Posted 09/10/2021 12:45pm

MASSACHUSETTS WATER RESOURCES AUTHORITY
Charlestown Navy Yard
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BOARD OF DIRECTORS' MEETING

To be Held on Wednesday, September 15, 2021

Time: 1:00pm

To be Held Virtually

Pursuant to An Act Relative to Extending Certain COVID-19 Measures Adopted During the State of Emergency.

WebEx Meeting Link for Attendees (Registration Required):

https://mwra.webex.com/mwra/onstage/g.php?MTID=eb1143c1a725805351cc7e6c4d5b8633a

Event number: 2349 062 8999 **Event password:** 91521

AGENDA

I. APPROVAL OF MINUTES

II. REPORT OF THE CHAIR

III. REPORT OF THE EXECUTIVE DIRECTOR

IV. WATER POLICY & OVERSIGHT

A. Contract Amendments/Change Orders

1. SCADA System Improvements at the Carroll Water Treatment Plant: Arcadis U.S., Inc., Contract 7581, Amendment 2

V. PERSONNEL & COMPENSATION

A. Approvals

1. PCR Amendments – September 2021
2. Appointment of Superintendent, Clinton Wastewater Treatment Plant
3. Appointment of Manager, Transmission and Treatment
4. Appointment of Senior Program Manager, Environmental Monitoring, ENQUAL
5. Appointment of Materials Coordination Manager

VI. ADMINISTRATION, FINANCE & AUDIT

A. Information

1. Fourth Quarter FY2021 Orange Notebook
2. Delegated Authority Report – July and August 2021
3. FY21 Year-End Financial Update and Summary
4. FY21 Year-End Capital Improvement Program Spending Report

B. Approvals

1. Defeasance of Future Debt Service
2. Delegation of Board's Authority to Make Determinations on Ethics Disclosures by Executive Director

VII. WASTEWATER POLICY & OVERSIGHT

A. Contract Awards

1. Supply and Delivery of Ferric Chloride: Kemira Water Solutions, Inc., Purchase Order Contract WRA-4995
2. Supply and Delivery of Sodium Hypochlorite: Borden & Remington Corporation Purchase Order Contract WRA-4996
3. Supply, Delivery and Disposal of Regenerated Activated Carbon: Carbon Activated Corporation, Purchase Order Contract WRA-5002
4. Deer Island Treatment Plant South System Pump Station Improvements – Preliminary Design, Final Design, Bidding, Engineering Services During Construction, and Resident Engineering/Inspection Services for the Rehabilitation of the South System Pump Station: AECOM, Contract 7126
5. Prison Point CSO Facility Improvements: Barletta Heavy Division, Inc., Contract 7462

B. Contract Amendments/Change Orders

1. Chelsea Creek Headworks Upgrade RE/RI Services: CDM Smith, Inc., Contract 6802, Amendment 2
2. Nut Island Headworks Odor Control and HVAC System Improvements: Walsh Construction Co. II, LLC, Contract 7548, Change Order 6
3. Wastewater Monitoring for COVID-19: Biobot Analytics, Inc., Contract OP-420, Amendment 2

VIII. CORRESPONDENCE TO THE BOARD

IX. OTHER BUSINESS

X. EXECUTIVE SESSION

i. Approval of July 21, 2021 Executive Session Minutes

A. Real Estate

1. Tunnel Redundancy Land Acquisition: Approval of Order of Taking

B. Security

1. Security Report – 20th Anniversary of 9/11

XI. ADJOURNMENT

MASSACHUSETTS WATER RESOURCES AUTHORITY
Meeting of the Board of Directors
July 21, 2021

A meeting of the Massachusetts Water Resources Authority ("MWRA") Board of Directors was held on July 21, 2021. The meeting was conducted at MWRA's headquarters at 100 First Avenue, Boston, Massachusetts, and also virtually pursuant to Chapter 20 of the Acts of 2021, An Act Relative to Extending Certain COVID-19 Measures Adopted During the State of Emergency. Chair Theoharides (remote participation) presided. Also present from the Board, in addition to the Chair, were Ms. Wolowicz (remote participation) and Messrs. Carroll, Cook (remote participation), Flanagan (remote participation), Foti (remote participation), Pappastergion, Peña (remote participation), Vitale (remote participation), J. Walsh and P. Walsh (remote participation). MWRA staff participants at MWRA's headquarters included: 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; and Assistant Secretaries Ria Convery and Kristin MacDougall. Joseph Favaloro, MWRA Advisory Board, was also present at MWRA headquarters. MWRA staff in attendance virtually included: David Duest, Director, Deer Island; Charles Ryan, Director, Wastewater Operations & Maintenance; Ethan Wenger, Director, SCADA, Metering and Monitoring; John Beckley Program Manager, Monitoring and Control; Andrea Murphy, Director, Human Resources; and, Paula Weadick, Director, MIS. Vandana Rao, EEA, was also in attendance virtually.

