP Operations-	2
DI Sodium Hypochlorite Use	
Disinfection Dosage	
Secondary Blending Events	
DI Operations & Maintenance Report	3
Residuals Processing	4
Sludge Detention Time in Digesters &	
Total Solids Destruction	
Digester Gas Production & % Utilized	
Sludge Pumped from Deer Island	
Monthly Average % Capture of Processed Sludge	
Molybdenum in Sludge Fertilizer Pellets	
DITP Maintenance	5
Operations Division–Metering & Leak Detection	6
Water Distribution System–Valves	7
Wastewater Pipeline/Structures	8
FOD Metro Facility & Equipment Maintenance	9
Renewable Electricity Generation-1	10
Renewable Electricity Generation-2	11
Toxic Reduction and Control	12
Field Operations– Narrative Topics	13
Laboratory Services	15

Construction Programs

Projects in Construction	16
CSO Control Update	18
CIP Expenditures	19

Drinking Water Quality and Supply

Source Water – Microbial Results	20
Source Water – Turbidity, pH and Alkalinity	21
Treated Water – Disinfection Effectiveness	22
Source Water – Algae, Complaints	23
Bacteria and Chlorine Residual Results	24
Disinfection By-Products, UV 254	25
Water Supply/Source Water Management	26

Wastewater Quality

NPDES Permit Compliance	
-Deer Island TP	27
-Clinton TP	28

Community Flows and Programs

Total Water Use Core Communities	29
Community Wastewater Flows	30
Community Support Programs	
-Infiltration/Inflow Local Financial Assist. Progr.	31
-Water-Local Pipeline & System Assist. Progr.	32
-Lead Service Line Replacement Loan Progr.	33
-Community Water System Leak Detection and Conservation Outreach	34

Business Services

Procurement	35
Materials Management	36
MIS Program	37
Legal Matters	38
Internal and Contract Audits	41

Other Management

Workforce Management	42
Workplace Safety Program	43
Job Group Representation	44
MBE/WBE Expenditures	45
CEB Expenses	46
Cost of Debt	47
Investment Income	48

This quarterly report is prepared by MWRA staff to track a variety of MWRA performance measures for routine review by MWRA's board of directors. The content and format of this report is expected to develop as time passes. Information is reported on a preliminary basis as appropriate and available for internal management use and is subject to correction and clarification.

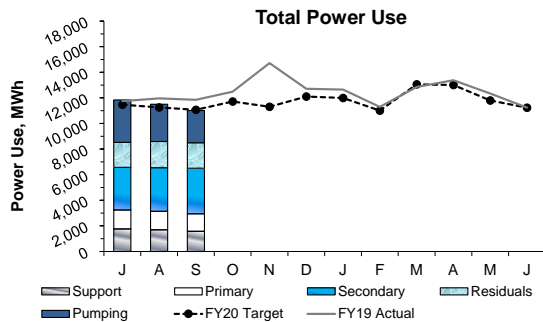
Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
November 20, 2019

OPERATIONS AND MAINTENANCE

Deer Island Operations

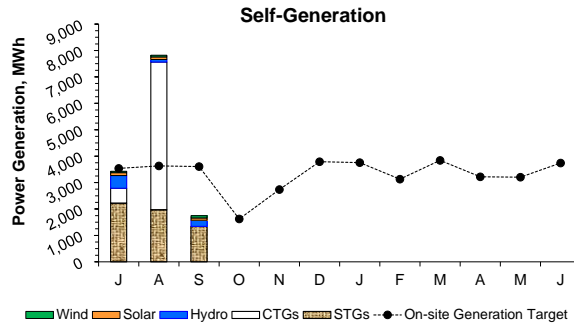
1st Quarter - FY20

Page 1 of 4

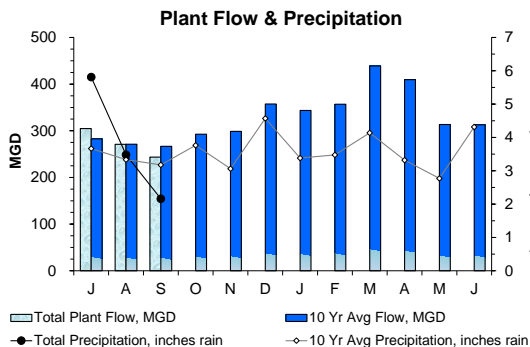


Total power usage in the 1st Quarter was 1.7% above target as the Total Plant Flow was 13.3% above target with the 4 year average plant flow. As expected, power usage for raw wastewater pumping was above target by 12.4% due to the higher plant flow. Power usage in the other process areas was similar to or below target.

Note: Power usage projections are based on 4 year averages.

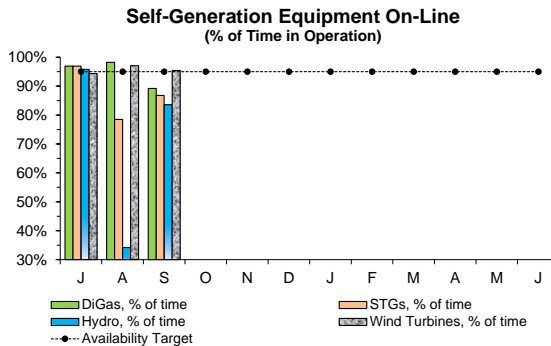


Power generated on-site during the 1st Quarter was 20.5% above target mainly due to the continuous operation of the CTGs for 18 consecutive days in August. The CTGs were operated during this period as DITP was disconnected from utility power to allow Eversource to complete the installation of the new cross-harbor electrical cable. STGs generation was 36.3% below target due to a vacuum system issue which has prevented the STG and BP-STG system from operating in "summer mode" which would have resulted in additional generation. Generation was also low due to an annual Thermal Power Plant (TPP) shutdown for maintenance in September. Generation from the Solar Panels was 4.3% above target and was 20.3% below target from the Wind Turbines. Hydro Turbine generation was 17.8% below target as the turbines were offline while DITP was disconnected from utility power in August to minimize stray voltage during CTG operation.

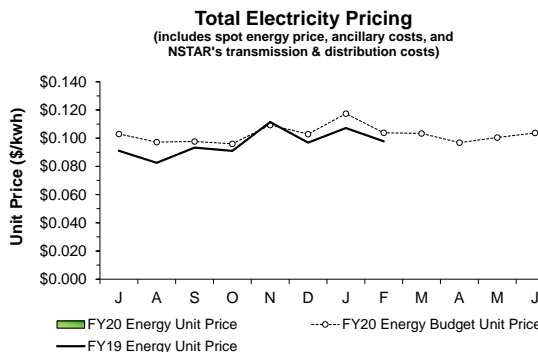


Total Plant Flow for the 1st Quarter was on target with the budgeted 10 year average plant flow (273.1 MGD actual vs. 273.5 MGD expected) even though precipitation was 12.5% above target (11.45 inches actual vs. 10.18 inches expected). However, Total Plant Flow was 13.3% higher than the 4 year average plant flow used for energy budget projections.

Note: Plant Flow and precipitation projections are based on 10 year averages but are 4 year averages for the energy budget projections.

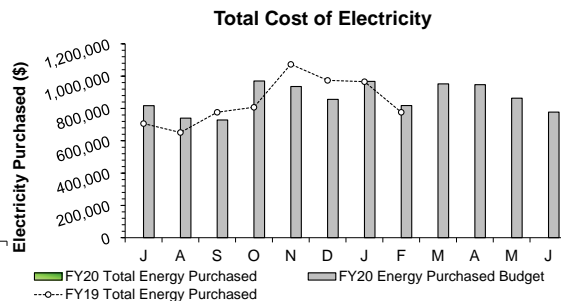


The DiGas system and the Wind Turbines met the 95% availability target for the 1st Quarter. The STGs fell below the 95% availability target following a plant-wide power outage that caused the STG to trip during the Eversource cross-harbor electrical cable installation work and the decision to keep it offline until DITP returned to utility power. Additional downtime resulted due to a scheduled maintenance shutdown of the Thermal Power Plant (TPP) in September. The Hydro Turbine availability fell below target as the units were kept offline during the Eversource cable work to minimize stray voltage during CTG operation.



Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual total energy unit prices in FY20 to date are not yet available as the complete invoices have not been received. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

Note: Only the actual energy prices are reported. Therefore, the dataset lags by seven (7) months due to the timing of invoice receipt and review. The most up-to-date complete invoice available is for the month of February (FY19). The delay is due to invoice processing issues that the electricity supplier has been attempting to correct.



The Electricity cost data for Electricity Purchased in FY20 to date is not yet available.

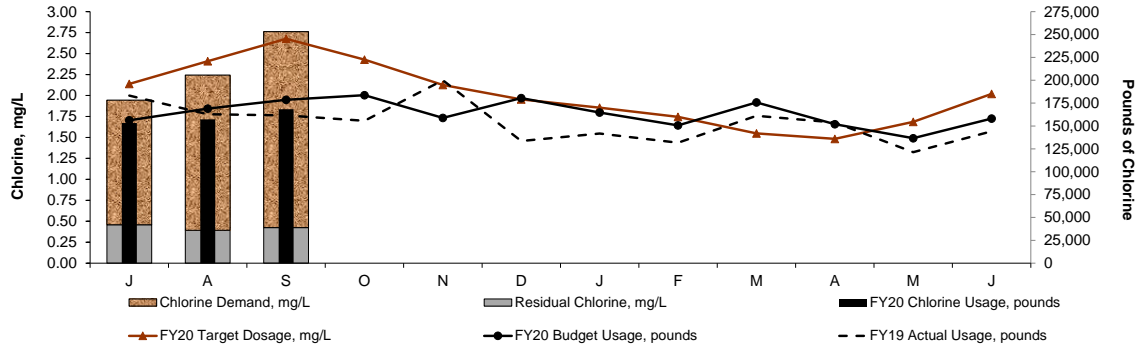
Note: Only months with complete Electricity Purchased data are reported. Therefore, the dataset lags by seven (7) months due to the timing of invoice receipt and review. The most up-to-date complete invoice available is for the month of February (FY19). The delay is due to invoice processing issues that the electricity supplier has been attempting to correct.

Deer Island Operations

1st Quarter - FY20

Page 2 of 4

Deer Island Sodium Hypochlorite Use



The disinfection dosing rate in the 1st Quarter was 4.0% below target with budgetary estimates. Actual sodium hypochlorite dosage and usage is indicative of a lower chlorine demand in the wastewater. DITP maintained an average disinfection chlorine residual of 0.42 mg/L this quarter with an average dosing rate of 2.32 mg/L (as chlorine demand was 1.89 mg/L).

The overall disinfection dosing rate (target and actual) is dependent on plant flow, target effluent total chlorine residual levels, effluent quality and NPDES permit levels for fecal coliform.

Secondary Blending Events

Month	Count of Blending Events	Count of Blending Events Due to Rain	Count of Blending Events Due to Non-Rain-Related Events	Secondary, as a Percent of Total Plant Flow	Total Hours Blended During Month
J	4	4	0	99.6%	10.26
A	2	2	0	99.3%	7.64
S	1	1	0	99.8%	2.45
O	0	0	0	0%	0.00
N	0	0	0	0%	0.00
D	0	0	0	0%	0.00
J	0	0	0	0%	0.00
F	0	0	0	0%	0.00
M	0	0	0	0%	0.00
A	0	0	0	0%	0.00
M	0	0	0	0%	0.00
J	0	0	0	0%	0.00
Total	7	7	0	99.6%	20.35

99.6% of all flows were treated at full secondary during the 1st Quarter. There were seven (7) secondary blending events due to high plant flow resulting from heavy rain. These blending events resulted in a total of 20.35 hours of blending and 105.92 MGal of primary-only treated effluent with secondary effluent. The Maximum Secondary Capacity for the entire quarter was 700 MGD.

Secondary permit limits were met at all times during the 1st Quarter.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

The plant achieved an instantaneous peak flow rate of 1,092.5 MGD in the early morning of August 7. This peak flow occurred during a storm event that brought 2.28 inches of rain to the metropolitan Boston area over the course of two (2) days. Overall, Total Plant Flow in the 1st Quarter was on target (-0.2%) with the 10 year average plant flow estimate for the quarter.

Work on the Winthrop Terminal Facility (WTF) VFD (Variable Frequency Drive) and Synchronous Motor Replacement project was started by the contractor in 2018 and entails the demolition of existing older obsolete equipment (electrical systems, motors and VFDs on each of the six (6) raw wastewater pumps). The pumps are currently powered by 600 volts service and will be changed to 4,160 volts, consistent with other major pumps in both the South System Pump Station (SSPS) and the North Main Pump Station (NMPS). The upgrade for WTF Pump #5 began on June 10, and was completed by August 21, and included final electrical connections for the new equipment that required a temporary shutdown of the electrical bus serving half the pumps in the WTF. Performance testing of the upgraded Pump #5 and necessary tuning adjustments continued through the remainder of September. To date, work has been completed on three (3) of the six (6) pumps (#6, #2, and #5), with Pump #5 pending final acceptance.

The MWRA has an on-going project to inspect, and eventually rehabilitate, the shafts that transport wastewater between the remote headworks facilities and the DITP. In order to support the inspections, the remote headworks facilities will be shut down to allow inspectors to safely enter the shafts. DITP worked closely with Wastewater Operations staff during four (4) trial shutdowns and one (1) inspectional shutdown of the remote headworks facilities in July through September as part of this Remote Headworks and Deer Island Shafts Study project. Wastewater flow going to the Chelsea Creek Headworks Facility was diverted to the Caruso Pump Station to the Winthrop Terminal Headworks Facility on July 3 for approximately two (2) hours and on July 10 for approximately five (5) hours. The Columbus Park and Ward Street Headworks Facilities were isolated on July 31 and on September 13 for approximately five (5) hours. These trial shutdowns were necessary to confirm the conditions under which the inspections will be permitted and the headworks facilities were isolated starting at 2:00AM while flows were at the lowest levels. A shaft inspectional shutdown for five (5) hours was completed on September 26 with flow isolation at the Columbus Park and Ward Street Headworks.

Deer Island Operations

1st Quarter - FY20

Page 3 of 4

Deer Island Operations & Maintenance Report (continued)

Residuals Treatment:

Staff replaced the isolation valve to waste sludge pump #2 at the centrifuge facility on July 25. This work required a total shutdown of the secondary sludge wasting operation from all three batteries (A, B, and C) for nearly 12 hours. Secondary sludge wasting was adjusted accordingly to manage the secondary solids prior to and after the shutdown to minimize temporary impacts to the microbial population. The secondary return sludge operation was not impacted by this work and the biological activated sludge treatment process continued without interruption during this work.

Energy and Thermal Power Plant:

Overall, total power generated on-site accounted for 37.8% of Deer Island's total power use for the quarter as Deer Island operated the Combustion Turbine Generators (CTGs) for 18 consecutive days in August to allow Eversource to complete the installation of the new cross-harbor electrical cable. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 19.9% of Deer Island's total electrical power use for the quarter.

The Eversource work to complete the installation and startup of the new cross-harbor electrical cable to DITP was completed on August 23. The installation of the new cross-harbor electrical cable required DITP to be isolated from utility power during the final stages of the Eversource cable startup from August 5 to August 23. During this utility power outage period, DITP operated the CTGs to provide the majority of the power needed to meet the electrical demands of the plant. The operation of a single CTG unit was sufficient during normal, dry weather, flow conditions and the simultaneous operation of both CTG units was only necessary for approximately 8 hours from midnight to the morning of August 8, due to high plant flow conditions resulting from a heavy rain event. The startup date of the new cross-harbor electrical cable was originally scheduled to occur on August 19 but was delayed due to adjustments that needed to be made on Eversource's new switchgear which became apparent only during the final checkout phase. On the morning of August 23, Deer Island successfully connected to the new cross-harbor electrical cable without incident and the CTG was taken offline. The new cross-harbor electrical cable continues to provide electricity seamlessly to DITP without issue.

DITP experienced a brief unanticipated plant-wide power loss on the evening of August 16 due to a lube oil system issue on the operating CTG (#2B) that forced the CTG to go into a rapid controlled shutdown while DITP was disconnected from utility power. This resulted in a loss of power to all plant systems. Power was restored within several minutes when the second CTG unit (#1A) was immediately placed into service and operation of plant systems was restored based on order of importance with raw wastewater pumping resuming as quickly as possible after power was restored. No untreated wastewater was released at the Massachusetts Bay outfall as a result of this power loss event. There were no treated or untreated discharges from combined sewer overflows and no sanitary sewer overflows. No secondary process bypass occurred and no NPDES permitted effluent limits were exceeded as a result of this event.

Annual maintenance at the Thermal Power Plant (TPP) began on September 8 and continued through September 25. Various maintenance activities on the Steam Turbine Generators (STGs) and the two (2) Zurn boilers included maintenance on various pumps, valves, and instruments throughout the power plant. On September 8, the main STG was taken out of service for a major overhaul while Boiler 201 and the BP-STG remained in operation. The BP-STG was operated at maximum capacity to minimize the loss of power generation during this period when the main STG was out of service. Boiler 201 and the BP-STG were then also taken out of service on September 15 (shutdown of the entire TPP) to allow for maintenance on these units and on the common systems including the steam, condensate, and feed water systems. Boiler 101 and the BP-STG were returned to operation on September 18, while maintenance work continued on Boiler 201 and the main STG. On September 22 the maintenance on Boiler 201 was completed, and on September 24 the main STG was placed back on-line.

DITP took delivery of 462,000 gallons of #2 fuel oil, a total of 46 oil tanker trucks, without incident from August 21 through September 5. This fuel oil is used for CTG operation, for boiler startup operations, and for supplemental fuel for boiler operation during periods of low or unstable digester gas production.

Regulatory:

Emissions compliance testing for the West Odor Control (WOC) treatment system at DITP was conducted by a contractor on September 24 to September 25. The WOC treatment system treats process air from South System Pump Station, Primary Batteries C and D, and the grit facility. The DITP Air Quality Operating Permit issued by the MA DEP requires that DITP conduct emissions compliance testing for the various odor control treatment emission units once every five (5) years to demonstrate compliance with applicable total reduced sulfur (TRS) and non-methane hydrocarbon (NMHC) emission limits. This testing requires the continuous emissions monitoring of the inlet and outlet of the odor control system over a 24-hour period for TRS at the outlet (stack) of the odor control system and for NMHC at the inlet. All preliminary emissions test results show that DITP was in compliance with the permit limits. The final report summarizing the test results will be prepared by the contractor and submitted to the MA DEP following review by DITP staff.

Regulators from the MA DEP were onsite at the DITP on September 25 to observe the compliance emissions testing for the WOC treatment system and to tour the wastewater treatment plant. The regulators were given a brief plant tour covering the wastewater and residuals treatment facilities, and a more in depth tour of the Thermal Power Plant and DITP's back up power systems.

Clinton Operations + Maintenance Report

Dewatering Building

Maintenance staff worked on the polymer feed line this quarter cleaning out diffusers and replacing a broken 2 inch valve on the same system. Staff replaced the upper and lower belts on Belt Filter Press #2 and washed down gravity thickener #2.

Chemical Building

Maintenance staff continued to work on replacing the #3 Return Activated Sludge (RAS) pump. Operations staff cleaned polymer pump #2. Staff replaced the 10 inch suction valve on the #2 RAS pump in preparation of pump replacement.

Aeration Basins

Staff completed cleaning 1#, #3, and #5 aeration basins with assistance from a Deer Island vector crew. Staff also cleaned the pH and DO probes.

Phosphorus Building

Staff acid washed all three (3) disk filters and also cleaned troughs and inspected all nozzles.

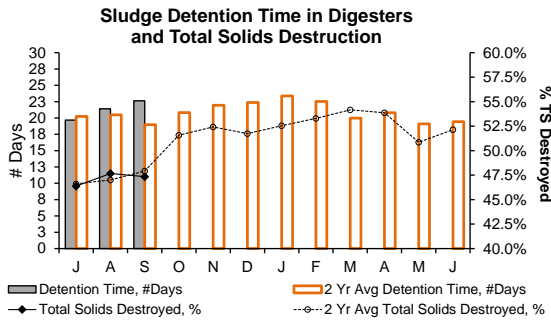
Digester Building

Contractor replaced the #1 digester boiler.

Deer Island Operations and Residuals

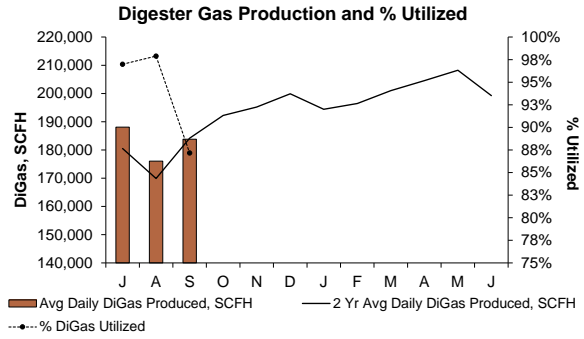
1st Quarter - FY20

Page 4 of 4



Total solids (TS) destruction following anaerobic sludge digestion averaged 47.1% during the 1st Quarter, on target (-0.1%) with the 3 year average of 47.2%. Sludge detention time in the digesters was 6.8% higher than target at 19.9 days as DI operated with an average of 7.9 digesters, slightly higher than the 3 year average of 7.7 digesters.

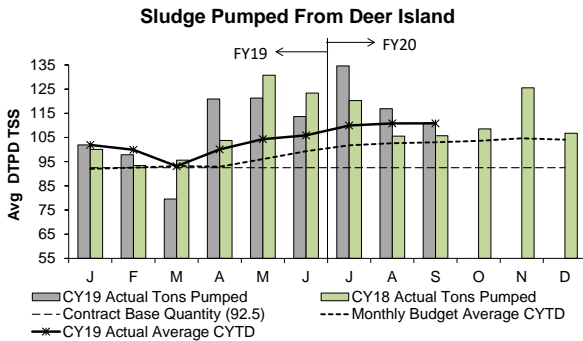
Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting around of sludge.



The Avg Daily DiGas Production in the 1st Quarter was 2.5% above target with the 3 Year Avg Daily DiGas Production. On average, 94.0% of all the DiGas produced in the quarter was utilized at the Thermal Power Plant (TPP). The slightly lower Digas usage was mainly due to a scheduled annual TPP maintenance shutdown in September.

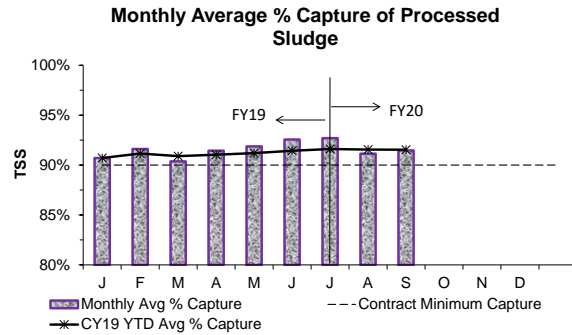
Residuals Pellet Plant

New England Fertilizer Company (NEFCO) operates the MWRA Biosolids Processing Facility (BPF) in Quincy under contract. MWRA pays a fixed monthly amount for the calendar year to process up to 92.5 DTPD/TSS as an annual average. The monthly invoice is based on 92.5 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional payments are made on any quantity above the base amount. On average, MWRA processes more than 92.5 DTPD/TSS each year (FY19's budget is 98.9 DTPD/TSS and FY20's budget is 107.4 DTPD/TSS).

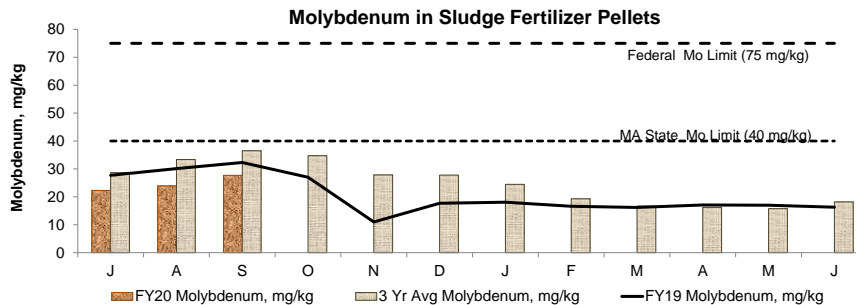


The average quantity of sludge pumped to the Biosolids Processing Facility (BPF) in the 1st Quarter was 120.8 TSS Dry Tons Per Day (DTPD) - 9.4% above target with the FY20 budget of 110.4 TSS DTPD for the same period. Sludge delivered to the BPF was higher than expected during for the quarter mainly due to higher-than-expected secondary sludge production.

The CY19 average quantity of sludge pumped, through the month of September, is 110.8 DTPD - 7.6% above target with the CY19 average budget of 103.0 DTPD for the same time period.



The contract requires NEFCO to capture at least 90.0% of the solids delivered to the Biosolids Processing Facility. The average capture for the 1st Quarter was 91.8% and the CY19 to date average capture is 91.5%.



Copper, lead, and molybdenum (Mo) are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer. Molybdenum-based cooling tower water is a significant source of Mo in the sludge fertilizer pellets. The Federal standard for Mo is 75 mg/kg. In 2016, Massachusetts Type I biosolids standard for molybdenum was changed to 40 mg/kg from the previous standard of 25 mg/kg. This has allowed MWRA to sell its pellets in-state for land application whereas the previous limits forced several months' worth of pellets to be shipped out of state. This made it an impractical source of fertilizer for local Massachusetts farms since NEFCO does not distribute product that does not meet the suitability standards.

The levels have been below the DEP Type 1 limit for all three (3) metals. For Mo, the level in the MWRA sludge fertilizer pellets during the 1st Quarter averaged 24.3 mg/kg, 25% below the 3 year average, 38% below the MA State Limit, and 67% below the Federal Limit.

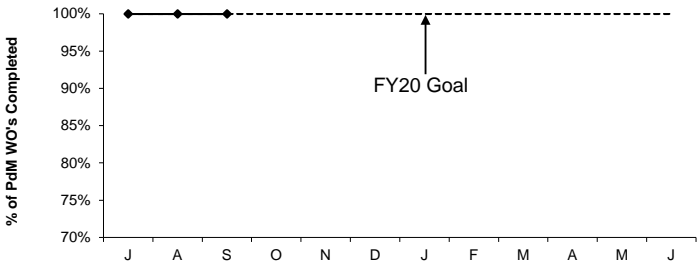
Deer Island Maintenance

1st Quarter - FY20

Productivity Initiatives

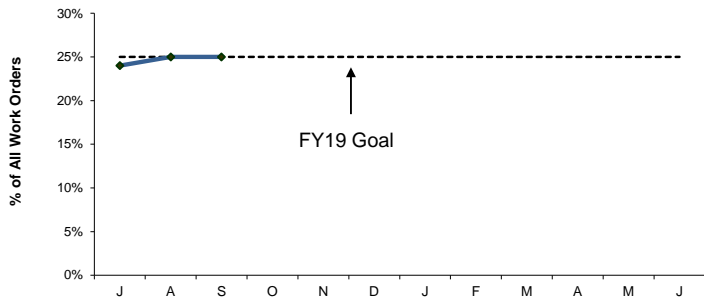
Productivity initiatives include increasing predictive maintenance compliance and increasing PdM work orders. Accomplishing these initiatives should result in a decrease in overall maintenance backlog.

Predictive Maintenance Compliance



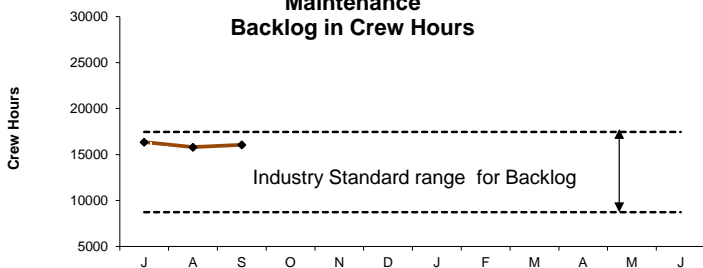
Deer Island's FY20 predictive maintenance goal is 100%. DITP completed 100% of all PdM work orders this quarter. DITP is continuing with an aggressive predictive maintenance program.

Predictive Maintenance



Deer Island's increased FY20 predictive maintenance goal is 25% of all work orders to be predictive. 25% of all work orders were predictive maintenance this quarter. The industry is moving toward increasing predictive maintenance work to reduce downtime and better predict when repairs are needed.

Maintenance Backlog in Crew Hours

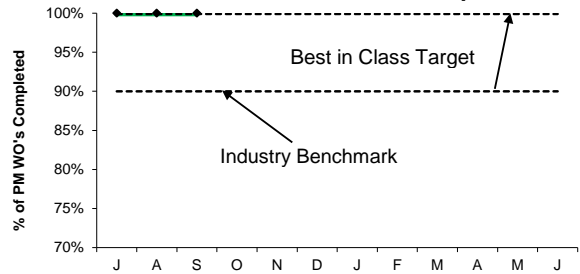


DITP's maintenance backlog at Deer Island is 16,068 hours this quarter. DITP is at the upper end of the industry average for backlog. The industry Standard for maintenance backlog with 97 staff (currently planned staffing levels) is between 8,730 hours and 17,460 hours. Backlog is affected by five vacancies; (1) Plumber, (2) Electricians, and (2) M&O Specialists. Management continues to monitor backlog and to ensure all critical systems and equipment are available.

Proactive Initiatives

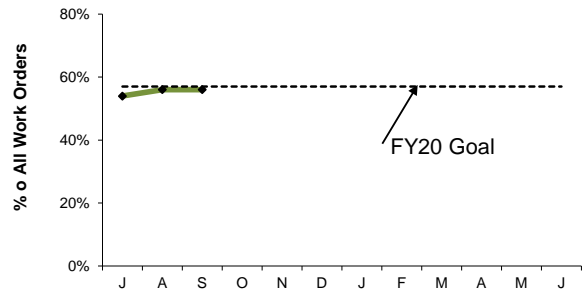
Proactive initiatives include completing 100% of all preventative maintenance tasks and increasing preventative maintenance kitting. These tasks should result in lower maintenance costs.

Preventive Maintenance Compliance



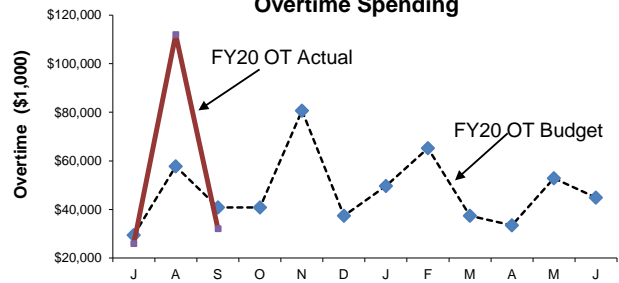
Deer Island's FY20 preventative maintenance goal is 100% completion of all work orders from Operations and Maintenance. DITP completed 100% of all PM work orders this quarter.

Maintenance Kitting



Deer Island's increased FY20 maintenance kitting goal is 57% of all work orders to be kitted. 55% of all work orders were kitted this quarter. Kitting is staging of parts or material necessary to complete maintenance work. This has resulted in more wrench time and increased productivity.

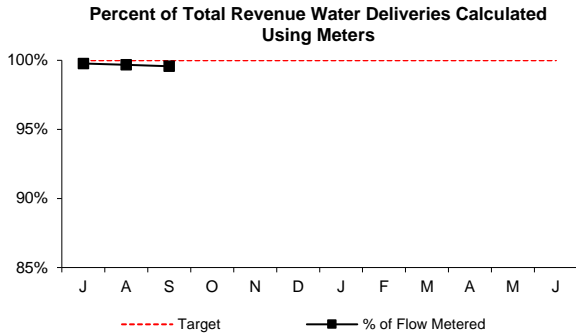
Overtime Spending



Maintenance overtime was over budget by \$20K this quarter and \$20k over for the year. Management continues to monitor backlog and to ensure all critical equipment and systems are available. This quarter's overtime was predominately used for Storm Coverage/High Flows, the HEEC Cable Outage which required staffing to be onsite 24hrs/day for 12 consecutive days, Fabrication of Thermal Caustic Storage Tank Catwalk and Thermal Power Plant Shutdown and Start-Up Support.

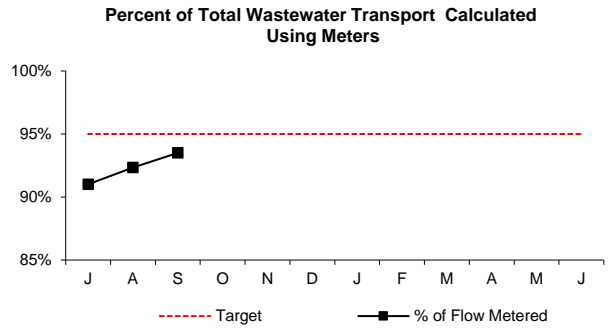
Operations Division Metering & Reliability 1st Quarter - FY20

WATER METERS



The target for revenue water deliveries calculated using meters is 100%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. During the 1st Quarter of FY20, meter actuals accounted for 99.67% of flow; only 0.33% of total revenue water deliveries were estimated. The following is the breakdown of reasons for estimations:
 In-house and Capital Construction Projects - 0.01%
 Instrumentation Failure - 0.32%

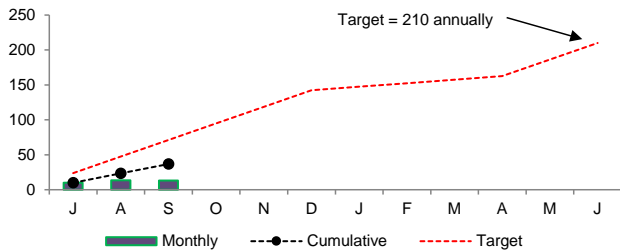
WASTEWATER METERS



The target for revenue wastewater transport calculated using meters is 95%. Estimates are generated for meters missing data due to instrument failure and/or erratic meter behavior usually related to storm events. Estimates are produced using data from previous time periods under similar flow conditions. During the 1st Quarter of FY20, meter actuals accounted for 92.28% of flow. 7.32% of flow was estimated. Of that value, 21.6% was estimated using Manning's equation using a measured depth with no velocity available.

WATER DISTRIBUTION SYSTEM PIPELINES

Miles Surveyed for Leaks



During the 1st Quarter of FY20, 36.74 miles of water mains were inspected.

Leak Backlog Summary													
Month	J	A	S	O	N	D	J	F	M	A	M	J	Totals
Leaks Detected	5	1	1										7
Leaks Repaired	2	3	2										7
Backlog	9	7	6										n/a

During the 1st Quarter, seven new leaks were detected, and seven were repaired. Refer to FY20 Leak Report below for details. Also, community service ranging from individual leak location to hydrant surveys were conducted for: Bedford, Belmont, Boston, Boston Water & Sewer Cambridge, Framingham, Lexington, Malden, Medford, Revere and Somerville.

1st Quarter - FY 20 Leak Report

Date Detected	Location of Leaks	Repaired
07/19/19	Ocean Ave., @ Revere St., Revere	07/31/19
07/29/19	Wadsworth Rd., Dow St., Arlington	07/31/19
07/16/19	Watham St. @ Concord Ave., Lexington	08/14/19
07/24/19	#1098 Waltham St., Lexington	08/14/19
08/11/19	South Street Court, Medford	08/12/19
09/04/19	Pearl St. @ Center St. Malden	09/04/19
07/08/19	River St. Bridge @ Memorial Dr., Cambridge.	09/05/19

Date Detected	Location of Leaks/Unrepaired
06/08/15	Allandale Rd. @ Grove St., Brookline, Sect 78, located acoustically. Not surfacing. No redundancy.
06/17/15	Washington St. at East St., Dedham; Sect 77, located acoustically. Not surfacing. Need redundant SEH pipeline to enable isolation.
07/01/16	241 Forest St. Winchester, Sect 89, leaking blow of valve. Not surfacing. Need redundant NIH pipeline to enable isolation.
12/04/16	1025 W Roxbury Pkwy, Brookline, Sect 95, located acoustically. Not surfacing. Leaking blow off valve. No redundancy.
12/04/16	710 Ashland St/Summer St. Lynn, Sect 91. Not surfacing. Leaking emergency connection valve between MWRA and LWSC systems. LWSC has difficulty isolating 16" main.
07/20/17	Mystic Valley Parkway, Medford. Not surfacing.

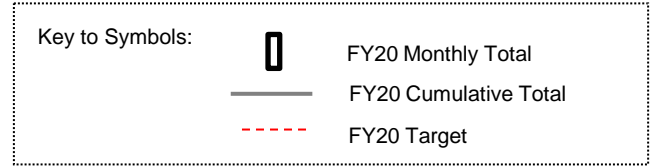
Water Distribution System Valves

1st Quarter - FY20

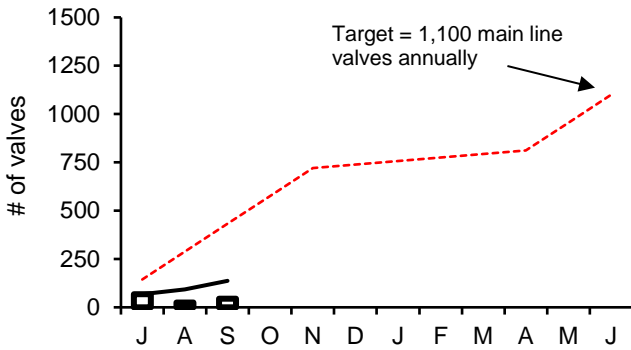
Background

Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in roadway locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but is often displaced during the construction season. This is due to the fact that a large number of construction contracts involving rehabilitation, replacement, or new installation of water lines, requires valve staff to operate valves and assist with disinfection, dechlorination, pressure-testing, and final acceptance. Valve exercising can also be impacted due to limited redundancy in the water system; valve exercising cannot be performed in areas where there is only one source of water to the community meters or flow disruptions will occur.

Type of Valve	Inventory #	Operable Percentage	
		FY19 to Date	FY19 Targets
Main Line Valve	2,159	96.8%	95%
Blow-Off Valves	1,317	98.6%	95%
Air Release Valv	1,380	95.1%	95%
Control Valves	49	100.0%	95%

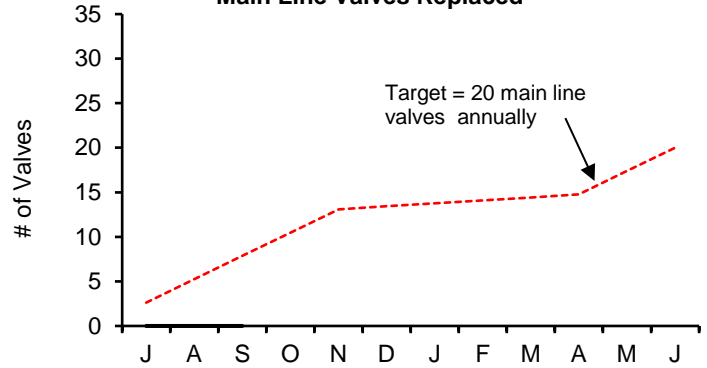


Main Line Valves Exercised



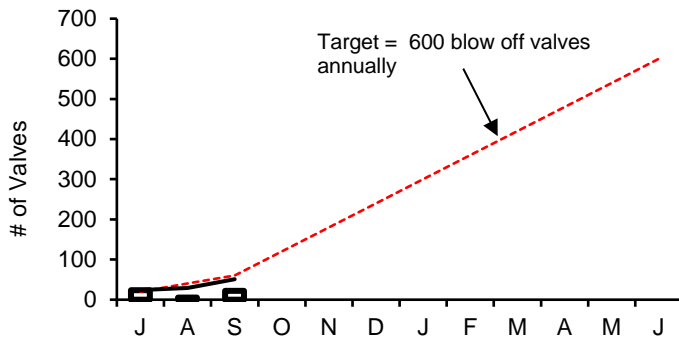
During the 1st Quarter of FY20, 137 main line valves were exercised.

Main Line Valves Replaced



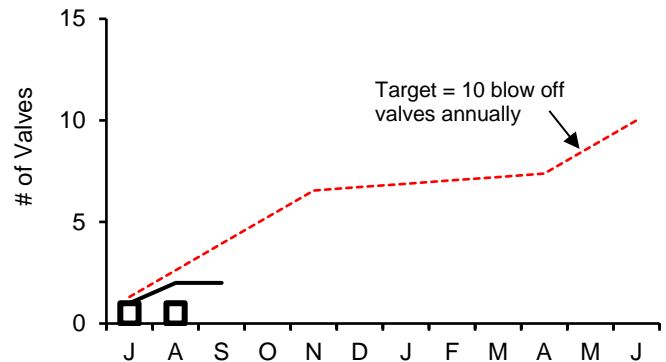
During the 1st Quarter of FY20, there were no main line valves replaced.

Blow-Off Valves Exercised



During the 1st Quarter of FY20, 51 blow off valves were exercised.

Blow-Off Valves Replaced



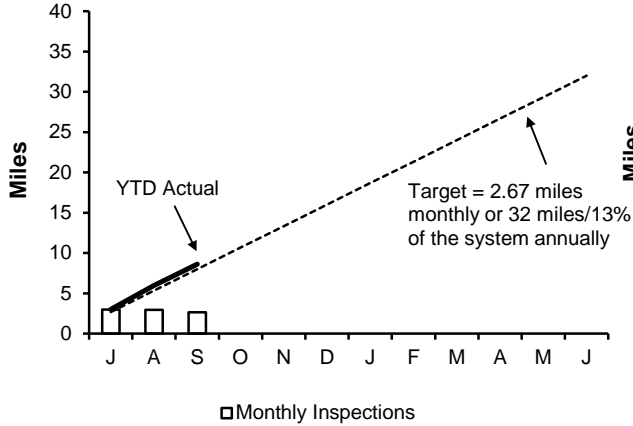
During the 1st Quarter of FY20, there were two blow off valves replaced.

Wastewater Pipeline and Structure Inspections and Maintenance

1st Quarter - FY20

Inspections

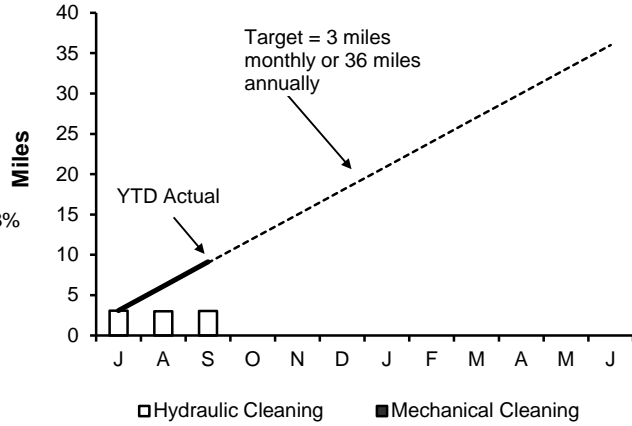
Pipeline Inspections



Staff internally inspected 8.61 miles of MWRA sewer pipeline during this quarter. The year to date total is 8.61 miles. No Community Assistance was provided month.

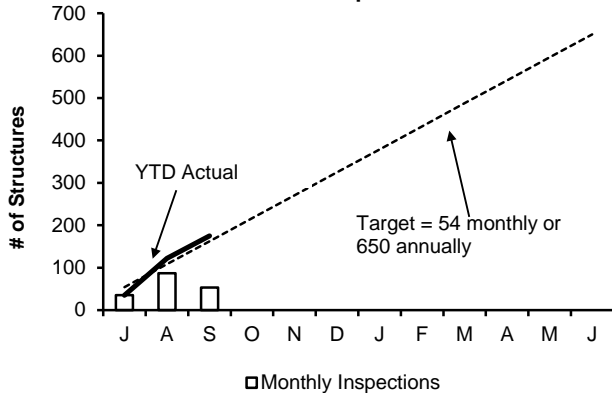
Maintenance

Pipeline Cleaning



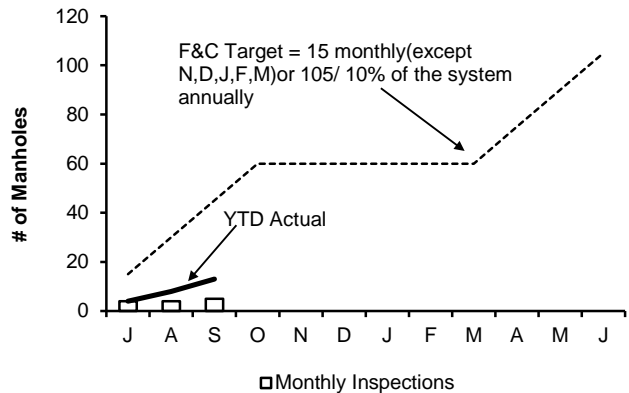
Staff cleaned 9.13 miles of MWRA's sewer system and removed 30 yards of grit and debris during this quarter. The year to date total is 9.13 miles. No

Structure Inspections



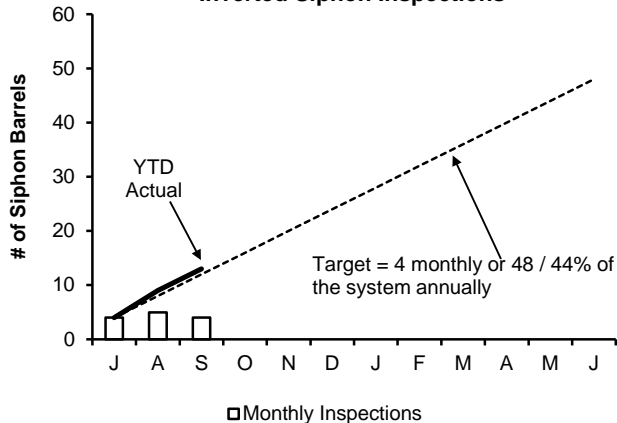
Staff inspected the 36 CSO structures and performed 139 additional manhole/structure inspections during this quarter. The year to date total is 175 inspections.

Manhole Rehabilitation



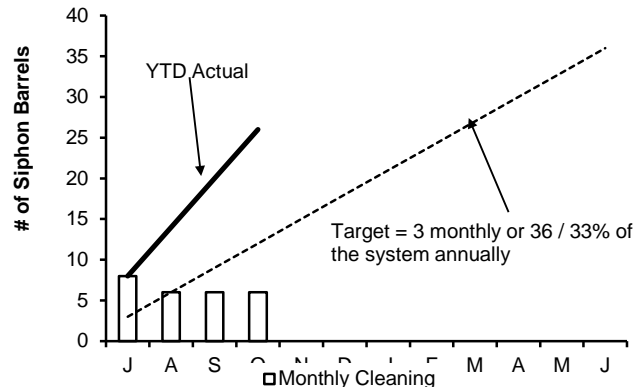
Staff replaced 13 frames & covers during this quarter. The year to date total is 13.

Inverted Siphon Inspections



13 siphon barrels were inspected this quarter. Year to date total is 13 inspections.

Inverted Siphon Cleaning

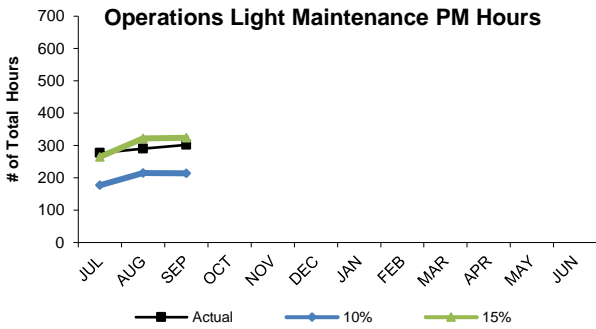


Staff cleaned 26 siphon barrels during this quarter. Year to date total is 26.

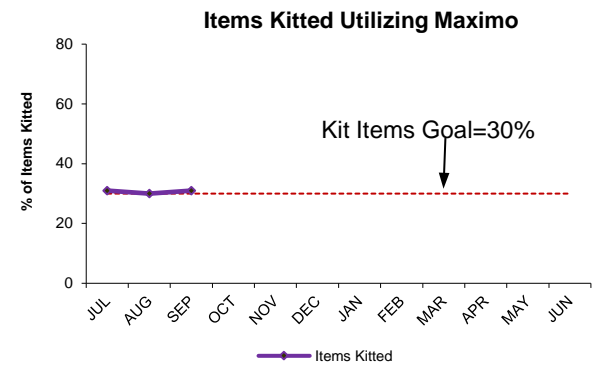
Field Operations' Metropolitan Equipment & Facility Maintenance

1st Quarter - FY20

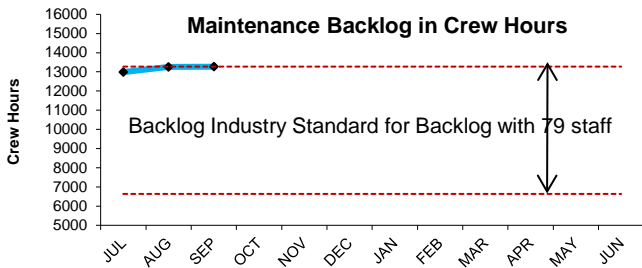
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion was raised to 100% for Fiscal Year 2010. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog and overtime metrics monitor the success of these maintenance initiatives.



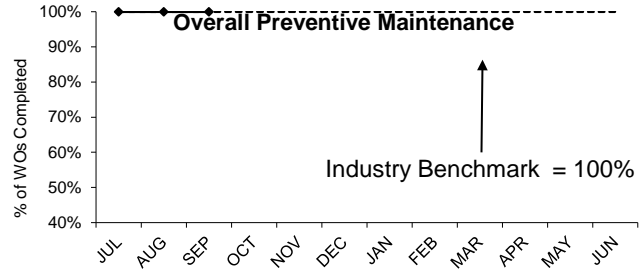
Operations staff averaged 290 hours of preventive maintenance during the 1st Quarter, an average of 14% of the total PM hours for the 1st Quarter, which is within the industry benchmark of 10% to 15%.



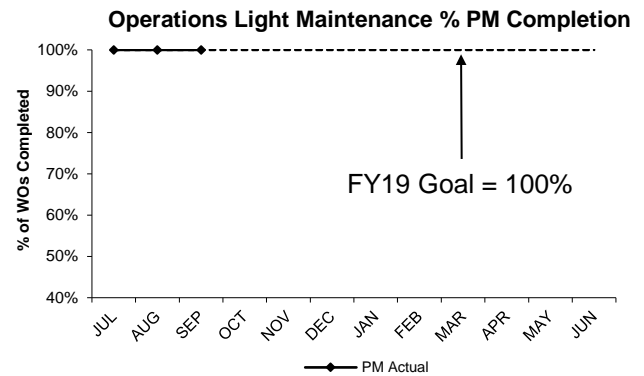
Operation's FY20 maintenance kitting goal has been set at 30% of all work orders to be kitted. Kitting is the staging of parts or material necessary to complete maintenance work. In the 1st Quarter, 31% of all applicable work orders were kitted. This resulted in more wrench time and increased productivity.



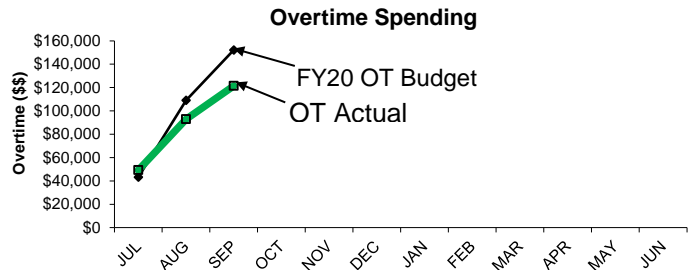
The 1st Quarter backlog average is 13174 hours. Management's goal is to continue to control overtime and still stay within the industry benchmark of 6636 to 13275 hours.



The Field Operations Department (FOD) preventive maintenance goal for FY20 is 100% of all PM work orders. Staff completed an average of 100% of all PM work orders in the 1st Quarter.



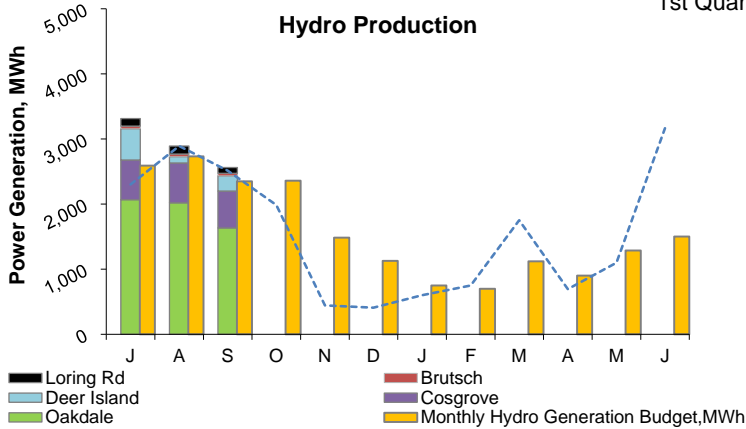
Wastewater Operators complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY20 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 100% of PM work orders in the 1st Quarter.



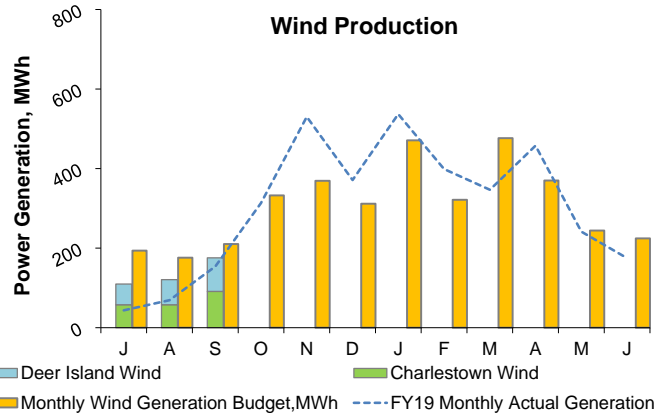
Maintenance overtime was \$31k under budget for the 1st Quarter. Overtime was used for critical maintenance repairs and wet weather events.

Renewable Electricity Generation: Savings and Revenue

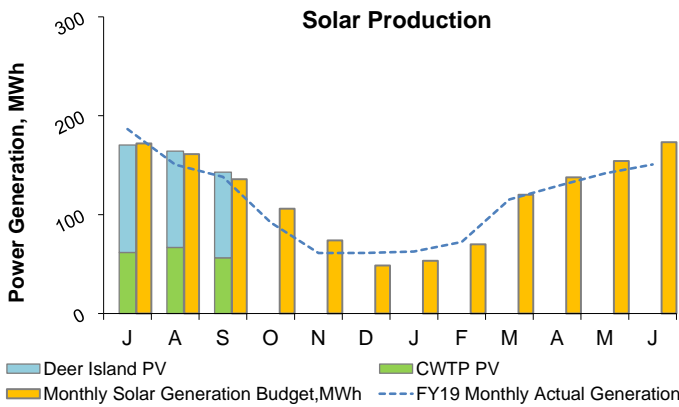
1st Quarter - FY20



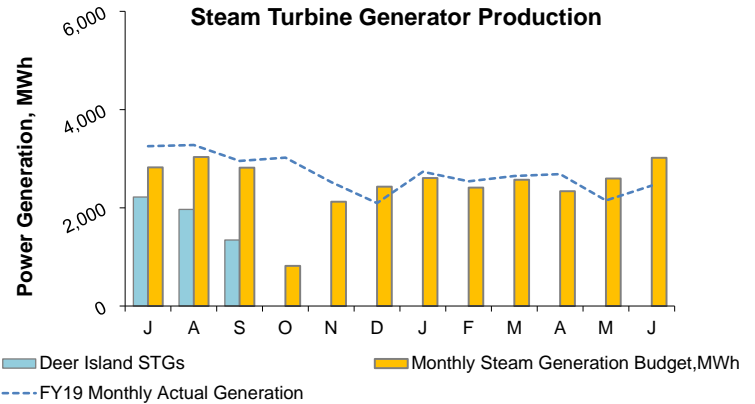
In the 1st Quarter of FY20, the renewable energy produced from all hydro turbines totaled 8,765 MWh; 14% above budget³. Savings and revenue invoices for all the facilities have not yet been received for this FY20 reporting period.



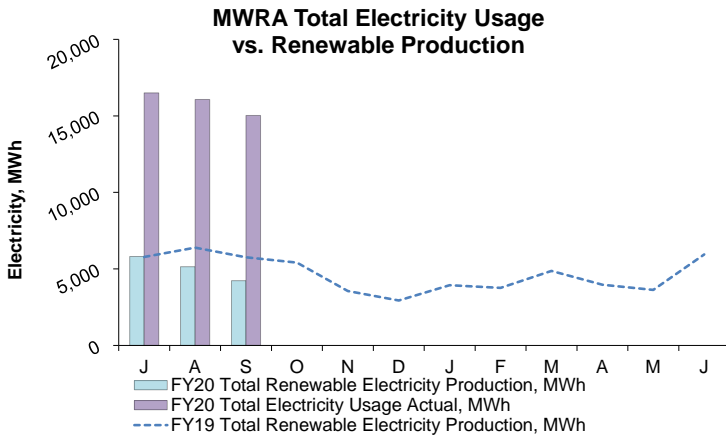
In the 1st Quarter of FY20, the renewable energy produced from all wind turbines totaled 406 MWh; 30% below budget³. Savings and revenue invoices for all the facilities have not yet been received for this FY20 reporting period.



In the 1st Quarter of FY20, the renewable energy produced from all solar PV systems totaled 488 MWh; 4% above budget³. Savings and revenue invoices for all the facilities have not yet been received for this FY20 reporting period.



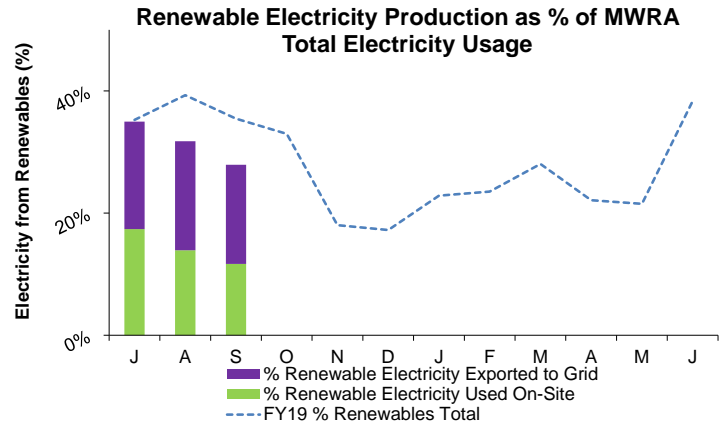
In the 1st Quarter of FY20, the renewable energy produced from all steam turbine generators totaled 5,529 MWh; 36% below budget³. This was due to a vacuum system issue which prevented the STGs from operating in "summer mode" which would have resulted in additional generation. Generation was also low due to an annual Thermal Power Plant (TPP) shutdown for maintenance in September. Savings and revenue invoices for all the facilities have not yet been received for this FY20 reporting period.



In the 1st Quarter of FY20, MWRA's electricity generation by renewable resources totaled 15,189 MWh. MWRA's total electricity usage was approximately 47,597 MWh. The MWRA total electricity usage is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and used on-site at these facilities. Approximately 99% of FOD electrical accounts are accounted for by actual billing statements; minor accounts that are not tracked on a monthly basis such as meters and cathodic protection systems are estimated based on this year's budget.