Chair Theoharides called the meeting to order at 1:02pm. MWRA General Counsel Francisco Murphy took roll call of Board Members in attendance. Board members who were participating virtually indicated such during the roll call. The Chair announced that with the exception of Executive Session, the meeting was open to the public either at MWRA's headquarters or virtually, via a link posted on MWRA's website (www.mwra.com). She also announced that the meeting would be recorded, and that the agenda and meeting materials were available on MWRA's website.

(Mr. Flanagan joined the meeting after roll call was taken.)

All motions were individually made and presented for discussion and deliberation. MWRA General Counsel Francisco Murphy explained that all motions would be individually presented and given an opportunity for discussion and deliberation; further, that after discussion and deliberation, any Board member could request an individual roll call vote on that motion, where Board Members could vote affirmatively or in the negative, or abstain from voting. She also said that if no request for an individual vote were made or concerns raised, the motion would advance for an omnibus roll call vote at the conclusion of all the presentations.

APPROVAL OF JUNE 23, 2021 MINUTES

A motion was duly made and seconded to approve the minutes of the Board of Directors' meeting of June 23, 2021. Chair Theoharides called for any questions, discussion or objections. Hearing none, the Chair referred the motion to an omnibus roll call vote. (ref. I)

Documents used for this meeting and cited in these minutes, including meeting materials/staff summaries, presentations and approved minutes, are posted on MWRA's website: https://www.mwra.com/02org/html/bodmtg.htm

REPORT OF THE CHAIR

Chair Theoharides updated Board Members on the Baker-Polito administration's Covid-19 economic recovery efforts, with a focus on addressing health and economic disparities and supporting residents and communities that were hit hardest by the pandemic. Next, she reported that Massachusetts has continued to see impacts of climate change, including days of poor air quality as well as emerging flood impacts across the state. The Secretary then announced that Governor Baker had submitted on June 28, 2021 a spending plan for American Rescue Plan Act (ARPA) funding that directs $2.9 billion to address urgent hardships and challenges including housing, jobs and other efforts particularly focused on people of color and low wage workers. The plan also directs nearly $1 billion in funding for critical energy and environmental initiatives, including $400 million for modernizing water and sewer infrastructure across the Commonwealth. The infrastructure initiatives include controlling combined sewer overflows, addressing PFAS in drinking water and investing in new infrastructure projects that are necessary to minimize risks associated with untreated waste, toxic materials, and storm water through ground and surface water. Finally, Secretary Theoharides updated Board Members on drought conditions in the Commonwealth. During the week of July 20, 2021 she had declared Level Zero Normal Conditions in all regions across the Commonwealth except for Cape Cod. (ref. II)

(Mr. Cook joined the meeting during the report.)

REPORT OF THE EXECUTIVE DIRECTOR

Mr. Laskey announced that MWRA had received the Secretary's Certificate for the removal of the Quinapoxet Dam, and that the comment period was open through August 6, 2021. He then briefly updated Board Members on the Metropolitan Water Tunnel Program and reported that MWRA staff will present regular program updates at future Board meetings. Next, he reminded Board Members that the August 2021 Board of Directors meeting had been cancelled and that the MWRA Advisory Board would be hosting its annual tour on August 19, 2021. He added that the tour would include the dedication of a memorial bench for long-time Advisory Board member Bernie Cooper. Finally, Mr. Laskey thanked Board Members for participating in MWRA's Diversity, Equity, Inclusion and Respect in the Workplace training, and invited their feedback. (ref. III)

WASTEWATER POLICY AND OVERSIGHT

Information

Recent Storm Impacts on MWRA's Wastewater System

MWRA Deer Island Wastewater Treatment Plant Director David Duest, Director of Wastewater Operations and Maintenance Charles Ryan and Chief Operating Officer David Coppes gave a presentation to brief Board Members on MWRA system performance from June 30 through July 18, 2021, when the MWRA's Metro Boston service area received 11.2 inches of rainfall over a 19-day period (an amount equivalent to more than one quarter of a typical year's rainfall). Mr. Duest said that the impacts of the storms were compounded with high groundwater saturation. He reported on high rainfall and wastewater flows at the Deer Island Treatment Plant and at North and South Wastewater System facilities. Next, Mr. Ryan reported on Somerville Marginal, Prison Point and Cottage Farm CSO facility activations, SSO discharges, and MWRA's SSO notification process. MWRA Chief Operating Officer David Coppes continued the presentation; he described

storm-related challenges to staff, and thanked staff for their dedication while responding to the storms. Finally, Mr. Coppes reported on the storms' impacts on MWRA's reservoirs, noting that the Quabbin reservoir had reached capacity, prompting activation of the spillway as of July 20, 2021.

Chair Theoharides asked if there was any discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. IV A.1)

WATER POLICY AND OVERSIGHT

Information

Project Update: Section 22 Rehabilitation Alternatives Analysis and Environmental Permitting: Black & Veatch Corporation, Contract 7155A

MWRA Chief Engineer John Colbert gave a presentation to Board Members that included a project status update and an overview of the conditions assessment's approach and findings. Mr. Colbert described the recommended construction alternative for an Area of Critical Environmental Concern at the DCR's Neponset River Estuary and a second recommended alternative for the remainder of the project. Mr. Colbert noted that the recommended construction alternatives, which entail a combination of pipeline replacement and rehabilitation, reduce projected construction costs from $50 million (for full pipe replacement) to $26 million (for the recommended plan), while also reducing environmental impacts to areas of concern.

A Board Member asked about the existing pipeline's lining status. Mr. Colbert responded that it was currently unlined.

(Mr. Foti joined the meeting during the presentation)

Chair Theoharides asked if there was any further discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. V A.1)

Contract Awards

Carroll Water Treatment Plant SCADA System Improvements - Construction: LeVangie Electric Co., Inc. Contract 7582

A motion was duly made and seconded to approve the award of Contract 7582, John J. Carroll Water Treatment Plant SCADA System Improvements, to the lowest responsible and eligible bidder, LeVangie Electric Company, Inc. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $12,905,000, for a contract term of 1,127 calendar days from the Notice to Proceed.

MWRA Director of SCADA, Metering and Monitoring Ethan Wenger and Program Manager, Monitoring and Control John Beckley gave a presentation that provided an overview the project's scope of work and bid results. Mr. Wenger reviewed the current status of the Carroll Water Treatment Plant's SCADA systems. He also described proposed improvements and associated security improvements. He noted that that due to the complex nature of the project, the extensive cutover sequencing and need to coordinate with plant maintenance periods, the construction

duration would extend beyond the originally-anticipated 24 months. Next, Mr. Beckley described the functions of the Carroll plant's control panel and operator control room. He shared photos of the existing facilities and renderings of anticipated improvements. He explained that the existing facilities were reaching the end of their useful lives, and that the procurement of spare parts was becoming increasingly difficult. Mr. Wenger then summarized the contractor procurement process, provided a comparison of bids received and described the qualifications of the lowest responsible and eligible bidder, LeVangie Electric Co., Inc. He concluded by noting that consistent with MWRA's regular practice, staff met with LeVangie's representatives and determined that the proposed contractor had demonstrated understanding of the requirements of the contract specifications and timeline.

A Board Member asked about the procurement process and the bid spread between bidders. Mr. Wenger explained that a selection committee was not required for this construction contract; and that LeVangie reported that it spent a good deal of time pricing out subcontractors.

Chair Theoharides asked if there was any further discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. V B.1)

PERSONNEL AND COMPENSATION

Approvals

PCR Amendments – July 2021

A motion was duly made and seconded to approve the amendment to the Position Control Register as presented and filed with the records of the meeting.

MWRA Director of Human Resources Andrea Murphy summarized the proposed Amendments: a title change to one vacant position in the Finance Division, Treasury department; a title change to one vacant position in the Operations Division, Operations Engineering; and, a title and grade change to one vacant position in the Operations Division, Metro Water Operations Department.

Chair Theoharides asked if there was any discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. VI A.1)

Appointment of Program Manager, Design, Tunnel

A motion was duly made and seconded to approve the appointment of Mr. Christopher Dzidek to the position of Program Manager, Design, Tunnel Redundancy Department (Unit 9, Grade 29) at an annual salary of $101,288.42 commencing on a date to be determined by the Executive Director.

MWRA Human Resources Director Andrea Murphy summarized the proposed candidate's work history, experience, education and qualifications.

Chair Theoharides asked if there was any discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. VI A.2)

Appointment of Community Relations Coordinator, Public Affairs

A motion was duly made and seconded to approve the appointment of Mr. Carmine De Maria to the position of Community Relations Coordinator for the Tunnel Program (Unit 6, Grade 12), in the Public Affairs Department, at an annual salary of $117,280, commencing on a date to be determined by the Executive Director.

MWRA Human Resources Director Andrea Murphy summarized the proposed candidate's work history, experience, education and qualifications.

Chair Theoharides asked if there was any discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. VI A.3)

Appointment of Director, TRAC, Operations

A motion was duly made and seconded to approve the appointment of Mr. Matthew J. Dam to the position of Director, Toxic Reduction and Control (Non-Union, Grade 15) in the Operations Division, at the recommended annual salary of $147,000, commencing on a date to be determined by the Executive Director.

MWRA Human Resources Director Andrea Murphy summarized the proposed candidate's work history, experience, education and qualifications.