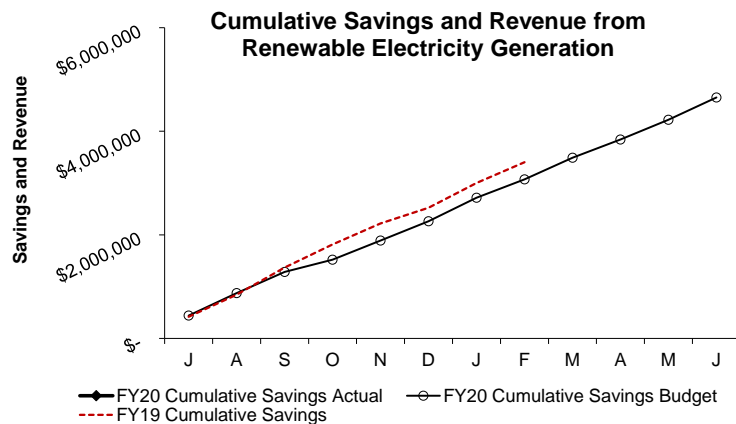
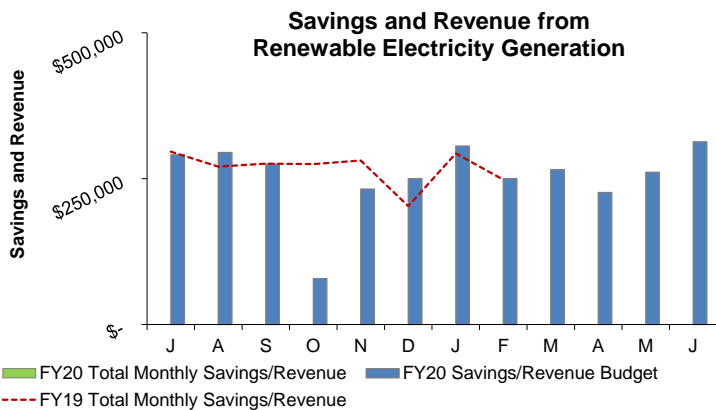
In the 1st Quarter, green power generation represented approximately 32% of total electricity usage. All renewable electricity generated on DI is used on-site (this accounts for more than 50% of MWRA renewable generation). Almost all renewable electricity generated off-DI is exported to the grid.

- Notes:
1. Only the actual energy prices are being reported. Therefore, some of the data lags up to 2 months due to timing of invoice receipt.
 2. Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.
 3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.



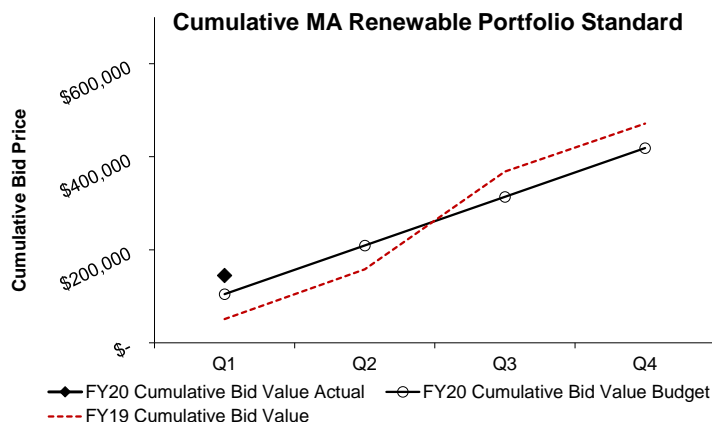
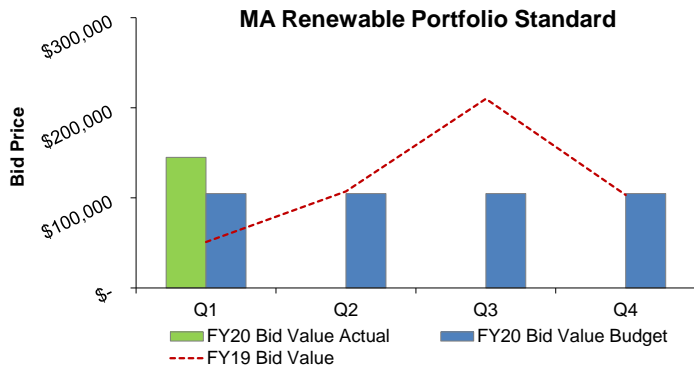
Renewable Electricity Generation: Savings and Revenue

1st Quarter - FY20



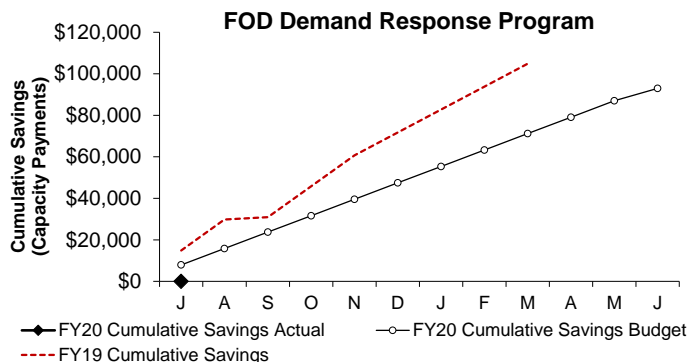
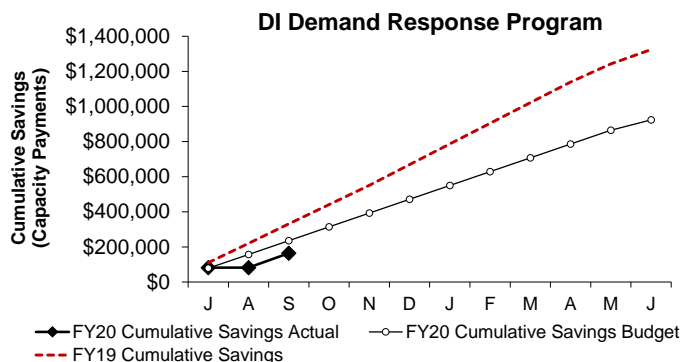
Savings and revenue invoices for MWRA renewable electricity generation have not yet been received for this reporting period¹.

Savings and revenue² from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS RECs). The use of DITP digester gas as a fuel source provides the benefit of both electricity generation from the steam turbine generators, and provides thermal value for heating the plant, equivalent to approximately 5 million gallons of fuel oil per year (not included in charts above).



Bids were awarded during the 1st Quarter¹ from MWRA's renewable energy assets; 5,987 Q1 CY2019 Class I Renewable Energy Certificates (RECs) and 50 Q1 CY2019 Solar RECs were sold for a total value of \$144,889 RPS revenue; which is 38% above budget³ for the Quarter. REC values reflect the bid value on the date that bids are accepted. Cumulative bid values reflects the total value of bids received to date.

*Only Class I and Solar RECs are being reported for Q1 CY2019 sales. Class II RECs have not been sold and are currently reserved for future sale.

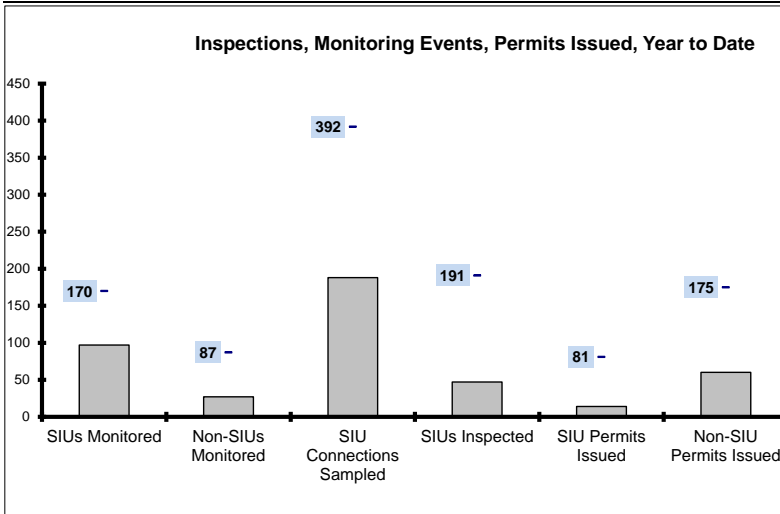


Currently Deer Island, JCWTP, and Loring Rd participate in the ISO-New England Demand Response Programs⁴. By agreeing to reduce demand and operate the facility generators to help reduce the ISO New England grid demand during periods of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates the generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. FY20 Cumulative savings (Capacity Payments only) in September¹ total \$163,973 for DI and payments for FOD have not yet been received for this reporting period¹.

- Notes:
1. Only the actual energy prices are being reported. Therefore, some of the data lags up to 2 months due to timing of invoice receipt.
 2. Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.
 3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.
 4. Chelsea Creek, Columbus Park, Ward St., and Nut Island participated in the ISO Demand Response Program through May 2016, until an emissions related EPA regulatory change resulted in the disqualification of these emergency generators, beginning June 2016. MWRA is investigating the cost-benefit of emissions upgrades for future possible participation.

Toxic Reduction and Control

1st Quarter - FY20



EPA Required SIU Monitoring Events
for FY20: 170
YTD: **97**

Required Non-SIU Monitoring Events
for FY20: 87
YTD: **27**

SIU Connections to be Sampled
For FY20: 392
YTD: **188**

EPA Required SIU Inspections
for FY20: 191
YTD: **47**

SIU Permits due to Expire
In FY20: 81
YTD: **14**

Non-SIU Permits due to Expire
for FY20: 175
YTD: **60**

Significant Industrial Users (SIUs) are MWRA's highest priority industries due to their flow, type of industry, and/or their potential to violate limits. SIUs are defined by EPA and require a greater amount of oversight. EPA requires that all SIUs *with flow* be monitored at least once during the fiscal year.

The "SIU Monitored" data above, reflects the number of industries monitored; however, many of these industries have more than one sampling point and the "SIU Connections Sampled" data reflect samples taken from multiple sampling locations at these industries.

TRAC's annual monitoring and inspection goals are set at the beginning of each fiscal year but they can fluctuate due to the actual number of SIUs.

Monitoring of SIUs and Non-SIUs is dynamic for several reasons including: newly permitted facilities, sample site changes within the year requiring a permit change, non-discharging industries, a partial sample event is counted as an event even though not enough sample was taken due to the discharge rate at the time, increased inspections leading to permit category changes requiring additional monitoring events.

TRAC also monitors one-third of the non-SIUs each year. SIU and Non-SIU permits are issued with durations of two to five years, depending on the category of industry, varying the number of permits that expire in a given year.

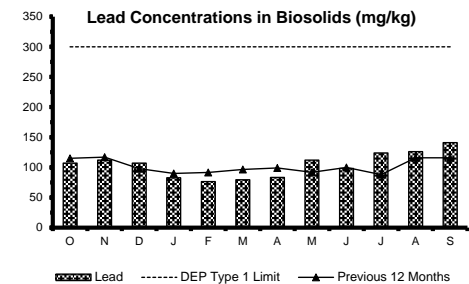
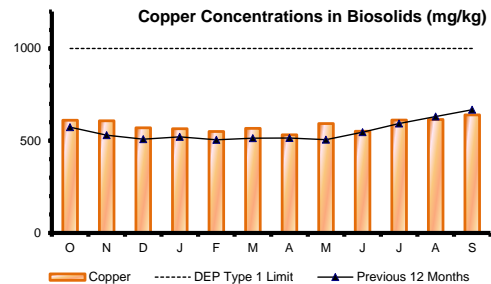
	Number of Days to Issue a Permit						Permits Issued	
	0 to 120		121 to 180		181 or more		SIU	Non-SIU
	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU		
Jul	2	19	0	0	0	0	2	19
Aug	4	21	0	4	1	0	5	25
Sep	7	16	0	0	0	0	7	16
Oct								
Nov								
Dec								
Jan								
Feb								
Mar								
Apr								
May								
Jun								

% YTD	93%	93%	0%	7%	7%	0%	14	60
-------	-----	-----	----	----	----	----	----	----

EPA requires MWRA to issue or renew 90% of SIU permits within 120 days of receipt of the application or the permit expiration date - whichever is later. EPA also requires the remaining 10% of SIU permits to be issued within 180 days.

In the 1st quarter of FY20, seventy-four permits were issued, fourteen of which were SIUs. All but one of the SIU permits were issued within the 120-day timeframe. Four of the non-SIU permits were issued after the 120-day timeframe. Timely availability of needed data for permit processing coupled with the late payment of the permit fees, led to those five permits being issued beyond the 120-day timeframe.

No SIU permits were issued in this quarter for the Clinton Sewer Service area.



Copper, lead, and molybdenum are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer.

Copper and lead levels remain relatively constant, below the DEP Type 1 Limit, and within the range of values over the past several years. A discussion of molybdenum concentrations in biosolids is included in the Deer Island Residuals Pellet discussion.

Field Operations Highlights

1st Quarter – FY20

Western Water Operations and Maintenance

Carroll Water Treatment: Staff supported the generator replacement project on Emergency Diesel generator #1. Staff recoated the fuel storage tanks for the emergency generators to prevent water infiltration into the interstitial space. Three of the emergency generators were tested under load bank conditions for EPA compliance purposes.

Metro Water Operations and Maintenance

Valve Program: Valve operations to support in-house work included an isolation of Section 70 along with Meters 185 and 198 to Saugus. This isolation supported the repair of a failed valve on Walnut Street, which was completed, and the valve returned to service. In addition, a portion of WASM 15 at the River Street Bridge in Cambridge was filled and leak tested. Support of CIP work included the Section 110 construction project, the Section 111 construction project, the Turkey Hill Tank repainting project and the isolation of WASM1 in Newton for the Commonwealth Avenue Pump Station project. Valve operations occurred to support an outside contractor working under an 8M permit. Section 55 at Ocean Avenue in Revere was flushed, disinfected and sampled in preparation of reactivation.

Water Pipeline Program: Staff constructed a seepage weir on Dam 8 at the Fells Open Reservoir in Stoneham. Work included building an access road to the toe of the dam, excavation, setting a dewatering well, pouring a footing for the weir, forming and pouring the weir wall and restoring the site. Work began on a drainage and road repair project on "10% Road" at the Wachusett Dam in Clinton. Work includes repairing the existing drains and catch basins, restoring and up grading the drainage swale and regarding the road. Seven leaks were repaired during the quarter including one on WASM 15 at the River Street Bridge in Cambridge. Leak detection was performed on over 36 miles of MWRA water main and assistance was provided to nine customer communities.

Wastewater Operations and Maintenance

Union Park Facility Generator Fuel Tank: The replacement for the leaking fuel oil tank for the emergency generator at the Union Park CSO was substantially completed by July 2019. Temporary fuel tank was removed in September 2019.

Wastewater OCC Improvements Project: Staff attended numerous meetings and toured several other operational control centers during the month of July for the Wastewater OCC Improvements project. Operations staff continued over the course of the quarter to work with Engineering & SCADA staff to complete this project.

Remote Headworks & Deer Island Shafts Study: Flow was stopped on two days at the Ward Street and Columbus Park Headworks, as part of this shaft inspection project. The shut down on 9/13/19 was a trial shutdown and the 9/26/19 shutdown was for the internal inspection of shaft "C" at Deer Island.

Metro Equipment and Facility Maintenance

Brattle Court Pump Station: The #3 Variable Frequency Drive failed. MWRA electricians troubleshooted the equipment and found a faulty coil. A new coil was installed and the drive was returned to service.

Nut Island Headworks: MWRA plumbers replaced the water regulator and all associated piping to the #2 vortex.

Prison Point CSO: MWRA mechanics replaced the facility grinder.

DeLauri Pump Station: MWRA plumbers and electricians installed a new facility boiler.

Prison Point CSO: Plant water pump #1 failed from mis-alignment, due to the pump base crumbling. MWRA mechanics, machinists and welders rebuilt the pump base, installed a new pump, laser aligned the motor to the pump and returned the pump to operations.

Somerville CSO/Alewife Pump Station: MWRA electricians working with the SCADA group installed a new uninterruptible power supply for each facility.

DeLauri Pump Station: A new boiler was purchased and installed by MWRA plumbers, electricians and HVAC staff.

Framingham Pump Station: The #3 Variable Frequency Drive (VFD) failed. Due to the age of the equipment, no repair parts were available. Three new drives were purchased. MWRA electricians and machinist installed the first of the three new VFD's.

Cottage Farm CSO: #1 fine screen motor failed. MWRA electrician, mechanics and carpenters installed a new motor.

Metering

Community Assistance: Metering department staff continued to provide monthly water meter readings to billing and bi-monthly wastewater meter readings to both the finance department and community outreach for coordination with our MWRA communities. During Q1 FY20 metering staff continued community outreach programs including meetings with Malden, Dedham, and Lynn. In addition, alerts were sent on 8 occasions about higher than expected monthly

Verizon 4G Upgrade: Metering staff has been preparing for Verizon to shut off their 3G data network permanently on January 1, 2020. In order to maintain communications after the shutoff a total of 316 3G modems and 182 Telog RU-33 wastewater meters required upgrade to new 4G modems and RU-35 dataloggers.

Verizon notified the Authority in September that the shutdown of the 3G network has been delayed one year from January 1, 2020 and will now occur on January 1, 2021. Despite this delay, staff continues tracking progress and is on schedule for completion of the changeover by the end of 2019. In addition to the modem rollouts, the meter data department worked with MIS to update the SQL database for communication with new modems and meters. New SQL server went online in August with no service interruption.

TRAC

Compliance issued 1 Administrative Settlement, 22 Notices of Noncompliance, 43 Notices of Violation, 2 Return to Permit Letters, 1 Ruling, and 1 Penalty Assessment Notice.

This first quarter TRAC issued a total of 65 MWRA 8(m) Permits allowing companies to work within an easement or other property interest held by the Authority. The total number includes 42 permits issued for work within water infrastructure easements and 23 permits issued for work within sewer infrastructure easements. Permits issued this quarter were issued in an average of 86 days from the date the application for 8(m) permit was received by the MWRA.

TRAC monitored the septage receiving sites a total of 31 times. Staff conducted 219 inspections of existing gasoline/oil separators, and 42 new construction gasoline/oil separators.

TRAC promulgated revisions to the following regulations on September 6, 2019: Adjudicatory Proceedings (360 CMR 1.00), Enforcement and Administrative Penalties (360 CMR 2.00), and the Sewer Use Regulations (360 CMR 10.000). In the revisions, a new group permit for eligible dental practices was created. In addition to creating a new group permit for

Field Operations Highlights

1st Quarter – FY20

Dental Discharges, TRAC increased its permit and monitoring charges, and incorporated all of EPA's approved changes to the Clinton sewerage service area local limits.

Environmental Quality-Water

Algae: MWRA's algae monitoring season continued, with DCR and MWRA staff collecting algae samples routinely at Wachusett Reservoir. Enhanced monitoring of sample and buoy data occurred throughout the quarter due to elevated levels of *Chrysophorella* and chlorophyll-a.

Staff collected routine algal toxin and taste and odor compound samples at Cosgrove Intake Reservoir; Wachusett and Quabbin raw water inlet taps; and associated finished water taps. The monitoring program ends each September.

Weekly cyanobacteria visual monitoring continued at all standby reservoirs. Observations required follow-up sampling and investigation at Spot Pond, Sudbury Reservoir, and Chestnut Hill during the quarter. Staff provided final comments on a cyanobacteria inspection iPad application, that will provide the ability for managers to review reservoir inspection data.

Since early August, elevated levels of *Chrysothrix* were detected at the Quabbin Reservoir. The CVA communities received multiple metallic-taste complaints. As a result, DCR staff increased algae monitoring to three days a week and ENQUAL staff provided water quality updates throughout the month. Staff issued a press release on MWRA's web site.

In June, MADEP encouraged all public water systems to collect PFAS samples at finished water locations to better understand PFAS presence in drinking water across Massachusetts. In July and August, ENQUAL collected samples from MWRA reservoir sources, as well as raw and finished water taps. Reports were forwarded to MADEP. In September, ENQUAL staff collected finished water samples for three partial communities: Bedford, Needham, and Peabody.

Per a DEP request, staff collected samples on September 10-19 at the CWTP raw water inlet and finished water taps for pesticide testing, in response to the state aerial spraying program to minimize exposure to Eastern equine encephalitis (EEE).

Community tanks: On August 8 and September 18, sampling staff provided support to the city of Waltham for sampling and testing associated with each of their Prospect Hill Tanks. The tanks were reactivated following confirmation that all tests met drinking water standards. On September 25, staff provided support to the city of Wakefield for a water quality evaluation of their Sydney St. Tank.

MWRA and Malden staff met August 14 to discuss recent total coliform positives and recent chlorine residuals within their distribution system. In response, Malden conducted hydrant flushing in the area of concern and installed an outside sample station.

On August 27, sampling staff sampled and tested water quality samples following MWRA's Turkey Hill Storage Tank painting project. All samples met drinking water standards and staff successfully reactivated following MADEP approval.

In September, staff sampled and tested water quality samples associated with MWRA's Section 111 and Section 55 pipelines. All samples met drinking water standards and the pipelines were reactivated.

Buoy: Throughout the quarter, staff visited the reservoir buoys to perform routine replacement of water quality sondes as well as maintenance and troubleshooting to facilitate transfer of buoy data. All three buoys are currently collecting and recording water quality profiles from the Wachusett Reservoir.

Environmental/Chemical Contract Management

ENQUAL and Procurement staff discussed contract compliance issues and elevated chlorate levels associated with the bulk sodium hypochlorite supply to our drinking water treatment plants. ENQUAL staff will continue to randomly sample tank truck deliveries and arrange for chlorate testing by an independent laboratory.

Environmental Quality-Wastewater

Harbor/CSO Receiving Water Monitoring: Submitted annual report on water quality in the Charles and Alewife/Mystic by July 15, as required by the water quality standards variances. CSO receiving water monitoring sampling in support of the water quality standards variance and the CSO assessment continued; due to the dry weather there were only a few storm sampling events in the Charles in the Alewife/Mystic. Biweekly harborwide monitoring continued throughout the summer. Responded to public reports of murky brown water in Boston Harbor, with assistance from DLS, Enqual-Water, and the Harbor & Outfall Monitoring consultant, identifying a bloom of the nuisance algal species *Karenia mikimotoi* which has been widely reported in nearshore waters of the Gulf of Maine in late summer 2019.

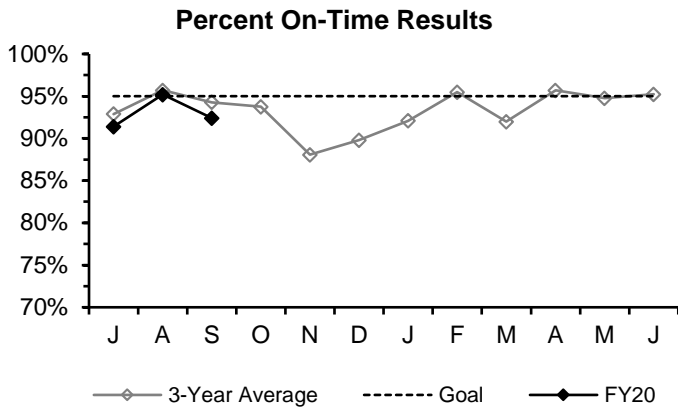
Coordination with other MWRA Departments: Presented information on receiving water quality monitoring and modeling at the MA DEP July 18 hearing on tentative determinations to extend water quality standards variances in the Charles River and Alewife Brook/Upper Mystic River. Worked with Environmental & Regulatory Affairs and with Engineering & Construction to provide comments on the draft variances; the new variances were issued by MassDEP and went into effect September 1. Attended Court oral arguments on July 19 and worked with Law Division regarding legal agreements and updates to the Receiving Water Model Work Plan. Worked with Engineering & Construction and the DCOO to address regulatory agency questions and concerns about the receiving water quality analysis portion of the CSO Post-Construction Monitoring & Performance Assessment project.

Completed a plan for CSO/storm water outfall sampling including storm drain sampling by TRAC and DLS in Medford and Arlington, and by Cambridge and Somerville in their storm drains. The final plan was submitted to DEP for inclusion with the variances. The outfall sampling program for untreated CSOs discharging to the Alewife Brook, conducted by TRAC, DLS, and ENQUAL, successfully captured discharges from a storm in late August. Provided DITP and Clinton influent and effluent quality information to TRAC for inclusion in the annual pretreatment report.

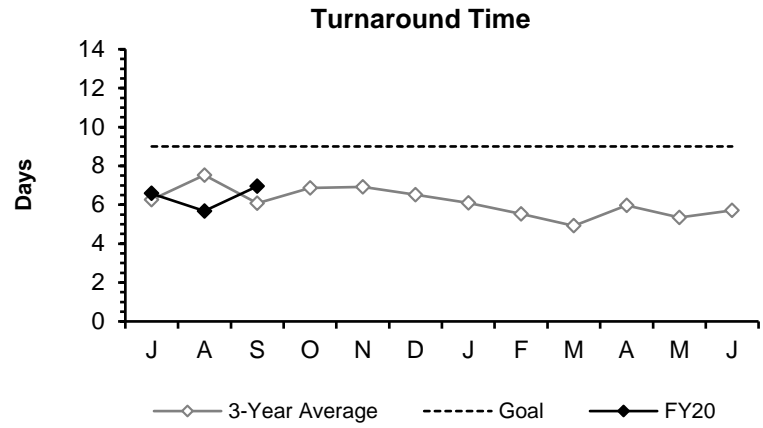
Provided daily summary of Boston Harbor beach closings some of which are affected by new MA Department of Public Health rule for when to post.

Cooperation with other agencies: Daily postings of harbor beach testing results continued until Labor Day. Met with DPH and DCR to discuss beach posting method change. Submitted comments to EPA and MADEP on draft permits issued for three POTWs discharging to the Merrimack River, on issues of interest to MWRA in potential future permits. Staff attended training on the science and regulation of PFAS, an emerging contaminant of great current concern.

Laboratory Services 1st Quarter - FY20

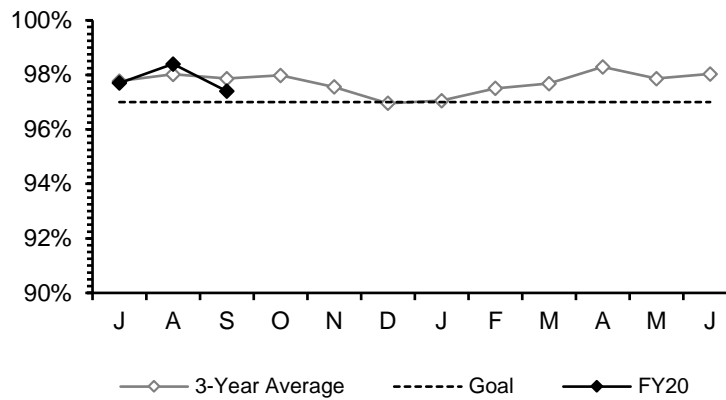


The Percent On-Time measurement was slightly below the 95% goal due to training of new staff.



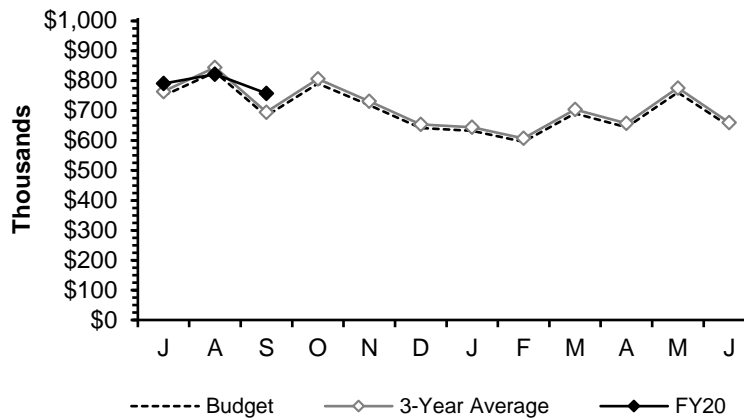
Turnaround Time was faster than the 9-day

Percent QC Within Specifications



Percent of QC tests meeting specifications met the 97% in-house goal.

Value of Services Rendered



Value of Services Rendered met the annual budget projection.

Highlights:

HOM: Received and processed one unanticipated *Alexandrium* (red tide) survey during July. Elevated counts of the red tide phytoplankton in Massachusetts Bay triggered extensive response sampling and testing efforts.

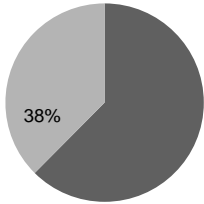
Residuals: Assisted NEFCO and NEBRA with understanding and clarifying MA DEPs new PFAS sampling requirements. Continued unanticipated extra fecal coliform testing of pellets to support NEFCO's application to market in Pennsylvania.

CONSTRUCTION PROGRAMS

Projects In Construction

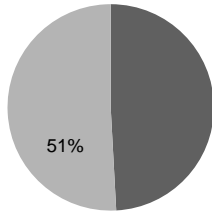
1st Quarter – FY20

Money



- Amount Remaining
- Billed to Date

Time



- Days Remaining
- Days Expended

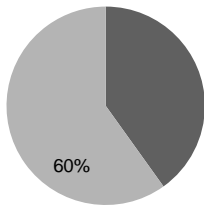
Southern Extra High Pipeline Section 111

Project Summary: This project consists of 6,800 linear feet of 36-inch water main in Dedham and Westwood and includes pipe jackings at the Dedham Corporate MBTA Station and at the MassDOT Route 95 East Street Rotary.

Notice to Proceed: 10-Aug-2018 **Contract Completion:** 7-Nov-2020

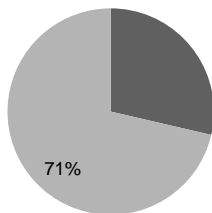
Status and Issues: As of September Crew 1 installed 1,011 ft. of 36" DICL water mainline from Sta. 33+27 to 43+38 and Crew 2 installed 185 ft. of 36" DICL pipe for water mainline from Sta. 45+88 to 44+03. The crews removed 165 CY of unsuitable material and placed 1311 SY of temporary trench pavement.

Money



- Amount Remaining
- Billed to Date

Time



- Days Remaining
- Days Expended

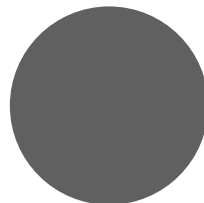
Chelsea Creek Headworks Upgrade

Project Summary: This project involves a major upgrade to the entire facility including: automation of screening collection & solids conveyance, replacement of the odor control, HVAC and electrical systems.

Notice to Proceed: 22-Nov-2016 **Contract Completion:** 21-Nov-2020

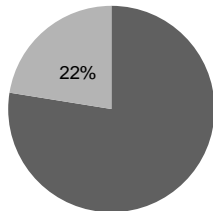
Status and Issues: As of September, the Contractor continued work on the installation of the odor control duct towards the exhaust stack and from the fan towards CAD 1. They installed the level switch and level transmitter probes for Channel 2 screen pod and installed the compressed air header for the grit pods. In addition, they continued installing the Channel 2 grit collection system.

Money



- Amount Remaining
- Billed to Date

Time



- Days Remaining
- Days Expended

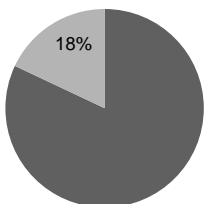
Cottage Farm & Gillis PS Roof Replacement

Project Summary: This project involves the replacement of the rubber roofing membrane system at the Cottage Farm CSO and the Gillis Pumping station.

Notice to Proceed: 10-Jul-2019 **Contract Completion:** 9-Jul-2020

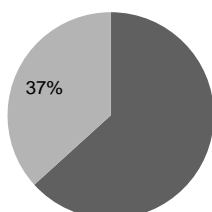
Status and Issues: As of September, the Contractor has been providing submittals for review.

Money



- Amount Remaining
- Billed to Date

Time



- Days Remaining
- Days Expended

Commonwealth Ave Pump Station Improvements

Project Summary: This project will provide a new connection to the station from two low service pipelines in Commonwealth Avenue and add low service pumps so that the City of Newton can be supplied in the event of a City Tunnel failure.

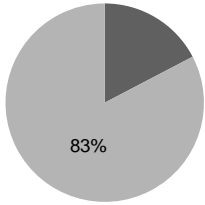
Notice to Proceed: 28-Feb-2019 **Contract Completion:** 30-Sep-2020

Status and Issues: As of September, the Contractor continued installation of exhaust ductwork and fan coils in both buildings; completed Valve Vault D concrete pour for walls and top. In addition, they held a pre tie-in meeting ahead of the WASM 1 work, and subsequently began WASM 1 work on September 16th.

Projects In Construction

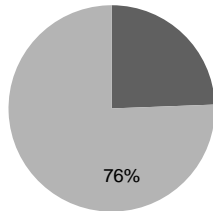
1st Quarter – FY20

Money



■ Amount Remaining
■ Billed to Date

Time



■ Days Remaining
■ Days Expended

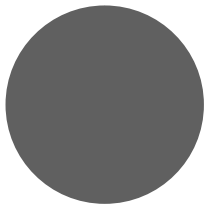
NIH Section 110 - Stoneham

Project Summary: This project consists of the replacement of 14,000 linear feet of 48-inch diameter transmission main in the Town of Stoneham.

Notice to Proceed: 5-Sep-2017 *Contract Completion:* 1-Jun-2020

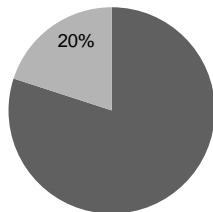
Status and Issues: As of September, the Contractor installed 519-LF of 48" DIP water main along Pond Street and Main Street. Total to date installed 13,033 LF, which includes the completion of the 48" DIP installation in DCR roads. They removed 183.83-CY of ledge along Pond Street and Main Street. Total to date removed 16,296.42 CY.

Money



■ Amount Remaining
■ Billed to Date

Time



■ Days Remaining
■ Days Expended

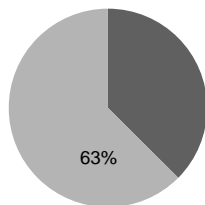
Capital Improvements at the Biosolids Facility

Project Summary: This project involves the replacement of nine mechanical conveyors and ancillary equipment, as well as three sludge processing rotary dryer drums.

Notice to Proceed: 9-Apr-19 *Contract Completion:* 21-Aug-20

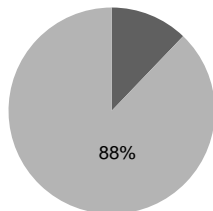
Status and Issues: As of September, the Contractor has mobilized on-site. They are in the process of removing duct work to remove Dryer Drum No. 4 and replacement of the air compressor and nitrogen generator.

Money



■ Amount Remaining
■ Billed to Date

Time



■ Days Remaining
■ Days Expended

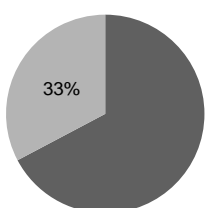
Winthrop Terminal VFD and Motor

Project Summary: This project involves the replacement of 6, 600-HP motors, VFDs and associated electrical components in the Winthrop Terminal Facility.

Notice to Proceed: 16-Jun-2016 *Contract Completion:* 12-Mar-2020

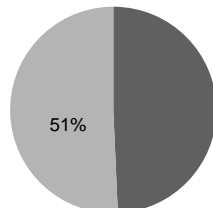
Status and Issues: VFD No. 5 commission test on-going.

Money



■ Amount Remaining
■ Billed to Date

Time



■ Days Remaining
■ Days Expended

Gravity Thickener Rehabilitation

Project Summary: This project involves the upgrade of all six gravity thickeners, including the complete replacement of each tank's sludge and scum thickening equipment and 5 of the 6 FRP dome covers.

Notice to Proceed: 11-May-2018 *Contract Completion:* 4-Feb-2021

Status and Issues: As of September, the Contractor completed the control panel testing, repaired the grout floor and the final adjustments to the mechanism to start the 14-day run test.

CSO CONTROL PROGRAM

1st Quarter – FY20

All 35 projects in the Long-Term CSO Control Plan were complete as of December 2015 in compliance schedule milestones in the Federal District Court Order. MWRA is conducting a multi-year CSO post-construction monitoring program and performance assessment that will culminate in a report to EPA and DEP in December 2021 that will verify whether the court-ordered long-term levels of CSO control are attained. Of the \$911.1 million budget in the FY20 CIP for the CSO Control Program, approximately \$7.0 million remain to be spent, as described below.

Project/Item	Status as of September 30, 2019
<i>BWSC Dorchester Interceptor Inflow Removal</i>	<p>MWRA's CIP and the MOU/FAA with BWSC included \$5.4 million for additional inflow removal from the BWSC Dorchester Interceptor system in the South Dorchester Bay Sewer Separation area, of which \$1.7 million was transferred to the BWSC MOU/FAA CSO account and \$1.6 million of that was withdrawn by BWSC to fund related design and construction work. On May 17, 2017, MWRA's Board of Directors authorized removing the remaining \$3.8 million from the BWSC MOU/FAA (which ended on June 30, 2017) and including this funding amount in a separate, 4-year financial assistance agreement with BWSC effective July 1, 2017. The new agreement limits MWRA financial assistance to reimbursement of the eligible costs of BWSC construction work reviewed and approved by MWRA, up to \$3.8 million.</p> <p>BWSC recently completed sewer system evaluations and is preparing a construction contract for inflow removal that it plans to submit to MWRA for eligibility approval this fall.</p>
City of Cambridge Memorandum of Understanding and Financial Assistance Agreement	<p>The City of Cambridge attained substantial completion of its last project, CAM004 Sewer Separation, in December 2015 in compliance with Schedule Seven, and attained substantial completion of related surface restoration work by the end of 2017. MWRA made a final transfer of funds to the Cambridge CSO account in December 2017, in the amount of \$1,254,551, to cover eligible costs through June 30, 2018, when the 22 year-old, \$100.2 million MOU/FAA ended.</p> <p>Cambridge continues to support ongoing MWRA review of the construction contracts Cambridge managed under the CSO MOU and Financial Assistance Agreement. Staff expect to complete the review and issue a final eligibility certification <u>by November 30, 2019</u>.</p>
MWRA CSO Performance Assessment – Contract 7572	<p>MWRA issued the Notice to Proceed with the contract for CSO Post-Construction Monitoring and Performance Assessment to AECOM Technical Services, Inc., in November 2017. The contract includes CSO inspections, overflow metering, hydraulic modeling, system performance assessments and water quality impact assessments, culminating in the submission of a report to EPA and DEP in December 2021 verifying whether the court-ordered levels of CSO control are attained.</p> <ul style="list-style-type: none"> • MWRA will issue a third semiannual progress reports on the performance assessment by October 31, 2019, covering the data collection and CSO discharge quantification period of January 1 – June 30, 2019, and other work progress. • Temporary CSO meters continue to be employed at 36 of the original 57 metered locations, in accordance with Amendment 1 to the AECOM contract. • MWRA's CSO performance assessment consultant, AECOM, continues to upgrade and improve the calibration of MWRA's hydraulic model, and expects to complete and verify the model calibration this fall. The calibrated model will be used to perform comparisons of model predicted CSO discharges with the discharges measured from the CSO metering program that began in April 2018. Model calibration is intended to bring the meter results and model predictions closer together to gain assurance of the accuracy of the model in predicting CSO discharges for use in determining attainment of the Long Term Control Plan's Typical Year levels of control. • MWRA and AECOM continue to conduct, in close coordination with the CSO communities, investigations into the higher overflow activities measured at several outfalls to better understand the factors contributing to overflows and identify system adjustments that may help bring discharges into compliance with the long-term levels of control. • AECOM is making progress in developing the receiving water models, in accordance with Amendment 1. MWRA staff are performing CSO and stormwater sampling with the assistance of the cities of Cambridge and Somerville and Medford, to establish water quality inputs to the models. <p>On August 30, 2019, DEP issued five-year CSO variances to water quality standards for the Lower Charles River/Charles Basin and the Alewife Brook/Upper Mystic River effective through August 31, 2024. The variance conditions include the water quality modeling and sampling noted above, the evaluation of additional CSO controls for these waters, and other requirements intended to minimize CSO discharges, their impacts and public health risk.</p>

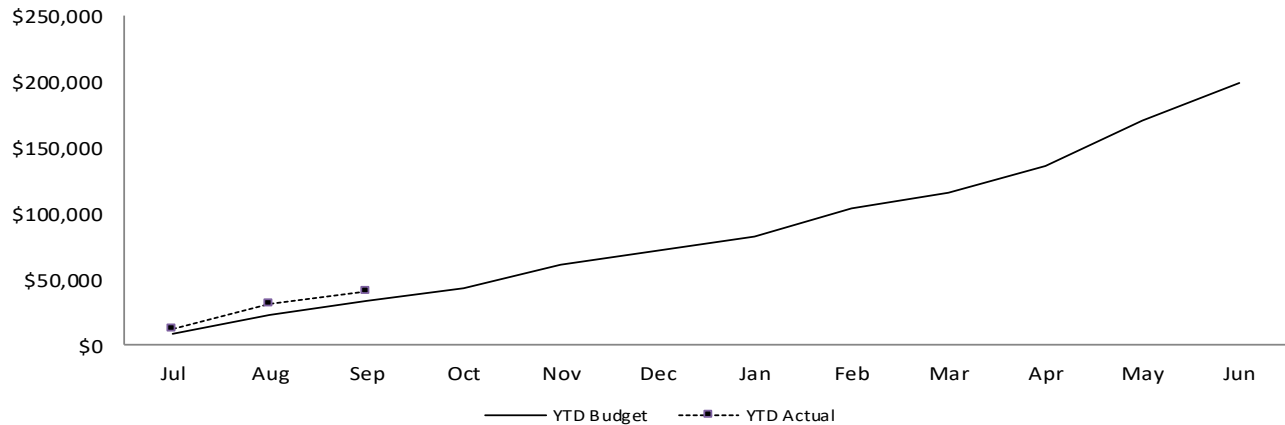
CIP Expenditures 1st Quarter – FY20

FY20 Capital Improvement Program Expenditure Variances through September by Program (\$ in thousands)				
Program	FY20 Budget Through September	FY20 Actual Through September	Variance Amount	Variance Percent
Wastewater	17,308	26,426	9,118	53%
Waterworks	14,764	13,882	(881)	-6%
Business and Operations Support	1,785	713	(1,072)	-60%
Total	\$33,857	\$41,021	\$7,165	21%

Project overspending within Wastewater was due to greater than anticipated community requests for grants and loans for the Infiltration/Inflow (I/I) Program, contractor progress for the Chelsea Creek Headworks Upgrades Construction, Residuals/Electrical/Mechanical/Drum Dryer Replacements, Chemical Tanks and Digester Pipe and Winthrop Terminal Facility VFD Replacements, earlier than anticipated equipment purchases for the Wastewater Meter Equipment project, and work anticipated in FY19 that was completed in FY20 for the Clinton Roofing Rehabilitation. This was partially offset by planned work expected in FY20 that was completed in FY19 for the Gravity Thickener Rehabilitation contract. Project underspending in Waterworks was due to delay in paving for the Southern Extra High Section 111 Construction 2, MBTA crossing issue with Construction 3, and less than anticipated community loan requests. This was partially offset by work anticipated in FY19 that was completed in FY20 for the Cosgrove Intake Roof Repair and Painting Bellevue 2 and Turkey Hill Tanks.

Budget vs. Actual CIP Expenditures (\$ in thousands)

Total FY20 CIP Budget of \$199,147



Construction Fund Management

All payments to support the capital program are made from the Construction Fund. Sources of fund in-flows include bond proceeds, commercial paper, SRF reimbursements, loan repayments by municipalities, and current revenue. Accurate estimates of cash withdrawals and grant payments (both of which are derived from CIP spending projections) facilitate planning for future borrowings and maintaining an appropriate construction fund balance.

Cash Balance as of 9/28/2019	\$147.2 million
Unused capacity under the debt cap:	\$1.58 billion
Estimated date for exhausting construction fund without new borrowing:	MAY-20
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper/Revolving loan outstanding:	\$128 million
Commercial paper capacity / Revolving Loan	\$350 million
Budgeted FY20 Cash Flow Expectancy*:	\$183 million

* Cash based spending is discounted for construction retainage.

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results and UV Absorbance

1st Quarter – FY20

Source Water – Microbial Results

Total coliform bacteria are monitored in both source and treated water to provide an indication of overall bacteriological activity. Most coliforms are harmless. However, fecal coliform, a subclass of the coliform group, are identified by their growth at temperatures comparable to those in the intestinal tract of mammals. They act as indicators of possible fecal contamination. The Surface Water Treatment Rule for unfiltered water supplies allows for no more than 10% of source water samples prior to disinfection over any six-month period to have more than 20 fecal coliforms per 100mL.

Sample Site: Quabbin Reservoir

Quabbin Reservoir water is sampled at the William A. Brutsch Water Treatment Facility raw water tap before being treated and entering the CVA system.

All samples collected during the 1st Quarter were below 20 cfu/100ml. **For the current six-month period, 0.0% of the samples have exceeded a count of 20 cfu/100mL.**

Sample Site: Wachusett Reservoir

Wachusett Reservoir water is sampled at the CWTP raw water tap in Marlborough before being treated and entering the MetroWest/Metropolitan Boston systems.

In the wintertime when smaller water bodies near Wachusett Reservoir freeze up, many waterfowl will roost in the main body of the reservoir - which freezes later. This increased bird activity tends to increase fecal coliform counts. DCR has an active bird harassment program to move the birds away from the intake area.

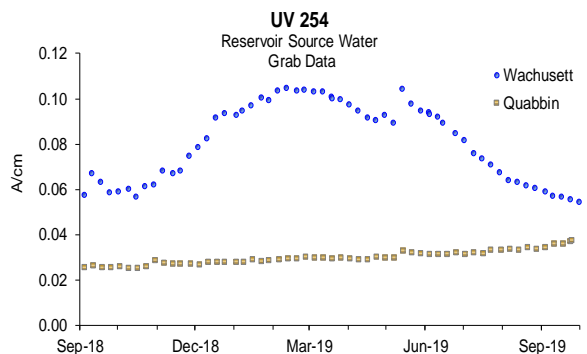
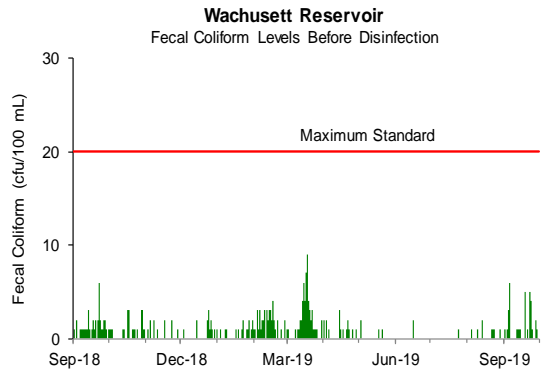
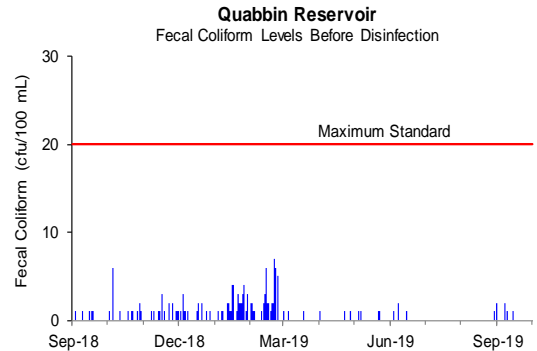
All samples collected during the 1st Quarter were below 20 cfu/100ml. **For the current six-month period, 0.0% of the samples exceeded a count of 20 cfu/100mL.**

Source Water – UV Absorbance

UV Absorbance at 254nm wavelength (UV-254), is a measure of the amount and reactivity of natural organic material in source water. Higher UV-254 levels cause increased ozone and chlorine demand resulting in the need for higher ozone and chlorine doses, and can increase the level of disinfection by-products. UV-254 is impacted by tributary flows, water age, sunlight and other factors.

Quabbin Reservoir UV-254 levels are currently around 0.038 A/cm.

Wachusett Reservoir UV-254 levels are currently around 0.055 A/cm.



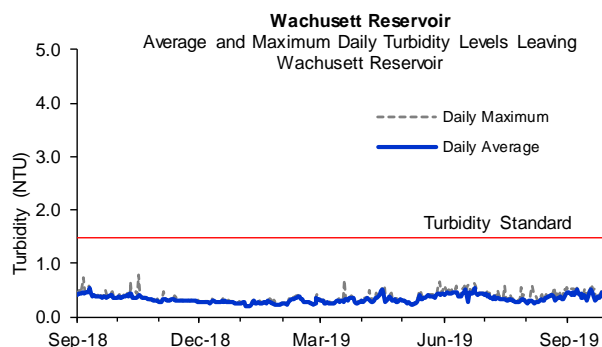
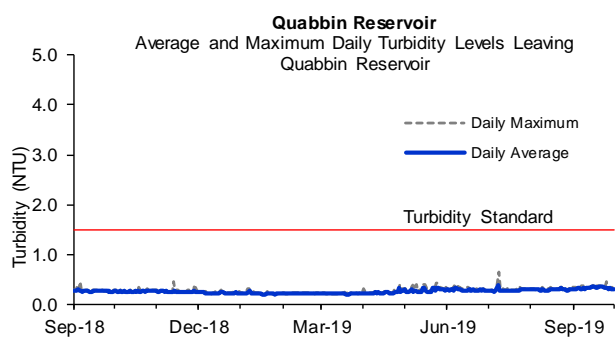
Source Water – Turbidity

1st Quarter – FY20

Turbidity is a measure of suspended and colloidal particles including clay, silt, organic and inorganic matter, algae and microorganisms. The effects of turbidity depend on the nature of the matter that causes the turbidity. High levels of particulate matter may have a higher disinfectant demand or may protect bacteria from disinfection effects, thereby interfering with the disinfectant residual throughout the distribution system.

There are two standards for turbidity: all water must be below five NTU (Nephelometric Turbidity Units), and water only can be above one NTU if it does not interfere with effective disinfection.

Turbidity of Quabbin Reservoir water is monitored continuously at the Brutsch Water Treatment Facility (BWTF) before UV and chlorine disinfection. Turbidity of Wachusett Reservoir is monitored continuously at the Carroll Water Treatment Plant (CWTP) before ozonation and UV disinfection. Maximum turbidity results at Quabbin and Wachusett were within DEP standards for the quarter.

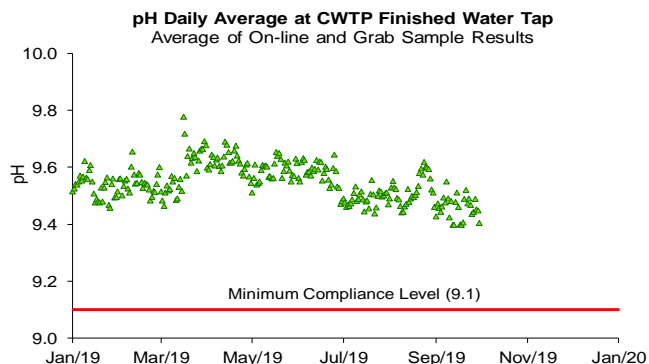
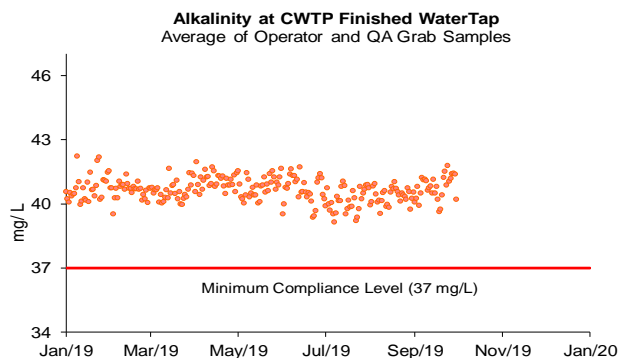


Treated Water – pH and Alkalinity Compliance

MWRA adjusts the alkalinity and pH of Wachusett water at CWTP to reduce its corrosivity, which minimizes the leaching of lead and copper from service lines and home plumbing systems into the water. MWRA tests finished water pH and alkalinity daily at the CWTP's Fin B sampling tap. MWRA's target for distribution system pH is 9.3; the target for alkalinity is 40 mg/l. Per DEP requirements, CWTP finished water samples have a minimum compliance level of 9.1 for pH and 37 mg/L for alkalinity. Samples from 27 distribution system locations have a minimum compliance level of 9.0 for pH and 37 mg/L for alkalinity. Results must not be below these levels for more than nine days in a six month period. Distribution system samples are collected in March, June, September, and December.

Each CVA community provides its own corrosion control treatment. See the CVA report: www.mwra.com/water/html/awqr.htm.

Distribution system samples were collected on September 4 and 5, 2019. Distribution system sample pH ranged from 9.0 to 9.6 and alkalinity ranged from 38 to 41 mg/L. No sample results were below DEP limits for this quarter.



Treated Water – Disinfection Effectiveness

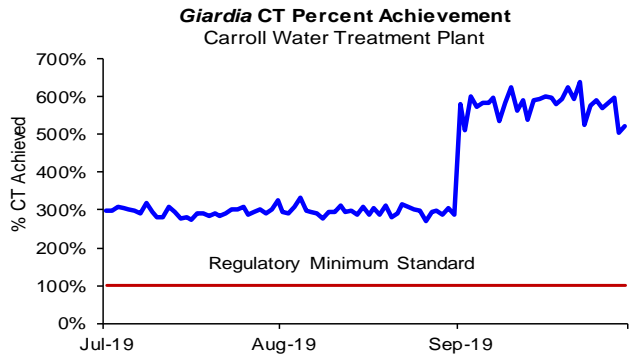
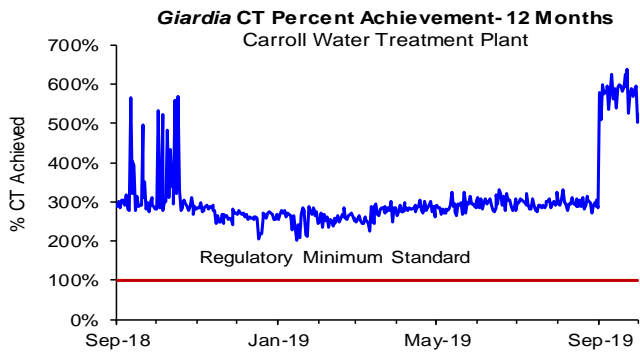
1st Quarter – FY20

At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA calculates inactivation rates hourly and reports *Giardia* inactivation at maximum flow and *Cryptosporidium* inactivation at minimum UV dose. MWRA must meet 100% of required CT and IT.

CT achievement for *Giardia* assures CT achievement for viruses, which have a lower CT requirement. For *Cryptosporidium*, there is also an “off-spec” requirement. Off-spec water is water that has not reached the full required UV dose or if the UV reactor is operated outside its validated ranges. No more than 5% off-spec water is allowed in a month.

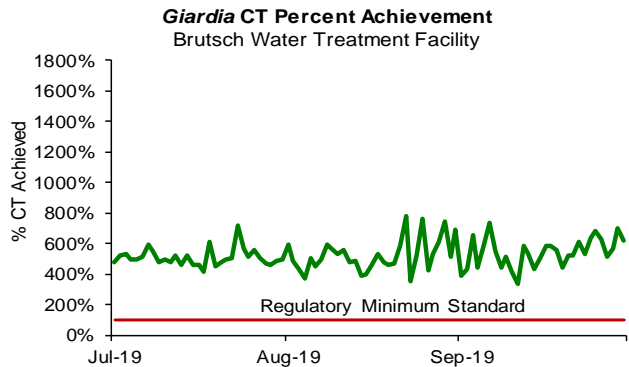
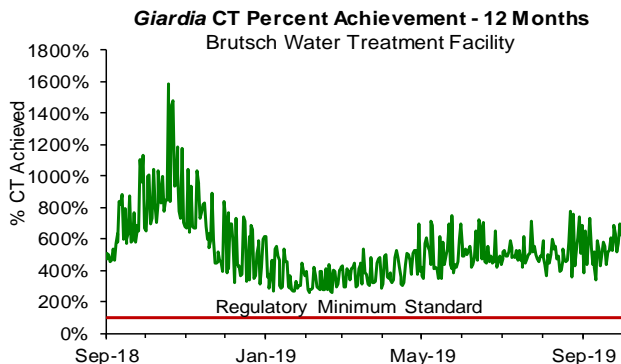
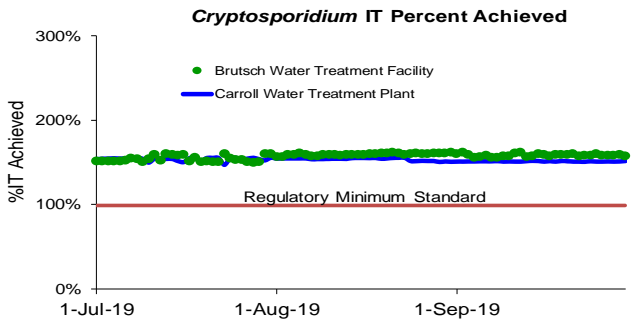
Wachusett Reservoir – MetroWest/Metro Boston Supply:

- Ozone dose at the CWTP varied between 2.2 to 2.8 mg/L for the quarter.
- Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.
- The Wachusett Aqueduct Pump Station (WAPS) will improve redundancy in the MWRA water system. WAPS testing was initiated in June 2018 and continued through October 2018. Prior to and during WAPS testing, CWTP proactively increased the ozone dose and “CT achievement”. This is visible in the top left graph.
- The ozone doses was proactively raised early September in response to an algae bloom in the reservoirs. This is visible in the top left graph.



Quabbin Reservoir (CVA Supply) at: Brutsch Water Treatment Facility

- The chlorine dose at BWTF is adjusted in order to achieve MWRA's seasonal target of >0.75 mg/L (November 01 – May 31) and >1.0 mg/L (June 1– October 31) at Ludlow Monitoring Station.
- The chlorine dose at BWTF varied between 1.9 to 2.2 mg/L for the quarter.
- Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system for the quarter.
- Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.



Source Water - Algae

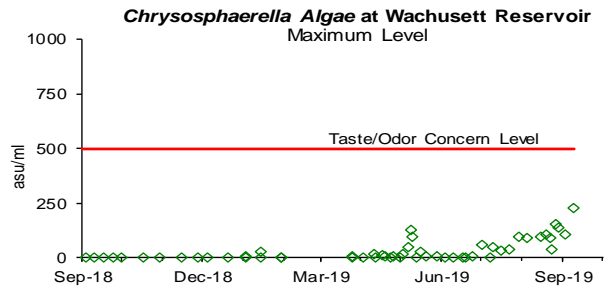
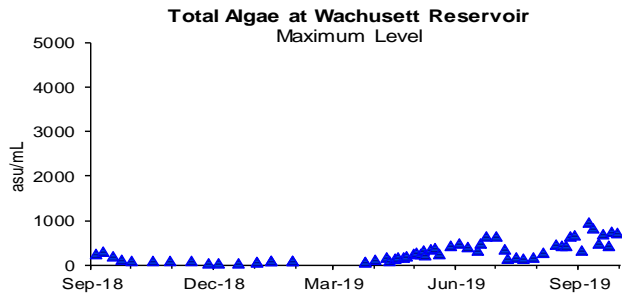
1st Quarter – FY20

Algae levels in the Wachusett and Quabbin Reservoir are monitored by DCR and MWRA. These results, along with taste and odor complaints, are used to make decisions on source water treatment for algae control.

Taste and odor complaints at the tap may be due to algae, which originate in source reservoirs, typically in trace amounts. Occasionally, a particular species grows rapidly, increasing its concentration in water. When *Synura*, *Anabaena*, or other nuisance algae bloom, MWRA may treat the reservoirs with copper sulfate, an algaecide. During the winter and spring, diatom numbers may increase. While not a taste and odor concern, consumers that use filters may notice a more frequent need to change their filters.

In the 1st quarter, sixty-one complaints concerned taste and odor which may be related to algae were reported from the local water departments.

In August, *Chryso-sphaerella*, a taste and odor causing algae species, bloom occurred the Quabbin and Wachusett Reservoir. See the MWRA Press Release: <http://www.mwra.com/01news/2019/090419-specialnotice-wachusett.html>.



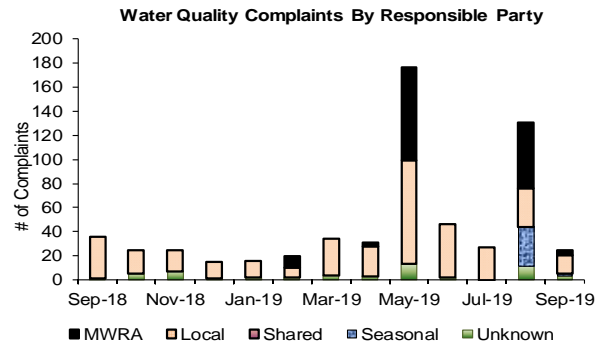
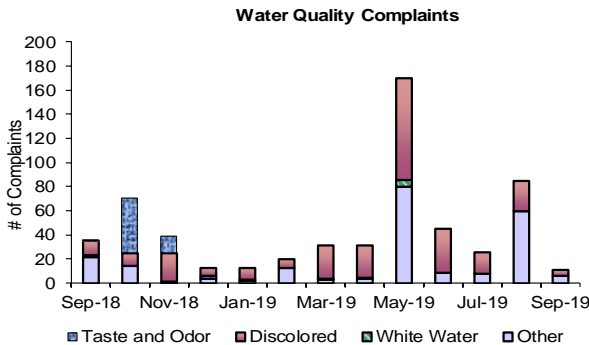
Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

MWRA collects information on water quality complaints that typically fall into four categories: 1.) discoloration due to MWRA or local pipeline work; 2.) taste and odor due to algae blooms in reservoirs or chlorine in the water; 3.) white water caused by changes in pressure or temperature that traps air bubbles in the water; or 4.) “other” complaints including no water, clogged filters or other issues.

MWRA routinely contacts communities to classify and tabulate water complaints from customers. This count, reflecting only telephone calls to towns, probably captures only a fraction of the total number of customer complaints. Field Operations staff have improved data collection and reporting by keeping track of more kinds of complaints, tracking complaints to street addresses and circulating results internally on a daily basis.

Communities reported 183 complaints during the quarter compared to 68 complaints from 1st Quarter of FY19. Of these complaints, 48 were for “discolored water”, 61 were for “taste and odor”, and 74 were for “other”. Of these complaints, 75 were local community issues, 59 were MWRA related issues, 35 were seasonal in nature, and 14 were unknown in origin.

- In August, forty-four taste and odor complaints were reported from the CVA communities when *Chryso-sphaerella* (a taste and odor causing algae species) bloom occurred the Quabbin Reservoir. The taste and odor complaints dropped to thirteen reported complaints early September when the *Chryso-sphaerella* levels decreased in the reservoirs, see top right graph.
- On August 12, Medford reported fifty-five no water and low pressure complaints due to a leak on an MWRA water main line.



Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

1st Quarter – FY20

While all communities collect bacteria samples and chlorine residual data for the Total Coliform Rule (TCR), data from the 44 systems that use MWRA's Laboratory are reported below.

The MWRA TCR program has 141 sampling locations. These locations include sites along MWRA's transmission system, water storage tanks and pumping stations, as well as a subset of the community TCR locations.

Samples are tested for total coliform and Escherichia coli. *E.coli* is a specific coliform species whose presence likely indicates potential contamination of fecal origin.

If *E.coli* are detected in a drinking water sample, this is considered evidence of a potential public health concern. Public notification is required if repeat tests confirm the presence of *E.coli* or total coliform.

Total coliform provide a general indication of the sanitary condition of a water supply. If total coliform are detected in more than 5% of samples in a month (or if more than one sample is positive when less than 40 samples are collected), the water system is required to investigate the possible source/cause with a Level 1 or 2 Assessment, and fix any identified problems.

A disinfectant residual is intended to maintain the sanitary integrity of the water; MWRA considers a residual of 0.2 mg/L a minimum target level at all points in the distribution system.

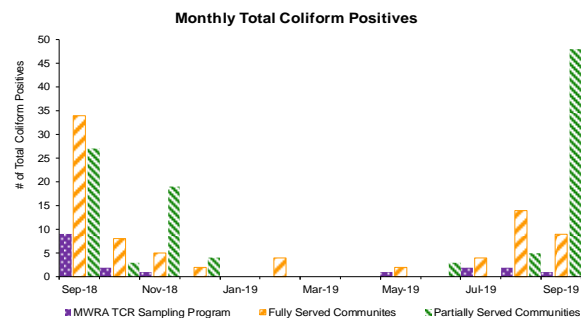
Highlights

In the 1st Quarter, 80 of the 6,434 community samples (1.24% system-wide) submitted to MWRA labs for analysis tested positive for total coliform (Boston, Marblehead, Melrose - July; Boston, Deer Island, Malden, Newton, Quincy, Winthrop, Bedford, Needham - August; Boston, Lynnfield, Marblehead, Norwood, Bedford, Canton, Hanscom AFB, Wilmington, Woburn - September). Five of the 1,986 MWRA samples (0.25%) tested positive for total coliform. No samples tested positive for *E.coli*. In August, Malden had greater than 5.0% of their samples that were total coliform positive and, therefore, is required to conduct a Level 2 Assessment since this is the second occurrence within a rolling 12-month period. Winthrop (in August) and Marblehead (in September) had more than one positive total coliform sample and, therefore, are required to conduct

a Level 1 Assessment. Bedford had more than one positive total coliform sample in August and again in September and, therefore, is required to conduct a Level 2 Assessment since this is the second occurrence within a rolling 12-month period. In September, Hanscom AFB had more than one positive total coliform sample and, therefore, is required to conduct a Level 2 Assessment since this is the second occurrence within a rolling 12-month period. Only 1.4% of the Fully Served community samples had chlorine residuals lower than 0.2 mg/L for the quarter. No community violated the TCR.

NOTES:

- MWRA total coliform and chlorine residual results include data from community locations. In most cases these community results are indicative of MWRA water as it enters the community system; however, some are strongly influenced by local pipe conditions. Residuals in the MWRA system are typically between 1.0 and 2.8 mg/L.
- The number of samples collected depends on the population served and the number of repeat samples required.
- These communities are partially supplied, and may mix their chlorinated supply with MWRA chloraminated supply.
- Part of the Chicopee Valley Aqueduct System. Free chlorine system.



	Total Coliform			E.coli # Positive	Assessment Required
	# Samples (b)	# (%) Positive			
MWRA	MWRA Locations	398	5 (1.26%)	0	
	Shared Community/MWRA sites	1588	0 (0%)	0	
	Total: MWRA	1986	5 (0.25%)	0	No
Fully Served	ARLINGTON	155	0 (0%)	0	
	BELMONT	112	0 (0%)	0	
	BOSTON	817	8 (0.98%)	0	No
	BROOKLINE	224	0 (0%)	0	
	CHELSEA	169	0 (0%)	0	
	DEER ISLAND	45	1 (2.22%)	0	No
	EVERETT	182	0 (0%)	0	
	FRAMINGHAM	237	0 (0%)	0	
	LEXINGTON	116	0 (0%)	0	
	LYNNFIELD	21	1 (4.76%)	0	No
	MALDEN	251	7 (2.79%)	0	Yes
	MARBLEHEAD	81	3 (3.70%)	0	Yes
	MARLBOROUGH	126	0 (0%)	0	
	MEDFORD	221	0 (0%)	0	
	MELROSE	129	1 (0.78%)	0	No
	MILTON	116	0 (0%)	0	
	NAHANT	30	0 (0%)	0	
	NEWTON	279	1 (0.36%)	0	No
	NORTHBOROUGH	48	0 (0%)	0	
	NORWOOD	106	2 (1.89%)	0	No
QUINCY	341	1 (0.29%)	0	No	
READING	130	0 (0%)	0		
REVERE	195	0 (0%)	0		
SAUGUS	104	0 (0%)	0		
SOMERVILLE	273	0 (0%)	0		
SOUTHBOROUGH	30	0 (0%)	0		
STONEHAM	91	0 (0%)	0		
SWAMPSCOTT	54	0 (0%)	0		
WALTHAM	216	0 (0%)	0		
WATERTOWN	130	0 (0%)	0		
WESTON	45	0 (0%)	0		
WINTHROP	78	2 (2.56%)	0	Yes	
	Total: Fully Served	5152	27 (0.52%)		
Partially Served	BEDFORD	94	38 (40.43%)	0	Yes
	CANTON	93	1 (1.08%)	0	No
	HANSCOM AFB	45	10 (22.22%)	0	Yes
	NEEDHAM	129	2 (1.55%)	0	No
	PEABODY	208	0 (0%)	0	
	WAKEFIELD	147	0 (0%)	0	
	WELLESLEY	112	0 (0%)	0	
	WILMINGTON	90	1 (1.11%)	0	No
	WINCHESTER	91	0 (0%)	0	
	WOBURN	213	1 (0.47%)	0	No
	SOUTH HADLEY FD1	60	0 (0%)	0	
	Total: CVA & Partially Served	1282	53 (4.13%)		
	Total: Community Samples	6434	80 (1.24%)		

Chlorine Residuals in Fully Served Communities

	2018				2019											
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
% <0.1	0.5	0.7	0.7	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.2	0.3	0.7			
% <0.2	1.5	1.9	1.6	1.0	0.3	0.2	0.1	0.1	0.1	0.1	0.7	1.3	2.3			
% <0.5	4.6	5.8	3.8	2.3	1.1	0.6	0.4	0.3	0.3	0.9	2.5	4.5	7.2			
% <1.0	11.9	11.2	8.3	5.2	2.8	1.8	1.7	1.4	1.9	3.2	7.0	11.0	14.9			
% >1.0	88.2	88.8	91.7	94.8	97.2	98.2	98.4	98.7	98.1	96.8	93.0	89.0	85.1			

Treated Water Quality: Disinfection By-Product (DBP) Levels in Communities

1st Quarter – FY20

Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine. TTHMs and HAA5s are of concern due to their potential adverse health effects at high levels. EPA's locational running annual average (LRAA) standard is 80 µg/L for TTHMs and 60 µg/L for HAA5s.

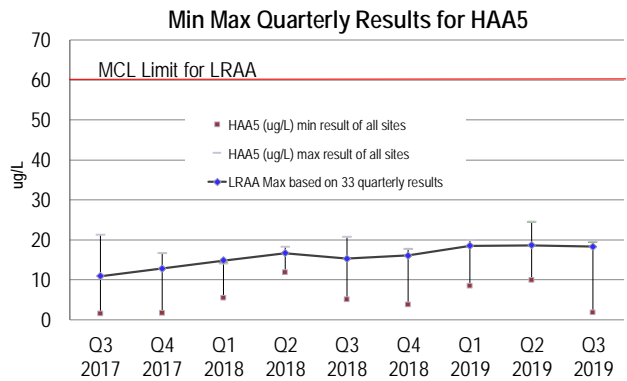
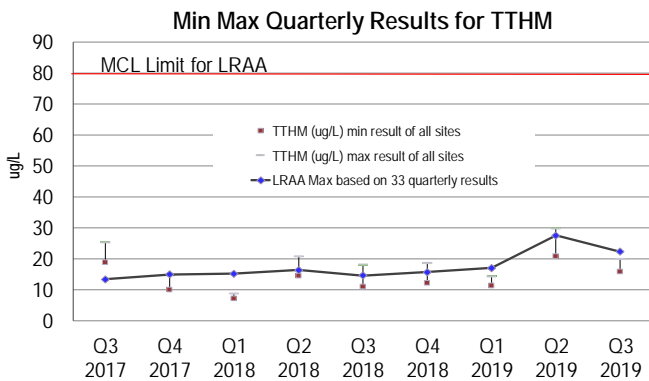
The locational running annual average calculated quarterly at each individual sampling location must be below the Total HAA5 or Total TTHM MCL standard. The charts below show the highest and lowest single values for all sites, and the LRAA of the highest location each quarter.

Partially served and CVA communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their individual results. The chart below combines data for all three CVA communities data (Chicopee, Wilbraham and South Hadley FD1). Although, they are separately regulated, however each community is regulated individually.

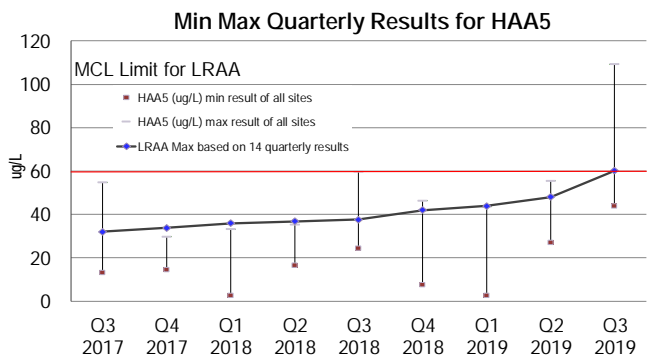
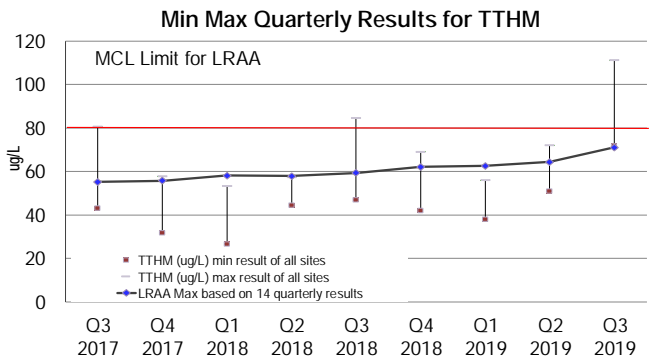
Bromate is tested monthly per DEP requirements for water systems that treat with ozone. Bromide in the raw water may be converted into bromate following ozonation. EPA's RAA MCL standard for bromate is 10 µg/L.

The LRAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remain below current MCL standards. The Max LRAA in the quarter for TTHMs = 22.3 µg/L; HAA5s = 18.3 µg/L. The current RAA for Bromate = 0.0 µg/L. During Q3, 2019 sampling two CVA communities exceeded Operational Evaluation Levels for HAA5 or Total Trihalomethanes. While this does not result in a violation this will require an analysis and review of their water system and a report to MADEP. No LRAA exceedances or violations occurred this quarter for the MWRA compliance program or for any of the CVA communities.

MetroBoston Disinfection By-Products



CVA Disinfection By-Products (Combined Results)



Water Supply and Source Water Management

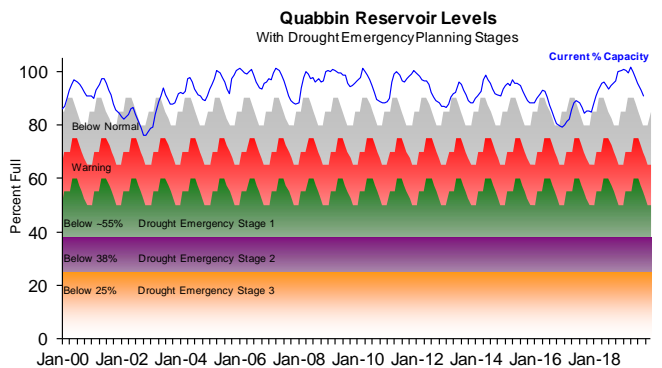
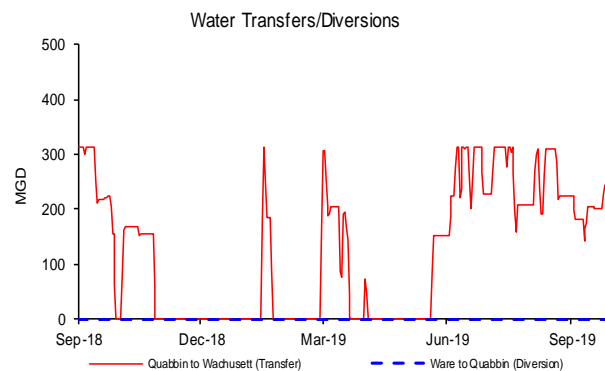
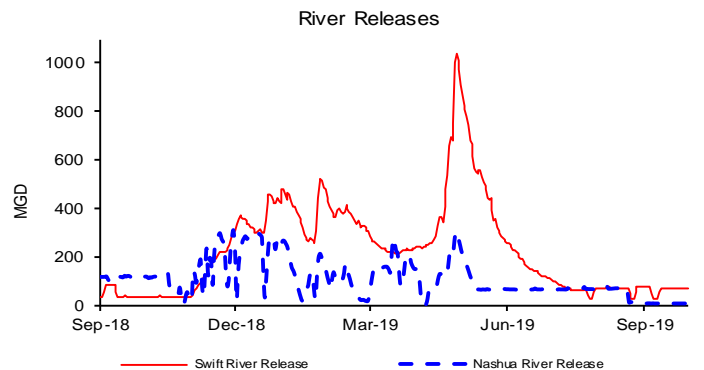
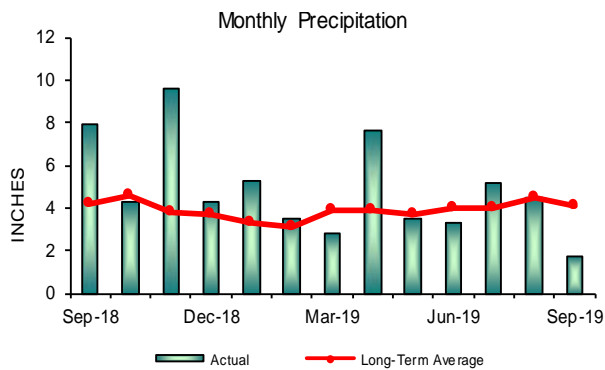
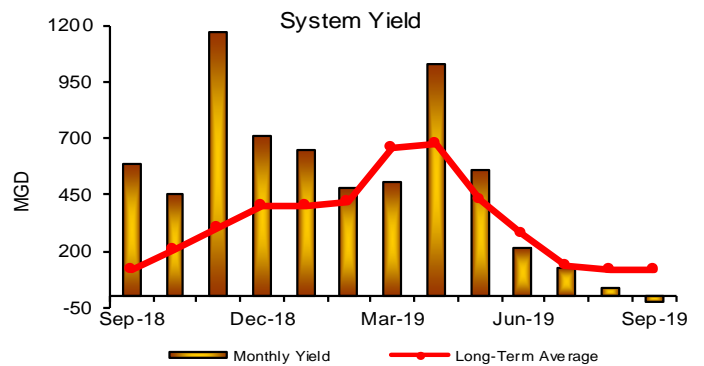
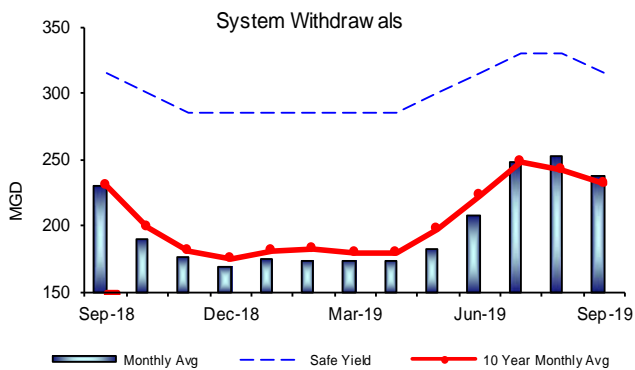
1st Quarter – FY20

Background

A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir was designed to effectively supply water to the service areas under a range of climatic conditions and has the ability to endure a range of fluctuations. Wachusett Reservoir serves as a terminal reservoir to meet the daily demands of the Greater Boston area. A key component to this reservoir's operation is the seasonal transfer of Quabbin Reservoir water to enhance water quality during high demand periods. On an annual basis, Quabbin Reservoir accounts for nearly 50% of the water supplied to Greater Boston. The water quality of both reservoirs (as well as the Ware River, which is also part of the System Safe Yield) depend upon implementation of DCR's DEP-approved Watershed Protection Plans. System Yield is defined as the water produced by its sources, and is reported as the net change in water available for water supply and operating requirements.

Outcome

The volume of the Quabbin Reservoir was at 90.8% as of September 30, 2019; a 6.8% decrease for the quarter, which represents a reduction of more than 28 billion gallons of storage and a decrease in elevation of 3.71' for the quarter. System withdrawal for the quarter was above the 10 year monthly average. Precipitation and Yield for the quarter were below their respective long term quarterly average. The system remains in normal operating level.



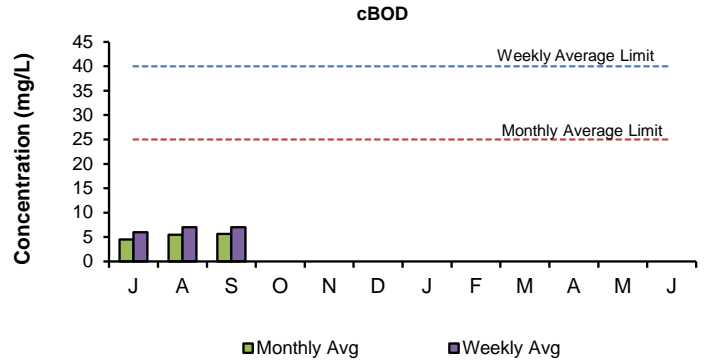
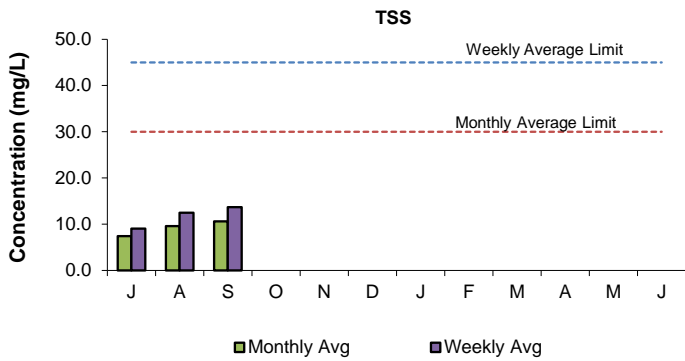
WASTEWATER QUALITY

NPDES Permit Compliance: Deer Island Treatment Plant 1st Quarter - FY20

NPDES Permit Limits

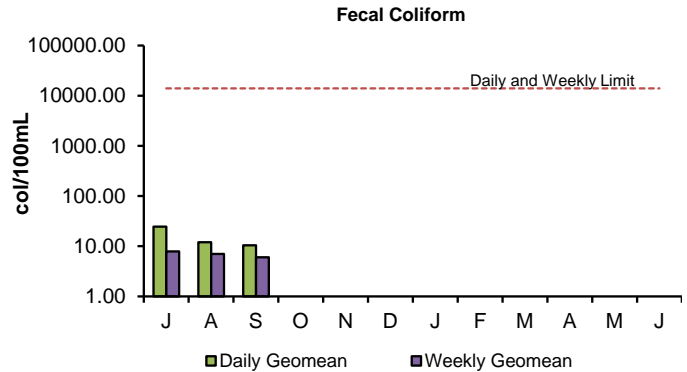
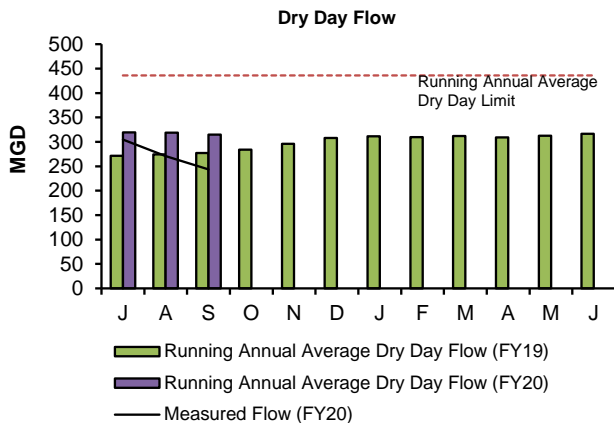
Effluent Characteristics	Units	Limits	July	August	September	1st Quarter Violations	FY20 YTD Violations
Dry Day Flow (365 Day Average):	mgd	436	319.6	318.8	315.0	0	0
cBOD: Monthly Average	mg/L	25	4.5	5.5	5.7	0	0
Weekly Average	mg/L	40	6.0	7.0	7.0	0	0
TSS: Monthly Average	mg/L	30	7.4	9.6	10.6	0	0
Weekly Average	mg/L	45	9.0	12.5	13.7	0	0
TCR: Monthly Average	ug/L	456	0	0.54	0	0	0
Daily Maximum	ug/L	631	0	16.67	0	0	0
Fecal Coliform: Daily Geometric Mean	col/100mL	14000	25	12	10	0	0
Weekly Geometric Mean	col/100mL	14000	8	7	6	0	0
% of Samples >14000	%	10	0	0	0	0	0
Consecutive Samples >14000	#	3	0	0	0	0	0
pH:	SU	6.0-9.0	6.4-6.9	6.5-7.0	6.5-7.1	0	0
PCB, Aroclors: Monthly Average	ug/L	0.000045	UNDETECTED			0	0
Acute Toxicity: Mysid Shrimp	%	≥50	>100	85.4	92.6	0	0
Inland Silverside	%	≥50	>100	>100	>101	0	0
Chronic Toxicity: Sea Urchin	%	≥1.5	100	100	100.0	0	0
Inland Silverside	%	≥1.5	100	100	100.0	0	0

There have been no permit violations in FY20 to date at the Deer Island Treatment Plant (DITP).



Total Suspended Solids (TSS) in the effluent is a measure of the amount of solids that remain suspended after treatment. All TSS measurements for the 1st Quarter were within permit limits.

Carbonaceous Biochemical Oxygen Demand (cBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials in the environment. All cBOD measurements for the 1st Quarter were within permit limits.



Running Annual Average Dry Day Flow is the average of all dry weather influent flows over the previous 365 days. The Dry Day Flow for the 1st Quarter was well below the permit limit of 436 MGD.

Fecal Coliform is an indicator for the possible presence of pathogens. The levels of these bacteria after disinfection show how effectively the plant is inactivating many forms of disease-causing microorganisms. In the 1st Quarter, all permit conditions for fecal coliform were met.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant 1st Quarter - FY20

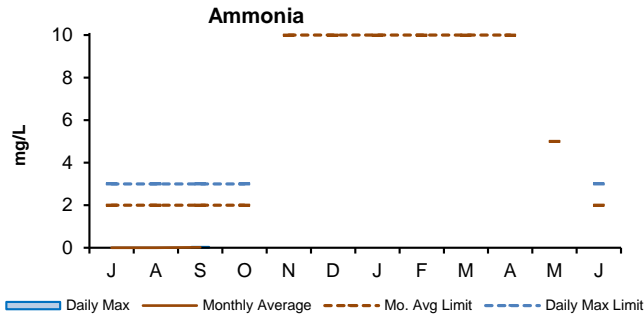
NPDES Permit Limits

Effluent Characteristics		Units	Limits	July	August	September	1st Quarter Violations	FY20 YTD Violations
Flow:	12-month Rolling Average:	mgd	3.01	3.25	3.16	3.05	3	3
BOD:	Monthly Average:	mg/L	20	1.70	1.50	1.60	0	0
	Weekly Average:	mg/L	20	1.90	1.70	1.90	0	0
TSS:	Monthly Average:	mg/L	20	0.80	0.70	0.70	0	0
	Weekly Average:	mg/L	20	2.20	1.00	1.50	0	0
pH:		SU	6.5-8.3	7.2-7.5	7.4-7.6	7.3-7.6	0	0
Dissolved Oxygen:	Daily Average Minimum:	mg/L	6	7.70	7.80	8.10	0	0
E. Coli:	Monthly Geometric Mean:	cfu/100mL	126	6	5	5	0	0
	Daily Geometric Mean:	cfu/100mL	409	79	7	7	0	0
TCR:	Monthly Average:	ug/L	17.6	0.00	0.13	0.53	0	0
	Daily Maximum:	ug/L	30.4	0.00	4.00	4.00	0	0
Copper:	Monthly Average:	ug/L	11.6	5.87	7.58	9.20	0	0
	Daily Maximum:	ug/L	14.0	5.87	7.58	9.62	0	0
Total Ammonia Nitrogen: June 1st - October 31st	Monthly Average:	mg/L	2.0	0.00	0.00	0.02	0	0
	Daily Maximum:	mg/L	3.0	0.00	0.00	0.04	0	0
Total Phosphorus: April 1st - October 31st	Monthly Average:	mg/L	0.15	0.07	0.06	0.07	0	0
	Daily Maximum:	mg/L	RPT	0.14	0.12	0.17	0	0
Acute Toxicity ⁺ :	Daily Minimum:	%	≥100	N/A	N/A	>100	0	0
Chronic Toxicity ⁺ :	Daily Minimum:	%	≥62.5	N/A	N/A	62.5	0	0

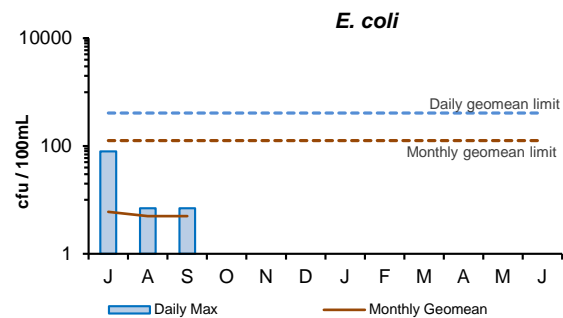
There have been three permit violations in FY20 at the Clinton Treatment Plant.

1st Quarter: There were three permit violations in the first quarter. The 12-month rolling average flow exceeded the limit of 3.01 MGD due to excessive rains in the region in late 2018.

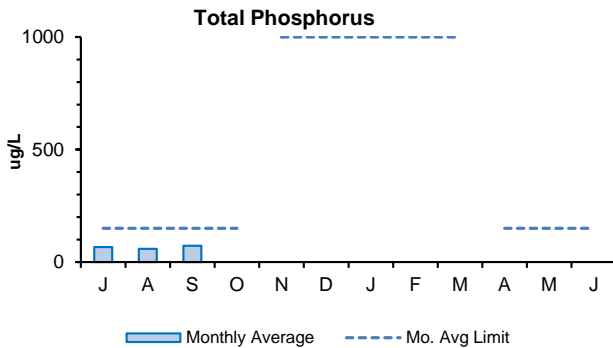
+ Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



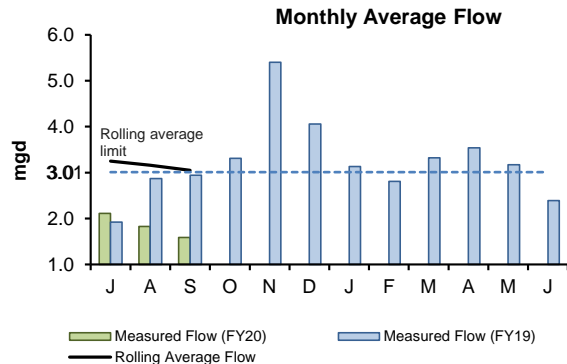
The 1st Quarter's monthly average and daily maximum concentrations of ammonia were below the permit limits. The monthly average and daily maximum limits for the 1st Quarter are variable, ranging from 10 and 35.2 mg/L to 2 and 3 mg/L respectively. The permit limits are most stringent from June to October when warm weather conditions are most conducive to potential eutrophication.



E. coli is an indicator for the possible presence of pathogens. There were no violations of permit limits in the 1st Quarter. The monthly and daily limits are 126 cfu/100 mL and 409 cfu/100 mL respectively.



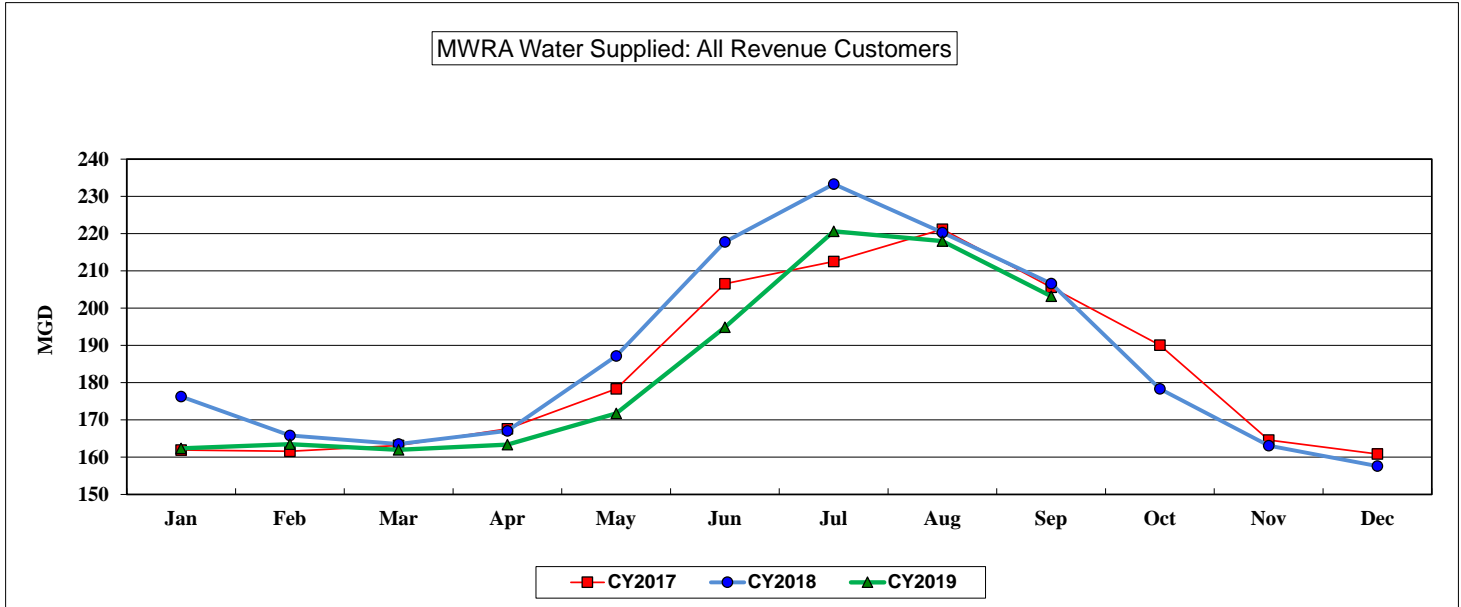
The 1st Quarter's monthly average concentrations for total phosphorus were below permit limits. The new permit limit of 0.15 mg/L from April through October went into effect April 1st, 2019. The new permit limit of 1.0 mg/L from November through March goes into effect November 1st, 2019.



The graph depicts the rolling annual average monthly flow, measured in million gallons per day, exiting the plant. The 12-month rolling average flows during the 1st quarter exceeded the limit of 3.01 due to excessive rains in the region during November and December 2018.

COMMUNITY FLOWS AND PROGRAMS

Customer Water Use 1st Quarter - FY20



MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Average
CY2017	161.941	161.609	163.129	167.613	178.331	206.541	212.533	221.175	205.579	190.053	164.610	160.853	182.969	182.969
CY2018	176.294	165.841	163.539	167.056	187.145	217.776	233.321	220.268	206.586	178.340	163.125	157.612	193.347	186.553
CY2019	162.367	163.492	161.984	163.350	171.782	194.905	220.633	218.028	203.211	0.000	0.000	0.000	184.617	184.617

MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Total	Total
CY2017	5,020.179	4,525.063	5,056.997	5,028.390	5,528.255	6,196.217	6,588.510	6,856.435	6,167.355	5,891.640	4,938.301	4,986.434	66,783.777	66,783.777
CY2018	5,465.125	4,643.548	5,069.719	5,011.695	5,801.508	6,533.267	7,232.949	6,828.310	6,197.590	5,528.550	4,893.739	4,885.979	52,783.711	68,091.978
CY2019	5,033.382	4,577.768	5,021.509	4,900.488	5,325.247	5,847.153	6,839.629	6,758.882	6,096.328	0.000	0.000	0.000	50,400.387	50,400.387

The September 2019 Community Water Use Report was recently distributed to communities served by the MWRA waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2019 water use will be used to allocate the FY21 water utility rate revenue requirement.

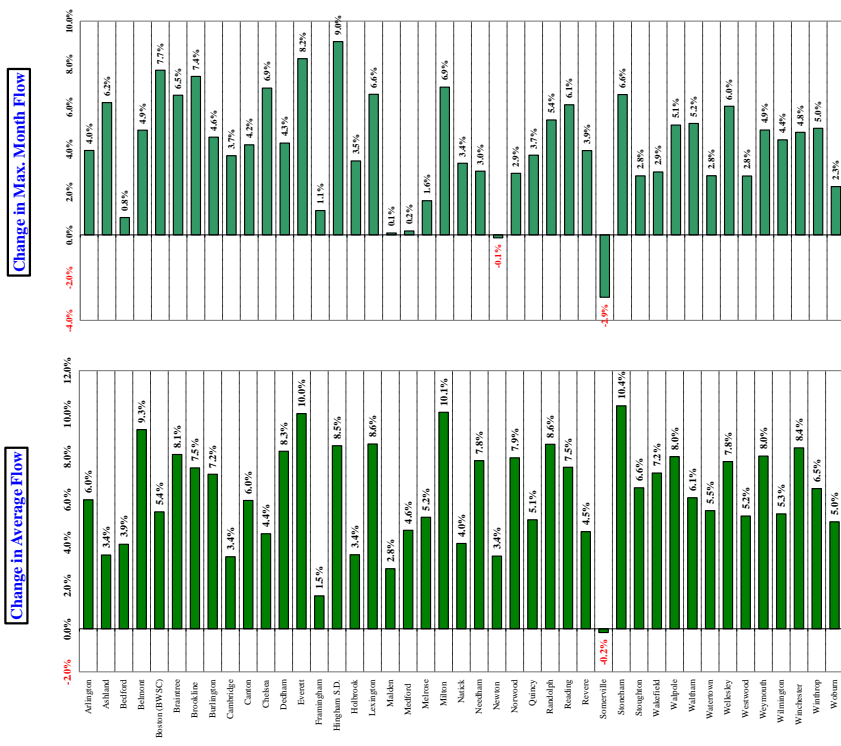
September 2019 water supplied of 203.2 mgd (for revenue generating users) is down 3.4 mgd or 1.6% compared to September 2018. System-wide year to date consumption for CY19 is lower than CY18 with 184.6 mgd being supplied to MWRA customers through September. This is 8.7 mgd lower than CY18, and is a decrease of 4.5%.

Community Wastewater Flows

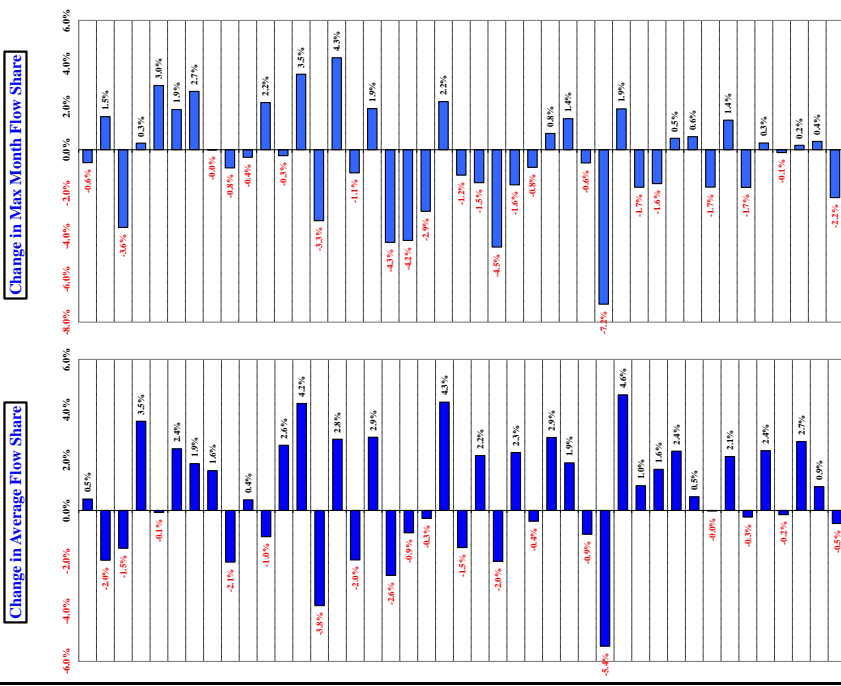
1st Quarter - FY20

How Projected CY2019 Community Wastewater Flows (through August 2019) Could Effect FY2021 Sewer Assessments 1,2,3

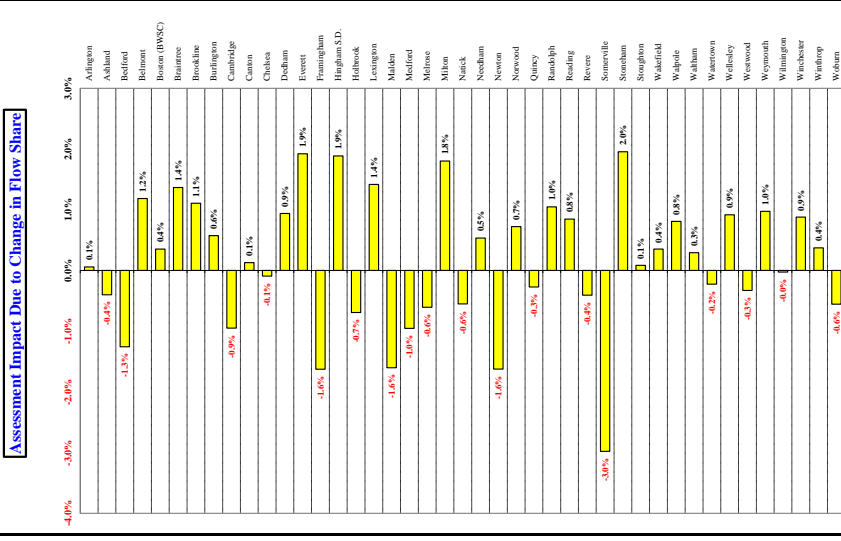
The flow components of FY 2021 sewer assessments will be calculated using a 3-year average of CY2017 to CY2018 wastewater flows compared to FY2020 assessments that used a 3-year average of CY2016 to CY2018 wastewater flows.



But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the RELATIVE change in CY2019 flow share compared to CY2016 to CY2018 flow share, compared to all other communities in the system.



The chart below illustrates the change in the TOTAL BASE assessment due to FLOW SHARE CHANGES. 4



Notes: 1 MWRA uses a 3-year flow average to calculate sewer assessments. Three-year averaging smooths the impact of year-to-year changes in community flow share, but does not eliminate the long-term impact of changes in each community's relative contribution to the total flow.

2 Based on CY2016 to CY2019 average wastewater flows as of 10/17/19. Flow data is preliminary and subject to change pending additional MWRA and community review.

3 CY2016 to CY2018 wastewater flows based on actual meter data. CY2019 flows based on actual meter data for January to August, and projected flows for September to December.

4 Represents ONLY the impact on the total BASE assessment resulting from the changes in average and maximum wastewater FLOW SHARES.

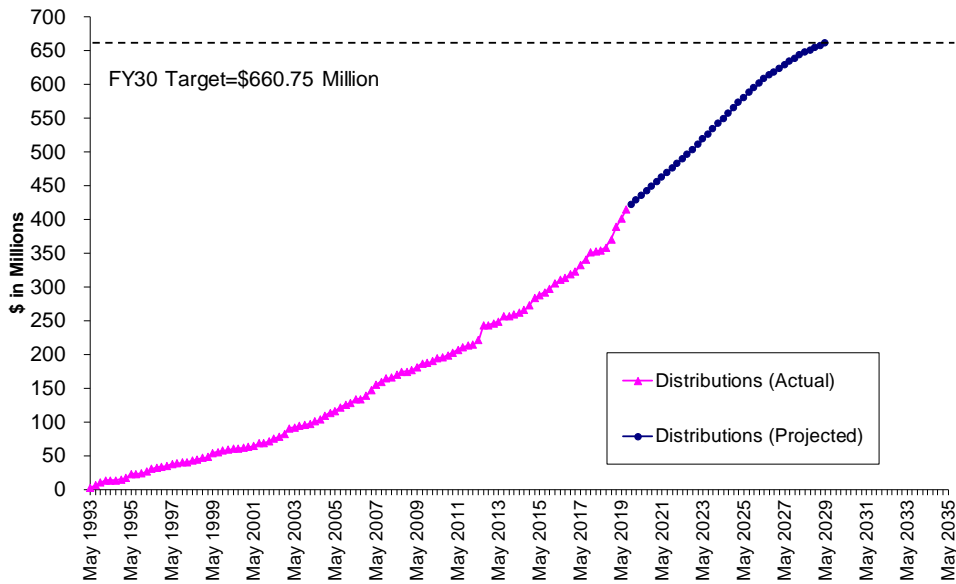
Community Support Programs

1st Quarter – FY20

Infiltration/Inflow Local Financial Assistance Program

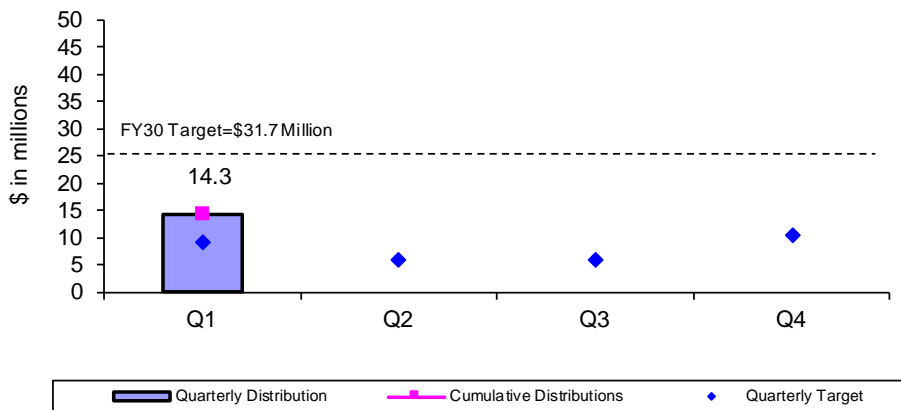
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides \$760.75 million in grants and interest-free loans (average of about \$20 million per year from FY93 through FY30) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned collection systems. Eligible project costs include: sewer rehabilitation construction, pipeline replacement, removal of public and private inflow sources, I/I reduction planning, engineering design, engineering services during construction, etc. I/I Local Financial Assistance Program funds are allocated to member sewer communities based on their percent share of MWRA's wholesale sewer charge. Phase 1-8 funds (total \$300.75 million) were distributed as 45% grants and 55% loans with interest-free loans repaid to MWRA over a five-year period. Phase 9 through 12 funds (total \$360 million) are distributed as 75% grants and 25% loans with interest-free loans repaid to MWRA over a ten-year period. Phase 13 provides an additional \$100 million in loan-only funds (not yet included in the graph of distributions below).

I/I Local Financial Assistance Program Distribution FY93-FY30



During the 1st Quarter of FY20, \$14.3 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Belmont, Boston, Framingham, Hingham, Milton, Newton, Weymouth and Winchester. Total grant/loan distribution for FY20 is \$14.3 million. From FY93 through the 1st Quarter of FY20, all 43 member sewer communities have participated in the program and \$415 million has been distributed to fund 583 local I/I reduction and sewer system rehabilitation projects. Distribution of the remaining funds has been approved through FY30 and community loan repayments will be made through FY40. All scheduled community loan repayments have been made.

FY20 Quarterly Distributions of Sewer Grant/Loans



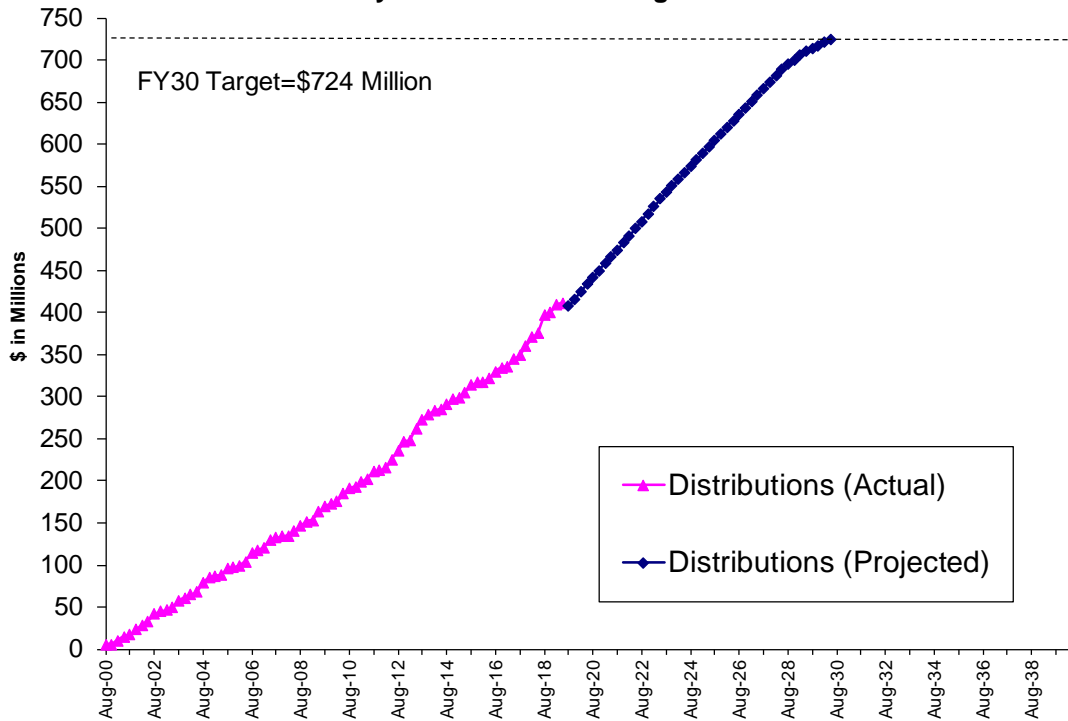
Community Support Programs

1st Quarter – FY20

Local Water System Assistance Program

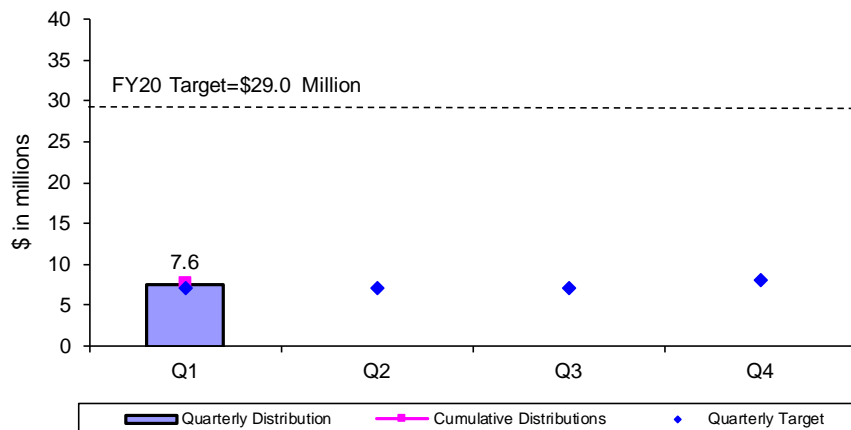
MWRA's Local Water System Assistance Programs (LWSAP) provides \$724 million in interest-free loans (an average of about \$24 million per year from FY01 through FY30) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. There have been 3 phases: Phase 1 at \$222 Million, Phase 2 at \$210 Million, and Phase 3 at \$292 Million. Eligible project costs include: water main cleaning/lining, replacement of unlined water mains, lead service replacements, valve, hydrant, water meter, tank work, engineering design, engineering services during construction, etc. MWRA partially-supplied communities receive pro-rated funding allocations based on their percentage use of MWRA water. Interest-free loans are repaid to MWRA over a ten-year period beginning one year after distribution of the funds. The Phase 1 water loan program concluded in FY13 with \$222 million in loan distributions. The Phase 2 - LWSAP continues distributions through FY23. The Phase 3 Water Loan Program is authorized for distributions FY18 through FY30.

Local Water System Assistance Program Distribution FY01-FY30



During the 1st Quarter of FY20, \$7.6 million in interest-free loans was distributed to fund local water projects in Arlington, Belmont, Framingham, Malden, Norwood and Quincy. Total loan distribution for FY20 is \$7.6 million. From FY01 through the 1st Quarter of FY20, \$419 million has been distributed to fund 454 local water system rehabilitation projects in 42 MWRA member water communities. Distribution of the remaining funds has been approved through FY30 and community loan repayments will be made through FY40. All scheduled community loan repayments have been made.

FY20 Quarterly Distributions of Water Loans



Community Support Programs

1st Quarter – FY20

Lead Service Line Replacement Loan Program

By its vote on March 16, 2016, the Board approved an enhancement to the Local Water System Assistance Program to provide up to \$100 million in 10-year zero-interest loans to communities solely for efforts to fully replace lead service lines. The Lead Service Line Replacement Loan Program is also referenced as the Lead Loan Program or LLP. Each community can develop its own program, tailored to their local circumstances. MWRA's goal in providing financial assistance to member communities is to improve local water systems so that the high quality water MWRA delivers can make it all the way to the consumer's tap. The presence of a lead service line connecting a home to the main in the street can lead to elevated lead levels in tap water, especially if that water sits stagnant for an extended period. MWRA's stable water quality and effective corrosion control treatment reduce the risk that a lead service line will cause elevated lead levels, and measured lead levels in high risk homes have decreased by 90 percent since corrosion control was brought on-line in 1996. However, the risk of elevated levels remains as long as lead service lines are in use.

FY17 was the first year of the Lead Service Line Replacement Loan Program. During FY17, MWRA made three Lead Loan Program distributions as noted in the Table below.

FY18 was the second year of the Lead Loan Program. During FY18, MWRA made five Lead Loan Program distributions as noted in the table below.

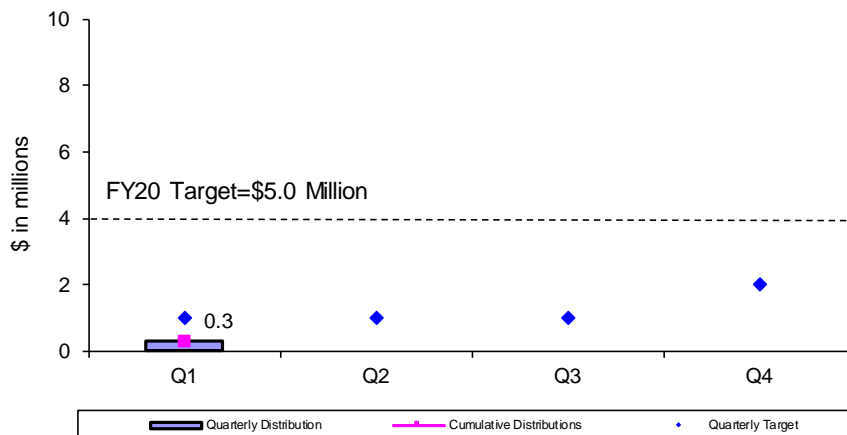
FY19 was the third year of the Lead Loan Program. During FY19, MWRA made four Lead Loan Program distributions as noted in the table below.

FY20 is the fourth year of the Lead Loan Program. One Lead Loan was made during the 1st quarter of FY20: \$300,000 to Chelsea.

Summary of Lead Loans:

Chelsea in FY20	\$0.3 Million
Marlborough in FY19	\$1.0 Million
Winthrop in FY19	\$0.5 Million
Chelsea in FY19	\$0.1 Million
Everett in FY19	\$1.0 Million
Needham in FY18	\$1.0 Million
Winchester in FY18	\$0.5 Million
Revere in FY18	\$0.2 Million
Winthrop in FY18	\$0.3 Million
Marlborough in FY18	\$1.0 Million
Newton in FY17	\$4.0 Million
Quincy in FY17	\$1.5 Million
<u>Winchester in FY17</u>	<u>\$0.5 Million</u>
TOTAL	\$11.9 Million

FY20 Quarterly Distributions of Lead Service Line Replacement Loans

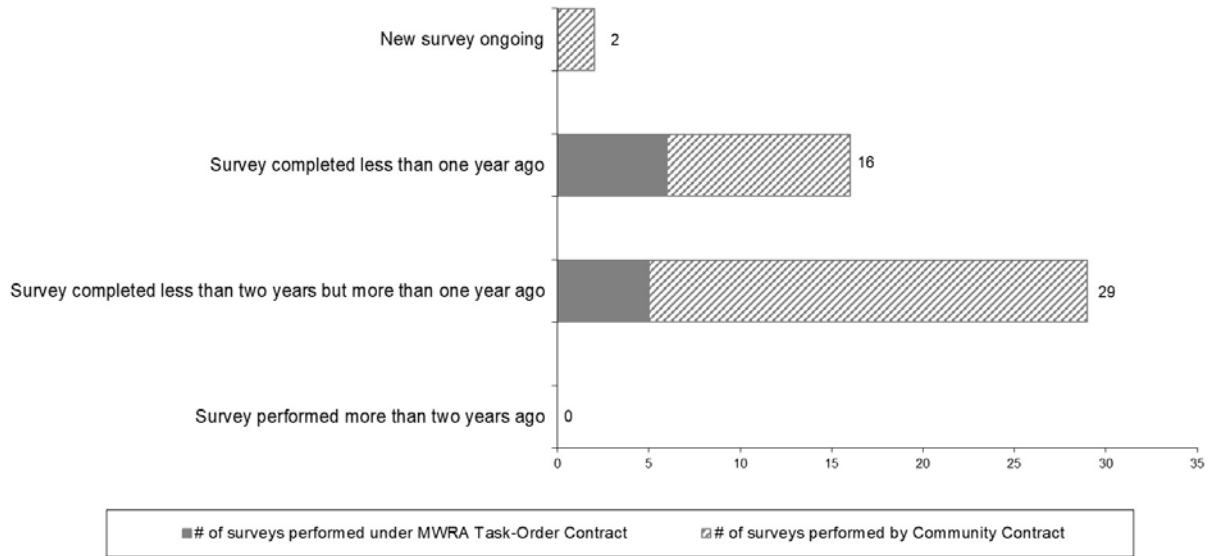


Community Support Programs

1st Quarter – FY20

Community Water System Leak Detection

To ensure member water communities identify and repair leaks in locally-owned distribution systems, MWRA developed leak detection regulations that went into effect in July 1991. Communities purchasing water from MWRA are required to complete a leak detection survey of their entire distribution system at least once every two years. Communities can accomplish the survey using their own contractors or municipal crews; or alternatively, using MWRA’s task order leak detection contract. MWRA’s task order contract provides leak detection services at a reasonable cost that has been competitively procured (3-year, low-bid contract) taking advantage of the large volume of work anticipated throughout the regional system. Leak detection services performed under the task order contract are paid for by MWRA and the costs are billed to the community the following year. During the 1st Quarter of FY20, all member water communities were in compliance with MWRA’s Leak Detection Regulation.



Community Water Conservation Outreach

MWRA’s Community Water Conservation Program helps to maintain average water demand below the regional water system’s safe yield of 300 mgd. Current 5-year average water demand is less than 205 mgd. The local Water Conservation Program includes distribution of water conservation education brochures (indoor and outdoor bill-stuffers) and low-flow water fixtures and related materials (shower heads, faucet aerators, toilet leak detection dye tabs, and instructions), all at no cost to member communities or individual customers. The Program’s annual budget is \$25,000 for printing and purchase of materials. Annual distribution targets and totals are provided in the table below. Distributions of water conservation materials are made based on requests from member communities and individual customers.