Chair Theoharides asked if there was any discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. VI A.4)

Appointment of Program Manager, Wastewater, Operations

A motion was duly made and seconded to approve the appointment of Mr. Michael Barter to the position of Program Manager, Wastewater Operations (Unit 9, Grade 29), in the Wastewater Operations and Maintenance Department, at an annual salary of $114,681.78, commencing on a date to be determined by the Executive Director.

MWRA Human Resources Director Andrea Murphy summarized the proposed candidate's work history, experience, education and qualifications.

Chair Theoharides asked if there was any discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. VI A.5)

ADMINISTRATION, FINANCE AND AUDIT

Information

Delegated Authority Report – June 2021

Committee Chair Vitale invited questions or comments from Board Members. Hearing none, Mr. Vitale proceeded to the next agenda item. (ref. VII A.1)

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Approvals

Approval of Amendment 3 to Memorandum of Understanding with Massachusetts Department of Fish and Game for Public Access Fishing Pier at Deer Island

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to execute Amendment 3 to an existing Memorandum of Understanding with the Massachusetts Department of Fish and Game, and other fisheries offices, substantially in the form attached to the July 21, 2021 Staff Summary presented and filed with the records of the meeting, authorizing the Department to pay for the construction of a fishing pier and pier parking spaces, and associated lighting, security improvements at Deer Island, increasing MWRA's share of the project cost by $157,082.45, from $323,160.00 to $480,242.45, and to authorize MWRA to provide general oversight and monitoring of the use of the fishing pier and parking areas.

MWRA Deer Island Wastewater Treatment Plant Director David Duest gave a presentation that included a description of the pier and its two parking areas, the provisions of prior Amendments and the basis for proposed Amendment 3. Mr. Duest explained that Amendment 3 allocated costs for modifying the pier's parking lot design from one large parking lot to two, smaller lots in response to stakeholder comments, with MWRA's share increasing by $157,082.45. He added that the redesigned parking areas include a more complex, deeper storm drainage system than originally planned. Mr. Duest outlined the responsibilities for certain maintenance activities. He concluded the presentation with photos of the Fishing Pier and Parking Lot opening ceremony held on June 24, 2021.

A Board Member asked about liability for any personal injuries at the Deer Island Fishing Pier. MWRA General Counsel Francisco Murphy explained the ownership responsibilities of the pier.

Chair Theoharides asked if there was any further discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. VII B.1)

Contract Awards

42 Cisco Switches, Installation Services and a Five-Year Maintenance Service Agreement: ePlus Technology, Inc. WRA-4985Q, State Contract ITT50

A motion was duly made and seconded to approve the award of Purchase Order Contract WRA-4985Q for 42 Cisco switches, installation services and a five-year maintenance service agreement to the lowest responsive bidder, ePlus Technology, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said Purchase Order Contract in the bid amount of $420,636.

MWRA MIS Director Paula Weadick summarized the function of network switches, which connect IT resources on the same network within a building or campus. She then explained that MWRA's existing switches will reach the end of their useful lives in November 2021. Finally, she provided an overview of the scope and purpose of this proposed contract, which includes installation services and a management console, as well as a five-year maintenance service agreement.

A Board Member requested more information about the contract cost. Ms. Weadick explained that the cost was consistent with industry standards. A Board Member asked Ms. Weadick about

the appropriateness of the awarded bid price. Ms. Weadick noted that the cost was consistent with MWRA staff's estimate; and that the second bidder was determined to be unresponsive because its proposal included only one of the fourteen bid lines required in the specifications.

Chair Theoharides asked if there was any further discussion, or objections. Hearing none, she advanced the motion to an omnibus roll call vote. (ref. VII C.1)

OMNIBUS ROLL CALL VOTE

Chair Theoharides called for an omnibus roll call vote on the motions made and seconded. An omnibus roll call vote was taken in which the members were recorded as follows:

Yes	No	Abstain
Theoharides		
Carroll		
Cook		
Flanagan		
Foti		
Pappastergion		
Peña		
Vitale		
J. Walsh		
P. Walsh		
J. Wolowicz		

Voted: to approve the minutes of the Board of Directors' meeting of June 23, 2021. (ref. I);

Further, voted: to approve the award of Contract 7582, John J. Carroll Water Treatment Plant SCADA System Improvements, to the lowest responsible and eligible bidder, LeVangie Electric Company, Inc. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $12,905,000, for a contract term of 1,127 calendar days from the Notice to Proceed. (ref. V B.1);

Further, voted: to approve the amendments to the Position Control Register (PCR) as presented and filed with the records of this meeting. (ref. VI A.1);