	Annual Target	Q1	Q2	Q3	Q4	Annual Total
Educational Brochures	100,000	640				640
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	791				791
Toilet Leak Detection Dye Tablets	—	419				419

BUSINESS SERVICES

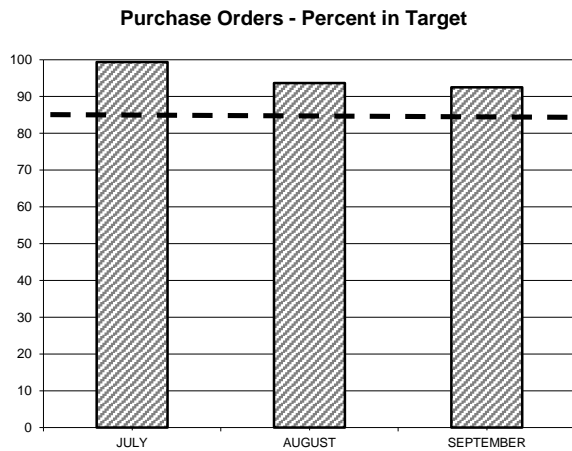
Procurement: Purchasing and Contracts

1st Quarter - FY20

Background: Goal is to process 85% of Purchase Orders and 80% of Contracts within Target timeframes.

Outcome: Processed 93% of purchase orders within target; Average Processing Time was 4.59 days vs. 5.35 days in Qtr 1 of FY19. Processed 53% (8 of 15) of contracts within target timeframes; Average Processing Time was 182 days vs. 173 days in Qtr 1 of FY19.

Purchasing



	No.	TARGET	PERCENT IN TARGET
\$0 - \$500	592	3 DAYS	88.6%
\$500 - \$2K	636	7 DAYS	97.3%
\$2K - \$5K	473	10 DAYS	95.8%
\$5K - \$10K	37	25 DAYS	81.0%
\$10K - \$25K	52	30 DAYS	92.3%
\$25K - \$50K	5	60 DAYS	80.0%
Over \$50K	24	90 DAYS	83.3%

The Purchasing Unit processed 1819 purchase orders, 53 more than the 1766 processed in Qtr 1 of FY20 for a total value of \$11,891,739 versus a dollar value of \$9,797,360 in Qtr 1 of FY19.

The purchase order processing target was not met for the \$5K-\$10K category due to sourcing requirements and end user evaluations; the \$25K-\$50K category due to staff summary and sole source requirements; and the over \$50K category due to specification revisions.

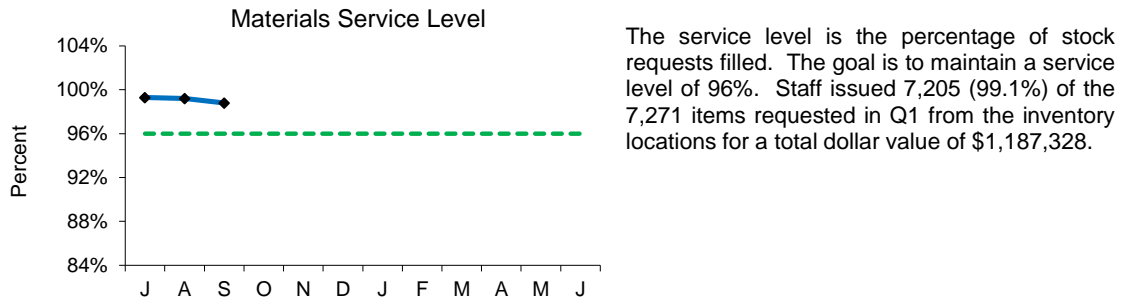
Contracts, Change Orders and Amendments

Seven contracts were not processed within the target timeframes. The notice to proceed for one contract, a resident engineering and inspection services contract was delayed in order to allow time for the construction contractor to go through the submittal process, order the specialized equipment, and have such equipment delivered to the site for installation. Two contracts were delayed due to additional insurance requirements necessary for insurance services and another was delayed due to the addition of a second site visit during the bid process. Also, prior to execution, an issue was raised that called for additional internal vetting. A fifth contract was delayed due to the need for additional review and approval by MWRA engineering staff. Another contract was delayed because the work could not be initiated until the winter timeframe. The final contract was delayed due to the postponement of the Board award to allow for additional review of costs, and upon award, the need to obtain final E-tables from the consultant.

Procurement processed fifteen contracts with a value of \$20,927,828 and seven amendments with a value of \$1,276,363. Nineteen change orders were executed during the period. The dollar value of all non-credit change orders during Q1 FY20 was \$1,306,598 and the value of credit change orders was (\$1,068,435).

Staff reviewed 48 proposed change orders and 24 draft change orders.

Materials Management 1st Quarter - FY20



Inventory Value - All Sites

Inventory goals focus on:

- Maintaining optimum levels of consumables and spare parts inventory
- Adding new items to inventory to meet changing business needs
- Reviewing consumables and spare parts for obsolescence
- Managing and controlling valuable equipment and tools via the Property Pass Program

The FY20 goal is to reduce consumable inventory from the July '19 base level (\$8.4 million) by 2.0% (approximately \$169,249), to \$8.2 million by June 30, 2020 (see chart below).

Items added to inventory this quarter include:

- Deer Island – actuator, control head, gas detector, transducer adapter and gas monitor pump for I&C; insulators, heat shrink, transmitter, hole saw and pilot drill for Electrical; expansion valve, solenoid valve, sight glass, cage nuts, current limiter and brass sleeves for HVAC; pipe clamps, pump deflector, Victaulic bends, and rotork actuator for Liquid Train.
- Chelsea – plate clamps, cable assembly, encoder, lenses, lamps, o-rings, connectors, lenses, cables cameras and floats (cues vehicle) for Metro Maintenance; adapters, receptacles, motors, pumps, couplings, shaft drives and wedge assemblies for Work Coordination; trailer connectors, O2 sensors, filters and truck-lites for Fleet Services; shoe covers and hazardous waste labels for Environmental Affairs.
- Southboro – ells, tees, unions, valves and couplings for plumbing.

Property Pass Program:

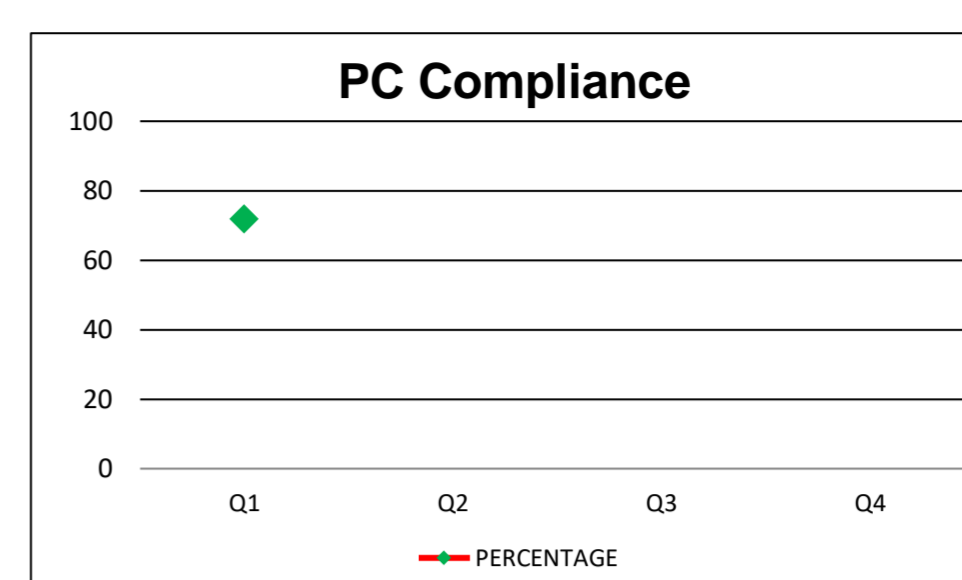
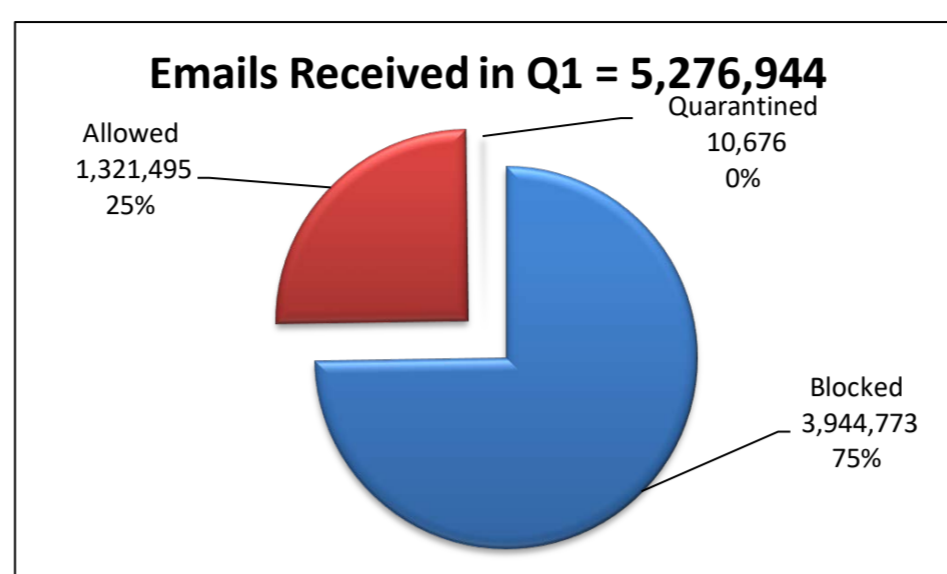
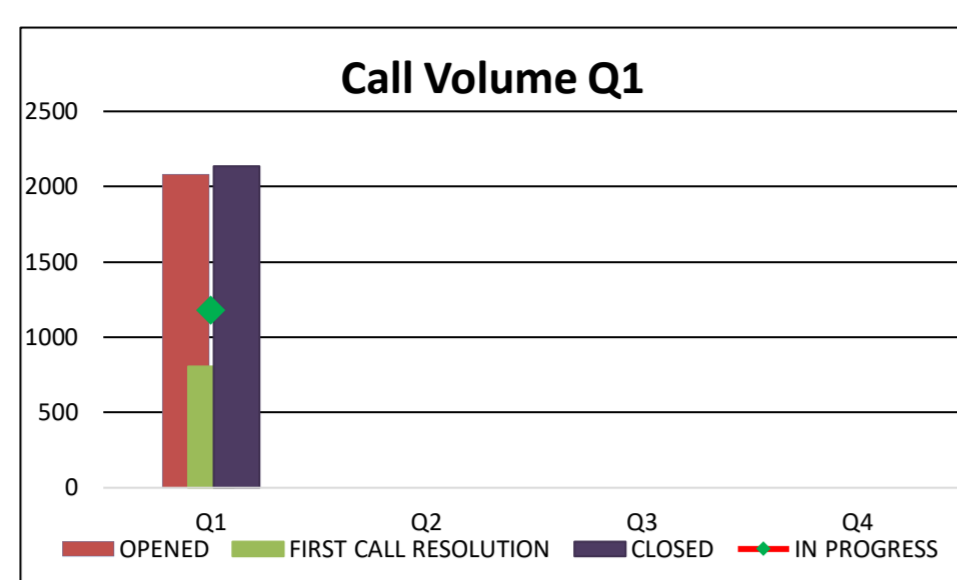
- Three audits were conducted during Q1.
- Scrap revenue received for Q1 amounted to \$6,342. Year to date revenue received amounted to \$6,342.
- Revenue received from online auctions held during Q1 amounted to \$114,719. Year to date revenue received amounted to \$114,719.

Items	Base Value July-19	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	8,462,463	8,422,113	-58,685
Spare Parts Inventory Value	9,183,923	8,958,767	-106,957
Total Inventory Value	17,646,386	17,380,880	-265,506

Note: New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

MIS Program

1st Quarter - FY20



Performance & Backlog for Q1

- 2135 calls were completed this quarter.
- Call closure averaged 7.6 days.
- Priority 1 & 2 Service Level Agreements (SLA) were not met. One priority 1 call was mis-prioritized and a priority 2 call associated with a chronic application issue resulted in missing the SLA.

Cyber Security Q1

- In Q1, pushed 546 security fixes/updates to desktops/servers. 72% of all PCs/Laptops are compliant with approved patches.
- McAfee quarantined 33 distinct viruses from 8 PCs. PCs are current with antivirus signatures for known malware.
- 75% of all email is block upon initial receipt and evaluation.

Audio/Visual Upgrades: Procurement event closed October 1st. Bids under review and vendor selection.

Exchange Upgrade: This will be a two phased migration. Bid for Professional Services closed in September and is undergoing review and vendor selection.

AWIA Risk and Resiliency Assessment: This is a two phased assessment. Procurement event has been posted to Supplier Portal. Expect to award by end of October.

Chelsea Environmental Controls Monitoring System: Development of a bid specification for hardware, software upgrades, and a 3 year maintenance contract is scheduled to be posted in October.

PBX (Telephone System) Upgrade: Generating an RFQP to replace the current Phone System. This is planned to be submitted to procurement in January 2020.

Infrastructure Upgrades: CWTP and Southborough servers migrated to new infrastructure hardware. Clinton will be migrated after the Verizon circuit upgrade. Server hardware and server operating system software for Chelsea being procured and is awaiting staff summary approval

DI Ops Hardware Segmentation: File Servers and Print Servers Migrated. Application Server migration scheduled for October.

Enterprise Content Management (ECM)/e-Construction: Completed documenting all use cases (48) and associated workflows (91) describing current E&C and Records Management work process for document management. Worked with users on prioritizing use cases for implementation. Completed first draft of SOW. Began refining the SOW with Procurement staff and developing the RFQP.

Dental Certifications Application Updated: Functional Requirements with new enhancements to the MWRA Portal to reduce administrative costs and distribute account management activities between MWRA staff and the businesses that we regulate. Worked with EPA contractor (CGI Federal) to design new configuration settings to Accommodate Dental Offices. Provided EPA Contractor updated lab and facility data including dental offices. Developed Test plan and identified 15 different User Acceptance Tests for development.

Contracts Management: User requirements documentation completed and signed off. User Acceptance Testing completed and signed off. Production system ready for go-live and awaiting a selected contract for the first implementation.

Custom development: Deployed a revised Rain Data web application, adding a new rain gauge (for Somerville) and a clickable gauge map rebuilt with codes on the revised map. A new Overdue Lab Time-entry/approval report was implemented.

Lawson: Deployed revised bid tab configuration to Production as part of Professional Services roll out in Lawson Strategic Sourcing. MWRA procurement practice requires that a bidder's proposed pricing be confidential until an award decision is made. A security class/condition addresses this viewing requirement in the Sourcing application for internal viewers of the Professional Services event category, so a configuration change was needed to restrict the display of proposal pricing in the bid tabulation to all viewers, internal (MWRA) or external (Supplier Portal).

Telog Application System: Upgraded Telog application to the latest available version that supports 4g modems. Telog application host server OS was upgraded to Windows 2016(from Windows 2012)

Library & Records Center: The Library supported 22 research requests, supplied 34 books for circulation, provided 26 articles and 57 standards. The MWRA Library Portal supported 8641 end-user searches. The Record Center (RC) added 185 new boxes, handled 265 total boxes, executed 12 rush requests, electronically distributed 164 pages of technical information, performed 30 database/physical box searches saving 14 deliveries and shredded nine (9) bins of confidential documentation. The RC manager attended 3 State Records Conservation Board meetings.

IT Training: For the quarter, 15 staff attended 9 classes. 1% of the workforce has attended at least one class year-to-date. Five (5) job aids were developed/updated and posted on the Intranet (Pipeline).

Legal Matters

1st Quarter FY 2020

PROJECT ASSISTANCE

Real Estate, Contract, Environmental and Other Support:

- **8(m) Permits:** Reviewed eighty-two (82) 8(m) permits.
- **Real Property:** Reviewed Wachusett Watershed Fee Acquisition, W-001213, related to Kush property located at 249 Redemption Rock Trail in Sterling, MA and Wachusett Watershed Fee Acquisition, W-001201, related to Jefferson Meadows, LLC property on Quinapoxet Street in Holden. Reviewed easement plans related to the release of easement rights burdening MWRA's Spot Pond Covered Storage parcel of land located on Woodland Road in Stoneham. Revised proposed lease for procurement of space for MWRA's records center. Recorded extension permit at the Norfolk Registry of Deeds for DEP order of conditions 338-0629 in Westwood, MA relating to Southern Extra High Water Main project (MWRA Contract No. 6453). Reviewed temporary and permanent property rights needed for construction of MWRA Contract 7540 – water sections 50/57 and sewer sections 19/20/21 in Medford. Drafted one (1) one-day license for workshop at DITP. Reviewed MWRA's, BWSC's, and the Commonwealth's real property interests at and adjacent to the MWRA's Commercial Point facility in Boston. Reviewed Land Court document related to case seeking release of easement in Framingham in close proximity to MWRA's shaft L property. Reviewed MWRA's property rights in the approximate vicinity of 188 Clark Road in Brookline.
- **Environmental:** Assisted the Toxic Reduction and Control (TRAC) Division with the necessary documents to finalize the changes to TRAC's implementing regulations 360 CMR 1.00, 2.00, and 10.00. Final regulation and necessary forms were filed with the Massachusetts Secretary of State Regulations Division, for final publication in the *Massachusetts Register*. Reviewed Emergency Planning and Community Right-To-Know Act (EPCRA) regulations relating to Tier II Reporting Requirements. Reviewed NPDES letter notifying EPA and DEP of MWRA's plan for operating DITP during the period of time when Harbor Electric Energy Company disconnects its existing electric power cable from DITP and connects its new electric power cable to DITP.
- **Public Records Requests:** During the First Quarter, MWRA received one hundred and forty (140) public records requests and responded to one hundred and thirty-three (133) public records requests.

LABOR, EMPLOYMENT AND ADMINISTRATIVE

New Matters

Two demands for arbitration were filed.

A Charge was filed at the Massachusetts Commission Against Discrimination alleging that the MWRA discriminated against an employee on the basis of age, disability, race/color and retaliation.

A charge was filed at the Massachusetts Commission Against Discrimination alleging that the MWRA discriminated against an employee on the basis of his religion when he was not promoted.

Matters Concluded

Received a dismissal from the MCAD for lack of probable cause of a charge of discrimination on the basis of age.

LITIGATION/CLAIMS

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of Sept 2019	As of June 2019	As of March 2019
Construction/Contract/Bid Protest (other than BHP)	2	3	3
Tort/Labor/Employment	4	5	5
Environmental/Regulatory/Other	2	2	2
Eminent Domain/Real Estate	0	0	0
Total	8	10	10
Other Litigation matters (restraining orders, etc.)	1	1	1
Total – all pending lawsuits	9	11	11
Claims not in suit:	0	1	1
Bankruptcy	0	0	0
Wage Garnishment	4	4	4
TRAC/Adjudicatory Appeals	0	1	1
Subpoenas	0	0	1
TOTAL – ALL LITIGATION MATTERS	13	17	18

New lawsuits / claims:

Janice Bennett v. MWRA, Suffolk Superior Court, C.A. No. 1984-CV-02670: Plaintiff filed suit against MWRA alleging that temporary fencing owned by MWRA fell on her causing her injury and damages. MWRA filed its Answer to the Complaint.

Significant Developments

Shea v. MWRA, Suffolk Superior Court, C.A. No. 1984-CV-1847C: On July 22, 2019, MWRA filed and served its Answer to Plaintiff’s Complaint.

J. D’Amico v. MWRA, et al., Suffolk Superior Court, C.A. No. 1784-CV-04097 BLS2: Mediation is scheduled for October 25, 2019.

(Current employee) v. MWRA: MWRA served Plaintiff with a motion for summary judgment on August 12, 2019. Plaintiff’s opposition papers were

served on September 6, 2019. Plaintiff served an opposition to MWRA's motion for summary judgment on September 17, 2019.

Closed Cases: BHD/BEC JV2015 v. MWRA, Suffolk Superior Court, C.A. No. 1884-CV-03477D: Plaintiff contractor brought claims arising out of MWRA Contract No. 7157, Wachusett Aqueduct Pumping Station. The claims were settled. A Stipulation of Dismissal was filed with the Court on July 31, 2019. This matter is now closed.

DaPrato v. MWRA, Suffolk Superior Court, C.A. No. 2015-CV-3687D; SJC No. 12651: The Satisfaction of Judgment has been filed with the Court and this matter is now closed.

Quinn, Isabelle v. MWRA, Suffolk Superior Court, C.A. No. 1884-CV-03544E: At its July 17 meeting, MWRA's Board of Directors approved a settlement of this case. The parties then executed a Settlement Agreement, which was approved by the Court. This matter is now closed.

Closed Claims: Helmsworth Mgt Co. (Quinn, Isabelle): This claim by the worker's compensation carrier for Isabelle Quinn was resolved by the above litigation. This matter is now closed.

Subpoenas During the First Quarter of FY 2020, one subpoena was received, one subpoena was closed, and no subpoenas were pending at the end of the First Quarter FY 2020.

Wage Garnishments There are currently 14 Trustee Process matters, four of which are considered active and are monitored by Law Division.

TRAC/MISC.

New Appeals: There are no new appeals in 1st Quarter FY 2020.

Settlement by Agreement of Parties The Midtown Hotel; MWRA Docket No. 19-02

Stipulation of Dismissal No Joint Stipulation of Dismissals filed.

Notice of Dismissal
Fine paid in full No Notices of Dismissal, Fine Paid in Full.

Tentative Decision There are no Tentative Decisions issued in the 1st Quarter FY 2020.

Final Decisions There are no Final Decisions issued in the 1st Quarter FY 2020.

INTERNAL AUDIT AND CONTRACT AUDIT ACTIVITIES

1st Quarter - FY20

Highlights

During 1st quarter FY20, Internal Audit (IA) completed a review of Asset Tracking – Fleet Data Verification. This review was to determine the accuracy of the Maximo fleet database by conducting a physical inventory of all MWRA plated vehicles and plated equipment. Sixteen recommendations were made with three of them closed at the completion of the review. Some recommendations include updating the Vehicle Management and Maintenance Policy, strengthening internal controls and updating the inventory in the Maximo system.

In addition, one consultant audit, one consultant preliminary review and three construction preliminary labor burden reviews were completed. IA also performed a review of the Chelsea lease for FY19, completed a prevailing wage review of the cleaning contract at Clinton and computed the MWRA overhead rate for FY20.

Status of Recommendations

During FY20, 21 recommendations were closed of which 18 are from prior fiscal years' audits.

IA follows-up on open recommendations on a continuous basis. All open recommendations have target dates for implementation. When a recommendation has not been implemented within 36 months, the appropriateness of the recommendation is re-evaluated.

All Open Recommendations Pending Implementation – Aging Between 0 and 36 Months

Report Title (issue date)	Audit Recommendations		
	Open	Closed	Total
Purchase Card Activity on Deer Island (3/31/17)	1	14	15
Review of Uniform Debit Card Program (3/30/18)	1	5	6
Fleet Services Process Review (6/30/18)	2	3	5
Fuel Use & Mileage Tracking (12/31/18)	4	4	8
Review of Purchase Card Activity (5/23/19)	1	10	11
Asset Tracking – Fleet Data Verification (8/21/19)	<u>13</u>	<u>3</u>	<u>16</u>
Total Recommendations	22	39	61

Cost Savings

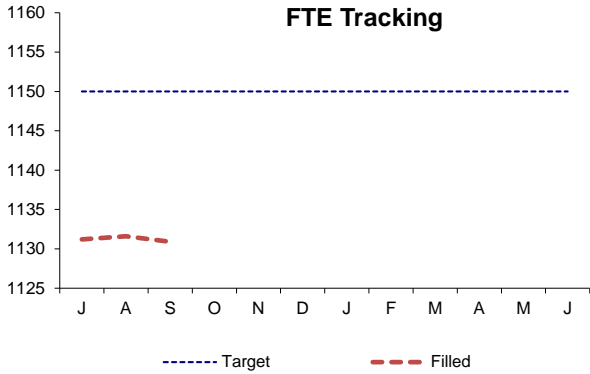
IA's target is to achieve at least \$1,000,000 in cost savings each year. Cost savings vary each year based upon many factors. In some cases, cost savings for one year may be the result of prior years' audits.

Cost Savings	FY16	FY17	FY18	FY19	FY20 Q1	TOTALS
Consultants	\$88,312	\$272,431	\$118,782	\$262,384	\$591,089	\$1,332,998
Contractors & Vendors	\$1,772,422	\$3,037,712	\$1,323,156	\$3,156,524	\$336,873	\$9,626,687
Internal Audits	\$220,929	\$224,178	\$204,202	\$210,063	\$53,692	\$913,064
Total	\$2,081,663	\$3,534,321	\$1,646,140	\$3,628,971	\$981,654	\$11,872,749

OTHER MANAGEMENT

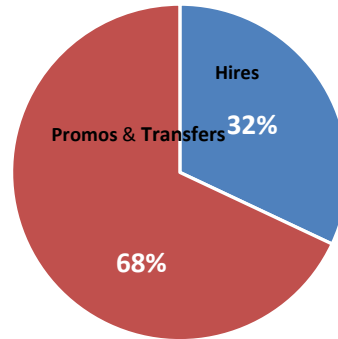
Workforce Management

1st Quarter - FY20



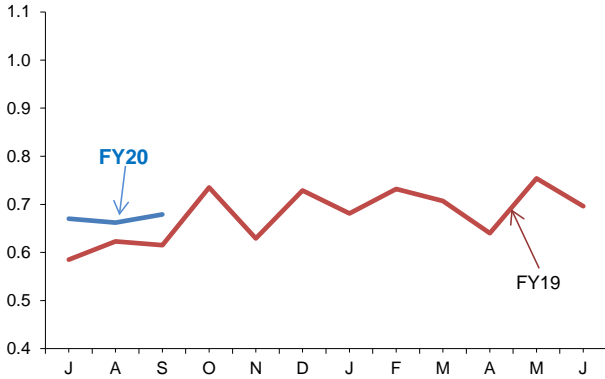
FY20 Target for FTE's = 1150
 FTE's as of September 2019 = 1130.9
 Tunnel Redundancy as of Sept 2019 = 7.0

Position Filled by Hires/Promos & Transfer for YTD



	Pr/Trns	Hires	Total
FY18	118 (61%)	74 (39%)	192
FY19	112 (60%)	76 (40%)	188
FY20	28 (60%)	13 (40%)	189

Average Monthly Sick Leave Usage Per Employee

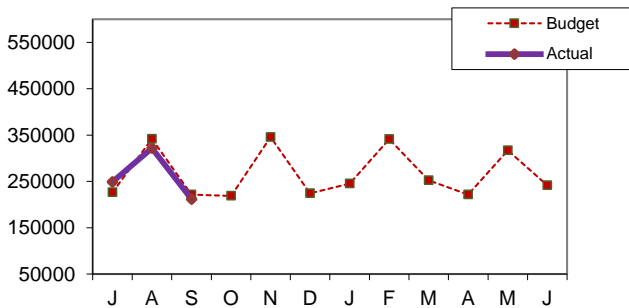


Average monthly sick leave for the 1st Quarter of FY20 increased as compared to the 1st Quarter of FY19 (8.04 to 7.29)

	Number of Employees	YTD	Annualized Total	Annual FMLA %	FY19
Admin	137	1.78	7.14	24.4%	7.78
Aff. Action	5	3.45	13.80	0.0%	6.28
Executive	4	0.05	0.20	0.0%	7.05
Finance	32	1.32	5.28	0.0%	2.28
Int. Audit	6	2.00	8.02	13.0%	4.06
Law	13	1.67	6.69	10.9%	7.80
OEP	4	1.00	4.00	0.0%	5.97
Operations	932	2.09	8.36	18.7%	8.35
Tunnel Red	7	1.19	4.75	48.9%	8.11
Pub. Affs.	10	1.08	4.30	10.1%	4.45
MWRA Avg	1150	2.68	8.04	18.8%	8.13

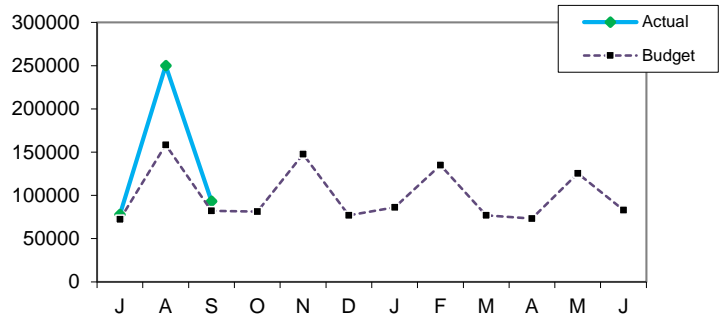
Percent of sick leave usage for FY20, attributable to Family and Medical Leave Act (FMLA) is 18.8% .

Field Operations Current Month Overtime \$



Total Overtime for Field Operations for the first quarter of FY20 was \$782,265 which is (\$7k) under budget. Emergency overtime was \$378k, which was (\$20k) under budget. Rain events totaled \$287k, CSO activation was \$36k, emergency maintenance was \$41k. Coverage overtime was \$187k, which was \$4k over budget, reflecting the month's shift coverage requirements. Planned overtime was \$217k or \$9k over budget, mainly for maintenance off-hours work at \$104k, community assistance (mainly quench buggy) at \$37k, and maintenance work completion at \$21k. Year-to-date, FOD has spent \$782,265 on overtime, which is (\$7k) under budget.

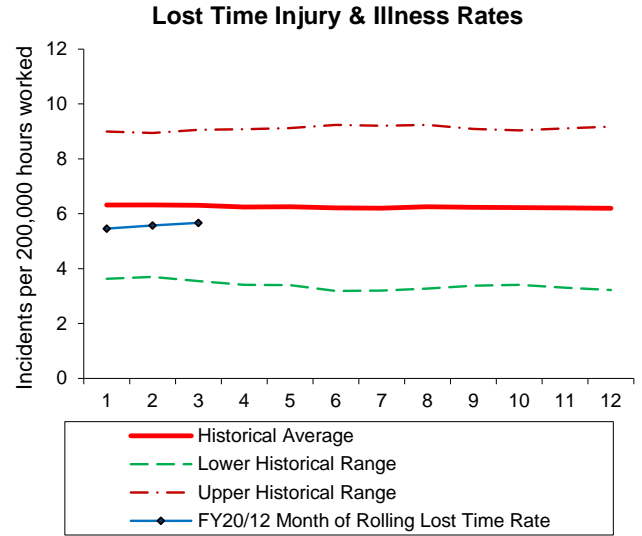
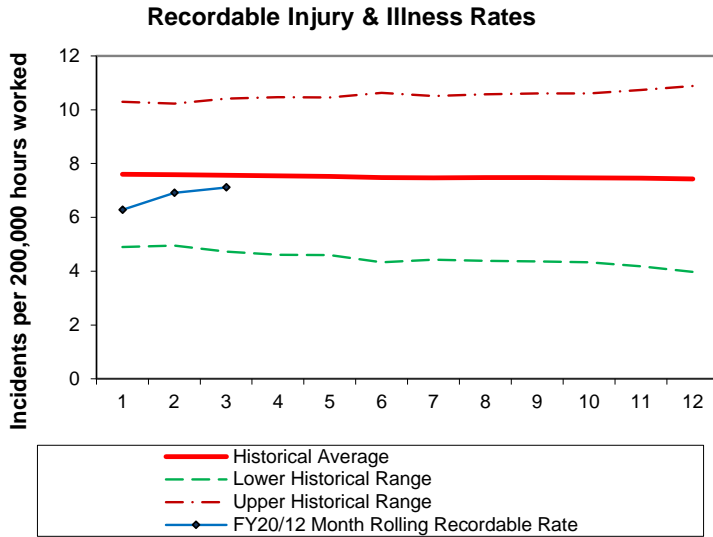
Deer Island Treatment Plant Current Month Overtime \$



Deer Island's total overtime expenditure through the first quarter of FY20 was \$421k, which was \$108k or 35% over budget. In the first quarter Deer Island experienced higher than anticipated planned overtime related to the Eversource cross harbor HEEC cable outage of \$110k and shift coverage requirements of \$39k. This is offset by less storm coverage of (\$21k) and planned / unplanned overtime (non-HEEC related) of (\$20k). The FY20 CEB included \$30k for HEEC overtime vs. \$140k spent. The outage lasted 18 days as opposed to the 5 days anticipated.

Workplace Safety

1st Quarter - FY20



- 1 "Recordable" incidents are all work-related injuries and illnesses which result in death, loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid. Each month this rate is calculated using the previous 12 months of injury data.
- 2 "Lost-time" incidents, a subset of the recordable incidents, are only those incidents resulting in any days away from work, days of restricted work activity or both - beyond the first day of injury or onset of illness. Each month this rate is calculated using the previous 12 months of injury data.
- 3 The "Historical Average" is computed using the actual MWRA monthly incident rates for FY99 through FY18. The "Upper" and "Lower Historical Ranges" are computed using these same data – adding and subtracting two standard deviations respectively.
- 4 With Changes in state law, in February 1, 2019, MWRA began record keeping and reporting according to Federal OSHA standards for injury and illness record keeping. Strictly adhering to the federal OSHA reporting regulation has caused an increase in recorded injuries and illnesses. This increase is causing both the Recordable injury and illness Rate and the Lost Time Injury and Illness rate to trend higher than in past years but does not necessarily mean there is an increase in injuries or illnesses. OSHA injuries and illnesses, and lost time are recorded differently than the Massachusetts Workers' Compensation standards and could result in an increase in the OSHA rate while the Workers' Compensation claims are decreasing. Over time, the rise on the charts should stabilize as new data replaces the older data..

WORKERS COMPENSATION HIGHLIGHTS

	1st Quarter Information		Open Claims
	New	Closed	
Lost Time	5	18	52
Medical Only	20	21	19
Report Only	19	21	
	QYTD		FYTD
Regular Duty Returns	7		7
Light Duty Returns	0		0

COMMENTS:

Regular Duty Returns

July 2 Employees returned to full duty/no restrictions
August 1 Employees returned to full duty/no restrictions
September 4 Employees returned to full duty/no restrictions

Light Duty Returns

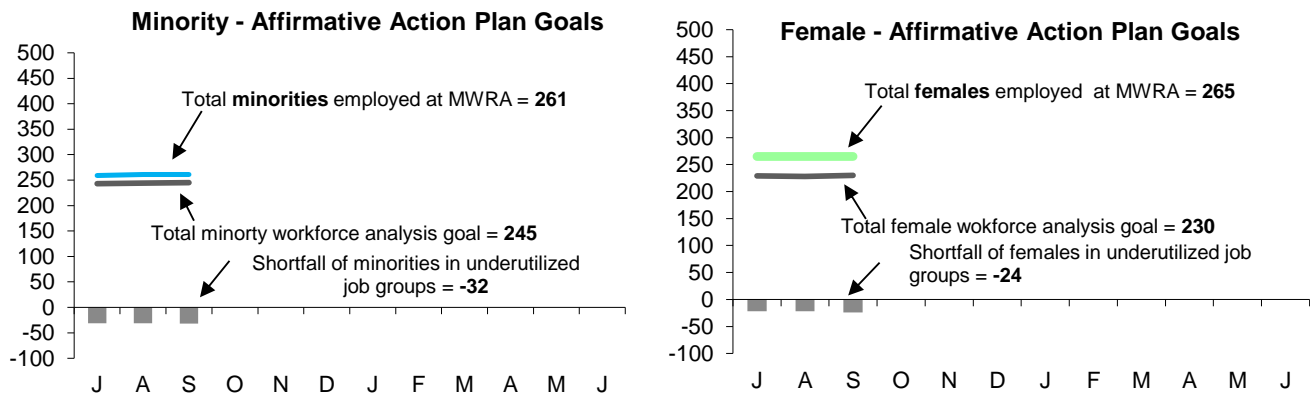
JUL N/A
AUG N/A
SEPT N/A

Note: Claims may initially be counted in one category and changed to another category at a later date. Examples include a medical treatment only claim (no lost time from work) but the employee may require surgery at a later date resulting in the claim becoming a lost time claim. At that time we would only count the claim as opened but not as a new claim.

*Report only claims are closed the month they are filed.

MWRA Job Group Representation

1st Quarter - FY20



Highlights:

At the end of Q1 FY20, 6 job groups or a total of 32 positions are underutilized by minorities as compared to 8 job groups for a total of 71 positions at the end of Q1 FY19; for females 7 job groups or a total of 24 positions are underutilized females as compared to 10 job groups or a total of 53 positions at the end of Q1 FY19. During Q1, 5 minorities and 4 females were hired. During this same period 3 minorities and 4 females were terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees	Minorities	Achievement	Minority	Females	Achievement	Female
	as of 9/30/2019	as of 9/30/2019	Level	Over or Under Underutilized	As of 9/30/2019	Level	Over or Under Underutilized
Administrator A	23	3	3	0	11	7	4
Administrator B	23	0	4	-4	6	5	1
Clerical A	28	10	6	4	25	18	7
Clerical B	23	9	5	4	5	9	-4
Engineer A	81	29	17	12	17	19	-2
Engineer B	60	19	14	5	14	12	2
Craft A	115	17	22	-5	0	3	-3
Craft B	148	21	28	-7	3	7	-4
Laborer	68	18	15	3	4	3	1
Management A	102	22	25	-3	34	40	-6
Management B	43	9	9	0	9	5	4
Operator A	67	4	13	-9	2	1	1
Operator B	66	18	10	8	3	1	2
Professional A	30	3	7	-4	19	14	5
Professional B	163	46	43	3	80	60	20
Para Professional	52	15	11	4	26	14	12
Technical A	52	15	12	3	7	11	-4
Technical B	6	3	1	2	0	1	-1
Total	1150	261	245	48/-32	265	230	59/-24

AACU Candidate Referrals for Underutilized Positions

Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions/Transfers	AACU Ref. External	Position Status
Craft B	Inventory Control Specialist	2	Int	2	0	2 Promo = (WM) (HM)
Engineering A	Program Manager, PC&PS	1	Int	1	0	Promo = WF
Craft A	M&O Specialist	2	Int.	2	0	2 Promo = (2WM)
Craft A	M&O Specialist	1	Int/Ext.	0	0	NH = WM
Craft B	Electrician	2	Ext	0	0	NH = (WM) (AM)
Craft B	Plumber/Pipefitter	2	Ext.	0	0	NH = (2WM)
Management A	Program Mgr., Security, Arch & Engin.	1	Ext	0	0	NH = AM
Management A	Program Manager, Wastewater Ops.	1	Int.	1	0	Promo = WM
Management B	Program Manager, Public Health	1	Ext.	0	0	NH = WF
Operator A	Area Supervisor	4	Int/Ext	4	0	Promo = (4WM)
Operator A	Area Supervisor	1	Int.	1	0	Promo = WF
Professional A	Sr. Staff Counsel	1	Ext.	0	0	NH = WM
Professional A	Asst. Manager Workers Comp & LR	1	Int/Ext.	0	0	NH = WF
Technical A	Sr. Instrument Tech	1	Int.	1	0	LT = WM

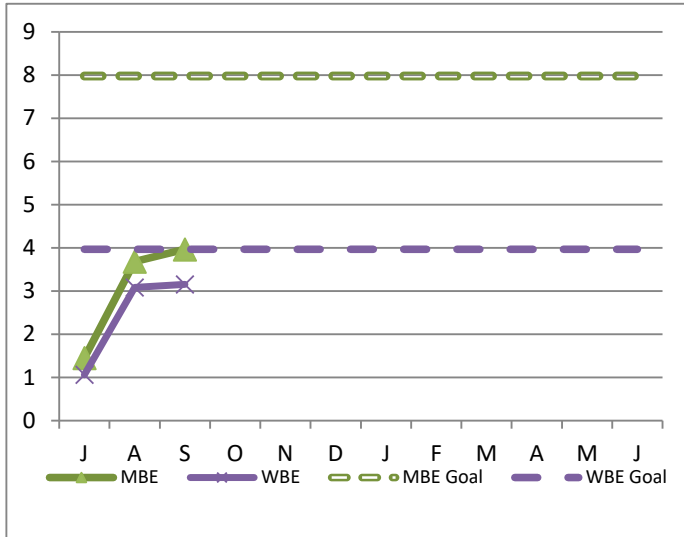
MBE/WBE Expenditures

1st Quarter - FY20

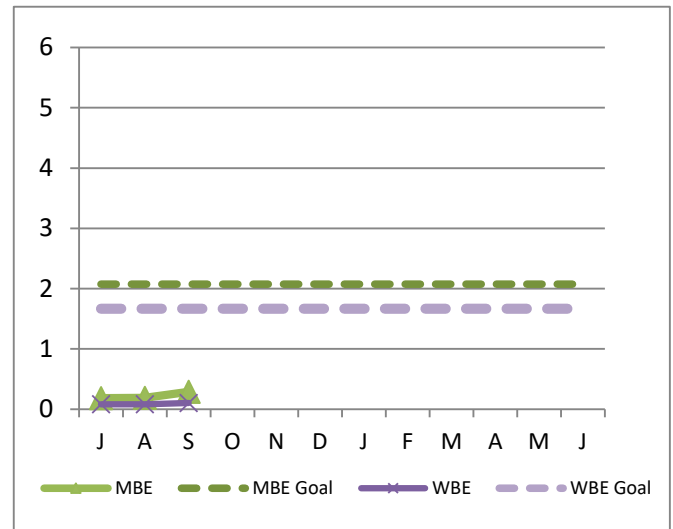
MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. The goals for FY20 are based on 85% of the total construction and 75% of the total professional projected spending for the year. Certain projects have been excluded from the goals as they have no MBE/WBE spending goals.

MBE/WBE percentages are the results from a 2002 Availability Analysis, and MassDEP's Availability Analysis. As a result of the Availability Analyses, the category of Non-Professional Services is included in Goods/Services. Consistent with contractor reporting requirements, MBE/WBE expenditure data is available through September.

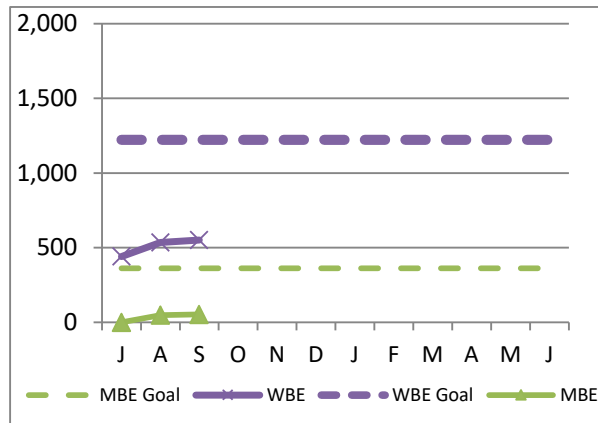
Construction



Professional Services



Goods/Services



FY20 spending and percentage of goals achieved, as well as FY19 performance are as follows:

MBE					WBE			
FY20 YTD		FY19			FY20 YTD		FY19	
Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent
3,967,506	49.7%	11,699,641	150.6%	Construction	3,155,244	79.5%	20,152,509	521.8%
288,965	13.9%	2,285,171	134.1%	Prof Svcs	104,040	6.2%	1,551,120	113.2%
53,166	14.7%	213,198	40.3%	Goods/Svcs	551,145	45.1%	780,760	46.7%
4,309,637	41.4%	14,198,010	142.0%	Totals	3,810,429	55.6%	22,484,389	325.6%

FY20 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

MWRA FY20 CEB Expenses 1st Quarter – FY20

As of September 2019, total expenses are \$185.3 million, \$5.3 million or 2.8% lower than budget, and total revenue is \$199.4 million, \$2.0 million or 1.0% over budget, for a net variance of \$7.3 million.

Expenses –

Direct Expenses are \$59.5 million, \$140k or 0.2% under budget.

- **Ongoing Maintenance** expense \$2.5 million over budget or 36.3%, reflecting the timing of projects.
- **Wages & Salaries** are under budget by \$993k or 3.9%. Regular pay is \$1.0 million under budget, due to lower head count, and timing of backfilling positions. YTD through September, the average Full Time Equivalent (FTE) positions was 1,138, twenty fewer than the 1,158 FTE's budgeted.
- **Utilities** are \$586k under budget or 9.5%, reflecting electricity and diesel under spending at Deer Island totaling \$497k. Electricity underspending reflects CTG usage during HEEC cable electrification testing partially accounting for \$199k of that variance. Diesel underspending of \$278k at Deer Island is due to timing differences.
- **Professional Services** expenses are \$581k under budget or 21.6%, primarily due to under spending for Computer System Consultants of \$493k, partially offset by overspending of \$109k for Lab & Testing & Analysis.

Indirect Expenses are \$12.8 million, \$3.4 million or 20.7% under budget driven by lower than expected Watershed Reimbursement of \$3.0 million.

Debt Service Expenses totaled \$113.0 million, \$1.8 million under budget due to lower than budgeted variable interest rates.

Revenue and Income –

Total Revenue and Income is \$199.4 million, \$2.0 million higher than budget, primarily due to greater than budgeted other user charges, \$1.0 million, reflecting Stoughton's prepayment of its remaining Entrance Fee, disposal of equipment of \$189k, higher investment income \$225k, higher energy revenue of \$134k, and receipt of an unbudgeted operating grant for \$107k.

	Sep 2019 Year-to-Date			
	Period 3 YTD Budget	Period 3 YTD Actual	Period 3 YTD Variance	%
EXPENSES				
WAGES AND SALARIES	\$ 25,657,901	\$ 24,664,624	\$ (993,277)	-3.9%
OVERTIME	1,229,344	1,350,999	121,655	9.9%
FRINGE BENEFITS	5,321,347	5,064,476	(256,871)	-4.8%
WORKERS' COMPENSATION	588,564	463,638	(124,926)	-21.2%
CHEMICALS	3,589,825	3,317,881	(271,944)	-7.6%
ENERGY AND UTILITIES	6,169,967	5,584,258	(585,709)	-9.5%
MAINTENANCE	6,773,463	9,235,466	2,462,003	36.3%
TRAINING AND MEETINGS	103,547	91,133	(12,414)	-12.0%
PROFESSIONAL SERVICES	2,694,082	2,113,094	(580,988)	-21.6%
OTHER MATERIALS	987,381	1,117,234	129,853	13.2%
OTHER SERVICES	6,491,022	6,463,512	(27,510)	-0.4%
TOTAL DIRECT EXPENSES	\$ 59,606,443	\$ 59,466,315	\$ (140,127)	-0.2%
INSURANCE	\$ 652,806	\$ 545,294	\$ (107,512)	-16.5%
WATERSHED/PILOT	6,708,400	3,659,245	(3,049,155)	-45.5%
HEEC PAYMENT	577,815	384,570	(193,245)	-33.4%
MITIGATION	413,655	412,767	(888)	-0.2%
ADDITIONS TO RESERVES	523,571	523,571	-	0.0%
RETIREMENT FUND	7,315,000	7,315,000	-	0.0%
POST EMPLOYEE BENEFITS	-	-	-	---
TOTAL INDIRECT EXPENSES	\$ 16,191,247	\$ 12,840,447	\$ (3,350,799)	-20.7%
STATE REVOLVING FUND	\$ 21,505,342	\$ 21,505,342	\$ -	0.0%
SENIOR DEBT	49,298,444	49,298,444	-	0.0%
DEBT SERVICE ASSISTANCE	(890,235)	(890,235)	-	0.0%
CURRENT REVENUE/CAPITAL	-	-	-	---
SUBORDINATE MWRA DEBT	44,083,850	44,083,850	-	0.0%
LOCAL WATER PIPELINE CP	-	-	-	---
CAPITAL LEASE	804,265	804,265	-	0.0%
DEBT PREPAYMENT	-	-	-	---
VARIABLE DEBT	-	(1,818,288)	(1,818,288)	---
DEFEASANCE ACCOUNT	-	-	-	---
TOTAL DEBT SERVICE	\$ 114,801,666	\$ 112,983,378	\$ (1,818,288)	-1.6%
TOTAL EXPENSES	\$ 190,599,356	\$ 185,290,140	\$ (5,309,214)	-2.8%
REVENUE & INCOME				
RATE REVENUE	\$ 190,441,750	\$ 190,441,750	\$ -	0.0%
OTHER USER CHARGES	2,338,288	3,373,152	1,034,864	44.3%
OTHER REVENUE	771,965	1,496,720	724,755	93.9%
RATE STABILIZATION	-	-	-	---
INVESTMENT INCOME	3,866,642	4,091,239	224,597	5.8%
TOTAL REVENUE & INCOME	\$ 197,418,645	\$ 199,402,861	\$ 1,984,216	1.0%

Cost of Debt

1st Quarter – FY20

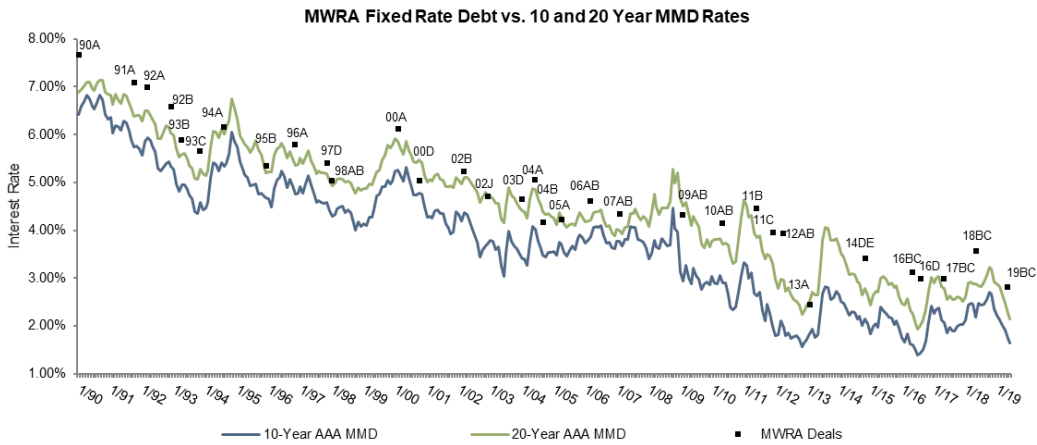
MWRA borrowing costs are a function of the fixed and variable tax exempt interest rate environment, the level of MWRA's variable interest rate exposure and the perceived creditworthiness of MWRA. Each of these factors has contributed to decreased MWRA borrowing costs since 1990.

Average Cost of MWRA Debt FYTD

Fixed Debt (\$3.39 billion)	3.70%
Variable Debt (\$389.9 million)	1.93%
SRF Debt (\$921.4 million)	1.55%
 Weighted Average Debt Cost (\$4.70 billion)	 3.13%

Most Recent Senior Fixed Debt Issue May 2019

2019 Series B & C (\$144.2 million)	2.82 %
-------------------------------------	--------

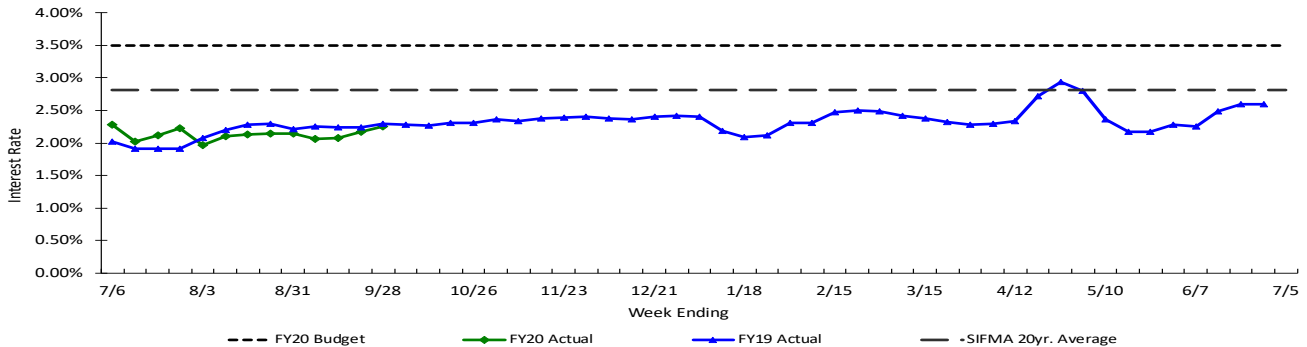


Bond Deal	1993C	1994A	1995B	1996A	1997D	1998AB	2000A	2000D	2002B	2002J	2003D	2004A	2004B	2005A
Rate	5.66%	6.15%	5.34%	5.78%	5.40%	5.04%	6.11%	5.03%	5.23%	4.71%	4.64%	5.05%	4.17%	4.22%
Avg Life	19.1 yrs	19.5 yrs	20.5 yrs	19.5 yrs	21.6 yrs	24.4 yrs	26.3 yrs	9.8 yrs	19.9 yrs	19.6 yrs	18.4 yrs	19.6 yrs	13.5 yrs	18.4 yrs

Bond Deal	2006AB	2007AB	2009AB	2010AB	2011B	2011C	2012AB	2013A	2014D-F	2016BC	2016D	2017BC	2018BC	2019BC
Rate	4.61%	4.34%	4.32%	4.14%	4.45%	3.95%	3.93%	2.45%	3.41%	3.12%	2.99%	2.98%	3.56%	2.82%
Avg Life	25.9 yrs	24.4 yrs	15.4 yrs	16.4 yrs	18.8 yrs	16.5 yrs	17.9 yrs	9.9 yrs	15.1 yrs	17.4 yrs	18.8yrs	11.2 yrs	11.7yrs	11.9yrs

Weekly Average Variable Interest Rates vs. Budget

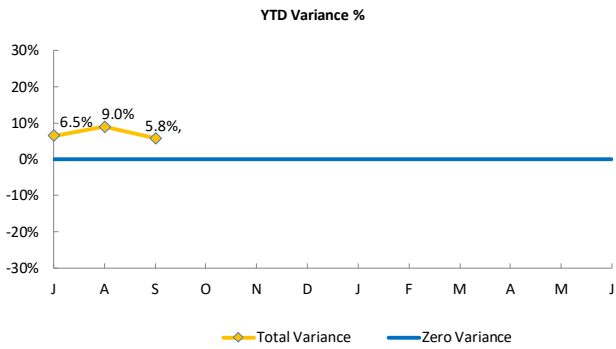
MWRA currently has eleven variable rate debt issues with \$782.2 million outstanding, excluding commercial paper. Of the eleven outstanding series, four have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In September, SIFMA rates ranged from a high of 1.58% to a low of 1.28% for the month. MWRA's issuance of variable rate debt, although consistently less expensive in recent years, results in exposure to additional interest rate risk as compared to fixed rate debt.



Investment Income

1st Quarter – FY20

Year To Date



	YTD BUDGET VARIANCE			
	(\$000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	\$8	(\$17)	(9)	-2.4%
Construction	\$124	\$56	180	22.2%
Debt Service	\$26	\$72	98	10.9%
Debt Service Reserves	\$13	(\$50)	(37)	-4.2%
Operating	(\$18)	\$6	(12)	-3.2%
Revenue	\$1	\$18	19	5.3%
Redemption	\$1	(\$15)	(14)	-8.5%
Total Variance	\$155	\$70	\$225	5.8%

YTD Average Balances Budgeted vs. Actual

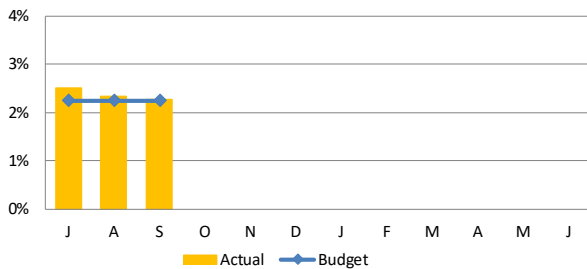


YTD Average Interest Rate Budgeted vs. Actual

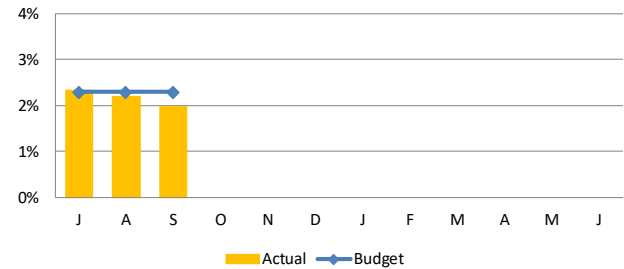


Monthly

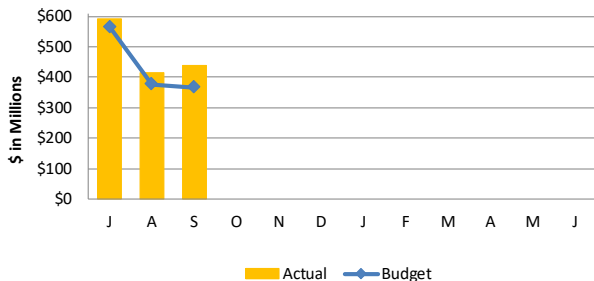
Short -Term Interest Rates



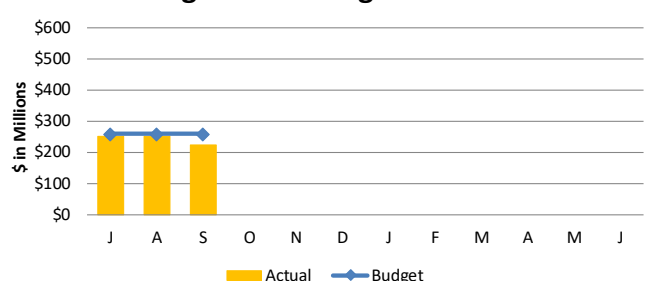
Long -Term Interest Rates



Short-Term Average Balances




Long-Term Average Balances



1st Quarter - FY20

-----Notes-----


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: FY20 Financial Update and Summary Through October 2019

COMMITTEE: Administration, Finance & Audit

James J. Coyne, Budget Manager
Michael J. Cole, Budget Director
Preparer/Title

INFORMATION
 VOTE


Thomas J. Durkin
Director, Finance

RECOMMENDATION:

For information only. This staff summary provides the financial results and variance highlights for Fiscal Year 2020 through October 2019, comparing actual spending to the budget.

DISCUSSION:

The total Year-to-Date variance for the FY20 CEB is \$9.7 million, due to lower direct expenses of \$2.1 million, indirect expenses of \$3.4 million, and debt service costs of \$2.4 million; and higher revenue of \$1.8 million.

FY20 Current Expense Budget

The CEB expense variances through October 2019 by major budget category were:

- Lower Direct Expenses of \$2.1 million or 2.6% under budget. Spending was lower for Wages & Salaries, Professional Services, Utilities, Fringe Benefits, Chemicals, Other Services, and Worker's Compensation. This is offset by higher spending on Maintenance, Other Materials, Overtime, and Training and Meetings.
- Lower Indirect Expenses of \$3.4 million or 17.8% under budget due to lower Watershed reimbursements, lower expenses related to the HEEC cable, and lower claim spending for Insurance.
- Lower Debt spending of \$2.4 million or 1.6% under budget due to favorable short-term interest rates.

**FY20 Budget and FY20 Actual Year-to-Date Variance by Expenditure Category
(in millions)**

	FY20 Budget YTD	FY20 Actual YTD	\$ Variance	% Variance
Direct Expenses	\$80.4	\$78.3	-\$2.1	-2.6%
Indirect Expenses	\$18.9	\$15.6	-\$3.4	-17.8%
Capital Financing	\$150.9	\$148.5	-\$2.4	-1.6%
Total	\$250.3	\$242.4	-\$7.9	-3.1%

Totals may not add due to rounding

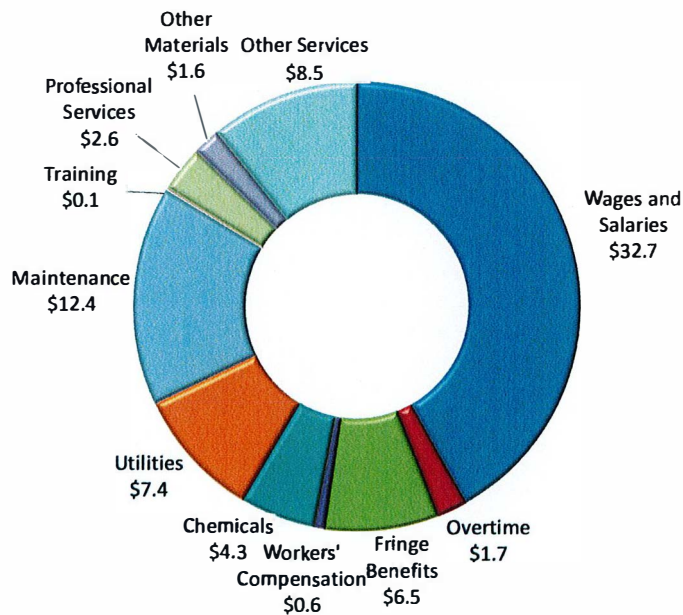
Total Revenues of \$260.9 million were \$1.8 million or 0.7% over budget. The biggest driver of the variance is pertaining to Stoughton’s \$1.1 million prepayment of their entrance fee note.

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

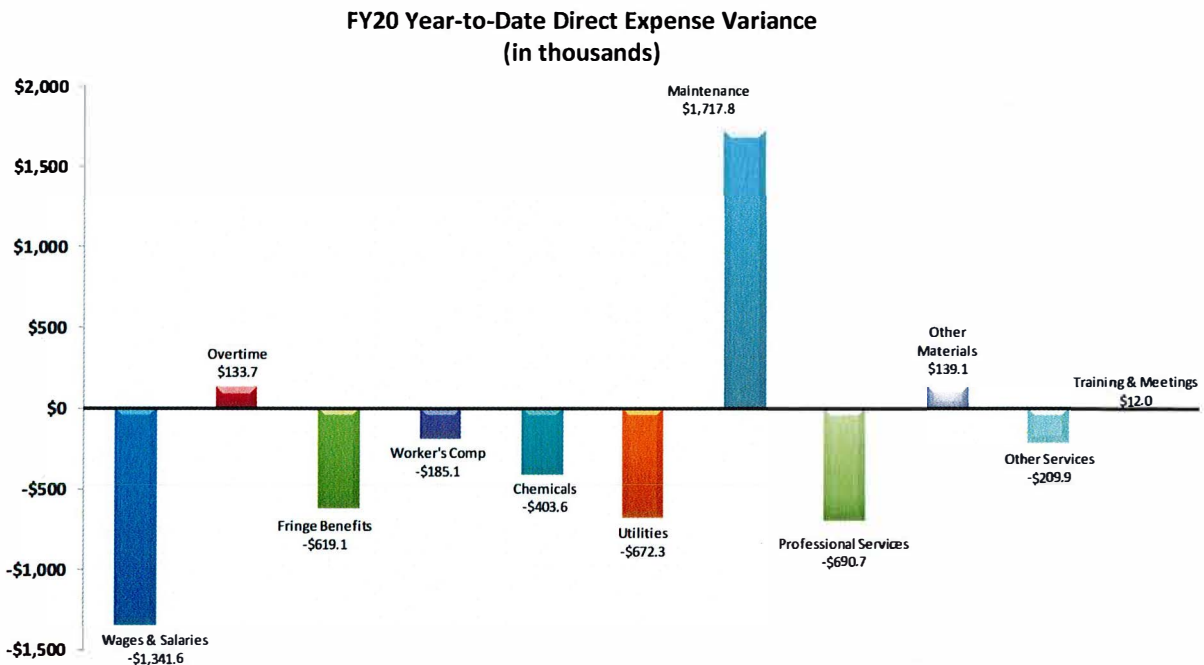
Direct Expenses

Year-to-date direct expenses totaled \$78.3 million, which was \$2.1 million or 2.6% less than budgeted.

**FY20 Year-to-Date Direct Expenses
(in millions)**

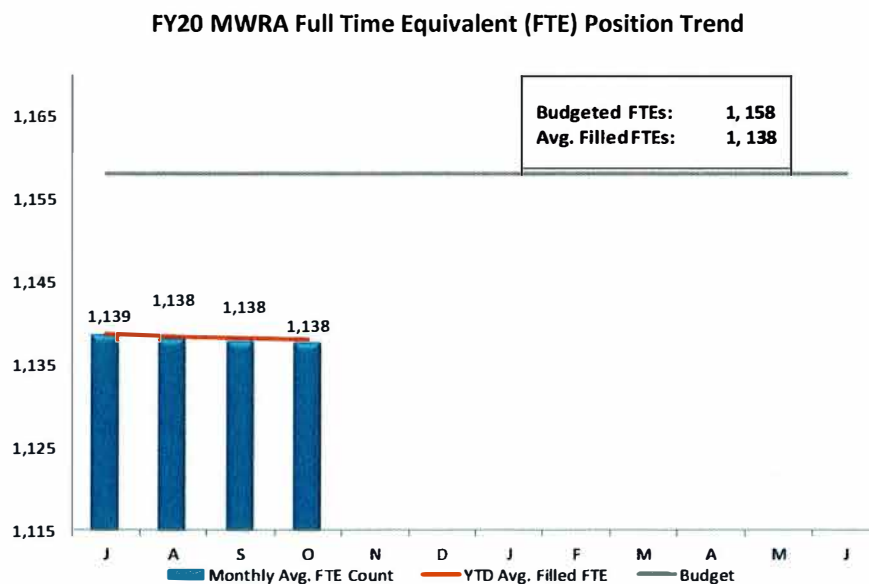


Lower than budgeted spending for Wages & Salaries, Professional Services, Utilities, Fringe Benefits, Chemicals, Other Services, and Worker’s Compensation. This is partially offset by higher spending on Maintenance, Other Materials, Overtime, and Training and Meetings.



Wages and Salaries

Wages and Salaries are under budget by \$1.3 million or 3.9%. Through October, there were 20 fewer average FTEs (1,138 versus 1,158 budget) or 1.7% and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions and lower leave balance accruals also contributed to Regular Pay being under budget.



Professional Services

Professional Services were lower than budget by \$0.7 million or 20.9%. The overall underspending year-to-date is due to Computer Systems Consultant (\$0.5 million) in MIS; Other Professional Services (\$0.1 million) in Finance and Law; and Engineering Services (\$0.1 million).

Utilities

Utilities were lower than budget by \$0.7 million or 8.4%. Electricity underspending of \$0.6 million or 9.0% is driven by Deer Island (\$0.4 million) due to less purchased power in August when Deer Island operated the CTGs during the HEEC cable installation and by Field Operations (\$0.1 million) due to lower rates for the interval accounts. In addition, Diesel Fuel was under budget by \$0.1 million or 9.7% due to timing of deliveries. Staff expect increased spending on Diesel Fuel in the near future to replenish the inventory used during the HEEC cable installation (the outage lasted 18 days vs. 5 days anticipated).

Fringe Benefits

Fringe Benefit spending was lower than budget by \$0.6 million or 8.7%. This is primarily driven by lower Health Insurance costs of \$0.5 million due to fewer employees and retirees participating in health insurance plans, the change to the ratio of employee contribution for past employees versus new hires that contribute at a higher percentage, and change from family to individual plans which are less costly. In addition, Paid Family Medical Leave was under budget by \$0.1 million due to a delay in the start of plan contributions until October 1, 2019.

Chemicals

Chemicals were lower than budget by \$0.4 million or 8.6%. Lower than budget spending on Activated Carbon of \$0.3 million is driven by FOD (\$0.2 million) due to timing of carbon replacement and Soda Ash of \$0.1 million at the Carroll Water Treatment Plant and the Clinton Wastewater Treatment Plant. This is offset by higher than budget spending on Sodium Bisulfite of \$0.1 million driven by the Deer Island Wastewater Treatment Plant (\$0.1 million) due to increasing inventory volume and higher flows. The Deer Island Wastewater Treatment Plant flows are 9.7% higher than the budget and the Carroll Water Treatment Plant flows are 5.2% less than the budget through October. However, the timing of deliveries is an important factor.

Other Services

Other Services were lower than budget by \$0.2 million or 2.4%. Higher than budgeted spending for Sludge Pelletization of \$0.3 million is due to higher year-to-date quantities. This is offset by lower spending for Memberships and Dues of \$0.2 million, Telecommunication Services of \$0.1 million in MIS and FOD, and Other Services of \$0.1 million for a number of services.

Worker's Compensation

Worker's Compensation expenses were lower than budget by \$0.2 million or 23.6%. The lower expenses were primarily due to favorable variances in compensation payments (\$144,000), medical payments (\$22,000), and administrative expenses (\$18,000).

Maintenance

Maintenance was higher than budget by \$1.7 million or 16.2%, driven by Field Operations (\$1.0 million) due to timing of hydropower facility maintenance at Oakdale and Cosgrove budgeted to be done later in the fiscal year (\$0.6 million), VFD upgrades at the Framingham Pump Station (\$0.2 million), and two new rooftop air-handling units for the Chelsea Administration and Maintenance Buildings (\$0.1 million). In addition, Clinton is over budget (\$0.5 million) driven by the Coatings Contract due to work being completed ahead of schedule for this fiscal year. Lastly, Deer Island Treatment Plant is over budget (\$0.2 million) due to Boiler, STG, and Hydroplant Contracts being over budget during the first quarter.

Other Materials

Other Materials were over budget by \$0.1 million or 9.9%. Higher than budgeted spending for Computer Hardware of \$0.2 million in Laboratory Services and MIS and Work Clothes of \$0.1 million in Field Operations and at Deer Island Treatment Plant. This is offset by lower than budgeted spending on Vehicles of \$0.1 million due to timing.

Overtime

Overtime expenses were higher than budget by \$0.1 million or 8.5%. The over spending was mainly due to coverage during the HEEC cable installation in August, 2019.

Training & Meetings

Training & Meetings expenses were slightly higher than budget by \$12,000 or 10.4% driven by higher spending in Engineering and Construction.

Indirect Expenses

Year-to-date Indirect Expenses totaled \$15.6 million, which is \$3.4 million or 17.8% under budget. There are variances within the lines that comprise Indirect Expenses, including lower Watershed Reimbursements and HEEC cable costs. Watershed costs are lower than budget by \$2.9 million due to lower costs associated with compensation, fringe benefits, major projects and prior period adjustments.

FY20 Watershed Protection Actual Year-to-Date Variance

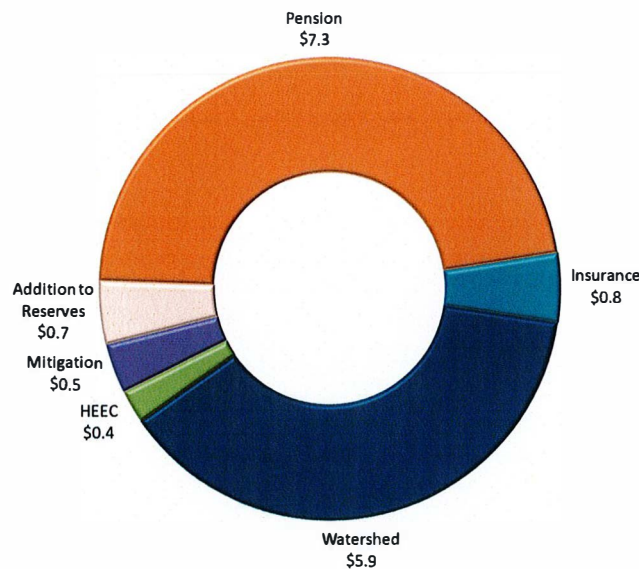
\$ in millions	YTD Budget	YTD Actual	YTD \$ Variance	YTD % Variance
Operating Expenses	5.8	4.4	-1.4	-24.2%
Major Project Expenses	0.5	0.3	-0.2	-42.4%
PILOT	2.8	2.8	0.0	0.0%
Subtotal	9.1	7.5	-1.6	-17.8%
Revenue offset	0.4	0.5	0.1	41.1%
Current fiscal year net total budget	8.8	7.0	-1.8	-20.2%
Prior year 4th quarter accrual true-up	0.0	-0.6	-0.6	
FY16 credit balance	0.0	-0.5	-0.5	
Total Budget	8.8	5.9	-2.9	-32.7%

MWRA reimburses the Commonwealth of Massachusetts Department of Conservation (DCR) and Recreation - Division of Water Supply Protection – Office of Watershed Management for expenses. The reimbursements are presented for payment quarterly in arrears. Accruals are being made monthly based on estimated expenses provided by DCR and true-up quarterly based on the quarterly invoice. MWRA’s budget is based on the annual Fiscal Year Work Plan approved by the Massachusetts Water Supply Protection Trust.

The information on the FTE count at the end of October 2019 was not provided by the DCR Division of Water Supply Protection.

HEEC charges are under budget by \$0.4 million for lower than budgeted spending on special projects.

**FY20 Year-to-date Indirect Expenses-YTD
(in millions)**

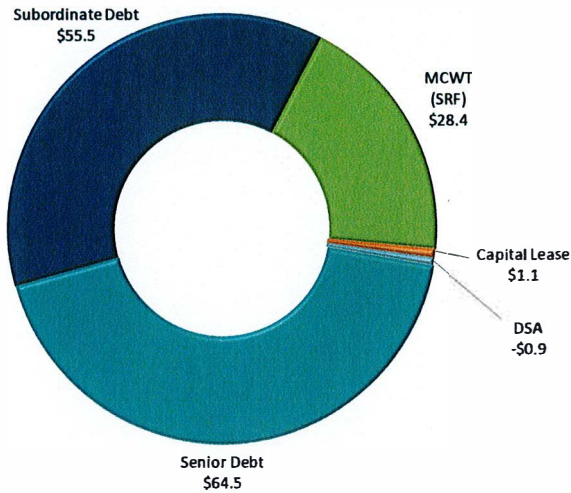


Capital Financing

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

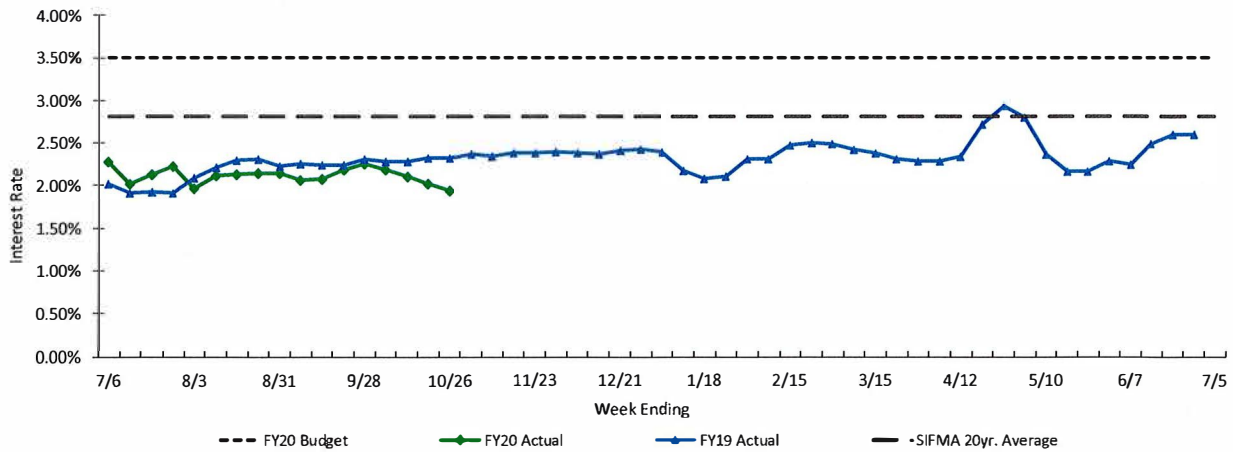
Year-to-date Capital Financing expenses for FY20 totaled \$148.5 million, which is \$2.4 million or 1.6% below budget. The surplus is primarily attributable to short-term variable rates.

**Year-to-date FY20 Capital Finance
(in millions)**



The graph below reflects the FY20 actual variable rate trend by week year-to-date against the FY20 Budget.

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



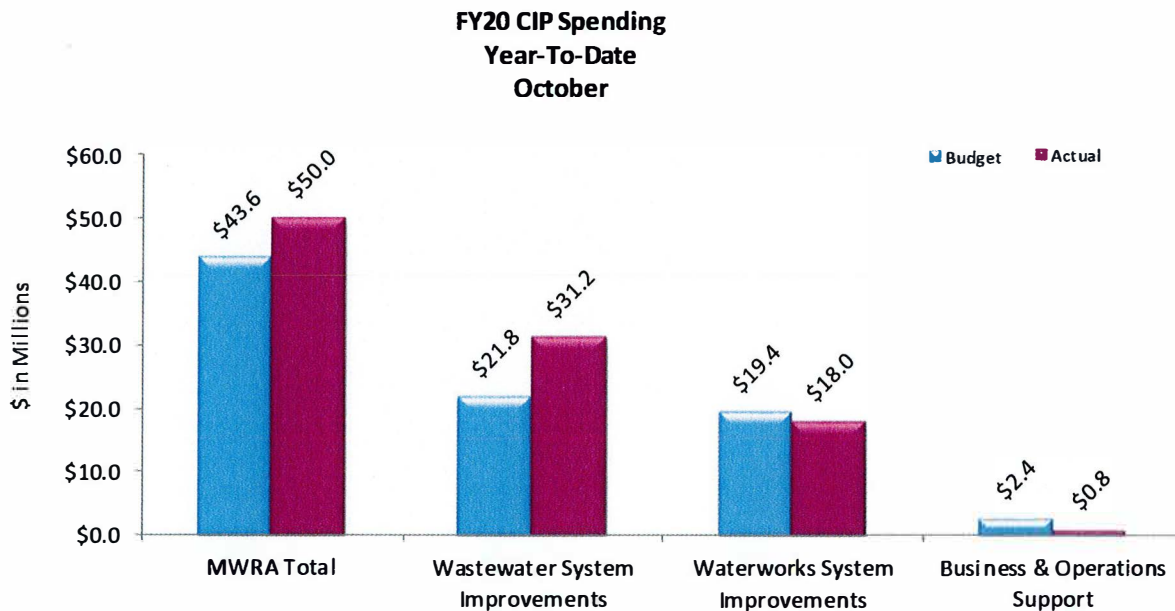
Revenue & Income

Year-to-date Revenues of \$260.9 million were over budget by \$1.8 million or 0.7%. Other User Charges were over budget by \$1.0 million or 25.1% due to Stoughton prepaying their entrance fee note. Other Revenue was favorable to budget due to the income from the disposal of equipment (\$0.2 million), miscellaneous revenue (\$0.1 million), and grant funds received (\$0.1million).

FY20 Capital Improvement Program

Capital expenditures in Fiscal Year 2020 through October total \$50.0 million, \$6.5 million or 14.8% over budget.

After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) grant/loan program, the Local Water System Assistance loan program, and the community managed Combined Sewer Overflow (CSOs) projects, capital spending totaled \$38.1 million, \$1.8 million or 4.8% over budget.



Overall, CIP spending reflects the overspending in Wastewater Improvements (\$9.4 million), and underspending in Waterworks (\$1.3 million) and Business and Operations Support (\$1.6 million). Major variances in Wastewater are primarily due to greater than anticipated community requests for grants and loans for the I/I Local Financial Assistance Program and greater than anticipated progress on the Chelsea Creek Upgrades Construction and Residuals Electrical/Mechanical/Drum Dryer Replacement, and timing of initial costs for the Chemical Tank and Digester Pipe contract. Also, earlier than anticipated equipment purchase for the Wastewater Metering project and scheduled work in FY19 that was completed in FY20 for the Clinton Roofing Replacement project. This was partially offset by work scheduled for FY20 that was completed in FY19 for the Deer Island Gravity Thickener Rehabilitation contract.

Waterworks variances are primarily due to paving delays for the Southern Extra High (SEH) Section 111 Construction 2, MBTA crossing issues for SEH Section 111 Construction 3, less than budgeted community loan requests, and less than anticipated consultant progress on Section 50/57 Water and Sections 21/20/19 Sewer Design CA/RI contract. This was partially offset by contractor progress on the Northern Intermediate High Section 110 Redundancy, work scheduled in FY19 that was completed in FY20 for the Cosgrove Intake Roof Replacement, and Bellevue 2/Turkey Hill and Deer Island Water Tank Painting contracts.

FY20 Budget and FY20 Actual Year-to-Date Variance by Program
(in millions)

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	7.8	10.2	2.5	31.8%
Treatment	4.4	3.6	(0.7)	-16.3%
Residuals	1.3	3.8	2.6	202.8%
CSO	0.4	0.4	0.1	15.4%
Other	8.0	13.0	5.0	63.1%
Total Wastewater System Improvements	\$21.8	\$31.2	\$9.4	43.3%
Waterworks System Improvements				
Drinking Water Quality Improvements	0.6	0.6	(0.0)	-6.5%
Transmission	4.1	3.7	(0.4)	-9.8%
Distribution & Pumping	13.3	11.5	(1.8)	-13.4%
Other	1.4	2.2	0.9	64.5%
Total Waterworks System Improvements	\$19.4	\$18.0	(\$1.3)	-6.9%
Business & Operations Support	\$2.4	\$0.8	(\$1.6)	-66.1%
Total MWRA	\$43.6	\$50.0	\$6.5	14.8%

Totals may not add due to rounding

FY20 Year-to-date Spending by Program:

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

Other Wastewater: Net overspending of \$5.0 million

- \$5.0 million for Community I/I due to greater than anticipated budgeted requests for grants and loans.

Residuals: Net overspending of \$2.6 million

- \$2.5 million for Electrical, Mechanical, and Dryer Drum Improvements due to greater than anticipated contractor progress and engineering costs and \$0.1 million for timing of final work completed for Sludge Tank and Silo Coating.

Interception & Pumping: Net overspending of \$2.5 million

- \$2.7 million for Chelsea Creek Headworks Upgrades construction due to greater than anticipated contractor progress.
- \$0.5 million for Wastewater Metering Equipment due to equipment purchased earlier than anticipated.
- This overspending was partially offset by underspending of \$0.2 million for Remote Headworks & Deer Island Shaft Study due to contract time extension, \$0.2 million for Nut Island Odor Control & HVAC Design/CA/RI due to design taking longer than anticipated, and \$0.1 million for Dorchester Interceptor Design/CA/RI due to delay in construction award.

Water Distribution and Pumping: Net underspending of \$1.8 million

- \$0.7 million for Southern Extra High Redundancy Construction 2 due to paving delays and \$0.6 million for Construction 3 due to an issue with MBTA crossing.

- \$0.3 million for Sections 50, 57 Water and Sections 21, 20, 19 Sewer and \$0.1 million for Sections 25, 75, 59, and 60 Designs due to consultants scheduled tasks being less than anticipated.
- \$0.2 million for NIH Sections 89 and 29 Replacement Design due to field testing being behind schedule.
- \$0.2 million for Cathodic Protection Shaft E & L for final work scheduled for FY20 that was completed in FY19.
- \$0.1 million for Section 22 Rehabilitation Alternatives Analysis and Environmental Permitting due to schedule change.
- This underspending was partially offset by overspending of \$0.5 million for Northern Intermediate High Section 110 Construction due to contractor progress and \$0.1 million for Section 56 Pipe Demolition for final work completed.

Business & Operations Support: Net underspending of \$1.6 million

- \$0.6 million for timing of vehicle purchases, \$0.6 million for the timing of MIS initiatives, \$0.3 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work, and \$0.2 million for Security Equipment & Installation due to timing of security initiatives.

Other Waterworks: Net overspending of \$0.9 million

- \$0.5 million for Cosgrove Intake Roof Replacement, \$0.4 million for Bellevue 2 and Turkey Hill Painting/Improvements, and \$0.3 million for Deer Island Water Tank Painting primarily due to scheduled FY19 work completed in FY20. Also, \$0.1 million for Generator Docking Station due to contractor progress was greater than anticipated.
- This overspending was partially offset by underspending of \$0.3 million for the Local Water System Assistance Program due to less than budgeted loan requests and \$0.2 million for Gillis Pumping Station and Cottage Farm Roof Replacement due to delay in contractor mobilization.

Wastewater Treatment: Net underspending of \$0.7 million

- \$0.8 million for Gravity Thickener Rehabilitation due to scheduled FY20 work that was completed in FY19.
- \$0.3 million for As-Needed Design Services due to less than anticipated task order work.
- \$0.1 million for Winthrop Terminal Facility VFD and Motors Replacements due to timing of work.
- This underspending was partially offset by overspending of \$0.4 million for Chemical Tank and Digester Pipe Gravity Thickener Rehabilitation due timing of initial costs and \$0.2 million for Clinton Roofing Rehabilitation due to work scheduled in FY19 that was completed in FY20.

Waterworks Transmission: Net underspending of \$0.4 million

- \$0.2 million for WASM 3 MEPA/Design/CA/RI due to consultant progress being less than anticipated.
- \$0.1 million for Commonwealth Avenue Pumping Station Construction due to contractor currently behind schedule.
- \$0.1 million for Watershed Land due to timing of land purchases.

- This underspending was partially offset by overspending of \$0.2 million for Metropolitan Tunnel Redundancy Program Support Services due to greater than anticipated consultant progress.

Combined Sewer Overflow: Net overspending of \$0.1 million

- \$0.1 million for CSO Performance Assessment due to greater than anticipated consultant progress.

Drinking Water Quality Improvements: Net underspending of \$0.1 million

- \$0.1 million due to timing of task order work.

Construction Fund Balance

The construction fund balance was \$142.3 million as of the end of October. Commercial Paper/Revolving Loan availability was \$222 million to fund construction projects.

ATTACHMENTS:

Attachment 1 – Variance Summary October 2019

Attachment 2 – Current Expense Variance Explanations

Attachment 3 – Capital Improvement Program Variance Explanations

ATTACHMENT 1
FY20 Actuals vs. FY20 Budget

	Oct 2019 Year-to-Date				
	Period 4 YTD Budget	Period 4 YTD Actual	Period 4 YTD Variance	%	FY20 Approved
<u>EXPENSES</u>					
WAGES AND SALARIES	\$ 34,091,432	\$ 32,749,786	\$ (1,341,646)	-3.9%	\$ 109,953,483
OVERTIME	1,567,932	1,701,662	133,730	8.5%	4,898,965
FRINGE BENEFITS	7,084,149	6,465,051	(619,098)	-8.7%	21,717,533
WORKERS' COMPENSATION	784,752	599,672	(185,080)	-23.6%	2,354,256
CHEMICALS	4,700,514	4,296,901	(403,613)	-8.6%	11,811,222
ENERGY AND UTILITIES	8,034,016	7,361,734	(672,282)	-8.4%	24,454,796
MAINTENANCE	10,636,106	12,353,893	1,717,787	16.2%	32,726,954
TRAINING AND MEETINGS	114,916	126,899	11,983	10.4%	504,394
PROFESSIONAL SERVICES	3,297,267	2,606,612	(690,655)	-20.9%	8,295,315
OTHER MATERIALS	1,411,068	1,550,176	139,108	9.9%	6,867,239
OTHER SERVICES	8,709,899	8,499,976	(209,923)	-2.4%	24,683,370
TOTAL DIRECT EXPENSES	\$ 80,432,051	\$ 78,312,362	\$ (2,119,691)	-2.6%	\$ 248,267,527
<u>INDIRECT EXPENSES</u>					
INSURANCE	\$ 853,668	\$ 754,057	\$ (99,611)	-11.7%	\$ 2,611,222
WATERSHED/PILOT	8,772,523	5,910,882	(2,861,641)	-32.6%	26,833,600
HEEC PAYMENT	770,420	364,437	(405,983)	-52.7%	4,429,316
MITIGATION	540,933	539,772	(1,161)	-0.2%	1,654,618
ADDITIONS TO RESERVES	684,670	684,670	-	0.0%	2,094,284
RETIREMENT FUND	7,315,000	7,315,000	-	0.0%	7,315,000
POST EMPLOYEE BENEFITS	-	-	-	---	5,962,457
TOTAL INDIRECT EXPENSES	\$ 18,937,214	\$ 15,568,818	\$ (3,368,396)	-17.8%	\$ 50,900,497
<u>DEBT SERVICE</u>					
STATE REVOLVING FUND	\$ 28,376,923	\$ 28,376,923	\$ -	0.0%	\$ 92,797,294
SENIOR DEBT	64,467,196	64,467,196	-	0.0%	202,299,609
DEBT SERVICE ASSISTANCE	(890,235)	(890,235)	-	0.0%	(890,235)
CURRENT REVENUE/CAPITAL	-	-	-	---	15,200,000
SUBORDINATE MWRA DEBT	57,897,016	57,897,016	-	0.0%	169,609,845
LOCAL WATER PIPELINE CP	-	-	-	---	5,846,823
CAPITAL LEASE	1,051,731	1,051,731	-	0.0%	3,217,060
DEBT PREPAYMENT	-	-	-	---	-
VARIABLE DEBT	-	(2,391,888)	(2,391,888)	---	-
DEFEASANCE ACCOUNT	-	-	-	---	5,000,000
TOTAL DEBT SERVICE	\$ 150,902,631	\$ 148,510,744	\$ (2,391,888)	-1.6%	\$ 493,080,396
TOTAL EXPENSES	\$ 250,271,897	\$ 242,391,924	\$ (7,879,975)	-3.1%	\$ 792,248,420
<u>REVENUE & INCOME</u>					
RATE REVENUE	\$ 249,039,211	\$ 249,039,211	\$ -	0.0%	\$ 761,767,000
OTHER USER CHARGES	3,929,165	4,916,605	987,440	25.1%	9,216,425
OTHER REVENUE	1,133,512	1,741,751	608,239	53.7%	5,761,022
RATE STABILIZATION	-	-	-	---	-
INVESTMENT INCOME	5,038,603	5,226,165	187,562	3.7%	15,503,973
TOTAL REVENUE & INCOME	\$ 259,140,491	\$ 260,923,733	\$ 1,783,240	0.7%	\$ 792,248,420

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD October	FY20 Actuals YTD October	FY20 YTD Actual vs. FY20 Budget		Explanations
			\$	%	
Direct Expenses					
Wages & Salaries	34,091,432	32,749,786	(1,341,646)	-3.9%	Wages and Salaries are under budget by \$1.3 million. Year to date, there have been 20 fewer average FTEs (1,138 versus 1,158 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions, and lower leave balance accruals contributed to Regular Pay being under budget.
Overtime	1,567,932	1,701,662	133,730	8.5%	Higher spending mainly in Deer Island for coverage during the HEEC cable installation.
Fringe Benefits	7,084,149	6,465,051	(619,098)	-8.7%	Lower than budget in Health Insurance of \$497,000, due to fewer than budgeted participants in health insurance plans, increased contribution by external new hires vs. lower contribution rates of staff retiring, and the shift from family to individual plans which are less expensive. In addition, PFML was under budget by \$80,000 due to a delay in the start of plan contributions until 10/1/19.
Worker's Compensation	784,752	599,672	(185,080)	-23.6%	The lower expenses were due to favorable variances in Compensation Payments of \$144,000, Medical Payments of \$22,000, and Administrative Expenses of \$18,000. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.
Chemicals	4,700,514	4,296,901	(403,613)	-8.6%	Lower than budget spending on Activated Carbon of \$299,000 driven by FOD (\$179,000) and DITP (\$120,000) due to timing of carbon replacement and Soda Ash of \$147,000 at CWTP and Clinton. This is offset by higher than budget spending on Sodium Bisulfite of \$115,000 driven by DITP (\$103,000) due to increasing inventory and higher flows. DITP flows are 9.7% more than the budget and CWTP flows are 5.2% less than the budget through October. It is important to note that Chemical variances are also based on deliveries which in general reflect the usage patterns. However, the timing of deliveries is an important factor.
Utilities	8,034,016	7,361,734	(672,282)	-8.4%	Underspending in Electricity of \$555,000 primarily at DITP (\$432,000) driven by less purchased power in August when DI operated the CTGs during the HEEC cable installation. Also, Field Operations (\$70,000) is under budget primarily due to lower rates for Interval accounts. Diesel Fuel is underspent by \$100,000 primarily at DI (\$129,000) due to timing. Staff expect the spending on Diesel Fuel to increase in the near future due to replenishment of inventory used during the HEEC cable installation (the outage lasted 18 days vs. the 5 days anticipated).
Maintenance	10,636,106	12,353,893	1,717,787	16.2%	DITP maintenance was over budget by \$0.2 million due to the Boiler, STG, and Hydroplant Service Contract being over budget for the first quarter of FY20. The STG overhaul was budgeted to happen in October/November, but started early in September. Field Operations maintenance was over budget by \$1.0 million due to the timing of hydropower facility maintenance at Oakdale and Cosgrove budgeted to be done later in the fiscal year (\$639,000); VFD upgrades at Framingham Pump Station (\$170,000); and two new rooftop air-handling units for the Chelsea Admin/Maintenance Building, which was delayed from FY19 (\$139,000). Clinton maintenance was over budget by \$0.5 million driven by the Coatings Contract due to work being completed ahead of schedule for this fiscal year.

**ATTACHMENT 2
Current Expense Variance Explanations**

Total MWRA	FY20 Budget YTD October	FY20 Actuals YTD October	FY20 YTD Actual vs. FY20 Budget		Explanations
			\$	%	
Training & Meetings	114,916	126,899	11,983	10.4%	
Professional Services	3,297,267	2,606,612	(690,655)	-20.9%	Lower than budget spending in Computer Systems Consultant of \$491,000 in MIS; Engineering Services of \$96,000 primarily for SCADA project delays due to staffing/resources, Reservoir Ops for timing of dam asset maintenance plans, and DITP for study of biosolids exemptions for MWRA pellets relative to MDAR regulations (study is on hold); and Other Professional Services of \$117,000 in Finance, Law, and Administration.
Other Materials	1,411,068	1,550,176	139,108	9.9%	Higher than budgeted spending for Computer Hardware of \$169,000 in Laboratory Services and MIS and for Work Clothes of \$55,000 in FOD and at DITP. This is offset by lower than budgeted spending on Vehicles of \$78,000 due to timing.
Other Services	8,709,899	8,499,976	(209,923)	-2.4%	Higher than budgeted spending for Sludge Pelletization of \$252,000 due to higher year-to-date quantities. This is offset by lower spending for Memberships/Dues of \$225,000; Telecommunication Services of \$141,000 in MIS and FOD; and Other Services of \$69,000 for a number of services.
Total Direct Expenses	80,432,051	78,312,362	(2,119,689)	-2.6%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD October	FY20 Actuals YTD October	FY20 YTD Actual vs. FY20 Budget		Explanations
			\$	%	
Indirect Expenses					
Insurance	853,668	754,057	(99,611)	-11.7%	Lower claims than budgeted of \$92,000.
Watershed/PILOT	8,772,523	5,910,882	(2,861,641)	-32.6%	Lower Watershed Reimbursement of \$2.9 million due to \$1.1 million over accrual at end of FY19 as compared to actual amount paid in first quarter of FY20. October FY20 YTD favorable variance to budget estimated to be \$1.8 million driven by (1) lower Fringe Benefits of \$865,000, (2) lower Wages & Salaries of \$309,000, (3) lower spending on major projects of \$216,000, and (4) lower spending on Equipment of \$169,000 due to timing of purchases.
HEEC Payment	770,420	364,437	(405,983)	-52.7%	Lower than budgeted spending on special projects related to the HEEC cable.
Mitigation	540,933	539,772	(1,161)	-0.2%	
Addition to Reserves	684,670	684,670	-	0.0%	
Pension Expense	7,315,000	7,315,000	-	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	18,937,214	15,568,818	(3,368,396)	-17.8%	
Debt Service					
Debt Service	151,792,866	149,400,978	(2,391,888)	-1.6%	\$2.4 million for lower than budgeted variable rate debt.
Debt Service Assistance	(890,235)	(890,235)	-	0.0%	
Total Debt Service Expenses	150,902,631	148,510,743	(2,391,888)	-1.6%	
Total Expenses					
Total Expenses	250,271,896	242,391,923	(7,879,973)	-3.1%	

**ATTACHMENT 2
Current Expense Variance Explanations**

Total MWRA	FY20 Budget YTD October	FY20 Actuals YTD October	FY20 YTD Actual vs. FY20 Budget		Explanations
			\$	%	
Revenue & Income					
Rate Revenue	249,039,211	249,039,211	-	0.0%	
Other User Charges	3,929,165	4,916,605	987,440	25.1%	\$1.1 million prepayment of entrance fee note by Stoughton.
Other Revenue	1,133,512	1,741,751	608,239	53.7%	\$191,000 for disposal of surplus materials; Miscellaneous Revenue of \$137,000 primarily associated with worker's compensation reimbursement for older claims; \$107,000 in grant money (Commonwealth Operating Grant for \$44,000 and DCR Aqueduct Trails Grant for \$62,000); and Energy Rebates of \$81,000.
Investment Income	5,038,603	5,226,165	187,562	3.7%	Investment Income is over budget mostly due to short term rates higher than budget (2.32% vs.2.25% budget).
Total Revenue	259,140,491	260,923,732	1,783,241	0.7%	
Net Revenue in Excess of Expenses	8,868,595	18,531,809	9,663,214		

**ATTACHMENT 3
FY19 CIP Year-to-Date Variance Report (\$000's)**

	FY20 Budget YTD October	FY20 Actuals YTD October	YTD Actuals vs. Budget		Explanations
			\$	%	
Wastewater					
Interception & Pumping (I&P)	\$7,756	\$10,224	\$2,468	31.8%	<u>Overspending</u> Chelsea Creek Headworks Upgrades - Construction: \$2.7M (due to contractor progress) Wastewater Metering Asset Protection/Equipment Purchases: \$486k (sooner than anticipated equipment purchases) <u>Offset Underspending</u> Remote Headworks & Deer Island Shaft Study: \$229k, (schedule shift) Nut Island Odor Control & HVAC Design/CA/REI: \$152k (CA and REI services delayed as a result of construction schedule shift) Other smaller projects totaling \$337k.
Treatment	\$4,361	\$3,648	(\$712)	-16.3%	<u>Underspending</u> Gravity Thickener Rehab: \$797k (Work scheduled for FY20 completed in FY19.) As-Needed Design: \$367k (less than anticipated task order work) WTF VFD Replacement - Construction: \$100k (timing of work) <u>Offset Overspending</u> Chemical Tank and Digester Pipe: \$367k (due to contractor progress) Clinton Roofing Rehabilitation: \$246k (work scheduled for FY19 performed in FY20)
Residuals	\$1,258	\$3,810	\$2,552	202.8%	<u>Overspending</u> Residuals Electrical/Mechanical/Drum Replacements: \$2.5M (contractor progress)
CSO	\$389	\$449	\$60	15.4%	
Other Wastewater	\$7,991	\$13,035	\$5,044	63.1%	<u>Overspending</u> I/I Local Financial Assistance: \$5.0M (greater than budgeted requests for grants and loans)
Total Wastewater	\$21,755	\$31,166	\$9,411	43.3%	

**ATTACHMENT 3
FY19 CIP Year-to-Date Variance Report (\$000's)**

	FY20 Budget YTD October	FY20 Actuals YTD October	YTD Actuals vs. Budget		Explanations
			\$	%	
Waterworks					
Drinking Water Quality Improvements	\$640	\$598	(\$42)	-6.5%	
Transmission	\$4,097	\$3,696	(\$401)	-9.8%	<u>Underspending</u> WASM 3 - MEPA/Design/CA/RI: \$215k (consultant progress less than anticipated) Chestnut Hill Emergency Pump Station - Design/CA: \$107k (longer than anticipated receipt of hydraulic information) Watershed Land Acquisition: \$91k (timing of land purchases) Other smaller projects totaling \$184k <u>Offset Overspending</u> Metropolitan Tunnel Redundancy Program Support Services: \$196k (consultant progress greater than anticipated)
Distribution & Pumping	\$13,266	\$11,492	(\$1,774)	-13.4%	<u>Underspending</u> SEH Redundancy Pipeline Section 111 - Construction Phase 2: \$735k (paving delayed due to Eversource work) SEH Redundancy Pipeline Section 111 - Construction Phase 3: \$627k (delay due to MBTA crossing issue) Sections 50 & 57 Water & 21/20/19 Sewer Rehab - Design/CA/RI: \$317k (less than anticipated consultant work) Section 89 & 29 Replacement Design/ESDC: \$162K (field testing being behind schedule) Cathodic Protection Shafts E & L: \$159k (work scheduled for FY20 performed in FY19) Section 89 & 29 Redundancy - Design/CA: \$116k (Construction Administration services less than anticipated) Other smaller projects totaling \$179k <u>Offset Overspending</u> Section 89 & 29 Redundancy Construction Phase 2: \$521k (contractor progress)

**ATTACHMENT 3
FY19 CIP Year-to-Date Variance Report (\$000's)**

	FY20 Budget YTD October	FY20 Actuals YTD October	YTD Actuals vs. Budget		Explanations
			\$	%	
Other Waterworks	\$1,364	\$2,243	\$880	64.5%	<u>Overspending</u> Local Water Pipeline Financial Assistance Program: \$611k (greater than budgeted requests for loans) Cosgrove Intake Roof Replacement: \$535k, Bellevue II & Turkey Hill Water Tanks Repainting: \$408k, and Deer Island Water Tank Repainting : \$322k, (all for work scheduled in FY19 performed in FY20) <u>Offset Underspending</u> Lead Service Line Replacement Loans: \$950k (less than budgeted requests for loans) Gillis Pump Station and Cottage Farm Roof Replacements: \$151k (delay in contractor mobilization)
Total Waterworks	\$19,366	\$18,029	(\$1,337)	-6.9%	
Business & Operations Support					
Total Business & Operations Support	\$2,436	\$825	(\$1,610)	-66.1%	<u>Underspending</u> MIS Projects: \$579k (timing of work) FY19-23 Vehicle Purchases: \$576k, and Security Equipment & Installation: \$189k (timing of purchases) As-Needed Technical Assistance: \$265k (timing of task order work)
Total MWRA	\$43,556	\$50,020	\$6,464	14.8%	

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 20, 2019
SUBJECT: Automated Vehicle Locator Tracking System
Networkfleet, Inc.
Contract A606, Amendment 1



COMMITTEE: Administration, Finance & Audit

INFORMATION

VOTE


Michele S. Gillen

Director of Administration

Carolyn Fiore, Deputy COO, Operations Administration

Paula Weadick, Director MIS

Ronald S. Zizza, Manager C&C

Preparer/Title



David W. Coppes, P.E.

Chief Operating Officer

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to Contract A606, Automated Vehicle Locator Tracking System with Networkfleet, Inc., in the amount of \$93,708, exercising the first option to renew and increasing the contract amount from \$427,490 to an amount not to exceed \$521,198, and increasing the contract term by 12 months from December 28, 2019 to December 28, 2020.

Further, to approve a change in the name of the Consultant for Contract A606 from Networkfleet, Inc. to Verizon Connect NWF, Inc.

DISCUSSION:

On October 12, 2016, the Board approved the award of Contract A606 to Networkfleet, Inc. to provide automated vehicle location equipment and services to MWRA. The original contract, in the amount of \$427,490 was for 36 months and included two 12-month options to extend, subject to the Board's approval. Staff now recommend approval of the first 12-month extension option, for the reasons described below.

At the time of the award, MWRA issued a one-step Request for Qualifications, Statements/Proposals, with cost; technical approach/ organization/management approach and qualifications of firms/key personnel; similar experience/past performance; schedule and capacity as the selection criteria to select an AVL provider. The Selection Committee unanimously ranked Networkfleet, Inc. first, as the firm presented the lowest cost proposal, a technically sound approach to addressing AVL functionality including the ability to easily establish alerts and offered both a reporting function and live mapping function that were among the best presented at the live demonstration to the Selection Committee.

Networkfleet, Inc. included pricing for two optional 12-month extensions as part of the original procurement process, and offered a significant price reduction to the unit price (from \$24/device per month to \$19/device per month) for the optional 12-month extensions for Year 4 and Year 5.

The recommended extension includes continued access to Networkfleet's live mapping and reporting functions; vehicle alerts and diagnostics; historical routes and driving activities; and customer support.

This Amendment

Staff have been pleased with the quality of services provided by Networkfleet, Inc. The system performs as expected, and provides MWRA with the ability to accurately pinpoint and track the location of its vehicles at any time; respond more quickly to emergencies; enhance vehicle maintenance through electronic engine diagnostics; track odometer readings and mileage electronically; and capture driving statistics. Furthermore, the AVL system provides a number of reports that are used to audit work crews assigned to perform work in the field and operations staff that perform facility rounds.

Managers have also used the system to locate the closest vehicle to a facility that requires a rapid response, shortening response time. The system has been used to confirm or dispute the involvement of MWRA vehicles involved with traffic incidents reported by the public. For example, MWRA received an email concerning a vehicle that had pulled over to the sidewalk then pulled back out into traffic without signaling and was tailgating the car in front of it. Using the AVL system, MWRA was able to verify that the vehicle was at the reported location at the time of the complaint, but was not being driven by an MWRA employee. The vehicle was at a local repair shop and was being driven by one of its technicians. MWRA was able to appropriately respond to the complaint, as well as inform the repair shop of the erratic driving. Occasionally, the system has provided supporting information related to disciplinary matters. The system provides valuable diagnostic data used by the Vehicle Management and Maintenance technicians. When a check engine light is activated, the system reads the code and deciphers it. In addition, fuel consumption data are provided, which helps to determine if there are potential maintenance issues related to the vehicle.

The Networkfleet, Inc., equipment and software have not yet reached the end of their useful life, and continue to meet MWRA's fleet tracking requirements. The reports and system are user-friendly and provide valuable information to management. Therefore, staff recommend the 12-month extension of this contract.

In addition, staff recommend approval of a formal name change for the Consultant from Networkfleet, Inc. to Verizon Connect NWF, Inc. This change is a change in name only and will have no impact on the existing terms and conditions of the contract, or on the Consultant staff assigned to this project.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract	\$427,490	36 months	12/28/2019
Proposed Amendment 1	<u>\$93,708</u>	<u>12 months</u>	<u>Pending</u>
Adjusted Contract Amount	\$521,198	48 months	12/28/2020

BUDGET/FISCAL IMPACTS:

The FY20 Current Expense Budget contains \$93,708 for this amendment under 86100-12730. The original contract award for hardware, software and support for three years was \$427,490. The total cost of Amendment 1 is \$93,708.

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

WASTEWATER POLICY & OVERSIGHT COMMITTEE MEETING

to be held on

Wednesday, November 20, 2019

Chair: P. Flanagan
Vice-Chair: J. Walsh
Committee Members:
J. Carroll
C. Cook
J. Foti
A. Pappastergion
B. Peña
H. Vitale

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

Time: Immediately following AF&A Committee

AGENDA

A. Information

1. Wastewater Metering System Replacement Project Update

B. Contract Awards

1. Harbor and Outfall Monitoring Contracts for 2020-2023: Battelle Memorial Institute, Contract OP-401A, Normandeau Associates, Inc., Contract OP-401B
2. Cooperative Research Project with Center for Coastal Studies in Provincetown to Conduct Water Quality Monitoring in Cape Cod Bay: Contract OP-406

C. Contract Amendments/Change Orders

1. Chelsea Creek Headworks Upgrade: BHD/BEC 2015, A Joint Venture, Contract 7161, Change Order 34

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the
Wastewater Policy and Oversight Committee
October 16, 2019

A meeting of the Wastewater Policy and Oversight Committee was held on October 16, 2019 at the Authority headquarters in Charlestown. Committee Vice Chair Walsh presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cook, Foti, Pappastergion, Peña, Vitale and Walsh. Messrs. Cotter and Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Thomas Durkin, Carolyn Fiore, Michele Gillen, Rebecca Weidman, Bethany Card, Brian Kubaska, Stephen Estes-Smargiassi, Patricia Mallett, John Colbert, David Duest and Kristin MacDougall. Kathy Watkins and James Wilcox, City of Cambridge, were also in attendance. The meeting was called to order at 10:59 a.m.

Information

MWRA Industrial Waste Report No. 35; Industrial Pretreatment Program Annual Report to EPA for FY2019

Staff made a verbal presentation. (Messrs. Cook and Foti returned to the meeting during the presentation.) There was discussion and questions and answers. (Ms. Wolowicz left the meeting during discussion.) Mr. Walsh requested that future reports include a chart showing any trends in enforcement actions and an attachment listing Significant Industrial Users. (ref. WW A.1)

2018 Deer Island Outfall Monitoring Overview

Item moved to Board of Directors meeting. (ref. WW A.2)

Approvals

* City of Cambridge Proposal for Partial Sewer Separation

Staff made a presentation. (Ms. Wolowicz returned to the meeting and Messrs. Pappastergion and Peña left and returned to the meeting during the presentation.) There was discussion and questions and answers. Mr. Carroll requested that the

* Committee recommendation approved by the Board on October 16, 2019

wording of the recommendation be amended to include that the program does not have any financial impact to MWRA and that staff will analyze and report to the Board any financial impacts on MWRA communities.

The Committee recommended approval as amended. (ref. WW B.1)

Contract Awards

*** Charles River Valley Sewer Rehabilitation - Sections 191 and 192 Rehabilitation; Green Mountain Pipeline, Contract 7643**

Staff made a presentation. There were questions and answers. (Mr. Carroll left the meeting and Mr. Foti briefly left and returned to the meeting during discussion.)

The Committee recommended approval. (ref. WW C.1).

*** Supply and Delivery of Ferric Chloride to the Deer Island Treatment Plant: Kemira Water Solutions, Inc., Bid WRA-4752**

Staff made a verbal presentation.

The Committee recommended approval. (ref. WW C.2).

Contract Amendments/Change Orders

*** Deer Island Treatment Plant Pump Refurbishment: A.W. Chesterton Co., Contract S581, Change Order 1**

Staff made a presentation. There was brief discussion and questions and answers. (Mr. Carroll returned to the meeting during discussion.)


The Committee recommended approval. (ref. WW D.1).

The meeting adjourned at 11:56 a.m

* Committee recommendation approved by the Board on October 16, 2019

Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2019/o-BoardMaterials10-16-19.pdf>

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: Wastewater Metering System Replacement Project Update

COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE

Rodrigo Pinos, Program Manager, Meter Engineering
Stephen Estes-Smargiassi, Dir of Planning and Sustainability
Andrew Hildick-Smith, P.E., Dir, SCADA, Meter & Monitoring
Preparer/Title


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

RECOMMENDATION:

For information only.

DISCUSSION:

Wastewater meters are a key element of MWRA's cost allocation methodology for the regional sewer system. In addition, they provide critical system operating data. Approximately half of the sewer system's operating expenses and debt service costs for capital projects are allocated to communities using their average and maximum monthly flows.

MWRA designed and installed the first wastewater metering system between 1989 and 1993, and first began to use metered wastewater flow in 1994 for billing on a flow basis in fiscal year 1996; prior to that, wastewater charges to communities were based on population. The last full metering system upgrade was in 2004. There are currently 212 wastewater meters in the system, including 189 that are used as revenue meters.

The regional sewer system was not originally designed to be metered and designing a cost effective metering system required a number of different strategies with a goal of metering at least 85 percent of flow, and confidently estimating any unmetered flow. Prior to this meter upgrade project, system-wide the current average metered flow is approximately 93 percent of the total flow, with the range for individual communities from 77 to 100 percent.

The wastewater metering system uses *direct* flow metering wherever possible, measuring wastewater flow as it leaves a community sewer system and enters the MWRA sewer system via permitted community connections. In some cases, there are many community connections to an MWRA interceptor as it passes through a community, and it would not be cost-effective to meter wastewater flow from each connection. In those cases, MWRA measures wastewater flow in the MWRA interceptor at its upstream end as it enters the community, as well as at the downstream end as it leaves the community. By *subtraction*, the community flow is the difference between

those two flow measurements¹. This works well if the community flow is a substantial fraction of the flow conveyed in the MWRA interceptor.

Some unmetered areas cannot easily or cost effectively be metered. These can include situations where there are a large number of small connections to an MWRA interceptor and subtraction metering is not practical, unmetered areas of communities that are downstream of the best suitable location for a meter, or small inter-municipal sewer areas where local sewers from a part of one town flow into another town's sewer system. In these unmetered areas, MWRA estimates flow based on short-term metering and establishes a *ratio to a metered area*. In this way, all wastewater flow from a community is accounted for.

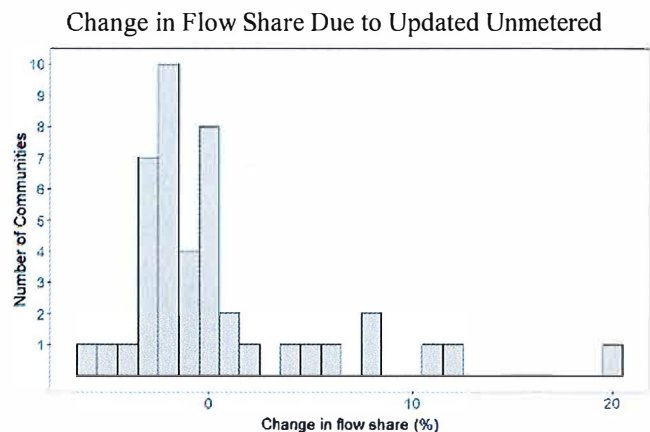
The Wastewater Metering System Replacement (Contract 6739) was awarded in June of 2017 to the RJN Group, a consulting firm with a specialization in wastewater flow monitoring. The contract has seven major tasks:

- Update flows from unmetered areas;
- Assess current meter sites;
- Review mix of metered and unmetered areas – increase percent metered if cost effective;
- Assess state of the art in meter technology;
- Assess communication and data management technology;
- Specify and assist in procurement; and
- Oversee purchase and installation

An overview of the status of each major task is presented below.

Update flows from unmetered areas: There are 638 separate unmetered or inter-municipal sewer areas. The consulting team produced detailed GIS maps of each unmetered sewer area, determined how to best measure current unmetered flows, and conducted all measurements. For larger areas, a minimum of two weeks of temporary flow metering was conducted. Smaller areas were measured using weirs or instantaneous depth and velocity measurements and very small areas were estimated based on house counts, land use or water use records. Detailed draft reports of the updated unmetered flows along with recommendations on the appropriate metered area to be used for the ratio flow calculation have been received for all the communities.

The updated measurements of flow in the 638 unmetered areas result in an increase of total system wide flow of about 2.6 percent. About half of the communities had relatively little change from existing estimates of unmetered flow. Based only on the changes in unmetered flow, about 2/3 of the communities would see either a decrease or no change in flow *share*, and about 1/3 would see an increase in flow *share*. As discussed below, staff are evaluating adding



¹ MWRA estimates potential infiltration into the MWRA interceptor each month and subtracts that from the community's total flow.

meters to the larger, unmetered areas thereby increasing the percentage of metered flow.

Staff are reviewing each updated unmetered flow against existing calculations and re-evaluating any that have substantial changes upward or downward, using GIS tools and community assessor's databases. Staff have individually met with and reviewed the updated flow data from the unmetered areas with each of the communities where it represented more than a two percent increase in flow share. Attachment A shows the potential change in flow share for each community.

Assess current meter sites: Each of the existing metering sites and proposed new sites have been assessed. Detailed documentation of each of the 27 facility meter locations (pump stations, etc.) and 187 manhole meter sites has been completed. These are used to determine the most appropriate type of meter for that location and provide the basis for contract specifications for installation at each site.

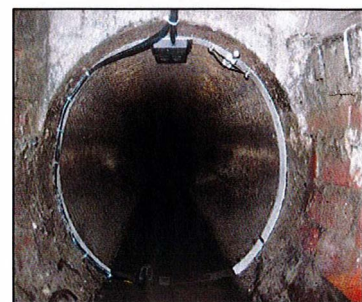
Review mix of metered and unmetered areas: In order to cost-effectively increase the percentage of flow that is metered, to improve overall accuracy, and mitigate any maintenance or safety issues, staff are proposing adding up to 34 new meter sites. In addition, staff are evaluating the relocation of 17 existing meter sites and elimination of two existing meter sites to improve meter accuracy, attain better hydraulic conditions, reduce unmetered flow by capturing more community flow or improve meter site access and safety. As shown in the Attachment B, new meters are being proposed in 15 communities, and relocated meters are being proposed in 12.

The proposed changes would decrease the number of communities with less than 85 percent metered flow from 12 to three. System-wide, the metered flow percentage would increase from 90.8 percent (newly re-calculated based on the new flow data from unmetered areas) to 94.5 percent.

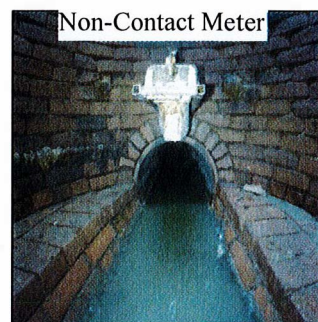
Even with the suggested metering improvements, there will continue to be areas of the system with metered flow percentages below MWRA's system-wide target of 85 percent. To address this, staff are proposing a more aggressive program of periodic temporary metering to confirm and update flow from unmetered areas. A two-tier system approach is being proposed. Confirmatory analysis and metering would be performed in unmetered areas in communities with less than 85 percent metered flow every three years. Unmetered areas in other communities would be reviewed every 6 to 10 years. In addition, either MWRA or a community could propose to review flows from an unmetered area based on any identified changes in development or wastewater flow paths, or infiltration or inflow reduction efforts. The annual cost of such a program is estimated at approximately \$100,000. Staff plan to outline this approach at an upcoming Advisory Board metering forum.

Assess state of the art in meter technology: This task involved an evaluation of all of the currently available meter types and provided a recommendation of appropriate metering technologies for each location in the system. Two primary classes of meters were recommended for most locations in the system, with a small number of locations that will require other meter types due to pipe

Submerged Sensor Meter



size or flow characteristics. The consultant is developing the details of purchasing specifications for either contact (submerged) or non-contact meters (in the manhole barrel). At a relatively small number of sites, staff anticipate recommending specific proprietary meters to ensure accuracy under all flow conditions.



Assess communication and data management technology: A recommendation was made to the Board of Directors on June 19, 2019 to advance purchase the dataloggers. Staff are in the process of installing the replacement dataloggers in advance of Verizon’s planned shutdown of 3G service and expect to be done by the end of 2019.

Specify and assist in procurement: This task is underway and is expected to result in MWRA releasing plans and specifications for the purchase and install contract in early 2020. Draft specifications have been received and staff review is underway.

Oversee purchase and installation: The consultant team will assist MWRA in the evaluation of the purchase and installation proposals, and provide field inspection and certification of the installations, as well as be available during the one-year warranty period for any needed technical assistance. Staff currently expect to bring the purchase and installation contract to the Board of Directors for award in Spring of 2020. Staff’s expectation is that all rate meters will be installed during 2020.

Staff have provided periodic briefings to the Advisory Board and its Operations Committee over the past several years as this project developed and got underway. During the last major wastewater meter replacement project in 2004, the Advisory Board expressed concern that if there were substantial changes in any community’s flow due to new or changed meters, that the gradual implementation schedule might unfairly advantage or disadvantage communities with earlier installations. As a result, MWRA agreed to a “hold harmless” period while the meters were being installed. During that period, all communities flow would be based on the prior three-year average. Once all meters were installed, flow measurement for rates purposes would begin again. After consultation with the Advisory Board Operations Committee, MWRA agreed to use a similar process during this installation period. Changes resulting from the update of flows from unmetered areas and any changes due to new meters would first be included in the FY23 community assessment calculations, and “ramp up” over three years due to the three-year averaging process. The Advisory Board Operations Committee continues to consider how best to implement the “hold harmless” period.

Staff are planning to host a joint MWRA and Advisory Board community briefing on the planned changes to the wastewater metering system at MWRA’s Chelsea facility.

BUDGET/FISCAL IMPACT:

The FY2020 Current Expense Budget includes \$3.7 million for the contract to purchase and install the wastewater meters.