Further, voted: to approve the appointment of Mr. Christopher Dzidek to the position of Program Manager, Design, Tunnel Redundancy Department (Unit 9, Grade 29) at an annual salary of $101,288.42, commencing on a date to be determined by the Executive Director. (ref. VI A.2);

Further, voted: to approve the appointment of Mr. Carmine De Maria to the position of Community Relations Coordinator for the Tunnel Program (Unit 6, Grade 12), in the Public Affairs Department, at an annual salary of $117,280, commencing on a date to be determined by the Executive Director. (ref. VI A.3);

Further, voted: to approve the appointment of Mr. Matthew J. Dam to the position of Director, Toxic Reduction and Control (Non-Union, Grade 15) in the Operations Division, at the

recommended annual salary of $147,000, commencing on a date to be determined by the Executive Director. (ref. VI A.4);

Further, voted: to approve the appointment of Mr. Michael Barter to the position of Program Manager, Wastewater Operations (Unit 9, Grade 29), in the Wastewater Operations and Maintenance Department, at an annual salary of $114,681.78, commencing on a date to be determined by the Executive Director. (ref. VI A.5);

Further, voted: to authorize the Executive Director, on behalf of the Authority, to execute Amendment 3 to an existing Memorandum of Understanding with the Massachusetts Department of Fish and Game, and other fisheries offices, substantially in the form attached to the July 21, 2021 Staff Summary presented and filed with the records of this meeting, authorizing the Department to pay for the construction of a fishing pier and pier parking spaces, and associated lighting, security improvements at Deer Island, increasing MWRA's share of the project cost by $157,082.45, from $323,160.00 to $480,242.45, and to authorize MWRA to provide general oversight and monitoring of the use of the fishing pier and parking areas. (ref. VII B.1); and,

Further, voted: to approve the award of Purchase Order Contract WRA-4985Q for 42 Cisco switches, installation services and a five-year maintenance service agreement to the lowest responsive bidder, ePlus Technology, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said Purchase Order Contract in the bid amount of $420,636. (ref. VII C.1);

OTHER BUSINESS

Chair Theoharides thanked the MWRA staff who spent time away from their families to respond to the high volume of rainfall, storm water and rising reservoir levels during the July storms.

EXECUTIVE SESSION

Chair Theoharides moved that the Board enter Executive Session to discuss litigation, collective bargaining and real estate since discussion in Open Session may have a detrimental effect upon the negotiating and litigating position of the Authority; further, to not return to Open Session and to adjourn the meeting from Executive Session.

MWRA General Counsel Francisco Murphy announced that under the Open Meeting Law, at the start of an Executive Session, members who are participating remotely must state that no other person is present or able to hear the discussion at their remote locations, and that a response of "yes" to the Roll Call to enter Executive Session for Board members who are participating remotely when their names are called would be deemed their statements that no other person is present or able to hear the Executive Session discussion at their remote locations.

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

Yes	No	Abstain
Theoharides		
Carroll		
Cook		

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Yes	No	Abstain
Flanagan		
Foti		
Pappastergion		
Peña		
Vitale		
J. Walsh		
P. Walsh		

Voted: to enter Executive Session to discuss litigation, collective bargaining and real estate and to adjourn the meeting from Executive Session.

(Chair Theoharides left the meeting after the Roll Call Vote to enter Executive Session, and Vice Chair Carroll chaired the remainder of the meeting.)

*** EXECUTIVE SESSION ***

The meeting entered Executive Session at 2:08pm and adjourned at 2:29pm.

Approved: September 15, 2021

Attest: _____
Andrew M. Pappastergion, Secretary

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: John J. Carroll Water Treatment Plant SCADA System Improvements Design, Engineering Services During Construction and Resident Engineering Services
Arcadis U.S., Inc.
Contract 7581, Amendment 2

COMMITTEE: Water Policy and Oversight

_____ INFORMATION
_X_ VOTE

Valerie Moran, P.E., Director, Waterworks
Ethan Wenger, P.E., Director, SCADA, Metering and Monitoring
John P. Beckley, P.E., Program Manager
Preparer/Title

David W. Coppes, P.E
Chief Operating Officer

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract 7581, John J. Carroll Water Treatment Plant SCADA System Improvements Design, Engineering Services During Construction and Resident Engineering Services, with Arcadis U.S., Inc., to increase the contract amount by $1,095,716.97 from $4,727,028.07 to $5,822,745.04 and extend the contract term by 687 calendar days from November 15, 2023 to October 2, 2025.

DISCUSSION:

The John J. Carroll Water Treatment Plant is located in Marlborough and was placed into service in 2005. With a peak capacity of 405 mgd, the plant provides drinking water to nearly three million customers, including residents and businesses in 45 metro west and greater Boston communities.

The plant utilizes ozone and ultraviolet light (UV) for primary disinfection, sodium hypochlorite and ammonia for secondary disinfection, and soda ash and carbon dioxide for corrosion control. Fluoride is added for dental health and sodium bisulfite is added to quench ozone prior to UV disinfection. Flow through the plant, treatment processes and chemical feed systems are automated through a Supervisory Control and Data Acquisition (SCADA) system.

The Carroll Plant is in operation 24 hours per day, seven days per week and the SCADA system is essential to maintaining continuous operation of the facility. The current SCADA control equipment is reaching the end of its useful life, and future vendor support for the installed programmable logic controller (PLC) base is no longer guaranteed. Critical components, such as backup scanner modules, have been discontinued and when MWRA's current stock of spare parts

is exhausted, maintenance of the system will become increasingly difficult. Advances in control system technology have resulted in new PLC models with improved security provisions, increased system robustness, and enhanced maintenance features.


SCADA Panels

On December 19, 2018, the Board approved the award of Contract 7581, John J. Carroll Water Treatment Plant SCADA System Improvements, Design, Engineering Services During Construction and Resident Engineering Services to Arcadis U.S., Inc. As part of the design contract, the engineer will provide software configuration, programming of the PLCs and SCADA terminals, and configuration of the equipment to be furnished and installed by the construction contractor. The construction contract, 7582, which was approved for award by the Board on July 21, 2021, includes the supply and installation of replacement instrumentation panels, PLCs, UPS backup power, fiber-optic communication network, wiring between the existing panels, and new equipment and refurbishment of the operator control room. A new server room equipped with HVAC and fire suppression system will be constructed to house redundant computer hardware supporting active and backup SCADA systems.

The existing control system is in continuous operation and the sequencing of the cutover from old to new equipment without interruption to plant operations is a key project constraint. The SCADA system improvements construction contract (7582) will install the replacement equipment and communication network in parallel to the existing system to allow a staged cutover that will be completed in close coordination with MWRA staff. A preliminary schedule has been developed that will allow some panels to be powered down and taken off line one at a time, while other panels will need to stay active while individual signals are moved to new PLCs one at a time. Some of the work will only be allowed to be conducted during winter months while half of the Carroll Plant is out of service for maintenance.

Amendment 1

The original Project Schedule estimated a 19-month duration for the design phase Project Management Task, lasting from January 2019 to August 2020. Under Amendment 1, the design period was extended by 184 days, from September 2020 to March 2021, due to impacts of COVID-19 pandemic on the project submittals and additional scope items that required more design time. Amendment 1 also increased the contract amount by $75,000, however, did not include escalation on labor for the additional 184 days, which staff agreed to include in the next amendment (Amendment 2).

This Amendment

Additional Time for Engineering Design Services 184 days

Due to security considerations and the need to protect MWRA security sensitive information related to the SCADA system, DCAMM provided a waiver allowing the Authority to issue Contract 7582 through a two-step procurement process. The first step was a Request for Qualifications followed by a subsequent Request for Proposals. In November 2020, only one

Contractor responded to the initial RFQ. Given the lack of competition, staff re-evaluated the procurement method and re-bid the project.

The procurement approach was revised to a single-step process. Under this approach, the security sensitive information was removed from the general bid documents. DCAMM-certified electrical contractors with a project limit greater or equal to the project estimate were given access to the sensitive information after completing an External Non-disclosure Agreement and Confidentiality Agreement.

Additional design services were required for the engineer to revise the contract documents for the revised procurement approach. If this Amendment is approved he design period will be extended by 184 days, from March 2021 to September 2021, for the modification of the contract documents for the re-bid, increase outreach to potential contractors, re-advertise and bid the project. The revised approach was successful with three contractors responding to the bid. Construction Contract 7582 was awarded to LeVangie Electric in July 2021 with an NTP scheduled for September 2021.

Design Project Management and Re-Bid $57,962.46

As set forth above, a greater level of effort was required to revise the contract documents, provide design project management, coordination, progress meetings and coordination for the additional 184 days to re-bid the project.

Additional Time for Engineering Services During Construction (ESDC) 503 days

The design contract was based on an assumed 24-month duration for construction. In hindsight, this was overly optimistic. There are 16 instrumentation panels with over 15,000 wires with 30,000 terminations that need to be carefully transitioned in a complex sequence to the new equipment to ensure continuing operation of the treatment facility. During the design phase, a shift in the project plan was made in order to lessen the risks associated with numerous individual panel transitions. The contract was packaged to include construction of a new parallel SCADA system that could undergo complete testing prior to transition. This change resulted in a longer construction schedule. The new parallel SCADA system can only be placed into service when process requirements permit, which are constrained depending on the need for various plant systems and the corresponding system demand. The lack of flexibility relates to when systems can be cutover and a narrow window for this work further extends the schedule.