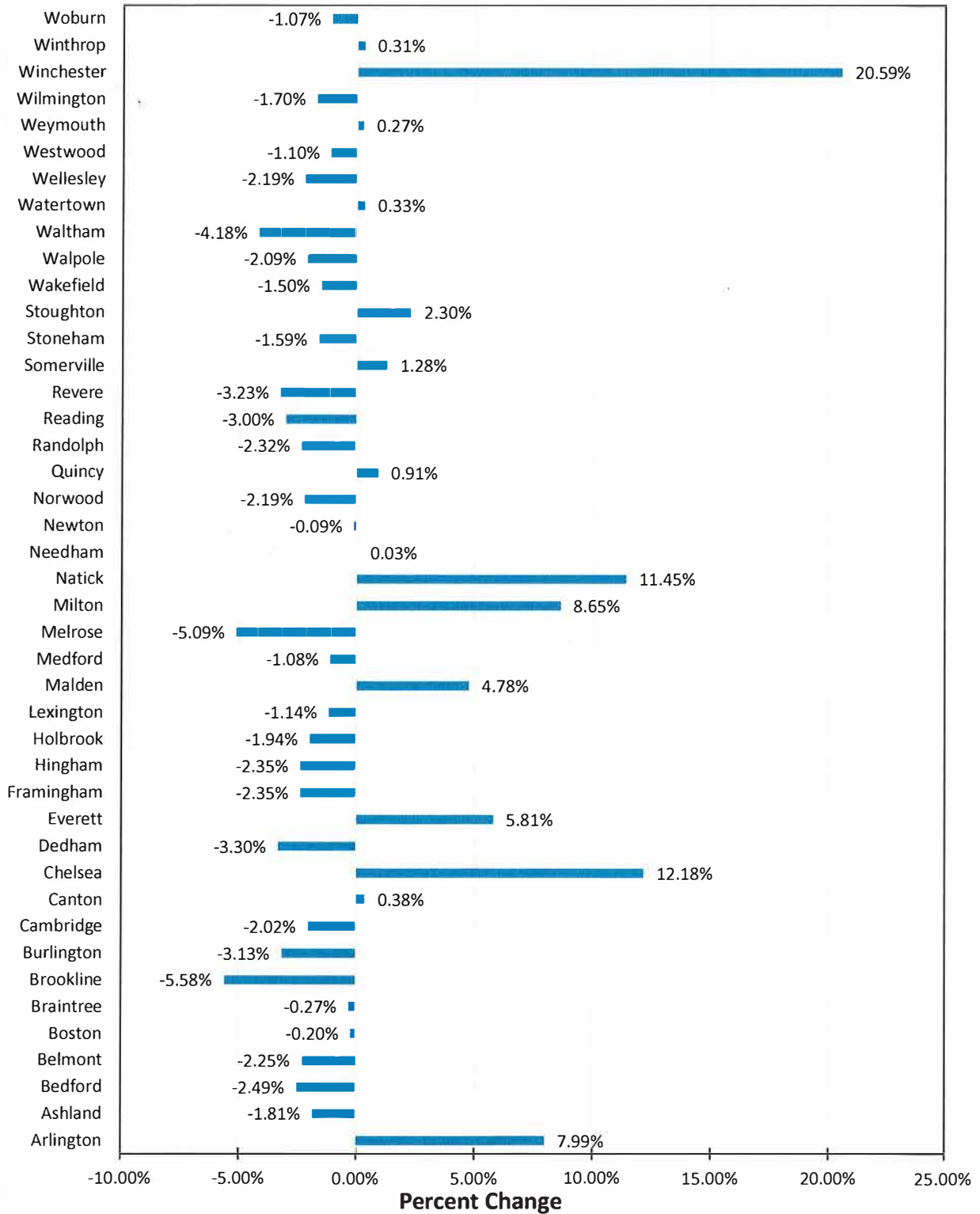
ATTACHMENTS:

Attachment A: List of Community Flow Share Changes Due to Updated Unmetered Flow

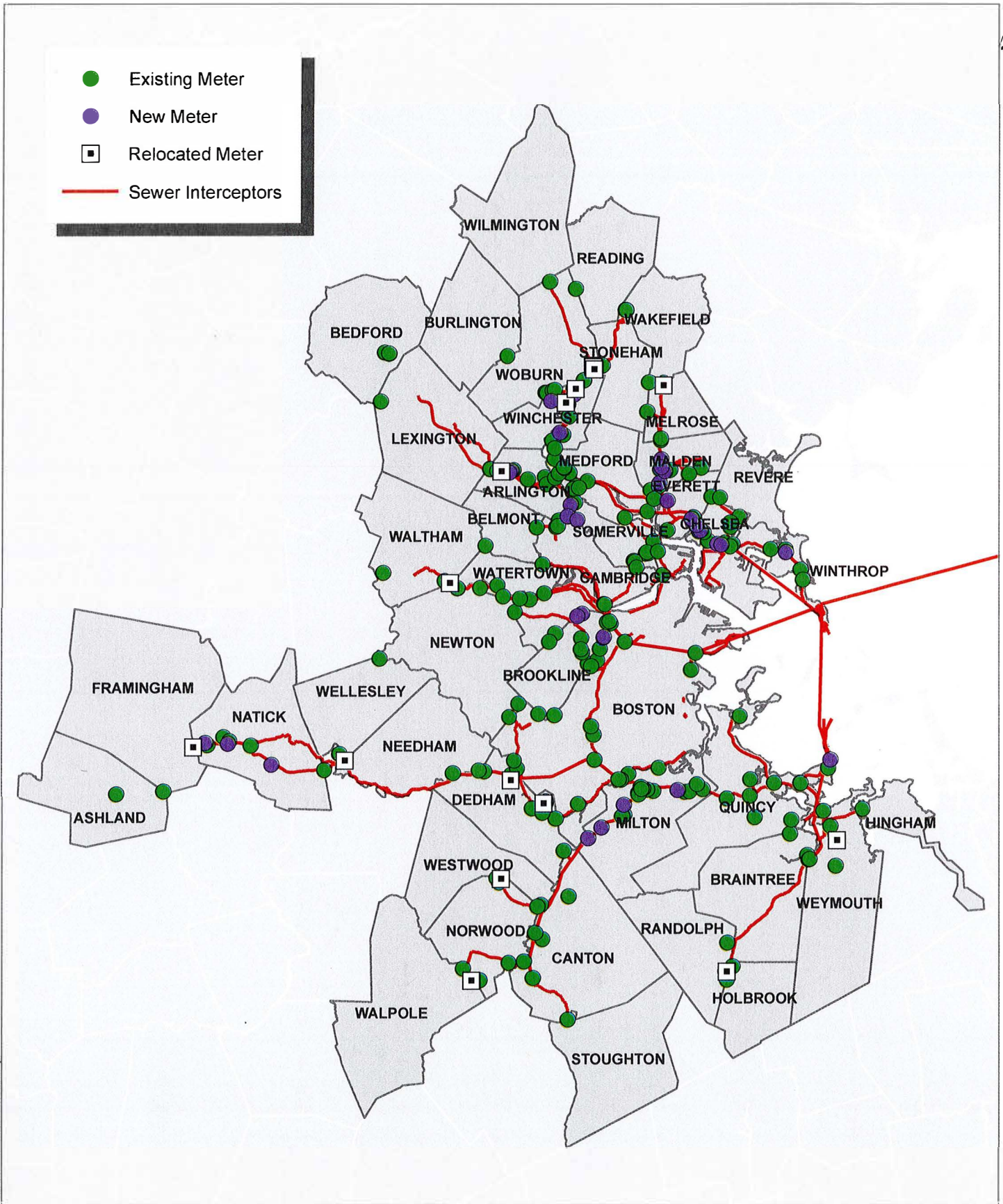
Attachment B: Map of Existing and Proposed Changes to Wastewater Metering sites

Attachment A: List of Community Flow Share Changes Due to Updated Unmetered Flow

CY-18 Community's Change in Flow Share -- Based on New Unmetered Flow



Attachment B: Proposed Changes to Wastewater Metering Sites





STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: Harbor and Outfall Monitoring Contracts for 2020-2023
Water Column Monitoring, Battelle Memorial Institute, Contract OP-401A; and
Benthic, Fish and Shellfish Monitoring, Normandeau Associates, Inc. Contract OP-401B

COMMITTEE: Wastewater Policy & Oversight

 INFORMATION
 X VOTE

Carolyn M. Fiore, Deputy COO
Betsy Reilley, Ph.D., Director, Environmental Quality
Kenneth E. Keay, Senior Program Manager
Preparer/Title


Michele S. Gillen
Director of Administration

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

The Harbor and Outfall Monitoring contracts provide environmental monitoring of potential outfall impacts as required by the Environmental Protection Agency in MWRA's National Pollutant Discharge Elimination System (NPDES) permit for Deer Island. The scopes of work for Contracts OP-401A and OP-401B reflect requirements in the permit-attached Ambient Monitoring Plan. These contracts will provide field monitoring in 2020, 2021, and 2022, and sample analysis and report preparation in 2020 through 2023.

A staff summary requesting Board approval for Contract OP-406 with the Center for Coastal Studies in Provincetown is also being presented concurrently at this meeting. Contract OP-406 provides environmental monitoring in Cape Cod Bay similarly required by the Ambient Monitoring Plan. Monitoring under contract OP-406 will be coordinated with sampling under contract OP-401A, but the services are not duplicative.

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to select two separate firms to provide Harbor and Outfall Monitoring services from 2020 to 2023, and to authorize the Executive Director, on behalf of the Authority, to execute two separate contracts as follows:

Contract OP-401A, Harbor and Outfall Monitoring, Water Column Monitoring, with Battelle Memorial Institute, for an amount not to exceed \$2,389,177.57, with a contract term of 48 months from the Notice to Proceed; and

Contract OP-401B, Harbor and Outfall Monitoring, Benthic, Fish and Shellfish Monitoring, with Normandeau Associates, Inc., for an amount not to exceed \$1,399,332.30, with a contract term of 46 months¹ from the Notice to Proceed.

¹ The slightly longer term (48 months) for Contract OP-401A compared to Contract OP-401B (46 months) is necessary to allow for completion of the *Outfall Monitoring Overview* report.

BACKGROUND:

Specific, detailed regulatory requirements for environmental monitoring of the potential effects of MWRA's Deer Island Outfall discharges are incorporated into the Ambient Monitoring Plan attached to Deer Island's NPDES permit and are thus enforceable. The environmental monitoring requirements reflect the history of negotiations on several critical issues related to the planning and construction of the Deer Island Treatment Plant and the outfall. These issues include questions about environmental impacts of nutrients in MWRA's effluent, the environmental effects of the elimination of Secondary Treatment Battery D, endangered species issues raised by Cape Cod groups and the National Marine Fisheries Service, and EPA's decision to incorporate into the permit the provisions of the Contingency Plan that MWRA prepared by agreement with EPA and the National Marine Fisheries Service in response to a recommendation issued with the Biological Opinion.

Results of the monitoring clearly document the dramatic environmental benefits of MWRA's investments in the Boston Harbor Project and the Long-Term CSO Control Program. This long-term monitoring began in 1992, and results have been presented in over 200 detailed technical reports and journal articles. These results have allowed MWRA to document that its outfall discharge into Massachusetts Bay has had only minimal impacts and has not caused environmental degradation. Environmental monitoring benefits MWRA in other ways since it has provided data that MWRA has been able to use to address concerns from regulatory agencies, public advocacy organizations, the media, and ratepayers, when phenomena that could be perceived to be caused by the outfall have occurred. For example, in the 19 years that the outfall has been on-line, staff have used the data to address questions about algal blooms in the harbor and the bay, including several major red tide events, changes in zooplankton populations, water and sediment quality in Boston Harbor, lobster fishery issues, a pattern of female-dominated winter flounder in MWRA's monitoring, shellfish safety, beach contamination, floatables, and dissolved oxygen issues. None of these evaluations have suggested a negative impact related to outfall discharge.

The results also allowed staff to propose a substantially reduced monitoring program that enables MWRA to meet its commitments at substantial savings. Direct expenditures in support of MWRA's required monitoring peaked in FY03 at approximately \$4.3 million per year. Through a combination of initiatives, including two major revisions to the monitoring plan in 2003-2004 and in 2009-2010, and bringing many of the tasks in-house, MWRA has been able to reduce monitoring spending to approximately \$1.3 million per year, a 2/3 reduction from FY03.

The results of MWRA's Ambient Monitoring for calendar year 2018 are discussed in the Permit-required 2018 *Outfall Monitoring Overview*, which was described in a staff summary presented to the Board at the October 16, 2019 meeting.

DISCUSSION:

Contracts OP-401A and OP-401B will provide field monitoring for three years (2020 through 2022), and sample analysis and report preparation in 2020 through 2023, as described in more detail below:

OP-401A – Water Column Monitoring

- Conduct nine water quality surveys per year at 11 stations in Massachusetts Bay (See Figure 1), in compliance with the permit-required monitoring plan²;
- At each station, sensors collect data at frequent intervals, from the surface to within a few feet of the seafloor, of water temperature, salinity, water clarity, dissolved oxygen, chlorophyll and other water quality parameters;
- In addition to sensor measurements, samples are collected at five water depths for dissolved and particulate nutrients, and for laboratory analyses of chlorophyll and dissolved oxygen used to calibrate the sensor measurements. Chlorophyll and nutrient analyses are carried out by MWRA’s Department of Laboratory Services;

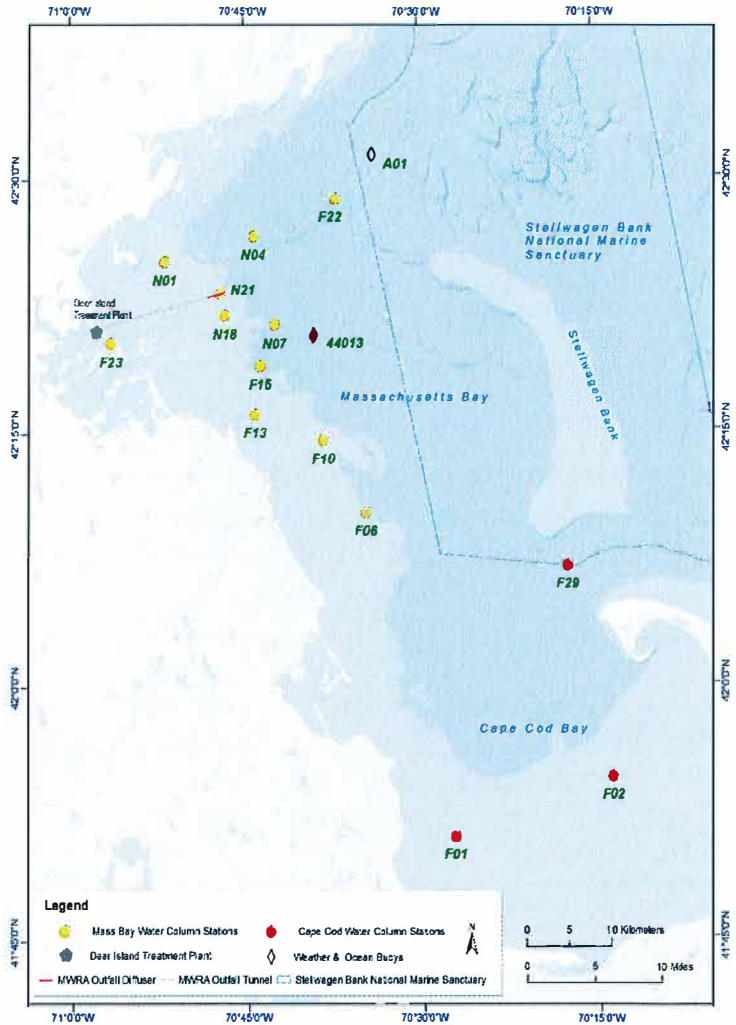


Figure 1. Location of MWRA's water quality monitoring stations.

- Samples for the determination of the phytoplankton (microscopic algae) community are collected at two depths at every station except N21, and a single zooplankton sample is collected to identify the community of tiny animals that eat the phytoplankton;
- Surveys of Massachusetts Bay in response to blooms of the algae responsible for red tide and paralytic shellfish poisoning in New England waters. When these blooms enter the

² Monitoring at the three stations in Cape Cod Bay shown in Figure 1 in 2020 to 2022 will be conducted under a separate cost-share agreement (Contract OP-406) with the Center for Coastal Studies in Provincetown, being presented to the Board at this meeting.

bay from the Gulf of Maine, weekly surveys are triggered that continue until the bloom subsides. In years when no blooms enter the bay, no surveys are conducted; and

- Annual technical reports are prepared on the results of the water quality monitoring, and under contract OP-401A the consultant, along with MWRA staff, will compile and develop the annual “*Outfall Monitoring Overview*” report summarizing the Ambient Monitoring results for the year.

OP-401B – Benthic, Fish and Shellfish Monitoring

- Annual sampling will occur at 14 soft-bottom sediment community monitoring stations, including 11 stations near the outfall (considered the “nearfield”), and three stations in reference areas, including the Stellwagen Bank National Marine Sanctuary. Sediment contaminant sampling will occur at these stations in 2020. Contaminant samples will be analyzed by MWRA’s Department of Laboratory Services;
- Sediment profile imaging will occur annually at the 23 nearfield soft bottom stations seen in Figure 2;
- A video survey of rocky sea-floor environments in the vicinity of the outfall, including both active and inactive outfall riser heads, will occur in 2020;
- Sediment sampling at nine stations in Boston Harbor will occur annually in support of MWRA’s Boston Harbor Monitoring;
- Sediment profile imaging will occur annually at 60 stations in Boston Harbor in support of MWRA’s Boston Harbor monitoring;

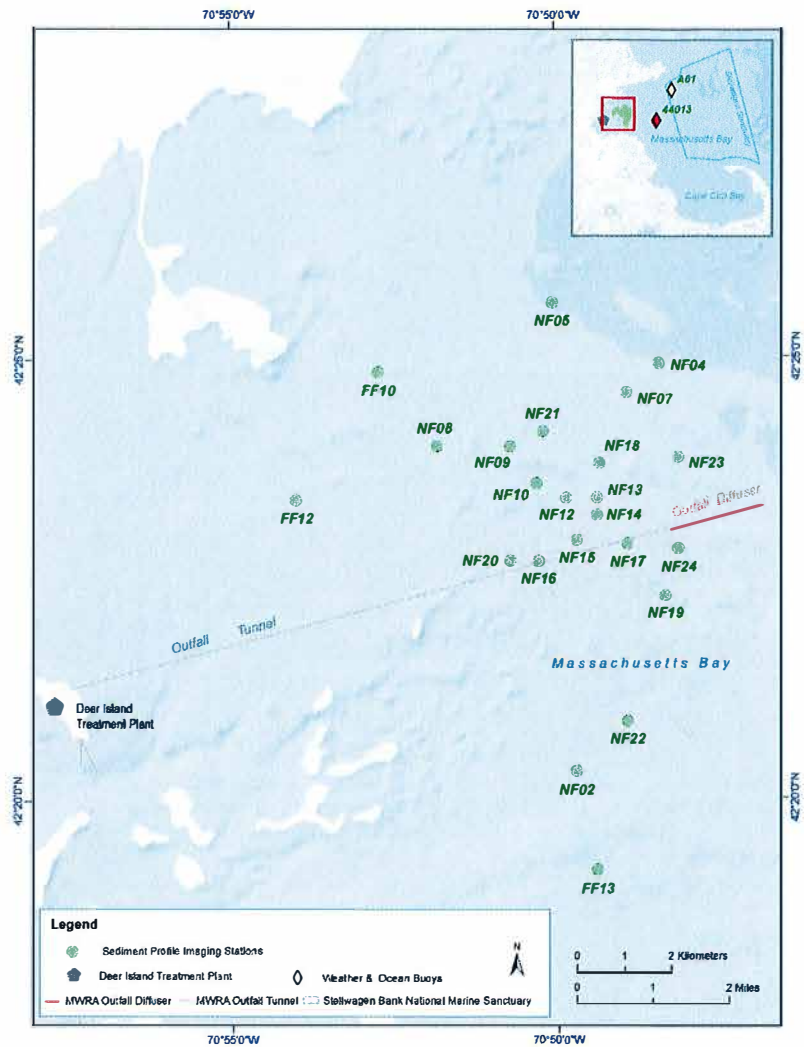


Figure 2. Location of MWRA sediment profile image monitoring stations. Sediment samples are collected at 11 of these stations.

- Annual monitoring of winter flounder will continue in Boston Harbor, in the vicinity of the outfall, and at two other reference locations for liver diseases linked to contaminant exposure (See Figure 3). In 2021, flounder tissue samples will be collected for contaminant analysis by the Department of Laboratory Services;
- In 2021, samples of lobster will be collected in Boston Harbor, in the vicinity of the outfall, and in Cape Cod Bay for contaminant analysis by the Department of Laboratory Services; and
- In 2021, blue mussels will be collected from a clean location in Maine and deployed near the outfall and in reference sites in Boston Harbor. After 60 days' exposure, mussel tissues from the source location and the deployments will be analyzed for contaminants by the Department of Laboratory Services.

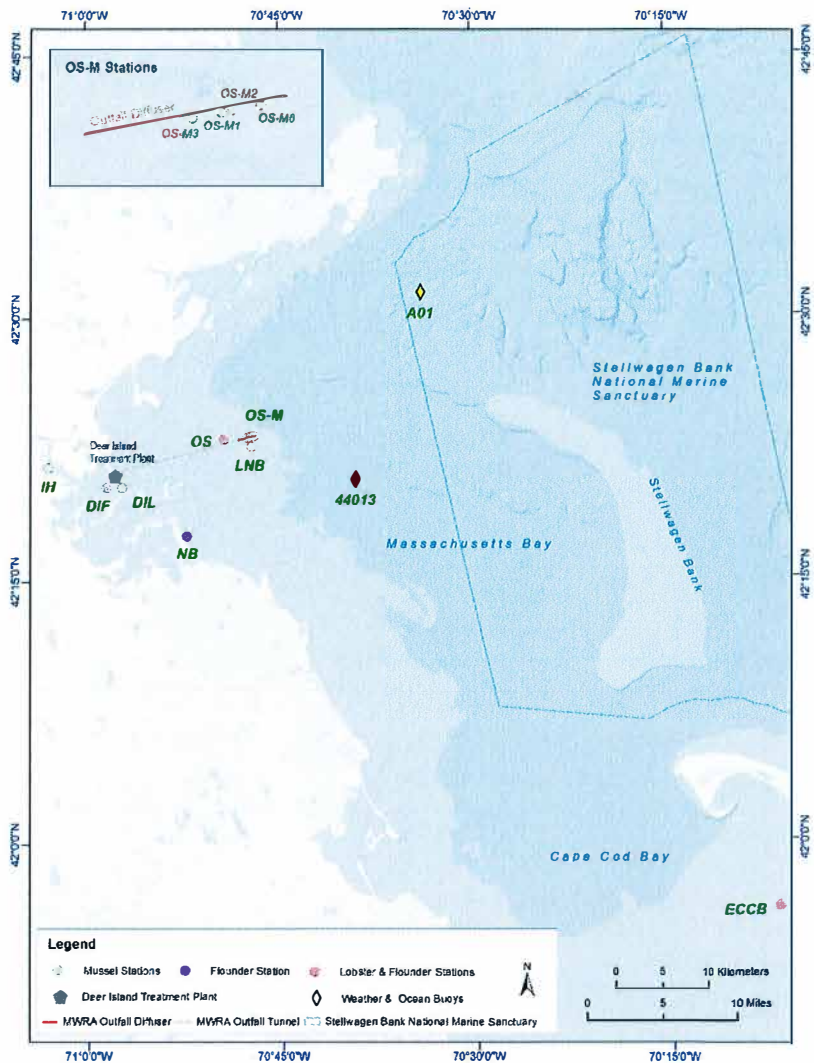


Figure 3. Location of monitoring stations for flounder, lobster, and mussel monitoring.

Under both contracts, the selected consultants will analyze the samples, carry out data analyses and prepare interpretive reports, which must be submitted to regulators.

The unit price nature of the contracts, together with the Task Order allotments built into them, will provide MWRA with substantial flexibility in the event a new Ambient Monitoring Plan or new discharge permit changing MWRA's monitoring requirements comes into effect during the next 3 years.

Procurement Process

This is the eleventh contract procurement for Harbor and Outfall Monitoring services since the project began in 1992. The Selection Committee approved an evaluative procurement with a Request for Qualifications/Proposals (RFQ/P) evaluation criteria and points as follows: Cost (25); Technical Approach/Capacity/Organization and Management Approach (25); Qualifications/Key Personnel (25); Experience and Past Performance on Authority and Non-Authority Projects (23); and MBE/WBE Participation (2).

On August 3, 2019, MWRA advertised that an RFQ/P for two contracts OP-401A and OP-401B would be issued on August 7, 2019. To encourage participation in this procurement, MWRA also submitted copies of the advertisement directly to 27 consulting firms and academic/research institutions.

On September 20, 2019 two firms submitted proposals, one from Battelle on the Water Column Monitoring contract (OP-401A), and one from Normandeau on the Benthic, Fish and Shellfish Monitoring contract (OP-401B). After review of the solicitation process, the Procurement Director determined that it was acceptable to go forward with the procurement which received only one proposal per contract.

Selection Committee members completed their preliminary scoring of the proposals, and then met to review, score, and rank each proposal with the following results:

Contract OP-401A, Water Column Monitoring

Battelle Memorial Institute	\$2,389,177.57
<i>MWRA Staff Estimate</i>	<i>\$2,414,000.00</i>

Battelle submitted the only proposal for this contract. Battelle's proposed cost was slightly lower (about 1%) than MWRA's estimate, which had been based on costs from contract OP-326A escalated at 2% per year for three years³. It was viewed favorably that, for the project management and data management tasks, proposed costs are slightly less than the 2% per year escalation from the current contract.

Battelle proposed to continue the same project team and approach in the new contract, as it is using in its current contract with MWRA. Battelle's team of scientists has played a major role in helping MWRA design and justify monitoring plan changes that led to the reductions in monitoring that were approved in 2004 and again in 2010. Battelle's performance has been excellent during the three similar MWRA contracts on which the firm has worked in the past seven years, and its performance on non-MWRA contracts is highly regarded by other public sector clients.

The Selection Committee judged that Battelle's proposal was responsive and its price reasonable, the firm's proposed approach is very good to excellent, and the project team is highly qualified to perform the services across all technical criteria.

³ Contracts OP-326A and OP-326B have comparable scopes to the OP-401 contracts, and were procured in 2016, three years ago.

Contract OP-401B, Benthic, Fish and Shellfish Monitoring,

Normandeau Associates, Inc.
MWRA Staff Estimate

\$1,399,332.30
\$1,371,000.00

Normandeau submitted the only proposal for this contract. Normandeau’s proposed costs were slightly higher (about 2%) than MWRA’s estimate, which had been based on costs from Contract OP-326B escalated at 2% per year for three years. For some tasks, including project management and data management, proposed costs are slightly lower than those in the staff estimate.

Normandeau proposed to continue the same project team and approach in the new contract, as it is using in its current contract with MWRA. Normandeau’s performance during the past 7 years on very similar MWRA contracts has been excellent. Normandeau and its proposed team members are very experienced with similar studies in the region and received uniformly excellent reviews from firms and governmental entities listed as references. The Selection Committee determined that the firm is highly qualified to perform the services across all technical criteria.

The Selection Committee determined that Normandeau’s proposal was responsive and its costs reasonable, the firm’s proposed approach is very good to excellent, and the project team is highly qualified to perform the services across all technical criteria.

The selection committee voted unanimously to recommend Battelle Memorial Institute for “Contract OP-401A, Water Column Monitoring”; and Normandeau Associates, Inc. for “Contract OP-401B, Benthic, Fish and Shellfish Monitoring.”

BUDGET/FISCAL IMPACT:

Expected FY20 costs (combined) under these two contracts once executed will be approximately \$9,000 less than budgeted. The budget is under 22500-10602.


FY20 Budget Impact (rounded to nearest thousand)				
Contract	Contractor	FY20 Budget	Proposed	Difference
OP-401A	Battelle	\$315,000	\$298,000	(\$17,000)
OP-401B	Normandeau	\$132,000	\$140,000	\$8,000

Adequate funding will be included in the Proposed FY21 through FY24 CEBs to cover anticipated costs in later years.

MBE/WBE PARTICIPATION:


AACU established a zero percent MBE or WBE participation requirement for either contract under this project. However, MBE/WBE participation is encouraged because the project supports some sub-contracting. Battelle Memorial Institute committed to 0.3% WBE participation for Contract OP-401A.

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: Cooperative Research Project to Conduct Water Quality Monitoring in Cape Cod Bay
Center for Coastal Studies, Inc.
Contract OP-406

COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE


Michele S. Gillen
Director of Administration

Betsy Reilley Ph.D., Director, ENQUAL
David Taylor Ph.D., Project Manager, ENQUAL
Preparer/Title


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

RECOMMENDATION:

To approve the award of Contract OP-406, a sole-source contract for a cooperative research project to conduct permit-required water quality monitoring in Cape Cod Bay, with the Center for Coastal Studies Inc. in Provincetown, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the amount of \$407,665, for a contract term of three years from the Notice to Proceed.

DISCUSSION:

As part of its National Pollutant Discharge Elimination System (NPDES) permit for Deer Island, MWRA is required to monitor water quality at 11 locations in Massachusetts Bay and three locations in Cape Cod Bay. The Harbor and Outfall Monitoring contracts, which are the subject of a separate staff summary being presented at this meeting, address water quality monitoring at the 11 Massachusetts Bay locations. This staff summary addresses a cost-share cooperative research project with the Center for Coastal Studies Inc. in Provincetown (the Center) to monitor the three Cape Cod Bay locations (see map on following page). MWRA's permit-attached Ambient Monitoring Plan sets a goal for the three Cape Cod Bay locations to be sampled within 48 hours of the Massachusetts Bay locations.

The Center, which under the existing and previous contracts with MWRA has conducted this water quality monitoring for nine years, is able to undertake the monitoring cost-effectively and within the 48-hour window. The Center, which has been monitoring the bay for 30 years, is widely viewed as the environmental custodians of Cape Cod Bay. It regularly exchanges water quality and whale-sighting data with MWRA.

This contract scope is identical to the previous cooperative research contract with the Center for Coastal Studies. The costs to the MWRA will be \$132,924 the first year, \$135,859 the second, and \$138,882, the third, for a total of \$407,665.

The proposed contract costs represents a 2.5% escalation for the first year above the final year of the prior contract, plus an annual 2.5% escalation for the second and third years. In addition to MWRA's costs, the Center will provide a 37% match (up to \$100,000 in private donations and approximately \$50,000 in in-kind match).

Scope

The contract includes the following two main tasks:

- The Center will conduct 27 surveys of water quality in Cape Cod Bay between February 4, 2020 and February 3, 2023. During each survey, the Center will measure hydrographic profiles, water chemistry, phytoplankton numbers and types, and zooplankton using net tows at the three locations.
- The Center will provide written logs of the surveys to MWRA within ten days of the completion of each survey. Each year, all data from the first three surveys will be submitted to MWRA by June 30, the data from the next three surveys by August 31, and from the final three surveys by February 3. The Center for Coastal Studies will, if requested, provide an oral presentation of the monitoring results at MWRA's technical workshops in spring 2020, 2021 and 2022.

Staff recommend that MWRA enter into a sole source contract with the Center for Coastal Studies to perform this monitoring. Staff believe the project costs and escalation are very reasonable. The Center is the only organization, government or non-government, conducting this type of work in Cape Cod Bay. The Center has demonstrated its ability to meet MWRA's strict technical requirements for the monitoring. The Director of Procurement reviewed and approved the sole source nature of this contract.

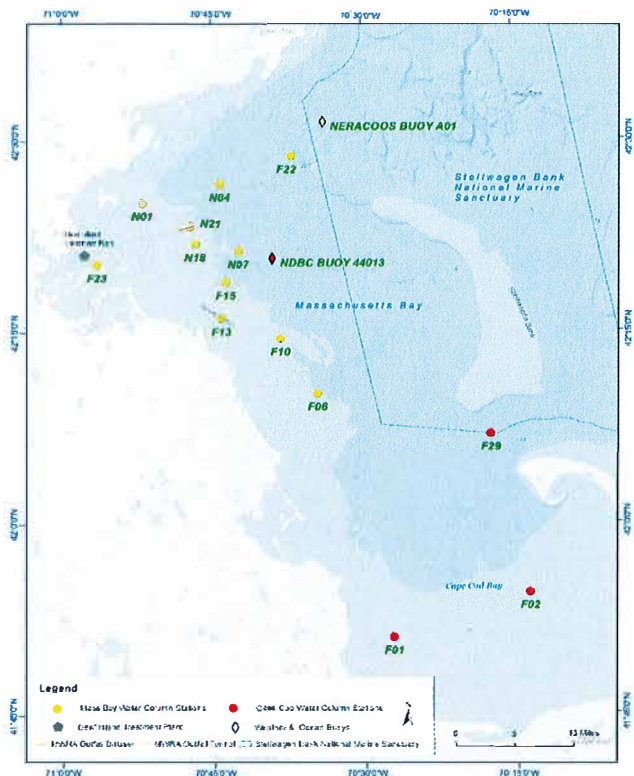


Fig. 1 Location of MWRA's water quality stations in Massachusetts and Cape Cod Bays. The Center for Coastal Studies will monitor the three locations.

BUDGET/FISCAL IMPACT:

The total cost of this contract to MWRA will be \$407,665. There are sufficient funds contained under 22500-10602 in the FY20 Current Expense Budget for this contract. Appropriate funds will be included in future CEBs for the remaining term of the contract.

MBE/WBE PARTICIPATION:

There were no MBE or WBE Participation requirements established for this contract because of limited opportunities for subcontracting.

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 20, 2019
SUBJECT: Chelsea Creek Headworks Upgrade
BHD/BEC 2015, A Joint Venture
Contract 7161, Change Order 34



COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE

Corinne M. Barrett, Director, Construction
Martin E. McGowan, Construction Coordinator
Preparer/Title



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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 34 to Contract 7161, Chelsea Creek Headworks Upgrade, with BHD/BEC 2015, A Joint Venture, for an amount not to exceed \$425,000.00, increasing the contract amount from \$81,991,350.46 to \$82,416,350.46, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7161 in an amount not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

DISCUSSION:

The Chelsea Creek Headworks is one of three remote headworks facilities that provides preliminary treatment and flow control of the wastewater from MWRA's Northern Service Area before reaching the Deer Island Treatment Plant. Preliminary treatment at the headworks facilities includes grit and screenings removal, which prevents excessive wear and maintenance of equipment at the North Main Pump Station, and protects the cross harbor tunnels from filling with debris. The Chelsea Creek Headworks was constructed in the 1960s and received its last significant upgrade in 1987.

This project is a major upgrade of the entire facility and includes automation of the screenings collection and solids conveyance system, allowing the facility to be unstaffed during dry weather flow. The grit collector systems are being replaced and existing climber screens are being replaced with catenary screens. Influent and effluent sluice gates are being replaced and the gate hydraulic operating system is being replaced with electric gate actuators. Carbon adsorbers are being installed for odor control, HVAC systems are being upgraded, and redundancy is being added to both systems. Ancillary systems including the emergency generator, fuel oil tank, and transformer are being replaced. Instrumentation and control systems are being upgraded, the communications tower is being replaced and a communications building is being added. Abatement of hazardous building materials including paint

containing PCBs, flood protection measures to protect the facility to the 100-year flood elevation plus 2.5 feet, and upgrades to meet current code requirements for egress, electrical, plumbing and fire suppression are also included.

Project Update

- The first process channel was accepted in April 2019. In the past 2 months, there have been multiple failures of the new stainless steel grit collector chain. Staff and the consultant are investigating the cause of failure and evaluating options to resolve this issue.
- The second process channel was accepted in November 2019 with some exceptions.
- The new 1,000 kW standby generator was placed into service in October 2019.
- The new odor control fans and carbon adsorbers will begin functional testing in December 2019.
- Hazardous material abatement is approximately 95% complete.

This Change Order

Change Order 34 consists of the following item:

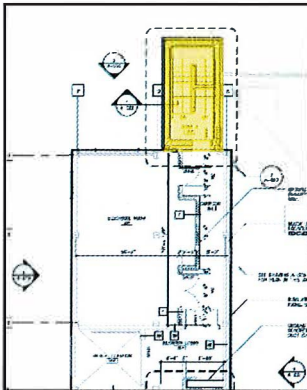
Stair A Structural Revisions

Not to Exceed \$425,000

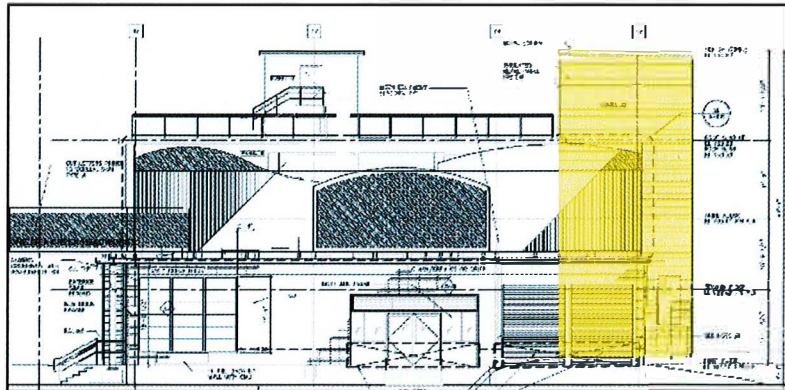
The Contractor is required to furnish and install a new stair tower addition on the north side of the building to provide a means of egress from the upper levels of the facility to comply with the latest Building Code. The specified stair tower addition was designated as “Stair A” and was originally designed as a four-story, cast-in-place concrete structure constructed on the roof of the below-grade operating level. After commencement of the contract, it was realized that the structural reinforcement of the existing roof slab of the below-grade operating level was inadequate and would not support the weight of the specified four-story concrete stair tower. The design engineer acknowledged that incorrect load factors were applied in the original design and that the specified four-story concrete stair tower would need to be relocated and re-designed.

The re-design requires more expensive, but lighter weight building materials to reduce the overall weight imposed on the existing roof slab and also resulted in “Stair A” being re-designed as a three-story steel framed structure as opposed to the specified four-story concrete structure with interior masonry walls. The re-design also replaced the concrete landings at each level with lightweight aluminum landings and relocated the steel framed stair tower structure approximately 15 feet away from the building in order for it to be set on a concrete-encased steel beam foundation over existing columns to carry the load down to the base slab of the operating level. By relocating the re-designed stair tower 15 feet from the building, enclosed walkways are required at each level to provide access from the building to the stairwell. Additionally, one of the existing columns will require a steel encasement to provide additional reinforcement. In order to further reduce the overall weight of the re-designed structure, the Contractor will be required to install an exterior set of aluminum stairs from the lower roof to the upper roof as a means of egress from the elevator penthouse located on the fourth level. Finally, revised lighting, heating, fire protection, fire alarm, roofing and exterior siding are all necessary for the re-designed “Stair A.” To correct this error, the Contractor will furnish and install a three-story steel stair tower with an exterior set of aluminum stairs with revised lighting, heating, fire protection, fire alarm, roofing and exterior siding in lieu of the specified four-story concrete “Stair A.”

As-Bid Stair A Layout:

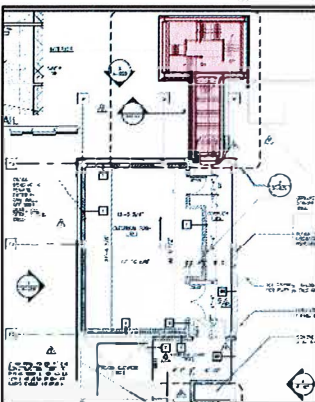


Plan View

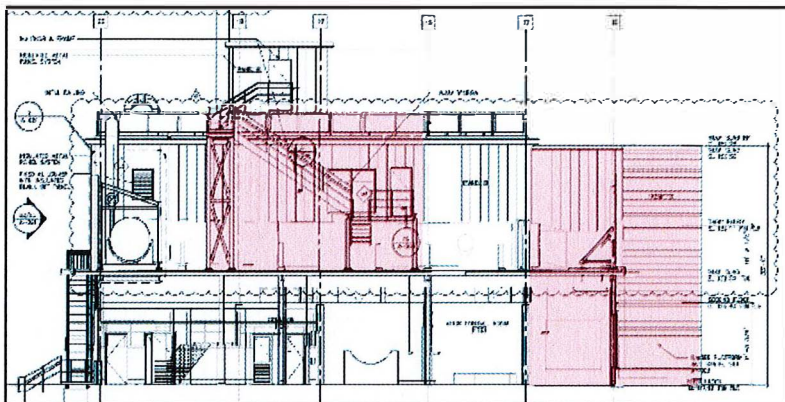


Section View

Revised Stair A Layout:



Plan View



Section View

This item was identified by MWRA staff as a design error and the design consultant agreed. MWRA staff, the Consultant, and the Contractor have agreed to an amount not to exceed \$425,000 for this additional work. Although the Contractor agrees with the pricing of this change order, it does not agree with MWRA's determination of no increase in contract term. Therefore, MWRA staff anticipate that Change Order 34 will be executed unilaterally; and the Contractor will likely file a subsequent claim for additional time. Work associated with this proposed change order has not begun.

Staff are compiling a list of all change order items that have resulted from an error or omission and will conduct a review at the end of the project regarding responsibility of the Design Consultant, Arcadis U.S., Inc., and the potential for any cost recovery.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract:	\$72,859,000.00	1,460 Days	11/22/16
Change Orders:			
Change Order 1	\$252,512.00	0 Days	06/29/17
Change Order 2*	\$208,431.00	0 Days	07/24/17
Change Order 3	\$1,129,740.20	0 Days	07/24/17

Change Order 4*	\$237,870.00	0 Days	10/18/17
Change Order 5	\$304,036.26	0 Days	12/21/17
Change Order 6*	\$207,226.00	0 Days	01/26/18
Change Order 7	\$1,278,783.00	0 Days	02/07/18
Change Order 8	\$937,267.00	0 Days	02/22/18
Change Order 9	\$17,321.00	0 Days	04/03/18
Change Order 10*	\$20,879.00	0 Days	04/11/18
Change Order 11*	\$200,000.00	0 Days	05/18/18
Change Order 12	\$1,000,000.00	0 Days	05/31/18
Change Order 13*	\$129,783.00	0 Days	06/12/18
Change Order 14	\$500,000.00	0 Days	06/28/18
Change Order 15*	\$24,634.00	0 Days	08/20/18
Change Order 16*	\$21,584.00	0 Days	08/24/18
Change Order 17*	\$109,065.00	0 Days	09/13/18
Change Order 18	\$395,742.00	0 Days	09/28/18
Change Order 19*	\$18,351.00	0 Days	10/26/18
Change Order 20*	\$20,123.00	0 Days	11/06/18
Change Order 21*	\$82,621.00	0 Days	11/13/18
Change Order 22	\$182,792.00	0 Days	11/19/18
Change Order 23*	\$70,125.00	0 Days	12/17/18
Change Order 24*	\$15,618.00	0 Days	01/24/19
Change Order 25*	\$149,469.00	0 Days	02/19/19
Change Order 26	\$375,000.00	0 Days	03/14/19
Change Order 27*	\$24,238.00	0 Days	05/21/19
Change Order 28*	\$213,402.00	0 Days	06/17/19
Change Order 29	\$380,778.00	0 Days	07/16/19
Change Order 30*	\$24,122.00	0 Days	08/12/19
Change Order 31*	\$164,177.00	0 Days	09/16/19
Change Order 32	\$236,588.00	0 Days	09/25/19
Change Order 33*	\$200,073.00	0 Days	Pending
Change Order 34	<u>\$425,000.00</u>	<u>0 Days</u>	Pending
Total of Change Orders:	\$9,557,350.46	0 Days	
Adjusted Contract:	\$82,416,350.46	1,460 Days	

*Approved under delegated authority

If Change Order 34 is approved, the cumulative value of all change orders to this contract will be \$9,557,350.46 or 13.1% of the original contract amount. Work on this contract is approximately 60% complete.

BUDGET/FISCAL IMPACT:

The FY20 Capital Improvement Program budget includes \$82,503,972 for Contract 7161. Including this change order for \$425,000, the adjusted subphase total is \$82,416,350.46.

MBE/WBE PARTICIPATION:

The MBE/WBE participation requirements for this project were established at 3.4% and 3.8%, respectively. The Contractor has been notified that these requirements are still expected to be met.



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 & OVERSIGHT COMMITTEE MEETING

to be held on

Wednesday, November 20, 2019

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

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

Time: Immediately following Wastewater Committee

AGENDA

A. Information

1. Update on Lead and Copper Rule Compliance – Fall 2019
2. America's Water Infrastructure Act: Risk and Resiliency Assessments

B. Contract Awards

1. Section 53 and 99 Improvements Design/CA: Hazen and Sawyer, P.C, Contract 7485

C. Contract Amendments/Change Orders

1. Southern Extra High Pipeline – Section 111 (Dedham North): P. Gioioso and Sons, Inc., Contract 7504, Change Order 11

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Water Policy and Oversight Committee

October 16, 2019

A meeting of the Water Policy and Oversight Committee was held on October 16, 2019 at the Authority headquarters in Charlestown. Committee Chair Peña presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cook, Foti, Pappastergion, Vitale and Walsh. Messrs. Cotter and Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Stephen Estes-Smargiassi, Kathleen Murtagh, Bethany Card, Fred Brandon, Thomas Durkin, Corinne Barrett, Jeremiah Sheehan and Kristin MacDougall. The meeting was called to order at 11:56 a.m.

Information

Update on Lead and Copper Rule (verbal report)

Staff made a verbal presentation. There were questions and answers. (ref. W A.1)

Metropolitan Tunnel Redundancy Program Update

Staff made a presentation. (Ms. Wolowicz briefly left and returned to the meeting during the presentation.) There was discussion and questions and answers. (ref. W A.2)

Approvals

* Emergency Water Supply Agreement with the Town of Burlington

Staff made a verbal presentation. There were questions and answers.

The Committee recommended approval. (ref. W B.1)

Contract Amendments/Change Orders

* Northern Intermediate High Section 110 - Stoneham: Albanese D&S Inc., Contract 7067, Change Order 10

Staff made a presentation.

* Committee recommendation approved by the Board on October 16, 2019

The Committee recommended approval. (ref. W C.1)

The meeting adjourned at 12:39 a.m.

* Committee recommendation approved by the Board on October 16, 2019

Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2019/o-BoardMaterials10-16-19.pdf>

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 20, 2019
SUBJECT: Update on Lead and Copper Rule Compliance – Fall 2019



COMMITTEE: Water Policy & Oversight

INFORMATION
 VOTE

Beverly Anderson, Project Manager, Public Health
Stephen Estes-Smargiassi, Director, Planning and Sustainability
 Preparer/Title


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

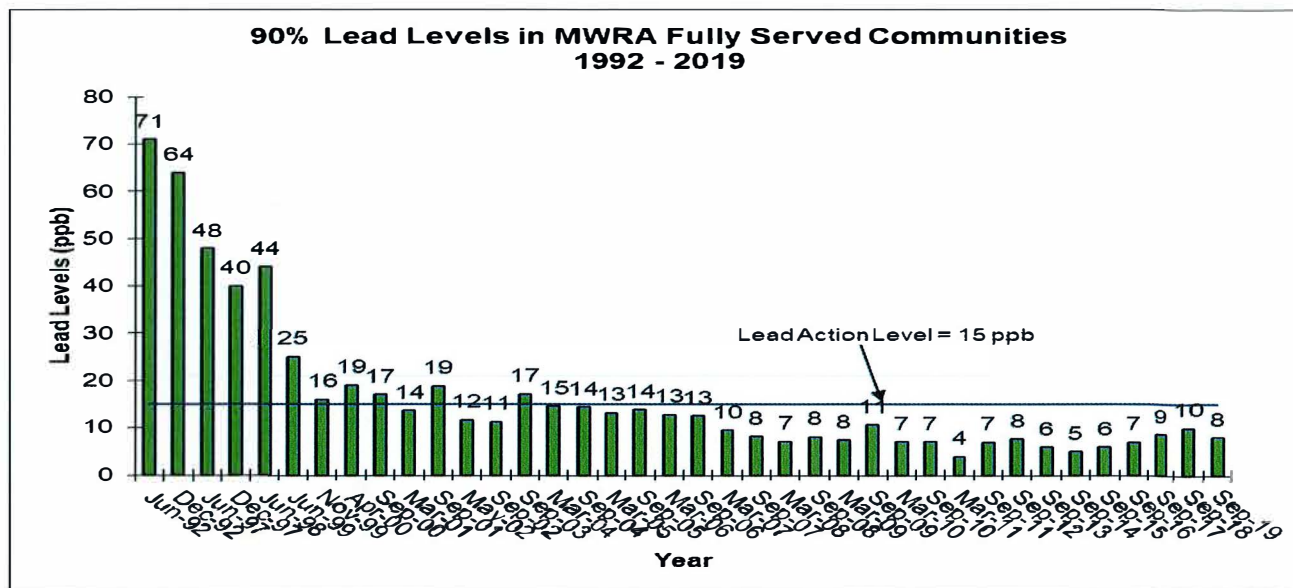
RECOMMENDATION:

For information only.

DISCUSSION:

MWRA and its communities conducted the calendar year 2019 Lead and Copper Rule sampling round beginning in September 2019. The 90th percentile lead value for the system as a whole was 7.97 parts per billion (ppb), which is below the Lead Action Level of 15 ppb.

Five communities were individually over the lead Action Level: Arlington, Medford, Quincy, Somerville, and Winthrop. Three of the communities, Medford, Quincy and Winthrop, had been above the Action Level in 2018.



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

The Massachusetts Department of Environmental Protection (DEP) has had extensive interactions with all five communities with regard to fulfilling the requirements of the Lead and Copper Rule. All communities have been notified and will be required to meet public education requirements, including mailing updated lead education brochures, and will be required to meet lead service line replacement requirements set by DEP. The three communities that have been over the Action Level before have experience working with DEP on meeting the requirements of the Lead and Copper Rule. MWRA is working with the two others to provide technical assistance. MWRA will provide an updated educational brochure, and staff have offered assistance in working with DEP on the educational requirements and documentation that demonstrates that the community has replaced the required number of service lines.

Under the LCR, each community is also required to collect samples from two schools or childcare facilities. As with residential samples, MWRA staff immediately contact any community that has a school sample above the Action Level. Four communities had one school or childcare facility test above the Action Level as part of the LCR testing. All school data are available on DEP's online school database that includes over 30,000 school test results from MWRA communities. A link to the DEP database is available on the MWRA webpage.

MWRA has formally transmitted these results to DEP. The results were also transmitted to the communities, and, through them, to each individual homeowner or school that collected a sample for the program. MWRA staff also directly contacted communities with schools above the Action Level and individual homeowners with very high or unusual results.

Review of Corrosion Control Treatment

Staff conducted a thorough "desk top" review of MWRA's corrosion control treatment using EPA's latest guidance manual in 2017. Staff continue to review long-term water quality data, potential changes in EPA's regulations and the state of knowledge about corrosion control treatment, in case a change is ever needed. That effort will include fabrication this winter and future operation of an experimental pipe loop system with lead pipe to evaluate possible changes to treatment. Staff are reviewing recent experience with pipe loops in other systems prior to fabrication.

Staff are working to assemble an expert panel to provide some initial input into the design of the pipe loop system, and treatment adjustments to be considered. DEP and EPA staff will be invited to participate in the panel discussions.

School and Childcare Sampling Program

MWRA continues to offer no-cost laboratory analysis services to any of our customer communities that want to sample drinking water taps in schools or childcare facilities. The program is offered in coordination with the Massachusetts Department of Environmental Protection's similar program. MWRA will participate in a press event in early December with DEP and the Department of Public Health announcing an expansion of the DEP program using recently received funds from EPA.

Lead Service Line Replacement Program

In March 2016, the Board approved an enhancement to the Local Water System Assistance Program to make \$100 million in 10-year interest-free loans available to communities solely for efforts to fully replace lead service lines. Under MWRA's Lead Service Line Replacement Loan Program,

each community can develop its own replacement program, tailored to its local circumstances.

During the first three years of the program (through August 2019), MWRA has distributed a total of \$11.9 million in Lead Service Line Replacement Loan Program funds to nine communities:

- Quincy: \$1.5 million in FY17;
- Winchester: \$500,000 in FY17 and \$500,000 second phase in FY18;
- Newton: \$4.0 million in FY17;
- Marlborough: \$1.0 million in FY18 and \$1.0 million in FY19;
- Revere: \$195,000 in FY18;
- Winthrop: \$284,000 in FY18 and \$487,850 in FY19;
- Needham: \$1.0 million in FY18;
- Everett: \$1.0 million in FY19; and,
- Chelsea: \$100,000 in FY19 and \$300,000 in FY20.

Staff have received two applications for November 2019 funding: Everett's second phase project for \$1.0 million and a new project in Somerville for \$900,000. With these two final 2019 distributions, MWRA will have distributed \$13.8 million to ten communities.

Revisions to the Lead and Copper Rule:

The proposed revisions to the federal Lead and Copper Rule presented at the October Board of Director's meeting were formally published in the Federal Register on November 13, 2019, beginning a 60-day comment period. A number of water utility and environmental and public health organizations have requested a 30-day extension. MWRA staff have been involved with EPA at many stages of this rule development, are working extensively with American Water Works Association and the Association of Metropolitan Water Agencies on their comments, and plan to submit MWRA comments as well.

Staff have alerted our customer communities of the release of the draft, and expect to work with the Advisory Board on outreach and eventually training on the new rule requirements.

A summary of the more significant changes to the rule is attached.

BUDGET /FISCAL IMPACT:

MWRA began modern effective corrosion control treatment to reduce lead and copper levels at the tap in 1997. MWRA's corrosion control treatment involves raising the pH and alkalinity to the water to provide a stable, non-corrosive product, reducing the potential for both lead and copper to leach from customer's home plumbing. The annual average cost for corrosion control is approximately \$3.6 million (\$3.3 million in soda ash costs, and \$0.3 million in carbon dioxide costs.)

ATTACHMENTS:

Attachment A - Summary of Significant Proposed Changes to Federal Lead and Copper Rule

Attachment A – Summary of Significant Proposed Changes to Federal Lead and Copper Rule

Notification After an Action Level Exceedance: One of the most important changes is EPA's proposal is that if a system is over the lead Action Level, they must notify the public within 24 hours of receiving the results. This treats a lead exceedance as if it were an acute (i.e. immediate) health risk, similar to a confirmed *e. Coli* positive. This will present significant risk communication challenges and likely lead to confusion and reduction in the public's confidence in tap water. Systems currently have 60 days to provide notice and public education after a lead Action Level exceedance.

Notification of Individual Sample Results: If an individual home has a sample over the Action Level, the system must notify them with 24 hours of receiving the results. MWRA currently strives to provide same day notification of elevated results to communities.

No Change to the Action Level of 15 ppb: EPA is not proposing a change to the lead Action Level of 15 ppb. However, they are adding a second regulatory limit called a Trigger Level.

New Trigger Level of 10 ppb: EPA is proposing that systems with a 90th percentile level over 10 ppb be required to conduct lead service line replacement for at least two years at a rate previously agreed to by their state regulator and to evaluate optimization of their corrosion control treatment process. As currently drafted, large systems such as MWRA, would then be required to actually implement the changes in treatment, while small and medium systems would just complete the study. How this will be implemented between MWRA and customer communities is unclear.

Lead Service Line Replacement: EPA is not proposing to make lead service line replacement mandatory for all systems. If a system is over the lead Trigger Level of 10 ppb, it must implement a replacement program for at least two years, with locally set annual goals. If a system is over the lead Action Level of 15 ppb, it must implement a program with at least a three percent replacement rate for at least two years. Only full replacements, from the main to the house, are allowed, with certain narrow exceptions (similar to MWRA's zero interest loan program). If a customer voluntarily replaces the private portion of the lead service line, the system must replace the part in the street within 3 months.

For all lead service line replacements, the system must provide the customer a certified lead-removing pitcher filter within 24 hours of the replacement.

Although EPA is proposing to make the lead service line replacement requirements more stringent and established the second Trigger Level, there has already been significant negative press coverage that EPA's proposal reduces the required lead service line replacement rate for systems over the Action Level from seven percent to three percent. Staff expect significant negative comments from public health and environmental groups on this aspect of the proposal.

Lead Service Line Inventories: All systems must develop a comprehensive inventory of their lead service lines and those with unknown material, including both the public side and the private side, within three years of final rule being issued. The inventories must be publicly accessible (on-line for


larger systems) and updated annually. Galvanized steel service lines with lead goosenecks would be classified as a lead service line. The proposal provides a substantial incentive to initially resolve service lines of unknown material by including them with the inventory count of lead service lines.

Systems must provide annual outreach to every home with a lead service line or service line of unknown material, urging them to have them replaced, and must have developed a lead service line replacement plan with an agreed upon goal, to be ready to implement it if required.

New Sampling Requirements: EPA is proposing clearer mandatory sampling procedures: MWRA has been following them for several years. If a community has any lead services lines, then all of the lead service line samples must be taken from homes with lead service lines. This will tend to increase the 90th percentile of lead values as sampling plans are updated. MWRA is already seeing evidence of this as DEP has encouraged more use of homes with lead service lines in community sampling plans.

Sampling at Schools and Childcare Facilities: Water systems must sample at least 20 percent of all public and private schools in their service area each year, and sample at least 20 percent of all licensed childcare facilities each year. For most states, this is an entirely new requirement. Massachusetts has had an LCR requirement to sample two schools *or* childcare facilities during each sampling round, as well as having a more recent voluntary school sampling program. For larger cities and towns, this will likely require a substantial increase in sampling and outreach efforts.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: America's Water Infrastructure Act: Risk and Resiliency Assessments

COMMITTEE: Water Policy & Oversight

INFORMATION
 VOTE

Stephen Estes-Smargiassi, Dir. of Planning and Sustainability
Andrew Hildick-Smith, P.E., Dir. SCADA, Meter & Monitoring
Preparer/Title


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

RECOMMENDATION:

For information only.

DISCUSSION:

Congress imposed new requirements for assessing and responding to water system vulnerabilities in America's Water Infrastructure Act (AWIA) that was signed into law on October 23, 2018. AWIA requires that community drinking water systems develop or update risk assessments and emergency response plans and certify to EPA that they have been completed or updated by specified deadlines.

The new act essentially renames what were previously called Vulnerability Assessments under Congress' post 9/11 requirements as Risk and Resilience Assessments (RRAs), and expands the threats and consequences covered to include natural hazards. The act also expands the areas of the water system covered to more explicitly evaluate cyber security and aspects of the system's financial systems.

The RAAs must cover:

- Natural hazards and malevolent acts (i.e. all hazards);
- Resilience of water facility infrastructure:
 - physical barriers;
 - water sources;
 - collection, treatment, storage and distribution systems;
 - chemical storage and handling;
 - operation and maintenance;
- Monitoring practices;
- Electronic, computer and other automated systems; and
- Financial systems (e.g., billing and payroll systems).

Water systems must certify to EPA that they have completed or updated their RRAs by:

- March 31, 2020 for systems serving greater than 100,000 people;
- December 31, 2020 for systems serving 50,000 to 99,999 people; or
- June 30, 2021 for systems serving 3,301 to 49,999 people.

The RRAs do not need to be submitted to EPA. MWRA will only need to certify that they have been completed: they will be kept securely at MWRA. In addition, under AWIA, systems must now recertify that they have reviewed and updated their RRAs every five years. This is a new requirement: the previous federal requirements for vulnerability assessments were one-time requirements.

In addition to the Risk and Resilience Assessments, AWIA requires that systems certify to EPA that they have developed or updated their Emergency Response Plans (ERPs) no later than six months after submission of their RRAs. Under AWIA, ERPs must include:

- Strategies and resources to improve resilience, including physical security and cybersecurity;
- Plans and procedures for responding to a natural hazard or malevolent act that threatens safe drinking water;
- Actions and equipment to lessen the impact of a malevolent act or natural hazard, including alternative water sources, relocating intakes and flood protection barriers; and
- Strategies to detect malevolent acts or natural hazards that threaten the system.

MWRA's Approach to Compliance with AWIA

Immediately after passage of AWIA last October, MWRA assembled a team of Operations, Security and Emergency Response, Environmental Quality, SCADA and MIS staff to ensure that MWRA would fully meet all the AWIA requirements. The approach that MWRA has taken includes both internal staff efforts and some external consultant efforts as a means to independently check certain facilities or programs.

The consultant will provide an external review of three newer facilities: Spot Pond Pump Station and Covered Storage, MetroWest Tunnel, and the Brutsch Water Treatment Facility. In addition, teams of experienced and newer MWRA staff will shadow the consultant, who will provide hands on training.

Since there have been many staffing changes due to retirements, promotions and reassignments, staff are using this opportunity for succession planning and knowledge transfer. A team of staff reviewed all the relevant EPA and AWWA standards and manuals, previous vulnerability assessments and emergency response plans to identify gaps and needs for updating. The consultant that developed EPA's Vulnerability Self-Assessment Tool¹ was brought in to provide training to a group of experienced and newer staff who are reviewing a number of facilities that have been constructed or modified over the past several years.

¹ AWIA does not require the use any particular tool or program. MWRA is implementing the AWWA J100 Standard: Risk and Resilience Management of Water and Wastewater Systems using EPA's VSAT tool.

In addition, MWRA will perform an Information Technology risk and resiliency assessment using an external consultant. The project will provide in-depth testing of the non-SCADA computer applications and computer systems that are directly connected to the Internet or deal with finances. The results of that testing will be documented using the Department of Homeland Security's Cyber Security Evaluation Tool (CSET). In a separate effort, the SCADA system will be *re-assessed* by in-house staff using the same tool.

Upon completion of these assessments, MWRA will be able to certify that it has completed and updated its RRAs by the deadline of March 31, 2020. Staff will move directly to any necessary development or updates of Emergency Response Plans so that the second required certification can be completed within 6 months of the first.

Teams of staff have already begun reviewing all of MWRA's existing ERPs, updating them and incorporating the changes into the regular training and review sessions that are conducted for each facility.

Assistance to MWRA Customer Communities

As part of MWRA's regular community Emergency Response Plan training program, conducted to help communities meet annual DEP training requirements, MWRA staff included a module on the AWIA requirements in both the spring and fall 2019 classes. Topics covered included the requirements of AWIA, its deadlines, and how the communities could coordinate their efforts with MWRA's.


MWRA staff have also directly coordinated with the Boston Water and Sewer Commission on its on-going efforts. While most MWRA communities are on later a schedule than MWRA, BWSC has the same deadlines as MWRA.

On November 5, 2019, MWRA hosted EPA's AWIA training session for Region 1 at the Chelsea Facility. In addition to MWRA and our community staff, attendees came from all over New England.

BUDGET/FISCAL IMPACT:

The Task Order for completion of the three Risk and Resilience Assessments has a not to exceed amount of \$121,523.43. The contract for Information Technology Assessment has a not to exceed amount of \$149,722.49. The cost for these assessments will be absorbed in the FY20 CEB.


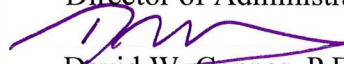
STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: Sections 53 and 99 Improvements
Design and Engineering Services During Construction
Hazen and Sawyer, P.C.
Contract 7485

COMMITTEE: Water Policy & Oversight

INFORMATION
 VOTE

Milan A. Horbaczewski, P.E., Program Manager
John P. Colbert, P.E., Chief Engineer
Preparer/Title


Michele S. Gillen
Director of Administration

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

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract 7485, Sections 53 and 99 Improvements, Design and Engineering Services During Construction, to Hazen and Sawyer, P.C., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the amount of \$4,985,263, for a contract term of 102 months from the Notice to Proceed.

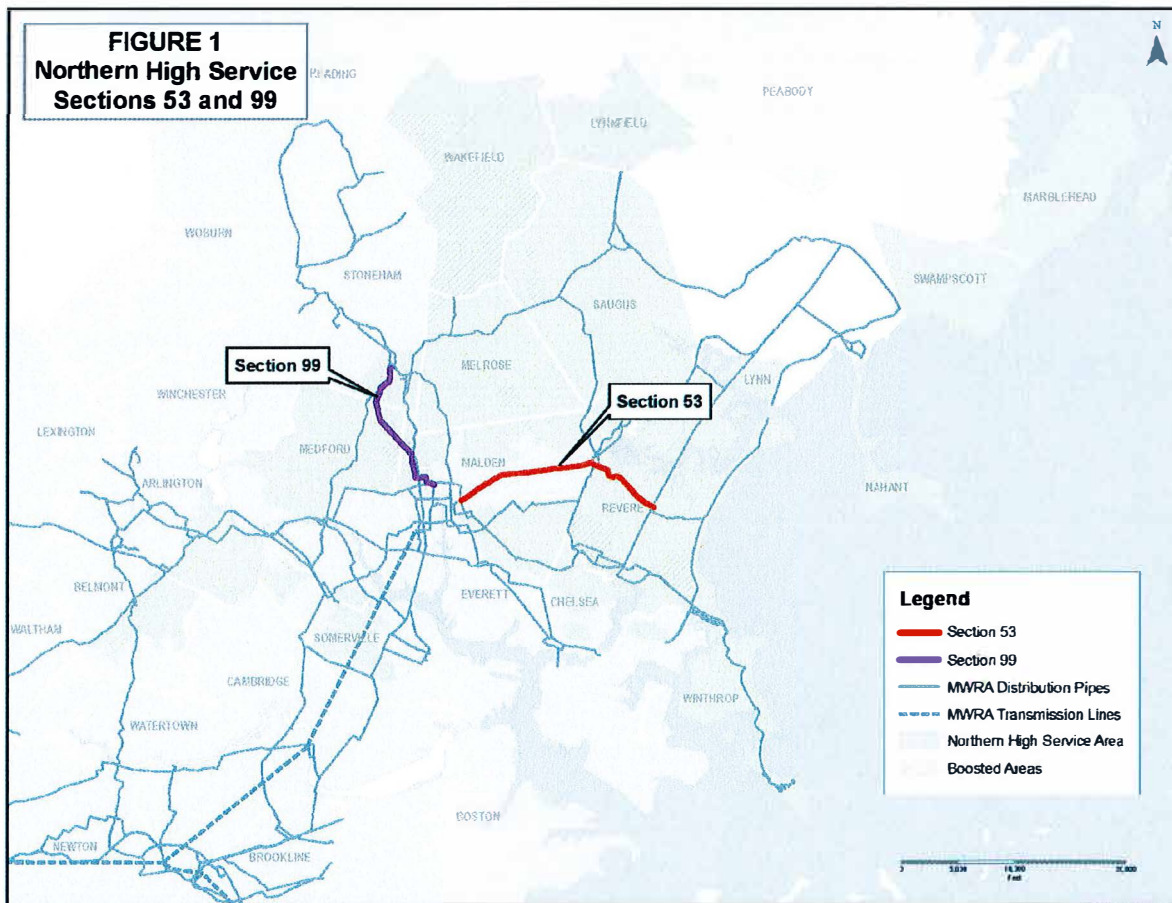
BACKGROUND:

This project will improve the hydraulic capacity and reliability of the Northern High pressure zone by upgrading and or installing new pipelines interconnected to Sections 53 and 99 (see Figure 1). Section 53 is a 48-inch diameter, steel pipeline that was constructed in 1993. It is aligned in an east-west direction along Route 60 in Malden and serves the Northern High system. It normally receives water from the City Tunnel Extension at Shaft 9A and carries it through Malden towards Revere before connecting with Sections 68, 72 and 91, which then carry the water to Saugus, Peabody, Wakefield, Lynnfield, Nahant, Swampscott and Marblehead. During emergencies and during the course of normal system repairs, Section 53 also acts to supplement the southeastern portions of the Northern High system (Sections 14, 15, 49 and 84) that ordinarily deliver water to Everett, Chelsea, parts of Malden and Revere, and also to Winthrop and Deer Island.

At its western end, Section 53 is interconnected with the Shaft 9A surface pipelines through a 30-inch diameter pipeline constructed in 1895 (approximately 4,000 linear feet of Section 14) and a 24-inch diameter pipeline constructed in 1922 (approximately 3,500 linear feet of Section 49 and

49A). The eastern end of Section 53 interconnects with Sections 72 and 91 through a single 30-inch diameter pipe. The smaller diameter connections at either end of Section 53 act as hydraulic restrictions in the system and effectively reduce the capacity of Section 53. Four hundred linear feet of Section 14 was constructed in 2017 to replace a section of pipe that had been relocated in 1972. This project will improve the condition, hydraulic capacity, and reliability of these interconnecting pipelines.

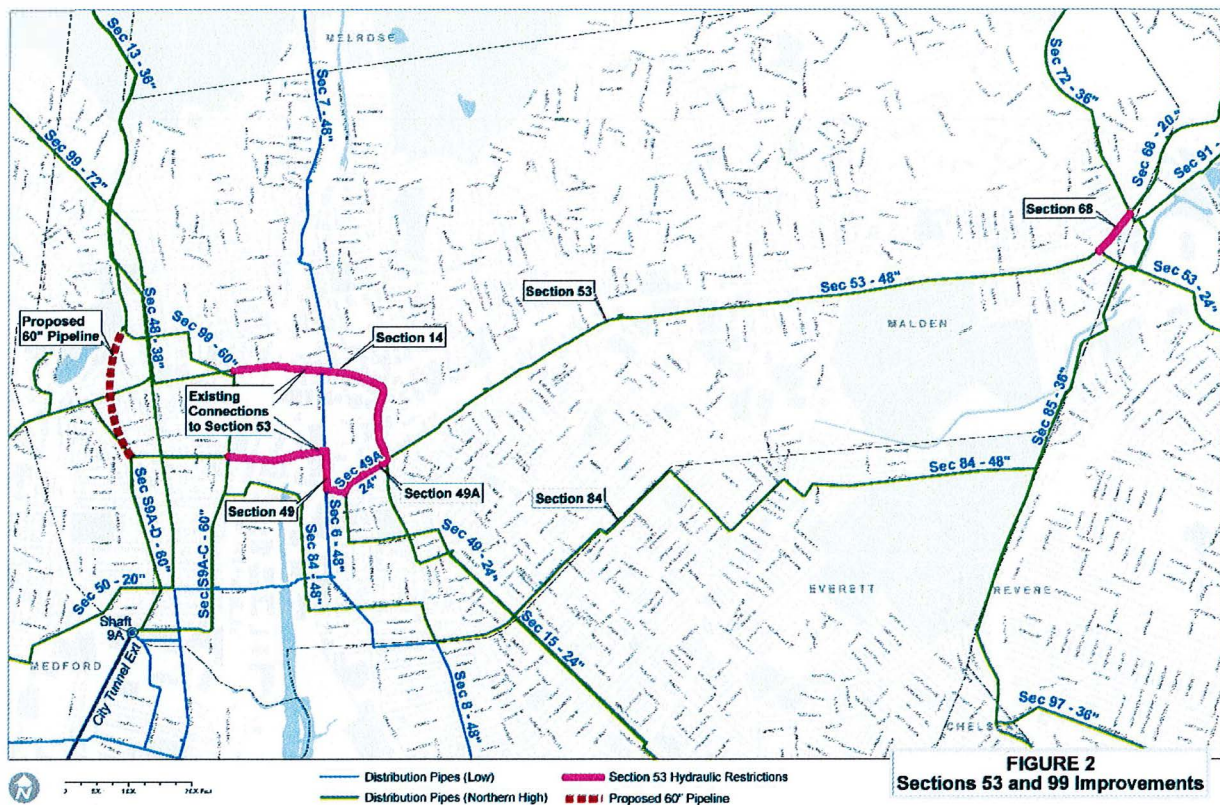
Section 99 is a 72-inch and 60-inch diameter pre-stressed concrete cylinder pipe constructed in 1997. The pipeline normally receives water from the City Tunnel Extension and carries it to the Gillis Pump Station at Spot Pond. When the City Tunnel Extension is off line, Section 99 becomes a critical connection to carry water from the Gillis Pump Station to the Shaft 9A surface piping, which then delivers it to the Northern High system. The 60-inch section of Section 99 acts as a hydraulic restriction between Gillis Pump Station and the Northern High system. This project will provide a second 60-inch section of pipe to reinforce this connection.



DISCUSSION:

The project will include the development of design documents for three construction contracts as follows (see Figure 2):

- (1) the replacement of approximately 2,600 linear feet of Section 49, 900 linear feet of Section 49A, and 1,000 linear feet of Section 68 with new 48-inch diameter pipelines;
- (2) the rehabilitation (cleaning and cement mortar lining) of approximately 4,000 linear feet of Section 14; and
- (3) the installation of 3,000 feet of new 60-inch diameter pipeline from Section 9A-E to Section 99.



The Scope of Services for this project includes project administration, preliminary and final design, and engineering services during construction. Resident engineering and resident inspection services are not included in this scope and will be procured separately.

The Consultant shall provide and perform all professional engineering services, including civil, geotechnical, environmental, permitting and all supporting services required to perform the work of this contract. Under this project, the Consultant will provide design and produce construction

documents for three separate construction contracts in order to provide the required water supply to communities during construction activities. The Consultant will also perform hydraulic analysis and an evaluation of alternative improvements, develop sequencing to maintain service to revenue meters during construction, and develop a water supply plan for future uninterrupted service to communities during construction of these pipes. Design and construction bidding services are estimated to take 36 months from Notice to Proceed. Construction is estimated to take 54 months plus a 12-month warranty period.

Procurement Process

On August 7, 2019, MWRA issued a one-step Request for Qualifications Statements/ Proposals (RFQ/P). The RFQ/P included the following evaluation criteria: Cost - 25 points; Qualifications and Key Personnel - 25 points; Experience/Past Performance on Similar Non-Authority Projects and Past Performance on Authority Projects - 25 points; Technical Approach/Capacity/Organization and Management Approach - 20 points; and MBE/WBE participation - 5 points.

On September 30, 2019, MWRA received proposals from four firms: Black & Veatch Corporation, CDM Smith Inc., Hazen and Sawyer, P.C., and Stantec Consulting Services Inc.

The proposal costs are presented below:

PROPOSER	PROPOSED CONTRACT COST	LEVEL OF EFFORT (LOE)
Hazen and Sawyer*	\$4,985,264	27,278 hours
<i>Engineer’s Estimate</i>	<i>\$5,468,000</i>	<i>28,000 hours</i>
Stantec*	\$5,550,745	23,129 hours
Black & Veatch	\$5,740,000	26,598 hours
CDM Smith*	\$6,983,797	33,039 hours

*Reflects corrections due to math errors/rounding.

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

PROPOSER	TOTAL POINTS	*ORDER OF PREFERENCE/ TOTAL SCORE	FINAL RANKING
Hazen Sawyer	362.5	5	1
Black & Veatch	327.0	11	2
CDM Smith	306.5	15	3
Stantec	286.0	19	4

*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.

Hazen and Sawyer's proposed price at \$4,985,264 is 8.8% lower than MWRA's Engineer's Estimate, and its proposed level of effort of 27,278 hours is within 2.6% of the Engineer's Estimate of 28,000. Importantly, Hazen and Sawyer's proposed level of effort for Preliminary Design reflects its understanding of the importance of the alternatives analysis needed prior to Final Design. Hazen and Sawyer's technical approach demonstrates a very thorough understanding of critical design and construction issues and appropriately identifies several key project issues and discussed solutions. Hazen and Sawyer's level of effort is deemed appropriate to complete all scope items.

Hazen and Sawyer's proposal presented very strong qualifications/key personnel, experience, past performance, technical approach and capacity. The firm identified a project team with significant, and highly relevant, recent experience conducting preliminary design and alternative analysis. Hazen and Sawyer's key personnel and technical staff have excellent qualifications with experience that is very applicable to this project. MWRA's previous experience with Hazen and Sawyer has been excellent. Internal and external references were found to be highly favorable and all respondents indicated they would rehire the firm. Hazen and Sawyer also offered significant percentages of MBE and WBE participation. Hazen and Sawyer was ranked first overall by all five Selection Committee members.

Black & Veatch presented very good qualifications and key personnel, experience, past performance, technical approach and capacity, but the Selection Committee deemed Black & Veatch's proposal was not quite as strong overall as Hazen and Sawyer's. Black & Veatch's proposed level of effort was less than that of Hazen and Sawyer's and its cost was greater.

CDM Smith's proposal indicated a very solid understanding of the project and its qualifications and key personnel were very highly regarded, but its proposal contained too high a level of effort in all but the most critical of tasks, Preliminary Design. This approach led to a cost exceeding Hazen and Sawyer's by roughly \$2,000,000 or 40%.

Stantec's project team and key personnel were considered to be very good, but its technical approach was not as detailed as Hazen and Sawyer's. The Selection Committee also judged that capacity was an issue with Stantec given its current commitments.

Based on final rankings, the Selection Committee recommends the award of this contract to Hazen and Sawyer. In accordance with MWRA's procurement procedures, staff entered into discussions with Hazen and Sawyer to confirm costs, level of effort and project management. Based on those discussions, staff are of the opinion that Hazen and Sawyer's proposal provides the best value to MWRA for this project.

BUDGET/FISCAL IMPACT:

The FY20 CIP includes a budget of \$4,500,000 for Contract 7485. The contract award amount is \$4,985,263 or \$485,263 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The minimum MBE and WBE participation requirements for this project were established at 7.18% and 5.77% respectively. Hazen and Sawyer has committed to 14.66% MBE and 9.54% WBE participation.

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 20, 2019
SUBJECT: Southern Extra High Pipeline - Section 111 (Dedham North)
P. Gioioso and Sons, Inc.
Contract 7504, Change Order 11



COMMITTEE: Water Policy and Oversight

 INFORMATION
 X VOTE

Corinne M. Barrett, Director, Construction
Terry Flynn, P.E. Construction Coordinator
Preparer/Title



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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 11 to Contract 7504, Southern Extra High Pipeline - Section 111 (Dedham North), with P. Gioioso and Sons, Inc., for a lump sum amount of \$135,148.01, increasing the contract amount from \$18,522,439.62 to \$18,657,587.63, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7504 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 Southern Extra High service area includes Canton, Dedham, Norwood, Stoughton, Westwood, portions of Brookline and Milton, and the Roslindale and West Roxbury sections of Boston. The five communities in the southern portion of the service area (Canton, Norwood, Dedham, Westwood and Stoughton) are served by a single 36-inch diameter transmission main (Section 77), which is five miles long. Canton and Stoughton are served by a branch (Section 88) off of Section 77. Although several of these communities are partially supplied by MWRA, the loss of Section 77 would result in a rapid loss of service in Norwood and Canton, and potential water restrictions for Stoughton and the Dedham/Westwood Water District. Correction of this deficiency was assigned a Priority One in MWRA's Water Master Plan due to the potential critical impact to public health that could result from a failure in this single transmission main.

Contract 7504, Section 111 (Dedham North) consists of 10,000 linear feet of 36-inch water main of which 3,000 linear feet is within Department of Conservation and Recreation's Stony Brook Reservation in Dedham, with the remaining 7,000 linear feet within residential neighborhoods of Dedham. This contract includes a new pipe bridge across Mother Brook on Sawmill Lane and coordination with MassDOT for work adjacent to its bridge on Walnut Street.

This Change Order

Change Order 11 consists of the following item:

Remove and Relocate Buried Granite Wall, Extend the Soldier Pile and Lagging and Support the Slope

\$135,148.01

The contract documents require the Contractor to install the new Section 111 pipe across an abandoned railroad bed under the Walnut Street Bridge by transitioning from the 36-inch ductile iron pipe on Walnut Street to 36-inch steel pipe to get across the bridge per MassDOT requirements. The new pipeline was to be installed up to the bridge, travel down the slope, across the abandoned railroad bed, back up the slope and into Walnut Street where it transitions back to the ductile iron pipe. After the Contractor installed the new pipe down the embankment and across the abandoned railway and began installing the support of excavation, a large abandoned granite wall was discovered, which impeded the ability to install the proposed support of excavation and align the section of steel pipe up the north side embankment to connect to the previously installed ductile iron. There were no existing records of the granite wall which appears to be supporting the existing slope and protecting the home that sits at the top of the slope adjacent to the abandoned railroad bed. The steel pipe for this crossing is a specialty fabrication and had already been delivered, with exact bends fabricated into the pipe lengths. The Contractor, therefore, was restricted to maintaining the planned location of the pipeline heading back up the embankment. The Contractor had to expose, remove and relocate some of the existing large granite blocks that had been used to support the embankment. This was necessary to complete installation of the 36-inch steel pipe; and to extend the soldier piles and lagging required to support the excavation, the slope adjacent to the bridge, an adjacent utility pole within the slope and the existing home.



Granite Wall on side of Excavation



Steel Pipe being installed at Crossing

This item was identified by staff as an unforeseen condition. MWRA staff, the Consultant, and the Contractor have agreed to a lump sum amount of \$135,148.01 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.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract:	\$17,226,350.00	780 Days	10/06/17
Change Orders:			
Change Order 1*	\$24,723.51	0 Days	09/10/18
Change Order 2*	\$10,203.74	0 Days	11/19/18
Change Order 3*	\$43,621.75	0 Days	12/17/18
Change Order 4*	\$159,986.58	0 Days	02/11/19
Change Order 5*	\$5,671.12	0 Days	03/05/19
Change Order 6	\$80,725.22	0 Days	04/26/19
Change Order 7	\$848,991.05	0 Days	06/13/19
Change Order 8*	\$17,008.52	0 Days	09/06/19
Change Order 9*	\$8,324.10	0 Days	09/27/19
Change Order 10*	\$96,834.03	180 Days	Pending
Change Order 11	<u>\$135,148.01</u>	<u>0 Days</u>	Pending
Total Change Orders:	\$1,431,237.63	180 Days	
Adjusted Contract:	\$18,657,587.63	960 Days	

*Approved under delegated authority

If Change Order 11 is approved, the cumulative value of all change orders to this contract will be \$1,431,237.63 or 8.3% of the original contract amount. Work on this contract is approximately 83% complete.

BUDGET/FISCAL IMPACT:

The FY20 Capital Improvement Program includes a budget of \$18,425,557 for Contract 7504. Including this change order for \$135,148.01, the adjusted subphase total is \$18,657,587.63 or \$232,030.63 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The D/MBE and D/WBE participation requirements for this project were established at 3.4% and 3.8%, respectively. The Contractor has been notified that these requirements are still expected to be met.



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

PERSONNEL & COMPENSATION COMMITTEE MEETING

to be held on

Wednesday, November 20, 2019

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

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

Time: Immediately following Water Committee

AGENDA

A. Approvals

1. PCR Amendments – November 2019
2. Appointment of Program Manager, Metro Meter Maintenance
3. Appointment of Program Manager SCADA Engineering
4. Appointment of Manager, Wastewater Operations
5. Appointment of Senior Program Manager, Design Information Systems Center

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Personnel and Compensation Committee

October 16, 2019

A meeting of the Personnel and Compensation Committee was held on October 16, 2019 at the Authority headquarters in Charlestown. Committee Chair Wolowicz presided. Present from the Board were Messrs. Cook, Foti, Pappastergion, Peña, Vitale and Walsh. Messrs. Carroll, Cotter and Flanagan and were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Michele Gillen, Andrea Murphy and Kristin MacDougall. The meeting was called to order at 10:18 a.m.

Information

Proposed Organizational Changes in the Finance Division

Staff made a verbal presentation and there were questions and answers. Mr. Vitale commended Finance Division staff for their consistently excellent work. (ref. P&C A.1)

Approvals

* PCR Amendments - October 2019

Staff made a verbal presentation and there were questions and answers.
The Committee recommended approval. (ref. P&C B.1)

* Appointment of Manager of Treatment and Transmission, Operations Division

Staff made a verbal presentation.
The Committee recommended approval. (ref. P&C B.2)

* Appointment of Budget Manager, Finance Division

Staff made a verbal presentation.
The Committee recommended approval. (ref. P&C B.3)

* Committee recommendation approved by the Board on October 16, 2019

* Appointment of Senior Staff Counsel for General Litigation

Staff made a verbal presentation.

The Committee recommended approval. (ref. P&C B.4)

* Appointment of IT Project Manager III, MIS Department

Staff made a verbal presentation. The Committee recommended approval. (ref. P&C B.5)

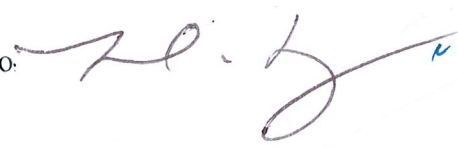
The meeting adjourned at 10:24 a.m.

* Committee recommendation approved by the Board on October 16, 2019

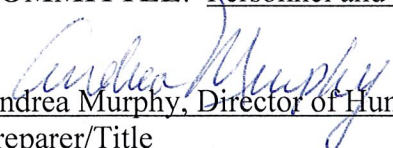
Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2019/o-BoardMaterials10-16-19.pdf>

STAFF SUMMARY

TO: Board of Director
FROM: Frederick A Laskey, Executive Director
DATE: November 20, 2019
SUBJECT: November PCR Amendments




COMMITTEE: Personnel and Compensation


Andrea Murphy, Director of Human Resources
Preparer/Title

 INFORMATION

 X VOTE


Michele S. Gillen
Director, Administration

RECOMMENDATION:

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

DISCUSSION:

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

November PCR Amendments

There are two PCR Amendments this month.

The amendments are:

Organizational Changes

1. Title and grade change to one filled position in the Operations Division, Grounds Maintenance – West department from Water Supply System (WSS) Foreman Unit 2 Grade 14, to Foreman, Shaft 8, Lower Garage Unit 2 Grade 17, as part of a union settlement.
2. Creation of a new position in the Administration Division, Security and Emergency Response department as a Director, Security and Emergency Response Non-Union Grade 15 to ensure readiness and response to security and emergency situations.

The two amendments require Board approval after review by the Personnel and Compensation Committee.

BUDGET/FISCAL IMPACT:

The annualized budget impact of these PCR amendments will be a maximum cost of \$172,978. Staff will ensure that the cost increase associated with these PCR amendments will not result in spending over the approved FY20 Wages and Salaries budget.

ATTACHMENTS:

Old Job Descriptions
New Job Descriptions

MASSACHUSETTS WATER RESOURCES AUTHORITY
 POSITION CONTROL REGISTER AMENDMENTS
 FISCAL YEAR 2020

Current	Estimated	Current/Budget	Estimated	Estimated Annual	Reason
PCR AMENDMENTS REQUIRING PERSONNEL & COMPENSATION COMMITTEE APPROVAL - November 20, 2019					
PERSONNEL & COMPENSATION COMMITTEE TOTAL= 0				\$0 - \$0	
TOTAL:					

Number	Current	V/F Type	Current Title	UN	GR	Amended Title	UN	GR	Current/Budget Salary	Estimated New Salary	Estimated Annual \$ Impact	Reason For Amendment
PCR AMENDMENTS REQUIRING BOARD APPROVAL - November 20, 2019												
B10	Grounds Maintenance West Operations 3394004	F	T,G Water Supply System (WSS) Foreman	2	14	Foreman, Shaft 8, Lower Garage	2	17	\$68,861	\$80,253	\$11,392	Union settlement.
B11	Security and Emergency Response Administration TBD	N/A	N/A	N/A	N/A	Director, Security and Emergency Response	N/A	15	\$0	\$108,129	\$108,129	Position will ensure readiness and response to security and emergency situations.
BOARD TOTAL =										\$119,521 - \$172,978		
GRAND TOTAL =										\$119,521 - \$172,978		
TOTAL ESTIMATED COSTS:										\$119,521 - \$172,978		
TOTAL ESTIMATED COSTS:										\$119,521 - \$172,978		

**MWRA
POSITION DESCRIPTION**

OLD

POSITION: Water Supply System (WSS) Foreman
DIVISION: Operations
DEPARTMENT: Grounds Maintenance - West, Grounds Maintenance - Merto

BASIC PURPOSE:

Provide supervision for maintenance of assigned areas of responsibility.

SUPERVISION RECEIVED:

Works under the general supervision of the Supervisor, Ware River Intake or General Foreman.

SUPERVISION EXERCISED:

Exercises close supervision of the Sub-Foreman and Skilled Laborers as assigned.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Exercises working supervision over a number of employees engaged in water supply system maintenance work.
- Plans and lays out and supervises work assignments of subordinates engaged in operation and maintenance of fences, fire lanes, aqueducts, masonry gate chambers, masonry bridges, pipelines, culverts, drainage ditches, driveways, buildings, and miscellaneous structures.
- Supervises the mowing of grass, brush and weeds, and general care of grounds in an assigned area.
- Keeps time records of subordinates and makes work and progress reports to supervisor.
- Maintains records of materials used in assigned area, including gasoline, tools, fencing, lumber, etc.
- Requisitions equipment and materials as necessary to insure proper maintenance of assigned area.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Basic reading, writing, mathematical and oral communication skills as normally attained through a high school education or the equivalent; and
- (B) Minimum of five (5) years experience in aqueduct, reservoir, sewer lines or grounds maintenance, with at least two (2) years in a supervisory capacity; and
- (C) Demonstrated ability in the scheduling and satisfactory completion of designated tasks; or
- (D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Familiarity with the areas of responsibility under the care and control of a water supply system involving aqueducts, gate houses, diversion facilities, etc.
- (B) Working knowledge of crafts and labor force operation required in general maintenance and repair work.
- (C) Demonstrated ability to keep time records of subordinates and to make work and progress reports and ability to carry out oral and written instructions.

SPECIAL REQUIREMENTS:

Valid Massachusetts Class D Motor Vehicle Operators license.

TOOLS AND EQUIPMENT USED:

Power lawn mowers, chain saws, wood chippers, fall retrieval equipment, dump and pick up trucks, snowplows, light tools and mobile radios.

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 the 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 required to sit, talk or hear. The employee is frequently required to use hands to finger, handle or operate equipment, and reach with hands and arms. The employee is occasionally required to stand and walk, talk or hear and use hands to finger or handle or operate equipment, and reach with hands and arms. The employee is frequently required to climb or balance, stoop, kneel, crouch or crawl. The employee must sit occasionally while performing the duties of this job.

The employee must regularly lift and/or move up to 25 pounds, occasionally lift and/or move more than 100 pounds. Specific vision abilities required by this job include close and distance vision, depth perception, peripheral vision and the ability to adjust focus.

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions. The employee occasionally works in high precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals and vibration. Employees must be able to successfully complete Confined Space Entry Training. Work-hearing protection is required in some work situations. Employee will be exposed to varying climatic conditions.

The noise level in the work environment is usually loud and consistent with noise normally associated with large, earth moving machines.

August, 1999

**MWRA
POSITION DESCRIPTION**



POSITION: Foreman, Shaft 8, Lower Garage
PCR#: 3394004
DIVISION: Operations
DEPARTMENT: Grounds Maintenance – West

BASIC PURPOSE:

Provide supervision for the operation and maintenance of assigned areas of responsibility including but not limited to Ware River diversion facility, Rutland-Holden Sewer lines, Chicopee Valley Aqueduct, William A. Brusch Water Treatment Facility, Nash Hill Reservoir Complex, Winsor Dam and miscellaneous shaft structures along the Quabbin Aqueduct.

SUPERVISION RECEIVED:

Works under the general supervision of the Supervisor, Ware River Intake.

SUPERVISION EXERCISED:

Exercises close supervision of OMC Laborers and other staff as assigned.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Exercises working supervision over a number of employees engaged in water supply and sewer system operation and maintenance work including but not limited to gate changes for flood control and water supply, installation of stop planks, as required.
- Creates work orders using the Maximo system and selects staff for work assignments.
- Plans and lays out and supervises work assignments of subordinates engaged in operation and maintenance of fences, fire lanes, aqueducts, masonry gate chambers, masonry bridges, pipelines, culverts, drainage ditches, driveways, steps, walkways, tanks, manholes/chambers, vaults, air shafts, buildings, and miscellaneous structures.
- Contacts and assigns staff to work overtime hours (such as for snow removal, etc.) when requested by the Supervisor, Ware River Intake.
- Supervises the trimming of hedges, mowing of grass, brush and weeds, and general care of grounds in assigned water and sewer areas including snow removal.

- Performs weekly and monthly inspections of assigned water and sewer areas, reports any issues, maintains and updates records/charts with meter readings provided by staff.
- Performs preventative and corrective maintenance in assigned areas.
- Performs custodial duties in assigned areas.
- Keeps time records of subordinates and makes work and progress reports to supervisor.
- Maintains records of materials used in assigned area, including gasoline, tools, fencing, lumber, etc.
- Obtains quotes from vendors for equipment, materials, and service contract work. Requisitions service, equipment, and materials as necessary to insure proper maintenance of assigned area. Serves as liaison to vendors who provide various goods and services including sand, salt, syphon repair work, animal control, and sewer meter calibration, etc.
- Acts as liaison between MWRA and general public with regards to access to their property, complaints, inquiries, etc.
- Accepts deliveries of propane, diesel, gas, chemicals, materials and equipment.
- Monitors security at assigned areas (checks buildings, gates, doors, aqueducts, fuel levels in tanks, etc.).
- Provides on the job training for crewmembers, as required.

SECONDARY DUTIES:

Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Basic reading, writing, mathematical and oral communication skills as normally attained through a high school education or the equivalent; and
- (B) Minimum of eight (8) years experience in aqueduct, reservoir, sewer lines or grounds maintenance, with at least three (3) years in a supervisory capacity; or
- (C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Demonstrated ability in the scheduling and satisfactory completion of designated tasks.
- (B) Familiarity with the areas of responsibility under the care and control of a water supply and sewer system involving aqueducts, gate houses, diversion facilities, etc.
- (C) Working knowledge of crafts and labor force operations required in general maintenance and repair work.
- (D) Demonstrated ability to keep time records of subordinates, create work orders, and to make work and progress reports and ability to carry out oral and written instructions.
- (E) Ability to carry out oral and written instructions.

SPECIAL REQUIREMENTS:

Valid Massachusetts Class D Motor Vehicle Operator's license.

TOOLS AND EQUIPMENT USED:

Power lawn mowers, chain saws, wood chippers, fall retrieval equipment, dump and pickup trucks, snowplows, light tools and mobile radios.

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 the 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 required to sit, talk or hear. The employee is frequently required to use hands to finger, handle or operate equipment, and reach with hands and arms. The employee is occasionally required to stand and walk, talk or hear and use hands to finger or handle or operate equipment, and reach with hands and arms. The employee is frequently required to climb or balance, stoop, kneel, crouch or crawl. The employee must sit occasionally while performing the duties of this job.

The employee must regularly lift and/or move up to 25 pounds, occasionally lift and/or move more than 100 pounds. Specific vision abilities required by this job include close and distance vision, depth perception, peripheral vision and the ability to adjust focus.

WORK ENVIRONMENT:

The work environment characteristics described here are representative of those an employee

encounters while performing the essential functions of this job.

While performing the duties of this job, the employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions. The employee occasionally works in high precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals and vibration. Employees must be able to successfully complete Confined Space Entry Training. Work-hearing protection is required in some work situations. Employee will be exposed to varying climatic conditions.

The noise level in the work environment is usually loud and consistent with noise normally associated with large, earth moving machines.

November 2019

**MWRA
POSITION DESCRIPTION**



POSITION: Director, Security and Emergency Response

DIVISION: Administration

DEPARTMENT: Security and Emergency Response

BASIC PURPOSE:

Directs and oversees security management programs, activities, and emergency response for all MWRA facilities.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, Administration.

SUPERVISION EXERCISED:

Exercises supervision of the security and emergency response staff. May exercise supervision over assigned Authority staff on project-specific issues.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Serves as MWRA's chief liaison to local, state and federal law enforcement entities to include, but not to be limited to, coordinating incident response and formalizing arrangements between the agencies regarding physical and cyber security threats, logistical support for Operations, jurisdictional issues and assistance to enhance the security of the water and wastewater systems and other MWRA facilities.
- Serves as MWRA's chief liaison to the local fire departments and state Fire Marshal to negotiate agreements relative to the waterworks system and wastewater system capital improvement projects, including the management of specialized projects supporting the working relationship between fire officials and the MWRA.
- Manages the coordination of security management and emergency response for the MWRA.
- Conducts risk assessments and evaluates alternative for mitigating vulnerabilities. Advises Planning and/or Operations staff on development of emergency action plans covering all potential hazards facing the Authority.
- Establishes and directs programs for exercising emergency response plans; creates scenarios, manages and documents lessons learned for all exercises and actual incident response drills.

- Delivers Incident Command System training to MWRA staff.
- Performs periodic vulnerability-to-emergency assessments for the waterworks and wastewater systems and their component sub-systems and facilities. Develops, implements and assists in the management of plans and programs for emergency readiness and response.
- Works in conjunction with Planning and Operations staff on the refinement of the Emergency Response Plan, including annual updates, updating for significant system improvements, oversight of training exercises, and review of plan updates.
- Places special focus on integration of MWRA emergency assessment and response planning with public works department and public safety officials in MWRA customer communities and with applicable state and federal agencies and departments, including development and oversight of exercises and drills.
- Assures the constant readiness of emergency response systems, including communications equipment, the emergency operations center, and emergency manuals and procedures pertaining to the waterworks and wastewater collection systems.
- Implements and coordinates with other MWRA staff on appropriate ongoing training and drills to build and maintain emergency readiness, including system and personnel readiness for use of Incident Command Systems.
- Evaluates the security infrastructure of MWRA facilities and recommends improvements such as enhanced physical hardening, and alarm systems. Directs and oversees facility security audits. Works closely with Engineering, Construction, and Operations Engineering on projects impacting the physical infrastructure of MWRA facilities.
- Directs the deployment and administration of MWRA's physical security's systems and access control procedures to ensure continuity of operations and the safety and security of personnel, property and equipment.
- Responds to security incidents. Conducts investigations including confidential investigations. Documents investigations and recommends corrective security actions that may be needed in order to prevent future occurrences of similar incidents.
- Coordinates closely with MWRA's SCADA and Management Information Systems Departments on cyber-security issues, including participating on the Information Security Council, and serves as the lead liaison with outside law enforcement agencies in coordinating incident responses.
- Works closely with Procurement and the Security Systems Administrator to procure and administer all security related contracts and purchases, including the private security services contract.

- Serves on the MWRA Security Task Force and as the chief liaison to the Federal Emergency Management Agency (FEMA) and the Massachusetts Emergency Management Agency (MEMA).
- Coordinates and participates in the preparation and assembly of information and data to be presented to the Executive Office and the MWRA Board of Directors in open and executive sessions.
- Reviews employee performance according to MWRA procedures.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Analytical and writing skills as normally attained through a Bachelor's degree in Criminal Justice, Public Safety, or Homeland Security; and
- (B) Ten (10) to twelve (12) years of related security, law enforcement and or emergency preparedness experience of which at least three (3) years must be in a supervisory capacity; or
- (C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Excellent working knowledge of negotiating agreements between different private and public sector interests.
- (B) Excellent working knowledge of professional law enforcement processes and procedures.
- (C) Excellent interpersonal, oral and written communications skills are required.
- (D) Personal computer experience and familiarity with associated software programs.

SPECIAL REQUIREMENTS:

A valid Massachusetts Driver's license.

TOOLS AND EQUIPMENT USED:

Office machines such as the telephone, personal computer, alarm systems, fire equipment, copy and fax machines.

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 the job. Reasonable accommodation may be made to enable individuals with disabilities to perform the essential functions.

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

The employee must frequently lift and/or move up to 10 pounds, occasionally lift and/or move up to 25 pounds. Specific vision abilities required by this job include close 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 occasionally works in outside weather conditions. The employee works near moving mechanical parts is occasionally exposed to wet and/or humid conditions. The employee is occasionally exposed to fumes and airborne particles, toxic or caustic chemicals, and risk of electric shock.

The noise level in the work environment is moderately quiet.

November 2019

- Performs weekly and monthly inspections of assigned water and sewer areas, reports any issues, maintains and updates records/charts with meter readings provided by staff.
- Performs preventative and corrective maintenance in assigned areas.
- Performs custodial duties in assigned areas.
- Keeps time records of subordinates and makes work and progress reports to supervisor.
- Maintains records of materials used in assigned area, including gasoline, tools, fencing, lumber, etc.
- Obtains quotes from vendors for equipment, materials, and service contract work. Requisitions service, equipment, and materials as necessary to insure proper maintenance of assigned area. Serves as liaison to vendors who provide various goods and services including sand, salt, syphon repair work, animal control, and sewer meter calibration, etc.
- Acts as liaison between MWRA and general public with regards to access to their property, complaints, inquiries, etc.
- Accepts deliveries of propane, diesel, gas, chemicals, materials and equipment.
- Monitors security at assigned areas (checks buildings, gates, doors, aqueducts, fuel levels in tanks, etc.).
- Provides on the job training for crewmembers, as required.

SECONDARY DUTIES:

Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Basic reading, writing, mathematical and oral communication skills as normally attained through a high school education or the equivalent; and
- (B) Minimum of eight (8) years experience in aqueduct, reservoir, sewer lines or grounds maintenance, with at least three (3) years in a supervisory capacity; or
- (C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Demonstrated ability in the scheduling and satisfactory completion of designated tasks.
- (B) Familiarity with the areas of responsibility under the care and control of a water supply and sewer system involving aqueducts, gate houses, diversion facilities, etc.
- (C) Working knowledge of crafts and labor force operations required in general maintenance and repair work.
- (D) Demonstrated ability to keep time records of subordinates, create work orders, and to make work and progress reports and ability to carry out oral and written instructions.
- (E) Ability to carry out oral and written instructions.

SPECIAL REQUIREMENTS:

Valid Massachusetts Class D Motor Vehicle Operator's license.

TOOLS AND EQUIPMENT USED:

Power lawn mowers, chain saws, wood chippers, fall retrieval equipment, dump and pickup trucks, snowplows, light tools and mobile radios.

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 the 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 required to sit, talk or hear. The employee is frequently required to use hands to finger, handle or operate equipment, and reach with hands and arms. The employee is occasionally required to stand and walk, talk or hear and use hands to finger or handle or operate equipment, and reach with hands and arms. The employee is frequently required to climb or balance, stoop, kneel, crouch or crawl. The employee must sit occasionally while performing the duties of this job.

The employee must regularly lift and/or move up to 25 pounds, occasionally lift and/or move more than 100 pounds. Specific vision abilities required by this job include close and distance vision, depth perception, peripheral vision and the ability to adjust focus.

WORK ENVIRONMENT:

The work environment characteristics described here are representative of those an employee

encounters while performing the essential functions of this job.

While performing the duties of this job, the employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions. The employee occasionally works in high precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals and vibration. Employees must be able to successfully complete Confined Space Entry Training. Work-hearing protection is required in some work situations. Employee will be exposed to varying climatic conditions.

The noise level in the work environment is usually loud and consistent with noise normally associated with large, earth moving machines.

November 2019

**MWRA
POSITION DESCRIPTION**



POSITION: Director, Security and Emergency Response

DIVISION: Administration

DEPARTMENT: Security and Emergency Response

BASIC PURPOSE:

Directs and oversees security management programs, activities, and emergency response for all MWRA facilities.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, Administration.

SUPERVISION EXERCISED:

Exercises supervision of the security and emergency response staff. May exercise supervision over assigned Authority staff on project-specific issues.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Serves as MWRA’s chief liaison to local, state and federal law enforcement entities to include, but not to be limited to, coordinating incident response and formalizing arrangements between the agencies regarding physical and cyber security threats, logistical support for Operations, jurisdictional issues and assistance to enhance the security of the water and wastewater systems and other MWRA facilities.
- Serves as MWRA’s chief liaison to the local fire departments and state Fire Marshal to negotiate agreements relative to the waterworks system and wastewater system capital improvement projects, including the management of specialized projects supporting the working relationship between fire officials and the MWRA.
- Manages the coordination of security management and emergency response for the MWRA.
- Conducts risk assessments and evaluates alternative for mitigating vulnerabilities. Advises Planning and/or Operations staff on development of emergency action plans covering all potential hazards facing the Authority.
- Establishes and directs programs for exercising emergency response plans; creates scenarios, manages and documents lessons learned for all exercises and actual incident response drills.

- Delivers Incident Command System training to MWRA staff.
- Performs periodic vulnerability-to-emergency assessments for the waterworks and wastewater systems and their component sub-systems and facilities. Develops, implements and assists in the management of plans and programs for emergency readiness and response.
- Works in conjunction with Planning and Operations staff on the refinement of the Emergency Response Plan, including annual updates, updating for significant system improvements, oversight of training exercises, and review of plan updates.
- Places special focus on integration of MWRA emergency assessment and response planning with public works department and public safety officials in MWRA customer communities and with applicable state and federal agencies and departments, including development and oversight of exercises and drills.
- Assures the constant readiness of emergency response systems, including communications equipment, the emergency operations center, and emergency manuals and procedures pertaining to the waterworks and wastewater collection systems.
- Implements and coordinates with other MWRA staff on appropriate ongoing training and drills to build and maintain emergency readiness, including system and personnel readiness for use of Incident Command Systems.
- Evaluates the security infrastructure of MWRA facilities and recommends improvements such as enhanced physical hardening, and alarm systems. Directs and oversees facility security audits. Works closely with Engineering, Construction, and Operations Engineering on projects impacting the physical infrastructure of MWRA facilities.
- Directs the deployment and administration of MWRA's physical security's systems and access control procedures to ensure continuity of operations and the safety and security of personnel, property and equipment.
- Responds to security incidents. Conducts investigations including confidential investigations. Documents investigations and recommends corrective security actions that may be needed in order to prevent future occurrences of similar incidents.
- Coordinates closely with MWRA's SCADA and Management Information Systems Departments on cyber-security issues, including participating on the Information Security Council, and serves as the lead liaison with outside law enforcement agencies in coordinating incident responses.
- Works closely with Procurement and the Security Systems Administrator to procure and administer all security related contracts and purchases, including the private security services contract.

- Serves on the MWRA Security Task Force and as the chief liaison to the Federal Emergency Management Agency (FEMA) and the Massachusetts Emergency Management Agency (MEMA).
- Coordinates and participates in the preparation and assembly of information and data to be presented to the Executive Office and the MWRA Board of Directors in open and executive sessions.
- Reviews employee performance according to MWRA procedures.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Analytical and writing skills as normally attained through a Bachelor's degree in Criminal Justice, Public Safety, or Homeland Security; and
- (B) Ten (10) to twelve (12) years of related security, law enforcement and or emergency preparedness experience of which at least three (3) years must be in a supervisory capacity; or
- (C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Excellent working knowledge of negotiating agreements between different private and public sector interests.
- (B) Excellent working knowledge of professional law enforcement processes and procedures.
- (C) Excellent interpersonal, oral and written communications skills are required.
- (D) Personal computer experience and familiarity with associated software programs.

SPECIAL REQUIREMENTS:

A valid Massachusetts Driver's license.

TOOLS AND EQUIPMENT USED:

Office machines such as the telephone, personal computer, alarm systems, fire equipment, copy and fax machines.

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 the job. Reasonable accommodation may be made to enable individuals with disabilities to perform the essential functions.

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

The employee must frequently lift and/or move up to 10 pounds, occasionally lift and/or move up to 25 pounds. Specific vision abilities required by this job include close 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 occasionally works in outside weather conditions. The employee works near moving mechanical parts is occasionally exposed to wet and/or humid conditions. The employee is occasionally exposed to fumes and airborne particles, toxic or caustic chemicals, and risk of electric shock.

The noise level in the work environment is moderately quiet.

November 2019


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: Appointment of Program Manager, Metro Meter Maintenance
Operations Division

COMMITTEE: Personnel & Compensation

INFORMATION
 VOTE

Andrea Murphy, Director, Human Resources
Mark H. Johnson, P.E., Director Waterworks
Andrew Hildick-Smith, P.E., Director, SCADA and Metering
Preparer/Title


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

RECOMMENDATION:

To approve the appointment of Mr. Scott A. Winn to the position of Program Manager, Metro Meter Maintenance (Unit 9, Grade 29), in the Meter Maintenance Program, at an annual salary of \$114,681.78, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The Program Manager Metro Meter Maintenance is a new position that was created and approved by the Board of Directors in April 2019, to manage the Meter Maintenance Program. The Program Manager position is responsible for managing the condition inspections, repair and replacement, budgeting, priority setting, work scheduling, and maintenance for water and wastewater metering equipment. The Program Manager, Metro Meter Maintenance will oversee operation of a bench testing facility for equipment problem diagnosis and verification of equipment condition, and will manage metering field staff by monitoring crew work progress and performance. The position will work closely with the Meter Data Program staff to identify problem sites and issue corrective action work orders. The position works under the general supervision of the Manager, Metering and Monitoring.

Selection Process

This position was posted internally and eight candidates applied for the position. All candidates were determined to be qualified and referred for an interview. The Director of SCADA and Metering, the Director of Wastewater Operations and Maintenance and the Associate Special Assistant for Affirmative Action conducted the interviews. Upon completion of the interviews, Mr. Winn was determined to be the best candidate based on his experience, knowledge, skills and education.

Mr. Winn has over 30 years of experience at the MWRA. He began his career as a Diesel Power Plant Operator in the Sewer Division. He was promoted to Instrument Technician, Senior Instrument Technician, and then spent 9 years as Field Supervisor in the Metering and Monitoring section. He directly supervised metering staff in the maintenance of the wastewater flow meters, and collected and reported flow and maintenance data for annual goals and the Yellow and Orange Notebooks. From these experiences, he developed extensive knowledge of metering technology. Mr. Winn spent the next 13 years as a Planning and Scheduling Coordinator working with Unit and Area Supervisors, and Area Managers to support maintenance and operation needs. He has initiated purchase requests for tools, parts, and services utilizing the Maximo-Lawson interface. Mr. Winn also monitored work order backlogs, staffing requirements, and work schedules based upon the priorities of the various work groups. He was a part of the team that implemented maintenance improvement programs including Reliability Centered Maintenance and Maximo.

In 2015, Mr. Winn was promoted to the position of Work Coordination Center Manager. In this position, he is responsible for managing all the Planning and Scheduling Coordinators that support water and wastewater maintenance management (except for Deer Island). He manages all aspects of maintenance planning, including job planning, scheduling, materials acquisition and dispatch. Mr. Winn was a key member of the transition team responsible for implementing the update to the current version of the Maximo work order system, working directly with managers in Operations, Maintenance, and MIS. He has created various maintenance management reports to demonstrate the maintenance history, equipment condition, and equipment availability for the water and wastewater systems, including the Metering Program. Mr. Winn has gained extensive experience with program management and budgeting, staff hiring and professional writing. He has also acquired an in-depth understanding of, and experience with, utilizing the computerized maintenance management and work order systems. He will be a valuable addition to the metering team.

Mr. Winn has a Bachelor of Arts degree from the University of Massachusetts at Lowell. He has both a Grade 4 Wastewater Operator-in-Training license, and a Grade 4 Collections System certificate.

BUDGET/FISCAL IMPACT:

There are sufficient funds in the FY20 Current Expense Budget to fund this position.

ATTACHMENTS:

- Resume of Scott A. Winn
- Position Description
- Meter Maintenance Section Organization Chart

SCOTT A. WINN

PROFILE:

- Experienced Operations & Maintenance professional with over 30 years experience in both the public and private domain
- Strong leader, with strong verbal and written skills
- Experienced in maintenance from planning through execution, including scheduling and overseeing complex projects.
- Certified Reliability Centered Maintenance Facilitator at the Massachusetts Water Resources Authority
 - Supervised, coordinated and directed staff consisting of three Senior Instrument Technicians, three Instrument Technicians and three Junior Instrument Technicians
- Extensive supervisory experience at Massachusetts Water Resources Authority (MWRA), Field Operations Department, MWRA
- Highly developed cross-functional ability as demonstrated through both operations and maintenance assignments at the Deer Island Treatment Plant MWRA, and the Field Operations Department MWRA
- Computer experience in MAXIMO (CMMS), Microsoft Word, Excel, Reliability Centered Maintenance software

PROFESSIONAL EXPERIENCE:

Massachusetts Water Resources Authority, Field Operations Department

Work Coordination Center Manager

May 2015 – Present

- Manages the Work Coordination group and oversees the various activities including planning, scheduling materials acquisition and dispatch, for the maintenance programs within the Field Operations Department.
- Coordinates with other managers to ensure effective and economical use of materials and staff.
- Oversees all aspects of data quality of the Field Operation Department's maintenance database.
- Oversees the development and distribution of maintenance management reports.
- Collects, analyzes and reports on all bench marking data related to the wastewater and water maintenance industry. Utilizes benchmark data to streamline maintenance practices.
- Performs quality assurance quality control (QA/QC) functions including inspection reporting work order backlog monitoring, productivity and cost analysis and customer service surveying.
- Works with MIS to update and maintain the application software and databases used by the Work Coordination group.
- Tracks work projects of large scope or long duration involving multiple trades, outside contractors and specialty materials delivery.
- Works with Field Operations department managers to implement "team-building" and "cross-functional" training programs for maintenance staff.
- Resolves personnel and work rule issues through procedures outlined by MWRA union contract and policy and procedure guidelines.

Planning/Scheduling Coordinator

October, 2002 – May, 2015

- Manage/Facilitate planning meetings to plan critical work with Unit Supervisors and Area Manager to support plant operational needs
- Coordinate and implement Reliability Centered Maintenance recommendations in the field and in MAXIMO (CMMS)
- Coordinate the availability of necessary staff, equipment, materials and facility operational availability to complete the necessary Preventive/Corrective maintenance
- Follow established Safety, Operating and Emergency Response procedures and policies
- Initiates, purchase requests for tools, parts, and service utilizing MAXIMO (CMMS) Lawson interface
- Monitor work order backlog, staffing requirements, staffing capabilities and prepare work schedules based upon priorities and available staff and materials
- Implement special instructions and considerations, review work completion status, and review future job plans for future job planning

- Proven ability in writing staff summaries, sole source and metrics
- Record, document, track, trend and report results for MAXIMO (CMMS) to Senior Management
- Assist Engineering, Maintenance, Operational and Central Support staff with preparation of Preventive Maintenance and Predictive Maintenance work orders
- Design, write, review and implement policies and procedures with maintenance, operations at the Massachusetts Water Resources Authority
- Coordinate design/operational recommendations for ongoing system improvements

Field Supervisor, Metering and Monitoring

August, 1993 - October, 2002

- Supervises and participates in the maintenance of the MWRA's wastewater flow meters
- Oversaw the development and production of various maintenance related reports
- Responsible for scheduling and dispatching all field crews each day.
- Tracked the activities of all field personnel to ensure that all field activities are properly coordinated.
- Coordinated daily activities with the Project Manager, Meter Data and Data Analysts
- Gathered all pertinent data for the production of the APPO and Yellow Notebook.
- Coordinated training of all new Metering and Monitoring personnel
- Reported all conditions to Program Manager of Metering and Monitoring on a daily basis

Sr. Instrument Technician, Metering and Monitoring

September, 1990 – August, 1993

- Supervised Metering and Monitoring field crews on a daily basis.
- Performed troubleshooting and maintenance on MWRA wastewater flow meters
- Supervised and participated in the installation of wastewater flowmeters in the MWRA System
- Supervised and participated in the operation and maintenance of the temporary wastewater flow meters in MWRA and municipal Sewerage Systems to quantify flows.
- Supervised and participated in the preparation of monitor information files, downloading of data from temporary wastewater flowmeters
- Maintained accurate logs of all community assistance activities including installation forms and inspection forms.
- Supervised and participated in the operation and maintenance of atmospheric hydrogen sulfide monitoring stations
- Supervised and participated in the calibration of hydrogen sulfide monitoring controllers and sensors as necessary.
- Supervised and participated in the calibration, operation and maintenance of portable PhD gas detectors to ensure their proper operation and calibration.

Instrument Technician, Water Metering

July, 1989 – September, 1990

- Responsible for the installation and maintenance of MWRA water flow monitoring equipment

Diesel Power Plant Operator

August, 1988 – July, 1989

- Responsible for the oversight of the major pumping station for the Metropolitan Boston Sewer System
- Started, stopped and operated 16 cylinder Delavall diesel engine generators for power distribution, 1800 H.P. electric motors for proper sewage flow maintenance, and 12 cylinder Nordberg diesel engines
- Inspected all assigned equipment, i.e. air compressors, air driers, Cleaver Brooks boilers, condensate tanks and pumps, deaerator tanks and pumps, feed water pumps, chemical feed
- Transferred fuel oil from fuel farm to underground fuel tank
- Thorough knowledge of all related systems with ability to take immediate corrective action during normal and emergency operations

TRAINING AND EDUCATION:

- Enrolled University of Massachusetts, Master of Science, Public Policy, Public Management Concentration
- Bachelor of Arts, Liberal Arts
University of Massachusetts, Lowell, MA.
Completed May 2016
GPA 3.63
- Completed Certificate Program in Security Management and Homeland Security at University of Massachusetts, Lowell
- Completed 2 year program in Aviation Maintenance Technology at East Coast Aero Technical School
- Awarded Federal Airframe and Powerplant Mechanics License
- Completed 3 day 24 hour course on Reliability Centered Maintenance team course provided by Spearhead Associates
- Completed 10 day 100 hour course on Reliability Centered Maintenance Facilitator Course provided by Spearhead Associates
- Certified in MAXIMO Computerized Maintenance Management Software applications
- Completed 21 Hour Certified Control System Technician (CCST) Review Course provided by ISA Training Institute
- Awarded Massachusetts Grade 4 Wastewater Treatment Plant Operators License by NEIWPC
- Awarded Grade 4 Collections Systems Operator certification by New England Water Pollution Control Association

PERSONAL AND PROFESSIONAL ACCOMPLISHMENTS

- Major participant in the establishment of the MWRA Metering and Monitoring Department
- Participated in initial development of MWRA Metering and Monitoring PM Database
- Participated in initial development of MWRA Metering and Monitoring Equipment Database
- Former 2 Term President of Wilmington Massachusetts Baseball Little League
- Former President of Wilmington Massachusetts Pop Warner Football League

**MWRA
POSITION DESCRIPTION**

Position: Program Manager, Metro Meter Maintenance

PCR:

Division: Operations Division

Department: Meter Maintenance

BASIC PURPOSE:

Oversee the condition inspections, repair/replacement, budgeting, priority setting, work scheduling and maintenance for water/wastewater metering equipment.

SUPERVISION RECEIVED:

This position reports to the Manager, Metering & Monitoring.

SUPERVISION EXERCISED:

Exercises close supervision of assigned meter maintenance staff (and vendor staff as needed).

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages maintenance, repair, upgrades and condition assessment of permanent flow meters, associated communications hardware and other remote site specialty equipment (e.g. pressure sensors, depth sensors, rain gauges).
- Coordinates with Meter Data Program staff to identify problem sites and issue corrective action work orders. Schedules and tracks all necessary preventive maintenance work orders. Oversees Maximo data entry by crew supervisors and prepares any maintenance activity summaries and tracking reports.
- Oversees operation of a bench testing facility for equipment problem diagnosis and verification of equipment condition.
- Manages meter staff. Monitors crew work progress and oversees crew performance. Performs field audits.
- Coordinates with other managers, supervisors, work coordination staff and others for optimal functioning of assigned staff.