In addition, the COVID pandemic has had far-reaching impacts on industrial markets and equipment delivery times, notably in silicon chip manufacturing. In response to questions from bidders about the ability to source equipment related to the new SCADA system, staff added seven months to the construction contract late in the procurement process to allow for contractor equipment procurement and delivery. Three months of this time was related directly to the equipment procurement schedule and an additional four months was required to realign the construction activities with plant operation and maintenance periods.

With the schedule changes 40 months is now necessary to construct the project and complete project closeout. This results in the need to add 503 days to the design contract to support the

longer construction period including for resident engineering services, engineering services during construction, and project administration.

Escalation $62,141.27

As set forth above, Amendment 1 included an increase of 184 days for COVID-19 related delays, but did not include escalation for this extended time period. Staff and Arcadis reserved any escalation for this 184-day period for a future amendment. If approved, Amendment 2 will further extend the contract term by 687 days. Escalation for the total 871 extended period (Amendment 1 and Amendment 2 extended periods) is requested at $62,141.27.

Construction Project Administration $108,949.01

Additional level of effort will be required related to the additional 503 days of construction for performing project management, administration, and project documentation.

Construction Meetings and Site Inspections $96,102.92

The ESDC includes bi-weekly progress meetings, inspections, site visits and observations. An additional effort will be required for the 503-day extension.

Resident Engineering & Inspection Services $770,561.31

Contract 7581 includes 4,500 hours for the services of field engineer and staff engineer to provide resident engineer and resident inspection services for this project. The amount of 4,500 hours was established by staff as a predetermined level of effort, which includes full-time site coverage for 24 months of construction. This amendment adds an additional 503 days of resident engineering and inspection services that was not included in the original contract.

Also, during the design a number of additional scope items were needed to complete the project such as the construction of a server room, fire suppression and HVAC systems, which expanded the work that the resident engineer and resident inspector must oversee.

The detailed design includes a complex live cutover process with small windows in which to perform the work in coordination with plant maintenance activities and potential risks to the operation of the facility. Consultants responding to the RFQ/P for the design contract were permitted to propose a resident engineer and inspector at their selection. Staff are now of the opinion that a resident engineer and inspector with a greater depth of experience with this type of project, and a specialized SCADA skillset, than that which was originally proposed by Arcadis will be required; and staff have requested that Arcadis substitute its proposed resident engineer and inspector. If this Amendment is approved, Arcadis is prepared to provide resident engineering staff with more than 20 years of experience overseeing facility construction, and a project inspector with 18 years of SCADA experience. While the proposed resident engineering cost for staff with a greater depth of experience is higher than what is included in the original contract, the rate proposed is similar to resident engineers currently working on other MWRA projects, including Nut Island Odor Control and the MWRA as-needed resident engineering services contract.

Based upon the above information, staff recommend approval of Amendment 2 in the amount of $1,095,716.97 with an increase in the contract term by 687days.

CONTRACT SUMMARY:

	AMOUNT	TIME	DATED
Original Contract:	$4,652,028.07	1581 days	12/19/2018
Amendment 1*:	$75,000.00	184 days	03/08/2021
Proposed Amendment 2:	$1,095,716.97	687 days	Pending
Adjusted Contract:	$5,822,745.04	2452 days	

*Approved under delegated authority

BUDGET/FISCAL IMPACTS:

The FY22 CIP includes a budget of $5,427,028 for Contract 7581. Including this amendment for $1,095,716.97, the contract total is $5,822,745.04 or $395,717.04 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

No minimum MBE and WBE participation requirements were established for this project. However, Arcadis has committed to 15.09% MBE participation. The contractual MBE and WBE requirements remain unchanged by this amendment.

STAFF SUMMARY

TO: Board of Director
FROM: Frederick A Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: PCR Amendments - September 2021

COMMITTEE: Personnel and Compensation

____ INFORMATION
_X_ VOTE

Andrea Murphy, Director of Human Resources
Preparer/Title

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.

September PCR Amendments

There are three PCR Amendments this month.

Organizational Changes:

1. Title and grade change to one vacant position in the Operations Division, Treatment and Transmission department from Supervisor, Brutsch Treatment Plant, Unit 3 Grade 21 to Senior Transmission and Treatment Operator, Unit 3 Grade 19 to better reflect job duties.
2. Title and grade change to one vacant position in the Operations Division, TRAC department from Project Manager, Source Coordination, Unit 9 Grade 25 to Source Coordinator, Unit 9 Grade 23 to better reflect job duties.
3. Title change to one filled position in the Operations Division, TRAC department from Regional Manager Unit 9 Grade 29 to Program Manager, Monitoring, Unit 9 Grade 29 to better reflect job duties.

BUDGET/FISCAL IMPACT:

The annualized budget impact of these PCR amendments will be a minimum cost savings of $17,419.