- Monitors “Work in Progress” by coordinating with Maintenance Supervisors, Operations Managers and Planner/Schedulers, and also monitors backlog to reduce pending assignments.
- Manages all aspects of assigned Maintenance Programs relative to preventive, corrective, predictive, project, condition-based maintenance, and emergency maintenance activities with special emphasis on the development of a formal preventive maintenance program.
- Prepares, manages, and oversees contracts and purchase orders for the repair and purchase of maintenance equipment.
- Develops the Current Expense Budget (CEB) for areas of responsibility including annual project work, contracts, training, and material purchases. Monitors budget performance and provides budget updates for the CEB as required. Approves and tracks spending, justifies variances from budget, and provides support documentation as required.
- Implements staffing redeployments, establishes work policies and procedures, defines work priorities and oversees training program.
- Manages metering equipment inventory and oversees receiving of meter components and return shipping of equipment sent for repair.
- Reviews assigned employee performance according to MWRA procedures as established and maintained by the Human Resources Department.
- Recommends upgrades to meter equipment to ensure continued optimal operation. Includes tracking major projects and the coordination of outside contractors, as required.
- Promotes the MWRA Safety Policy and Program by participating in and supporting activities as detailed by the Manager of Occupational Health and Safety and his team.
- Schedules shifts and works overtime as required.
- Make themselves available for work during any emergency.
- Provides training to assigned staff.
- Operates motor vehicles, such as vans and pick-up trucks, to transport materials to work sites, pick up equipment, etc.
- Perform related duties as required.

- Performs related duties as assigned.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Knowledge of the principles and practices of maintenance attained through a four (4) year college program in civil, mechanical, electrical/electronic or environmental engineering or related field; and
- (B) Demonstrated practical understanding of all phases of operations, maintenance engineering, and management of water or wastewater flow metering systems, as normally acquired through seven (7) to nine (9) years of related experience. Knowledge of water distribution and/or wastewater collection systems preferred; and
- (C) Three (3) years of experience in supervising staff and/or large projects; or
- (D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Demonstrated knowledge of water or wastewater meter technologies and Telog software and components.
- (B) Proven ability to plan, organize, direct, train, assign duties to, and maintain harmonious working relationships with maintenance staff and other personnel. Demonstrated successful experience managing in a union environment with a diverse workforce.
- (C) Proficiency with personal computers and knowledge of word processing, spreadsheets, database and engineering application software.
- (D) Extensive experience utilizing computerized maintenance management and work order systems.
- (E) Excellent oral and written communication skills.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators License.

A valid Massachusetts Grade 4 wastewater operator's license or 2D Drinking Water Supply Facilities Operators license preferred.

Must be available to respond to emergencies as needed.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone and personal computer.

PHYSICAL DEMANDS:

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

While performing the duties of this job, the employee is regularly required to use hands fingers, handle, feel or operate objects, including office equipment or controls and reaches with hands and arms. The employee must frequently lift and or move up to 10 pounds, occasionally lift/or move up to 25 pounds. Specific vision abilities required by this job include close vision, distance vision, depth perception and the ability to focus.

WORK ENVIRONMENT:

The work environment characteristics 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.

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

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

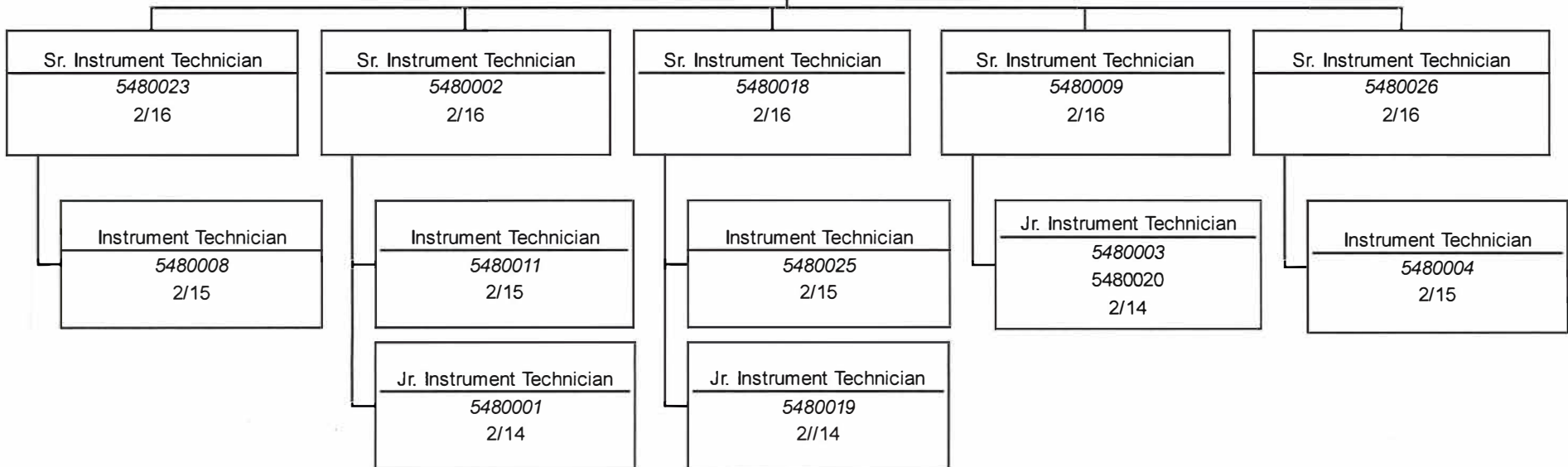
Meter Maintenance

November 2019


Program Mgr., Metro Meter Maintenance
Vacant
5480031
9/29
16 Positions

Supv., Water/Wastewater Meter Maint
5480027
2/21

Technical Assistant
5480012
9/20




STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: Appointment of Program Manager, Supervisory Control and Data Acquisition Engineering, Operations Department

COMMITTEE: Personnel & Compensation

INFORMATION
 VOTE

Andrea Murphy, Director, Human Resources
Andrew Hildick-Smith, P.E., Director, SCADA and Metering
Preparer/Title


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

RECOMMENDATION:

To approve the appointment of Mr. Mark Soutter, to the position of Program Manager, Supervisory Control and Data Acquisition Engineering (Unit 9, Grade 29), in the Operations Department, at an annual salary of \$96,821.48, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The Program Manager Supervisory Control and Data Acquisition (SCADA) Engineering is a new position that was created and approved by the Board of Directors in July 2019 to meet increased staffing needs for SCADA engineering projects and cybersecurity. The Program Manager reports directly to the Senior Program Manager, SCADA, and manages and supervises the design, installation and maintenance of SCADA security, including installing security patches and upgrades to all SCADA computer operating systems, firewalls, security software, and routers. This position manages and supervises SCADA personnel in the enhancement, expansion and maintenance of all software aspects of the MWRA's SCADA system including enhancing programmable logic controllers and human machine interface programs, overseeing the programming, testing and start-up work of consultants and integrators, and upgrading software to more recent releases as needed.

Selection Process

The position was posted both internally and externally. Five candidates applied for the position, two of whom were determined to be qualified and were referred for an interview. The Director of SCADA, Metering and Monitoring, the Senior Program Manager SCADA, and the Manager of Operations Support conducted the interviews. Upon completion of the interviews, Mr. Soutter was determined to be the best qualified candidate based on his experience, knowledge, skills and education.

Mr. Soutter has worked for four years at the MWRA in the SCADA Engineering Program as a Project Manager and a Senior Monitoring and Control Engineer. Mr. Soutter has performed Microsoft Windows hardening, data diode and anti-virus maintenance, firewall and router troubleshooting and maintenance, and other cyber security initiatives. He has programmed human machine interfaces and programmable logic controllers. He oversaw the Alewife Brook Pump Station SCADA contractor, assuring adherence to MWRA standards. He has performed troubleshooting on both the MWRA SCADA software system and the wastewater process system and resolved problems. He helped implement the change to Multi-Protocol Layer Switching communications. Before working at the MWRA, Mr. Soutter worked for 10 years as an Instrument and Controls Technician at Intel Corporation, where he programmed programmable logic controllers and human machine interfaces. He worked as an industrial water operator technician for eight years at Intel and Texas Instruments. Mr. Soutter was also in the US Navy where he supervised a team of five technicians.

Mr. Soutter has a Bachelor of Science in Economics from the University of Massachusetts, Boston and an Associate's Degree in Science, in Electronics Engineering from the University of Massachusetts Lowell. He is currently pursuing a Bachelor of Science degree in Electronic Engineering. In addition, Mr. Soutter has a certificate in Water Treatment Operations from the University of Massachusetts, Lowell. He also graduated from the U.S. Naval Nuclear Propulsion School.

BUDGET/FISCAL IMPACT:

There are sufficient funds for this position in the FY20 expense budget.

ATTACHMENTS:

Resume of Mark Soutter
Position Description
Organization Chart

Mark Soutter

SUMMARY Instrumentation and controls professional with extensive experience in programmable logic controls systems integration, HMI/SCADA project development in high volume manufacturing environment. US Navy veteran and graduate of the Naval Nuclear Propulsion School. Served as engineering lab tech responsible for the chemistry and radiological controls for the nuclear power plant aboard a submarine out of Groton, Ct.

SKILLS	Programming	Electronic	Mechanical
	PLC's (AB, Modicon) HMI (Cimplicity, iFix) VBA, HTML	Embedded Controllers PLC & Instrumentation LAN/WAN	UPW/IWS Vacuum and HVAC Process/Pneumatic Controls

EXPERIENCE **Sr Monitoring and Control Engineer, Massachusetts Water Resources Authority 11/2015 - Present**

- PLC programming of Allen Bradley SLC and Logix platforms
- SCADA/HMI development with Proficy iFix software
- Involved in development of SCADA system test bed for active directory rollout
- Responsible for SCADA system and process controls troubleshooting
- Maintain and troubleshoot SCADA network operation and security devices such as routers, firewalls, and switches including rollout of MPLS communication
- Maintain antivirus software for network and cyber security hardening of the OT network
- Upgrade and maintain the Waterfall Data Diode program as a key cyber security protection for the OT network.

Instrumentation & Controls Technician, Intel Corporation 4/2005 -11/2015

- Support the design specification, installation and startup validation of process control systems including; facilities reliability enhancements, HVAC systems, Water Purification and Waste Water neutralization.
- Facilities Control Systems maintenance, programming, troubleshooting, including PLC installation and programming, SCADA systems and HMI integration.
- Lead Technician for conversion upgrade of legacy PLC/SCADA systems. Project completed without interruption to continuous high volume manufacturing.
- Developed and implemented preventative maintenance programs through Maximo for facilities instrumentation, controls and Life Safety systems.

UPW/IWS Operator, Intel Corporation 8/2000-4/2005

- Senior UPW/IWS operator responsible for supplying quality product to fabrication facility and ensuring IWS discharge compliance.
- Established 100% ISO 9002 compliance as Calibration Coordinator for Operations group and maintain all ISO UPW analytical equipment for tech services group.
- Certifier and trainer for Level 1 and Level 2 UPW/IWS operation's technicians.
- Create and route approval requests for procedural and spec documents in Intel Document control system

Additional Experience

Environmental Health and Safety

- Confined space program manager for manufacturing site. Contract with regional rescue team, audit entries and align our program with corporate and OSHA standards.

Leading Engineering Laboratory Technician, U.S. Navy

- Managed division operations with a staff of five technicians.
- Directed successful initiation of new boiler chemistry including training of personnel in procedural compliance.

- Propelled division to highest Reactor Safe Guard Exam grade in previous three years.

EDUCATION

University of Massachusetts / Boston
BA, Economics

University of Massachusetts/Lowell
AS, Electronics Engineering, May 2014

**MWRA
POSITION DESCRIPTION**

POSITION: Program Manager, SCADA (Engineering)
DIVISION: Operations
DEPARTMENT: Field Operations/Operations Support/Metering & Monitoring

BASIC PURPOSE:

Provides supervision and technical support for the Authority's Supervisory Control and Data Acquisition (SCADA) security, networking, process data interfacing with management information systems, and all software control and monitoring aspects of the SCADA system.

SUPERVISION RECEIVED:

Works under the general supervision of the Senior Program Manager, SCADA.

SUPERVISION EXERCISED:

Exercises general supervision of SCADA Project Managers and Senior Monitoring & Control Engineers.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages and supervises the design, installation and maintenance of SCADA security including: 1) installing security patches and upgrades to all SCADA PC operating systems, firewalls, security software, and routers; 2) maintaining password controls on SCADA PCs and PLCs; 3) maintaining rules on security devices and software, and monitoring security logs.
- Manages and supervises the design, installation and maintenance of the Water and Wastewater SCADA networks for PCs and PLCs.
- Manages and supervises the design, installation and maintenance of the SCADA interface to the Authority's management information system including: 1) managing tags and data collection; 2) maintaining data historian interface servers; and 3) coordinating with MIS staff.
- Coordinates extensively with the other Program Manager SCADA Engineering to make sure that the eastern and western systems remain uniform and that new initiatives are mutually agreed upon.
- Manages and supervises SCADA personnel in the enhancement, expansion and maintenance of all software aspects of the Authority's SCADA system. This includes: 1) enhancing PLC and HMI programs as needed; 2) overseeing the programming, testing and start-up work of

consultants and integrators; 3) insuring strict compliance with software backup schedules; and 4) upgrading the HMI software to more recent releases as needed.

- Supervises the in-house design and installation of new and modified monitoring and control systems including preparation of project scope and P&ID drawing through user interview, the PLC and HMI programming, testing, startup, documentation and training.
- Manages and supervises advanced corrective maintenance of SCADA equipment and systems.
- Prepares technical specifications and budget estimates for SCADA equipment and systems.
- Participates in the development of SCADA standards. Reviews consultant and in-house staff design for conformance to SCADA standards.
- Prepares written and computer generated reports. Oversees daily work schedules of system maintenance and enhancement.
- Manages the creation and maintenance of up to date records and documentation on SCADA network, PC, PLC and security installations.
- Oversees the management of the SCADA tag databases and the coordination of any necessary changes.
- Motivates, assists and trains staff in the development and troubleshooting of SCADA hardware and software.
- Monitors and reports on staff productivity and utilization. Recommends and institutes improvements on same.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Four (4) year college program in Electronic, Electrical, or Mechanical Engineering or a related field; and
- (B) Seven (7) to nine (9) years experience in the design, installation, operation and maintenance of SCADA systems of which three (3) to five (5) years should be in a supervisory capacity and four (4) of which should be in a water or wastewater related industry; and
- (C) Five (5) to seven (7) years of ladder logic and HMI programming experience; or

(D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Working knowledge of cyber security as it relates to SCADA systems.
- (B) Thorough working knowledge of Ethernet, routers, switches, servers, firewalls, personal computers and Windows operating system.
- (C) Working knowledge of EIA RS-232, RS-422, RS-485, and other communications signaling standards and protocols.
- (D) Ability to test and troubleshoot to the component level using a variety of electronic test equipment as well as computer driven diagnostics.
- (E) Familiarity with both waterworks and wastewater treatment and distribution/collection systems.
- (F) Thorough knowledge of electrical/electronic wiring practices.
- (G) Demonstrated ability to plan, organize, direct, train and assign duties to subordinates.
- (H) Demonstrated interpersonal, written and verbal communication skills.
- (I) Working knowledge of AutoCad or equivalent CAD design program, spreadsheet and database programs.

SPECIAL REQUIREMENTS:

Vendor training certification in at least one of the following disciplines: HMI Software, PLC Programming Software, MSCE or Cisco preferred.

A valid Massachusetts Grade II Drinking Water Distribution or Treatment license or a Grade II Wastewater Collection System certification, or a Grade III Wastewater Treatment Plant license or the ability to obtain one of the above within six (6) months.

A valid Massachusetts Drivers License required.

Ability to obtain a FCC General Radiotelephone Operators License within six (6) months.

Successful completion of Confined Space training with MWRA certification within six (6) months of employment.

Security certification such as CISSP or GIAC required within six (6) months of employment.

Participates in on-call rotation assignments if needed. In the absence of volunteers, may be required to be on-call or report for overtime/comp time in an inverse seniority pool.

TOOLS AND EQUIPMENT USED:

Electronic test equipment, computers, PLCs, hand tools, climbing and fall retrieval equipment, mobile radio, etc.

PHYSICAL DEMANDS:

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

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

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

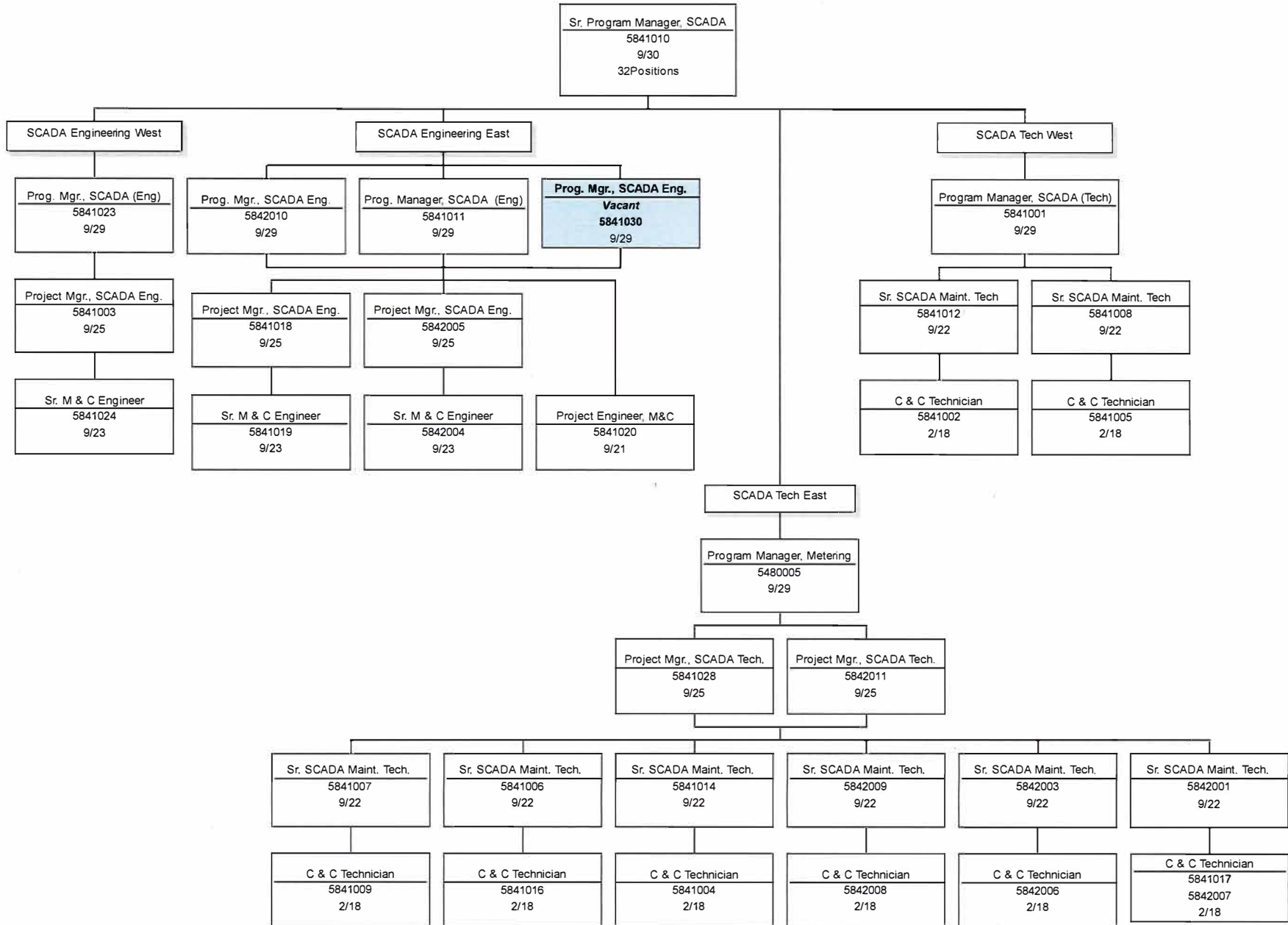
While performing the duties of this job, the employee regularly works in an office environment. The employee occasionally works in outside weather conditions. The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions and vibration. The employee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

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


July 2019

SCADA Maintenance & Engineering

November 2019



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: Appointment of Manager, Wastewater Operations, Operations Division

COMMITTEE: Personnel & Compensation

INFORMATION
 VOTE

Charles Ryan, Director, Wastewater O&M
Stephen Cullen, Director, Wastewater
Andrea Murphy, Director, Human Resources
Preparer/Title



David W. Coppes, PE
Chief Operating Officer

RECOMMENDATION:

To approve the appointment of Mr. James MacPherson to the position of Manager, Operations (Non Union, Grade 14), in the Wastewater Operations Department, at an annual salary of \$137,700, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Manager, Wastewater Operations became vacant in February 2019 as a result of the promotion of the incumbent. This position is responsible for the 24-hour operation of wastewater facilities including the Wastewater Operations Control Center (OCC), wastewater pumping stations, combined sewer overflow facilities and headworks facilities. In addition, the management of shift operations activities of assigned personnel to ensure efficient and effective operation of all wastewater facilities, to optimize performance, and to meet permit requirements. This position provides operations personnel with needed resources and support, and is required to be part of an on-call rotation for emergencies and wet weather, 24 hours a day, 7 days a week.

Organizationally, the Manager, Operations reports to the Director, Wastewater Operations & Maintenance, and exercises general supervision of the Program Managers and Operations Supervisors in the Wastewater Operations Department (see attached Organization Chart).

Selection Process

This position was posted internally and five candidates applied, four of whom were determined to be qualified. The Deputy Chief Operating Officer, the Director of Wastewater, the Director of Wastewater Operations & Maintenance, and the Manager, Operations Support interviewed all four candidates. Upon completion of the interviews, Mr. James MacPherson was determined to be the best-qualified candidate for the position based on his combination of experience, abilities, knowledge and skills.

Mr. MacPherson has worked at the MWRA in wastewater operations for the past 38 years. He started at the Nut Island wastewater treatment plant as an operator and was promoted to supervisor. During that time, he assisted with the transition of Nut Island from a treatment plant to a headworks facility. He has worked in the Wastewater Operations Control Center in Chelsea for the past 21 years, progressing from Operations Supervisor to Program Manager, Wastewater Operations. During that time, he gained extensive experience operating, and supervising the operation of all the MWRA's wastewater facilities including the wastewater OCC, wastewater pumping stations, combined sewer overflow facilities and headworks facilities.

Mr. MacPherson has been the lead on-call manager for the past five years. He has extensive experience planning and effectively organizing staff for extreme wet weather events and emergencies. He has responded effectively to emergency operations and has operated facilities during ongoing construction projects. Mr. MacPherson has a thorough understanding of wastewater facility standard operating procedures and wet weather operational procedures. He has excellent knowledge of both the SCADA and Maximo systems. He conducts training and reviews procedures to ensure staff are following safety programs. He has been on the interview team for the hiring of dozens of wastewater operations positions. He has overseen the operations training programs for the past five years. He takes part in the planning stages for facility rehabilitation. Mr. MacPherson has outstanding managerial and interpersonal skills, which have enabled him to develop trusting professional working relationships with the unionized wastewater operations staff. He has successfully demonstrated the ability to manage multiple projects. He has earned the respect of his supervisors, employees and colleagues.

Mr. MacPherson holds a Grade IV Wastewater Treatment License and a Grade IV Collections Certification.

BUDGET/FISCAL IMPACTS:

There are sufficient funds for this position in the Operations Division's FY20 Current Expense Budget.

ATTACHMENTS:

Resume of James MacPherson
Position Description
Organizational Chart

JAMES MACPHERSON

EXPERIENCE

2015 – PRESENT

WASTEWATER OPERATIONS PROGRAM MANAGER, MWRA (CHELSEA)

- Acting Wastewater Operations Manager when current manager is away
- On-Call 24/7
- Supervise staff and wastewater facilities during wet weather, monitoring radar/weather forecasts, coordinating standby, ensuring proper staffing levels, wet weather training, monitoring process control and controlling flow at facilities
- Attends and contributes to various meetings including weekly maintenance coordination meetings and progress meetings
- Thorough understanding of Maximo, including overseeing the completion of monthly maintenance PMs, opening service requests and work orders and tracking maintenance activities
- Department liaison to other MWRA departments as well as outside vendors and contractors
- Coordinates all staff training, including but not limited to: facility startups, safety procedures, operational technique and emergency response
- Conducts facility tours for MWRA staff and interns
- Oversees the ordering of chemicals and handles related budgets and contracts
- Manages departmental filings including both the Yellow and Orange Notebook

1998 – 2015

OPERATIONS SUPERVISOR, MWRA (CHELSEA)

- Supervise day to day operations of the Wastewater OCC (Operations Control Center), including operating and supervising pumping stations, headworks facilities and CSO facilities
- Analyze problems and take appropriate action to ensure continuous and reliable operation of equipment and systems
- Supervise staff and operate wastewater facilities during wet weather events
- Thorough understanding of SCADA including developing and testing set points for process control and wet well pumping parameters
- Assisted in the development of the SOPs for the CSO facilities and pumping stations, including: developing a checklist for placing the Chelsea Screenhouse and Caruso Pump Station on the loop, inspecting the underground vaults associated with the South Boston Storage Tunnel, etc.
- Work with Engineering and Construction staff by providing an operational perspective during the design review process and ensuring construction activities are accomplished without impacting operations
- Thorough understanding of the Tiscor scanners, including developing and modifying routes and reviewing scanner's activities to ensure staff are properly scanning all facilities as intended
- Uses PI Processbook to collect data on diesel engines for Excel spreadsheet
- Perform SPCC inspections on CSOs and pump stations monthly

1992 – 1998

SENIOR SEWAGE TREATMENT PLANT OPERATOR, MWRA (NUT ISLAND HEADWORKS)

- Responsible for day to day operation of the NITP
- Collaborate with contractors and vendors to ensure proper transfer from the old treatment plant to new headworks

1986 – 1992

ASSISTANT CHIEF OPERATOR, MWRA (BRAINTREE-WEYMOUTH PUMP STATION)

- Supervise diesel operations to ensure proper running of the plant
- Preventative maintenance and troubleshooting of pumps and screens
- Take daily readings and maintain logs of all flow

1984 – 1986

SEWAGE TREATMENT PLANT OPERATOR, MWRA (NUT ISLAND TREATMENT PLANT)

- Operation of anaerobic digester, detention tanks and grit room
- Worked in all phases of the plant including taking chlorine readings and monitoring digesters

1981 – 1984

DIESEL POWER PLANT OPERATOR, MWRA (NUT ISLAND TREATMENT PLANT)

- Operate and maintain diesel engines and other mechanical equipment to ensure proper operation of the entire plant

EDUCATION/CERTIFICATIONS

- **DIPLOMA, BLUE HILLS REGIONAL TECHNICAL SCHOOL (1976 – 1980)**
- **GRADE IV WASTEWATER TREATMENT LICENSE (#5728)**
- **GRADE IV COLLECTIONS LICENSE #2512**

ADDITIONAL

- Steering Committee
- Selection Committees
- 38 years of wastewater operations and maintenance experience

**MWRA
POSITION DESCRIPTION**

POSITION: Manager, Wastewater Operations

PCR#: 2470004

DIVISION: Operations

DEPARTMENT: Wastewater Operations

BASIC PURPOSE:

Manages the 24-hour operations of wastewater operations facilities including wastewater pumping stations, combined sewer overflow facilities, and headworks facilities. Manages the shift operations activities of assigned personnel to ensure efficient and effective operation of all wastewater facilities to optimize performance and meet permit requirements. Provides operations personnel with needed resources and support. Is required to be part of an on-call rotation for emergencies and wet weather, 24 hours a day, 7 days a week.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, Wastewater Operations and Maintenance.

SUPERVISION EXERCISED:

Exercises general supervision of the Program Managers and Operations Supervisors.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Directs the twenty-four (24) hour operations of all wastewater facilities under the control of the Wastewater OCC.
- Ensures proper readiness, staffing and operation of all wastewater facilities during wet weather events. Responsible for creating and implementing wet weather staffing plans, and participating in management's storm coverage rotation.
- Coordinates with process engineering staff on all wastewater pumping stations, CSOs, and headworks facilities to optimize operations for proper treatment and flow control. Monitors facility flow control performance and identifies process control deficiencies. Plays an active role in the evaluation of long-range process control needs for the wastewater treatment and flow control.

- Establishes and updates operational procedures in accordance with control strategies. Works with SCADA and Process Control staff to implement the wastewater facility SCADA changes.
- Coordinates with the Maintenance Department and establishes priorities to assure successful facility operation.
- Plays an active role in capital project design, construction, and startup activities. Participates in the preparation of performance certification criteria and evaluation reports.
- Establishes and administers operational records and procedures required for all twenty-four (24) hour facilities.
- Oversees personnel management and staff hiring for the department. Ensures that major initiative and policy changes are properly communicated to all staff. Identifies organizational needs and proposes re-organization plans to address changing needs.
- Oversees staff productivity monitoring and continual improvement through staff skills development, strategic planning, SOP improvements and research, and implementation of technology advances. Maximizes effective use of the Maximo maintenance software and related computer programs.
- Manages the department's safety programs, maximizing employee involvement, supporting the Authority-wide safety program, and making inspections. Acts as liaison to the Manager, Occupational Safety and Health. Immediately notifies Occupational Safety and Health of any safety issues or risks that need attention.
- Oversees development, periodic review, and updating of standard operating procedures (SOPs) and Facility O&M manuals, and ensures all staff are properly trained.
- Oversees budget management for Wastewater Operations. Ensures that budget resources are allocated appropriately between units. Monitors spending and ensures budget compliance.
- Establishes emergency response procedures and oversees training and practice drills.
- Ensures consistency and uniformity of work rules in accordance with established policies and procedures. Identifies needed improvements to work practices.
- Manages successful administration of collective bargaining agreement provisions to maintain harmonious labor management relations. Participates in grievance resolution, collective bargaining and contract negotiations. Serves as Step I hearing officer. Hears disciplinary actions.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) A four (4) year college degree in civil or environmental engineering, public administration or related field; and
- (B) Thorough knowledge of planning, operations and maintenance of wastewater utilities as normally acquired through eight (8) to ten (10) years of experience in a wastewater facility, of which a minimum of four (4) years must be in a management or supervisory capacity; and
- (C) Experience in operating large wastewater facilities preferred; or
- (D) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Excellent working knowledge of the operation and maintenance of a large metropolitan sewer system.
- (B) Excellent interpersonal, written and oral communication skills.
- (C) Demonstrated ability to plan, organize, direct, train and assign duties to subordinates.
- (D) Demonstrated successful experience managing in a union environment with a diverse workforce.
- (E) Proficient in the use of personal computers and associated Microsoft Office Suite programs, databases, data presentation & analysis tools.
- (F) Working knowledge of SCADA and of computerized maintenance management systems and procedures. Knowledge of statistical process control and work process continuous improvement preferred.

SPECIAL REQUIREMENTS:

A Massachusetts Wastewater Treatment Plant Operations Certification, Grade IV.

A Massachusetts Wastewater Collection Systems Certification, Grade IV (or the ability to obtain within one year of appointment).

A valid Massachusetts Class D Motor Vehicle Operator's license.

Registered Professional Engineer (P.E.) is preferred.

Is required to be part of an on-call rotation for emergencies and wet weather 24 hours a day, 7 days a week.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

The employee must frequently lift and/or move up to 10 pounds, occasionally lift/or move up to 25 pounds. Specific vision abilities required by this job include close 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 work in an office environment. The employee occasionally exposed to outdoor weather conditions. The employee is occasionally exposed to fumes and airborne particles.

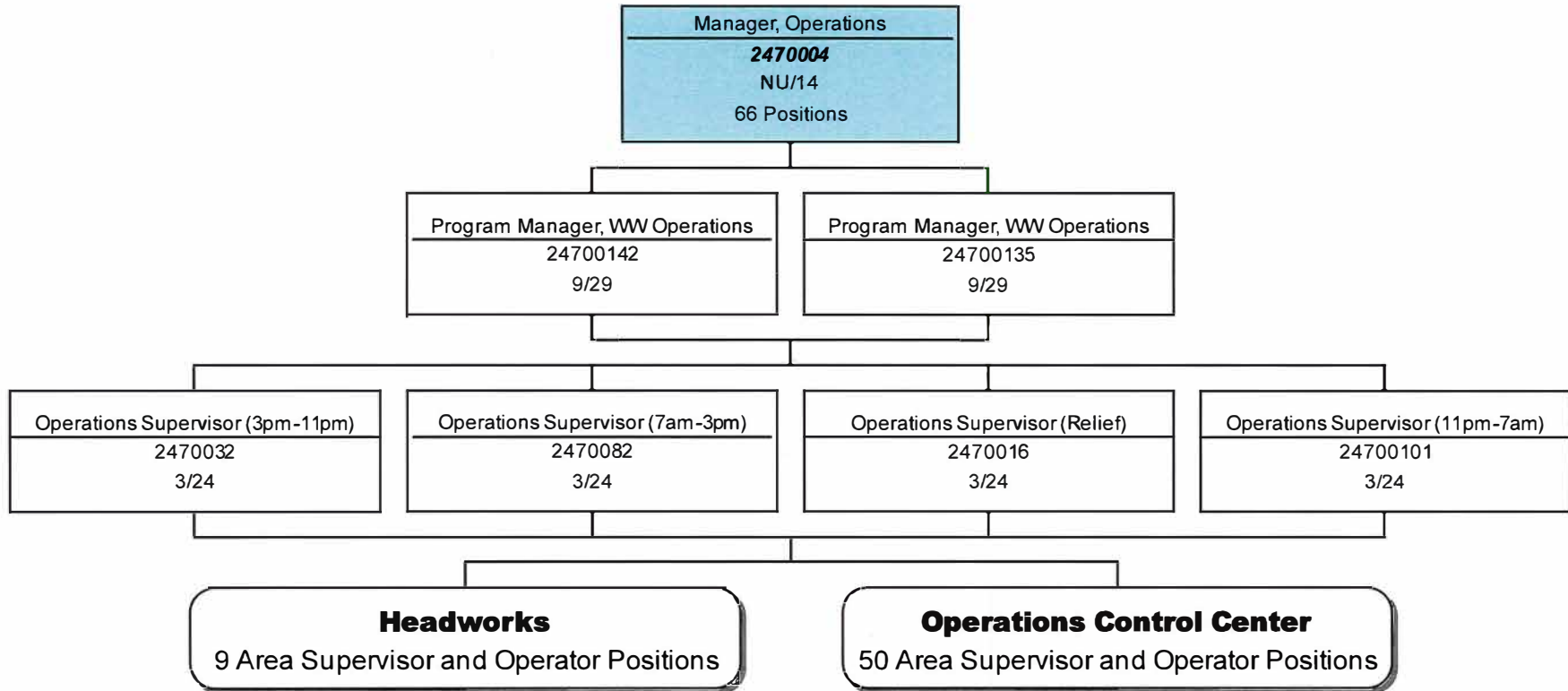
The noise level in the work environment is a moderately quiet in office setting.

NU14


May 2019

Wastewater Operations

November 2019




STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: November 20, 2019
SUBJECT: Appointment of Senior Program Manager, Design Information Systems Center
Engineering & Construction Department

COMMITTEE: Personnel & Compensation

INFORMATION
 VOTE

Andrea Murphy, Director, Human Resources
John Colbert, P.E., Chief Engineer
Preparer/Title


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

RECOMMENDATION:

To approve the appointment of Ms. Kim Dennis to the position of Senior Program Manager, Design Information Systems Center (Unit 9, Grade 30) in the Engineering & Construction Department, at an annual salary of \$119,503.32, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Senior Program Manager in the Engineering & Construction Department became vacant in August 2019 as a result of the retirement of the incumbent. The Senior Program Manager position works under the general supervision of the Assistant Director, Engineering and exercises close supervision of internal staff. This position manages the technical information systems and computer aided design staff, including scheduling of work, assigning task priorities and providing technical guidance, as well as plotter management tasks. The Senior Program Manager maintains and updates computer aided design and technical document control standards, practices and procedures to be used by MWRA personnel and consultants. This position also manages the Engineering and Construction network files, including project file integrity, space requirements, access, organization, as well as, coordination with MIS on backups, resource needs and performance improvements. This position coordinates closely with other MWRA departments, including Deer Island Technical Information Center, Library, Records Center, Operations Engineering, Planning, TRAC and MIS.

Selection Process

This position was posted internally and eleven candidates applied for the position. Six candidates were determined to be qualified and were referred for an interview. The Chief Engineer, Assistant Director, Engineering, and the Special Assistant for Affirmative Action conducted the initial

interviews. The Deputy Chief Operating Officer, Director, TRAC and the Special Assistant for Affirmative Action conducted a second round of interviews with two short-listed candidates. Upon completion of the interviews, Ms. Kim Dennis was determined to be the best candidate based on her combination of experience, abilities, knowledge, skills and education.

Ms. Dennis has 22 years of experience with MWRA initially as a Sampling Associate with TRAC, progressing to a Staff Engineer, Project Engineer and for the past 8 years as a Project Manager in Engineering & Construction. She has good knowledge of technical engineering information systems practices and procedures as developed through 20 years of experience in the Engineering & Construction Department. During her 10 years in the Design Information Systems Center group, Ms. Dennis was involved in project oversight of microfilm scanning vendor services and for scanning and indexing aperture cards, researching technical requirements, developing scopes of service, QA/QC procedures, evaluating proposals and reviewing deliverables for conformance with MWRA standards and policies. She has diverse engineering experience that includes development of an internal facility security audit program, managing emergency engineering services following the Nut Island Headworks Fire, engineering of roof replacement contracts at various water and wastewater facilities and Technical Assistance Contracts for a variety of projects. She has experience preparing scopes of services, plans and specifications, cost estimates, work schedules and engineering services during construction. Ms. Dennis' combination of experience and skills make her the best qualified candidate for this position.

Ms. Dennis has a Bachelor of Science in Environmental Engineering and a Master of Science in Civil and Environmental Engineering from Tufts University, and a Certificate in Electronic Technology from Women's Technical Institute.

BUDGET/FISCAL IMPACT:

There are sufficient funds for this position in the Operations Division's FY20 Current Expense Budget.

ATTACHMENTS:

Resume of Kim Dennis

Position Description

Engineering and Construction Department Organization Chart

KIM M. DENNIS

Education PROFILE

M.S., Civil & Environmental Engineering
Tufts University, 2003

Cert., Environmental Management
Tufts University, 2002

B.S., Environmental Engineering
Tufts University, 1997

Cert, Electronic Technology
Women's Technical Institute, 1986

Civil (Environmental) engineer with over 22 years of project management experience related to the rehabilitation and capital improvement of water and wastewater infrastructures and facilities. With a strong background in database design and management.

RELEVANT PROFESSIONAL EXPERIENCE

PROJECT MANAGER

2011 - Present

Cosgrove Intake and Power Station, Cottage Farm CSO and Gillis Pump Station Flat Roof Replacement – Design & Construction

Project Manager for the evaluation, design and M.G.L. Chapter 149 Bidding services for roofing and lightning protection systems upgrades at the Cosgrove Intake and Power Station, Cottage Farm CSO and Gillis Pump Station facilities.

Specific duties include development of the scope of services, plans and specifications, cost estimates and work schedules; coordinating with Operations and maintenance staff for building repairs; providing written notifications to conservations commissions; reviewing contractor bids proposals and preparing contract award recommendations.

Project Manager for engineering services during construction, including reviewing shop drawings, proposed change orders, and contract document clarifications; attending construction progress meetings; performing site visits to observe work progress; and attending meetings with city officials, contractor, consultant, MWRA and other staff to discuss or resolve design and construction related issues.

MWRA Security Audit Program

Reporting directly to the Director of the Office of Emergency Preparedness Department to develop and implement a comprehensive security assessment program for over 114 MWRA water and wastewater facilities.

Specific duties includes developing standard security audit worksheets and summary reports; establishing weekly schedule of audits; utilizing GIS (Geographic Information Systems) mapping and database management software to obtain facility and site information; preparing written reports detailing deficiencies and observations and making recommendations for corrective actions; utilizing MWRA's MAXIMO asset management database to monitoring the progress of recommended repairs; and providing progress updates at the security task force meetings.

Nut Island Headworks Fire Recovery – Emergency Engineering Services

Provided on-site emergency response engineering support for the Nut Island Headwork post-fire recovery work.

Specific duties included attending site visits with the consultant to document fire damaged equipment; compiling and organizing as-built document and facility information; attending insurance claim meetings; attending Board of Directors meetings with the Deputy Chief Operating Officer to provide post fire updates; responding to Risk Management Properties insurance claim requests; developing and maintaining incident update log; documenting completed work; and overseeing the as-built (redline) drawings prepared by DISC staff.

Certification /Training

Confined Space Entry Training
First Aid/CPR/AED
OSHA Construction Safety and Health - 10 Hr
Hazardous Waste Operations - 40 hr
Access Advanced Training
ArcMap Advanced Training
AutoCAD for Project Managers
Cyber Security Core Training
Disaster Management for
Water and Wastewater Utilities
Estimating Consultant Design Fees
H2ONet Water Systems Modeling
Maximo Asset Management
Security Awareness Training

Nut Island Headworks Fire Protection Engineering Services and Analysis

Project Manager for fire protection engineering services for design of the Nut Island Headworks Fire Protection System Water Supply Modifications. Specific duties included preparing concept level CAD drawings to support discussions with the City of Quincy's water and fire departments.

Technical Assistance Consulting Services Contracts

Assisting Task Order Managers with the development and execution of Task Orders (TO), managed through the Technical Assistance Consulting Services Program, including reviewing task order requests, scope of services, scheduling, level of effort, and deliverables.

PROJECT ENGINEER

2001 - 2011

Microfilm Scanning Vendor Services (DISC)

Provided project management assistance for scanning and indexing 55,000 aperture cards, including researching technical requirements, qualifications and state approved vendor contracts; visiting several microfilm scanning facilities; developing scope of services, preparing bid specifications and QA/QC procedures; evaluating vendor bid proposals; reviewing vendor's deliverables for quality of work and conformance with MWRA standards and policies; supervised and tracked DISC staff aperture card pick-up and delivery schedule.

STAFF ENGINEER

1999 - 2001

Framingham Extension Relief Sewer (FERS)

Design and maintained a property owner land acquisition database to support the Notice of Intent (NOI) mailings, community meeting mailings and tracking the MWRA's Treasury Department's compensation to property owners.

SAMPLING ASSOCIATE

1997 - 1999

Toxic Reduction and Control Department (TRAC)

Kept accurate records of sampling; performed data analysis using MWRA's TRAC-IS, Laboratory Information System (LIMS), and other databases to determine toxic use reduction priorities. Developed Standard Operating Procedures (SOP) for wastewater metering equipment.

PAST PROFESSIONAL EXPERIENCE

Executive Board Member, Massachusetts Girls Collaborative Project

- Regional Coordinator for the National Girls Collaborative Project (NGCP)..

Intern, Charles River Watershed Association

- Collected stream flow measurement and water quality samples;
- Performed groundwater and watershed modeling.

Intern, Sverdrup Civil, Inc.

- Participated in an intensive training program with electrical, environmental, and geotechnical engineers;
- Assisted with off-site building inspections.

Copier Service Technician, Ikon Solutions (formerly Acopy)

- Copier and Personal Scanner Repair Technician

**MWRA
POSITION DESCRIPTION**

POSITION: Senior Program Manager (Design Information Systems)

PCR#: 5525021

DIVISION: Operations

DEPARTMENT: Engineering & Construction

BASIC PURPOSE:

Provide centralized, computer based engineering information and design services to support ongoing Operations Division maintenance, engineering and construction work. Manages all projects in assigned Programs from conceptual planning through construction contract award.

SUPERVISION RECEIVED:

Works under the general supervision of the Assistant Director, Engineering.

SUPERVISION EXERCISED:

Exercises close supervision of the internal staff as necessary, including performance reviews, to manage engineering consultant activities.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages assigned Programs including conformance to standards and procedures, staffing assignments, project scheduling and prioritization, and work product quality.
- Manages the technical information systems and computer aided design staff, including scheduling of work, assigning task priorities and providing technical guidance, including Adobe and AutoVue, as well as on plotter management tasks.
- Maintains and updates computer aided design and technical document control standards, practices and procedures to be used by MWRA personnel and consultants.
- Manages the Engineering and Construction network files, including project file integrity, space requirements, access, organization, as well as, coordination with MIS on backups, resource needs and performance improvements.
- Provides technical review of internal, consultant and contractor submittals prepared for MWRA projects ensuring computer aided design files meet the required Authority

standards.

- Participates in the in-house planning and design of various water/wastewater civil, facility repair, improvement and replacement program drawings.
- Prepares project specifications, contract documents, requests for proposals and necessary documents for goods and services needed to maintain engineering information and design services.
- Coordinates information requests with communities, government agencies, utilities, contractors. Respond to and report on External Non-Disclosure Agreement information requests.
- Utilizes document management system (currently Infostar) CAD, Adobe and AutoVue software, and incorporates updates, training and support. Ensures the filing of all engineering and construction project records per contract specifications and Authority Department Records Manager duties.
- Provides computer aided design drawing and records software technical assistance to support the interface and transfer of data between other Authority software programs including GIS, e-construction, and e-design.
- Coordinates DISC/E&C services with Deer Island TIC, Library, Records Center, Operations Engineering, GIS/Planning and MIS. Provide shared plotters management, assistance and services.
- Prepares annual and supplementary budget requests for the program.
- Participates in consultant selection procedures and contract negotiations.
- Addresses community and professional organizations on agency programs and policies, prepares reports and correspondence and maintains liaison with representatives of other agencies.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Knowledge of engineering document and drawing management principles and practices as normally attained through a four (4) year college program in engineering, science, mathematics, computer science or related field; and

- (B) Thorough understanding of engineering computer based records, drawings, information management, and technical documentation as acquired through eight (8) to ten (10) years of experience, of which a minimum of four (4) years is in a supervisory capacity. Experience in water and/or wastewater field preferred; or
- (C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Knowledge of water and/or wastewater unit operations design and operation, process control theory, practices and principle and computer applications.
- (B) Demonstrated written and oral communication skills.
- (C) Knowledge of technical engineering information systems practices and procedures, computerized database applications, computer aided drafting and business office administration practices.

SPECIAL REQUIREMENTS:

Massachusetts Registered Professional Engineer preferred

A valid Class D Massachusetts Motor Vehicle Operators License.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

The employee must frequently lift and/or move up to 10 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision,

distance vision, color vision, depth perception, peripheral vision and the ability to adjust focus.

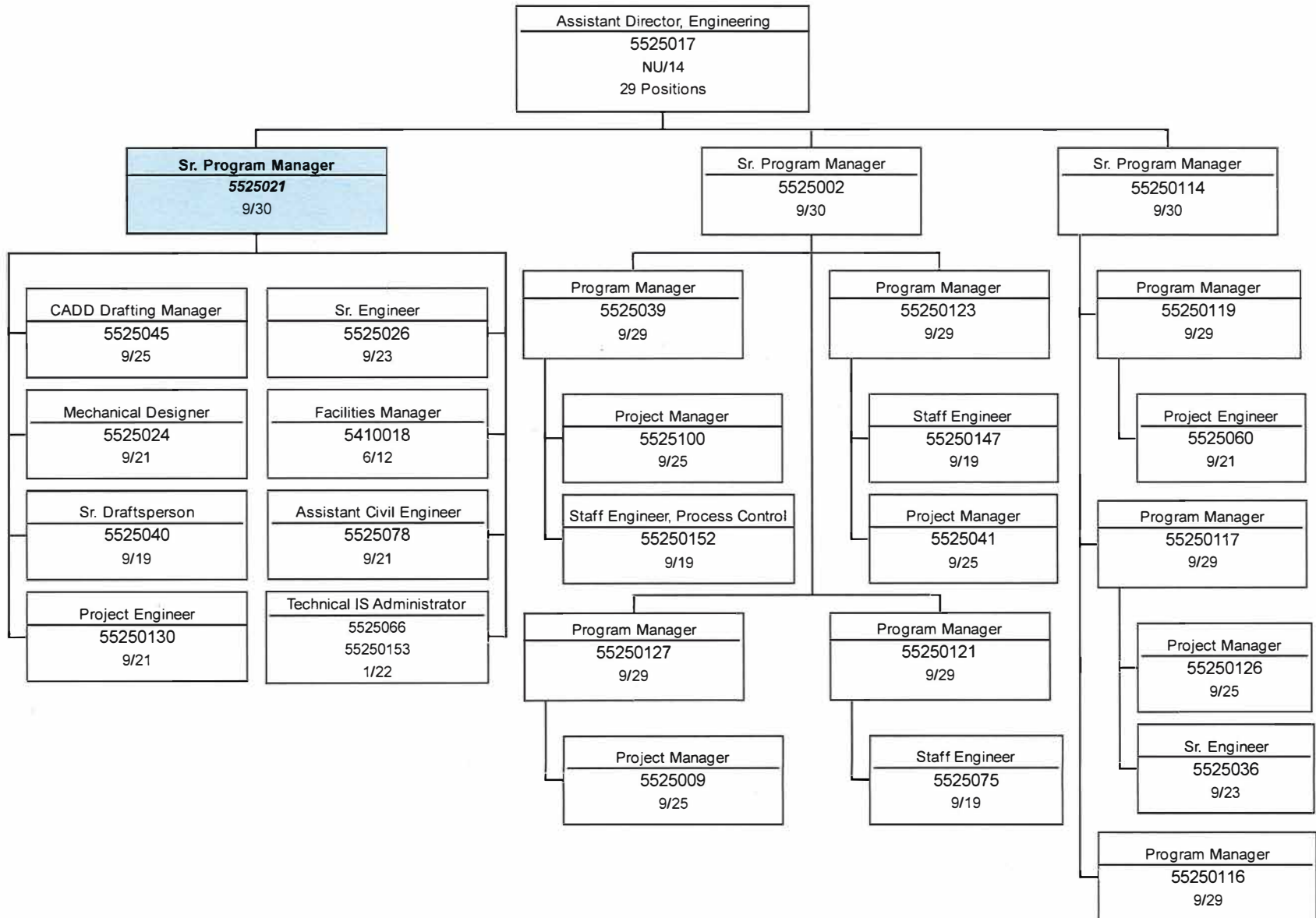
WORK ENVIRONMENT:

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

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

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

Engineering & Construction
Water/Wastewater Engineering
 November 2019





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

BOARD OF DIRECTORS' MEETING

Chair: K. Theoharides
Vice-Chair: J. Carroll
Secretary: A. Pappastergion
Board Members:
C. Cook
K. Cotter
P. Flanagan
J. Foti
B. Peña
H. Vitale
J. Walsh
J. Wolowicz

to be held on

Wednesday, November 20, 2019

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. PCR Amendments – November 2019 (ref. P&C A.1)
2. Appointment of Program Manager, Metro Meter Maintenance (ref. P&C A.2)
3. Appointment of Program Manager SCADA Engineering (ref. P&C A.3)
4. Appointment of Manager, Wastewater Operations (ref. P&C A.4)
5. Appointment of Senior Program Manager, Design Information Systems (ref. P&C A.5)

B. Contract Awards

1. Harbor and Outfall Monitoring Contracts for 2020-2023: Battelle Memorial Institute, Contract OP-401A, Normandeau Associates, Inc., Contract OP-401B (ref. WW B.1)

B. Contract Awards (continued)

2. Cooperative Research Project with Center for Coastal Studies in Provincetown to Conduct Water Quality Monitoring in Cape Cod Bay: Contract OP-406 (ref. WW B.2)
3. Section 53 and 99 Improvements Design/CA: Hazen and Sawyer, P.C, Contract 7485 (ref. W B.1)

C. Contract Amendments/Change Orders

1. Automated Vehicle Locator Tracking System: Verizon Connect NWF, Inc., Contract A606, Amendment 1 (ref. AF&A B.1)
2. Chelsea Creek Headworks Upgrade: BHD/BEC 2015, A Joint Venture, Contract 7161, Change Order 34 (ref. WW C.1)
3. Southern Extra High Pipeline – Section 111 (Dedham North): P. Gioioso and Sons, Inc., Contract 7504, Change Order 11 (ref. W C.1)

V. OTHER BUSINESS

VI. CORRESPONDENCE TO THE BOARD

VII. EXECUTIVE SESSION

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Board of Directors

October 16, 2019

A meeting of the Board of Directors of the Massachusetts Water Resources Authority was held on Wednesday, October 16, 2019 at the Authority headquarters in Charlestown. Chair Theoharides presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cook, Foti, Peña, Pappastergion, Vitale and Walsh. Messrs. Cotter and Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Executive Director, Carolyn Francisco Murphy, General Counsel, David Coppes, Chief Operating Officer, Carolyn Fiore, Deputy Chief Operating Officer, Thomas Durkin, Director of Finance, Michele Gillen, Director of Administration, Betsy Reilly, Director, Environmental Quality, Kenneth Keay, Senior Program Manager, Environmental Monitoring, and Assistant Secretaries Ria Convery and Kristin MacDougall. Vandana Rao, EEA, was also in attendance. The meeting was called to order at 1:10 p.m.

APPROVAL OF SEPTEMBER 18, 2019 MINUTES

Upon a motion duly made and seconded, it was

Voted: to approve the minutes of the Board of Directors' meeting of September 18, 2019 as presented and filed with the records of the meeting.

REPORT OF THE CHAIR

Ms. Theoharides noted that a Level 1 (mild) drought was announced for the Connecticut River Valley on October 15, 2019. She also provided an update on the Commonwealth's efforts to address challenges related to PFAS. Finally, she noted the designation of climate change regional coordinators to support communities in making necessary investments in critical infrastructure and other efforts toward resiliency.

REPORT OF THE EXECUTIVE DIRECTOR

Mr. Laskey thanked MWRA Waterworks staff for their roles in MWRA's receipt of the New England's Best award from the New England Water Works Association. He also congratulated MWRA Finance staff upon the recent completion of a successful bond deal, and noted the release of MWRA's Audited Financial Statements. Finally, he provided an update on MWRA's RFI for information on private plans for the Massachusetts Paid Family and Medical Leave Act.

APPROVALS

PCR Amendments - October 2019 (ref. P&C B.1)

Upon a motion duly made and seconded, it was

Voted: to approve amendments to the Position Control Register (PCR) included as presented and filed with the records of the meeting.

Appointment of Manager of Transmission and Treatment, Operations Division (ref. P&C B.2)

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Mr. Eben Nash to the position of Manager, Transmission and Treatment, Operations Division, (Non-Union, Grade 14), at an annual salary of \$142,977.00, commencing on October 21, 2019.

Appointment of Budget Manager, Finance Division (ref. P&C B.3)

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Mr. James J. Coyne to the position of Budget Manager, Finance Division (Non-Union, Grade 14) at an annual salary of \$117,300 commencing on a date to be determined by the Executive Director.

Appointment of Senior Staff Counsel for General Litigation (ref. P&C B.4)

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Amy B. Hackett to the position of Senior Staff Counsel, General Litigation, Law Division (Unit 6, Grade 13) at an annual salary of \$127,481.99, commencing on a date to be determined by the Executive Director.

Appointment of IT Project Manager III, MIS Department (ref. P&C B.5)

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Renata Thomas to the position of IT Project Manager III (Unit 6, Grade 12), MIS Department, at the recommended salary of \$95,297.57, commencing on a date to be determined by the Executive Director.

City of Cambridge Proposal for Partial Sewer Separation (ref. WW B.1)

Upon a motion duly made and seconded, it was

Voted: to approve the Cambridge partial sewer separation proposal for the Cambridge system, including the continued but restricted stormwater contribution for a 12-month trial evaluation period to verify flows and benefits to the MWRA's CSO Long-Term Control Plan, provided that (1) the program does not have any financial impact to the MWRA; (2) the program benefits the MWRA; and (3) the program only takes place in a combined system. MWRA staff shall analyze and report to the Board of Directors any financial impacts on MWRA communities.

Emergency Water Supply Agreement with the Town of Burlington (ref. W B.1)

Upon a motion duly made and seconded, it was

Voted: to authorize the Executive Director, on behalf of the Authority, to execute an Emergency Water Supply Agreement with the Town of Burlington, subject to the approval of the MWRA Advisory Board, for a period of up to six months.

CONTRACT AWARDS

Charles River Valley Sewer Rehabilitation - Section 191 and 192 Green Mountain Pipeline Services Contract 7643 (ref. WW C.1)

Upon a motion duly made and seconded, it was

Voted: to approve the award of Contract 7643, Charles River Valley Sewer Rehabilitation - Section 191 and 192, to the lowest responsible and eligible bidder, Green Mountain Pipeline Services, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$1,619,380.00, with a contract term of 180 calendar days from the Notice to Proceed.

Supply and Delivery of Ferric Chloride to the Deer Island Treatment Plant, Kemira Water Solutions, Inc., Bid WRA-4752 (ref. WW C.2)

Upon a motion duly made and seconded, it was

Voted: to approve the award of Purchase Order Contract WRA-4752 for the supply and delivery of ferric chloride to the Deer Island Treatment Plant, to the lowest responsive bidder, Kemira Water Solutions, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed \$1,940,000 for a period of one year, from December 1, 2019 through November 30, 2020.

CONTRACT AMENDMENTS/CHANGE ORDERS

Deer Island Treatment Plant Pump Refurbishment, A. W. Chesterton Company, Contract S581, Change Order 1 (ref. WW D.1)

Upon a motion duly made and seconded, it was

Voted: to authorize the Executive Director, on behalf of the Authority, to approve Change Order 1 to Contract S581, Deer Island Treatment Plant Pump Refurbishment, with A.W. Chesterton Company, for an amount not to exceed \$77,814 increasing the contract amount from \$98,976 to a total not to exceed amount of \$176,790, and extending the contract term by 135 calendar days from August 18, 2019 to December 31, 2019.

Northern Intermediate High Section 110 – Stoneham, Albanese D&S Inc., Contract 7067, Change Order 10 (ref. W C.1)

Upon a motion duly made and seconded, it was

Voted: to authorize the Executive Director, on behalf of the Authority, to approve Change Order 10 to Contract 7067, Northern Intermediate High Section 110 Stoneham, with Albanese D&S Inc., for an amount not to exceed \$302,959.00, increasing the contract amount from \$24,811,914.91 to \$25,114,873.91, with no increase in contract term.

Further, it was voted to authorize the Executive Director to approve additional change orders as may be needed to Contract 7067 in an amount not to exceed the

aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

OTHER BUSINESS

2018 Deer Island Outfall Monitoring Overview (ref. W A.2)

Staff made a presentation. There was discussion and questions and answers. Chair Theoharides commended staff on an interesting and informative presentation.

MWRA Advisory Board Staff Participation in Executive Session

Upon a motion duly made and seconded, it was

Voted: to invite MWRA Advisory Board staff to attend the October 16, 2019 Executive Session update on cyber security.

EXECUTIVE SESSION

Chair Theoharides announced that the Board would enter Executive Session to discuss cyber security, and that the Board would reconvene in open session for the purpose of adjournment.

It was moved to enter Executive Session to discuss cyber security and thereafter to return to open session solely for the purpose of adjournment. Upon a motion duly made and seconded, a roll call vote was taken in which the members were recorded as follows:

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Theoharides		
Carroll		
Cook		
Foti		
Pappastergion		
Peña		
Vitale		
Walsh		
Wolowicz		

Voted: to enter Executive Session for the purpose of discussing cyber security, and thereafter to return to open session solely for the purpose of adjournment.

* * * *

EXECUTIVE SESSION

* * * *

The meeting returned to open session and adjourned at 2:10 p.m.

Approved: October 16, 2019

Attest:

Andrew M. Pappastergion, Secretary

--

Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2019/o-BoardMaterials10-16-19.pdf>