ATTACHMENTS:

New Job Descriptions
Old Job Descriptions

MASSACHUSETTS WATER RESOURCES AUTHORITY
POSITION CONTROL REGISTER AMENDMENTS
FISCAL YEAR 2022

PCR AMENDMENTS REQUIRING BOARD APPROVAL - September 15, 2021

Number	Current PCR #	V/F	Type	Current Title	UN	GR	Amended Title	UN	GR	Current/Budget Salary	Estimated New Salary		Estimated Annual $ Impact			Reason For Amendment
B4	Treatment and Transmission Operations 3392047	V	T, G	Supervisor, Brutsch Treatment Plant	3	21	Senior Transmission and Treatment Operator	3	19	$95,641	$61,155	$87,551	-$34,486	-	-$8,090	To better reflect job duties.
B5	TRAC Operations 2210066	V	T,G	Project Manager, Source Coordination	9	25	Source Coordinator	9	23	$110,569	$72,962	$101,240	-$37,607	-	-$9,329	To better reflect job duties.
B6	TRAC Operations 2210063	F	T	Regional Manager	9	29	Program Manager, Monitoring	9	29	$128,959	$128,959	$128,959	$0	-	$0	To better reflect job duties.
				BOARD TOTAL=	3						**TOTAL:**		-$72,093	-	-$17,419	

MWRA
POSITION DESCRIPTION

OLD

POSITION: Supervisor, Brutsch Treatment Plant

DIVISION: Operations

DEPARTMENT: Treatment & Transmission, Brutsch Facility

BASIC PURPOSE:

Serves as primary Facility Supervisor for the remote William A. Brutsch Water Treatment Facility in Ware. Responsible for safe, efficient, and compliant operations including proper flow and water treatment. Serves as facility liaison to the MWRA Occupational Health and Safety Department, Department of Fish and Game hatchery, Massachusetts Department of Environmental Protection for site visits, and vendors who perform maintenance activities.

SUPERVISION RECEIVED:

Works under the direct supervision of the Operations Supervisor, Transmission and Treatment Operations and general supervision of the Senior Program Manager, Transmission and Treatment Operations and Senior Program Manager, Process Control.

SUPERVISION EXERCISED:

Exercises close supervision over T&T Operators at the facility and functional supervision over vendors.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

Water Turbine

- Visits the separate hydroelectric building at least twice a day to do a walk through to visually inspect the operation of the turbine and/or by-pass valve that brings untreated water from the Quabbin to the DCR state-operated McLaughlin Fish Hatchery in Belchertown.
- Contacts Massachusetts Department of Fish and Game as necessary to coordinate and discuss flow status and facility requirements or adjustments.
- Logs turbine readings and performs a physical monitoring walk through to visually inspect the operation of the turbine and record various measures to include in reports.
- Notifies MWRA maintenance managers in Southborough if the turbine isn't operating properly.
- Tracks and monitors key operating parameters of the water turbine on their SCADA computer monitoring screens in the main facility to track water flow and usage, power generation and other critical elements related to the water supply to the hatchery.

Relationships with other state agencies

- Maintains a positive working relationship with the Massachusetts Department of Fish and Game connected to the partnership related to the state hatchery.
- Accompanies Massachusetts Department of Environmental Protection staff during routine site visits, arranged by supervisors.

Safety and Security

- Serves as the primary site safety liaison to the Safety Program Coordinator, MWRA Department of Occupational Health and Safety
- Responds to personal assistance alarms in Ludlow.
- Performs security checks (doors, locks, fences) at Brutsch and at the Chicopee Valley Aqueduct (CVA.)
- Conducts periodic inspection of life safety equipment in Authority facilities including fire extinguisher, first aid station, Automatic External Defibrillator (AED), and emergency eyewash station. Reports deficiencies.
- Maintains and updates safety data sheets.
- Completes Weekly log form on emergency generator.

Vendor and trades management

- Accompanies vendors who perform quarterly inspections of fire alarm system and annual inspections of fire extinguishers and AED equipment.
- Receives, verifies, and processes waste tank haulers weekly paperwork.
- Signs the DEP Tank inspection forms.
- Accompanies vendors on repair visits.
- Schedules planned maintenance requiring the service of facilities maintenance staff.

Administrative

- Reviews bills for cell phones assigned to Brutsch staff.
- Charges services or products to MWRA credit card upon approval by supervisor.
- Maintains inventory of available personal protective equipment.
- Initiates work orders.
- Oversees data collection for proper reporting.
- Oversees input into MAXIMO System.

Supervisory

- Maintains attendance records, initiating disciplinary actions and employee evaluations for employees assigned as direct reports.
- Supervises others in the operation and maintenance of Brutsch and water treatment related equipment.
- Partners with the Program Manager, Training to develop and update the Brutsch facility handbook and the standard operation procedures (SOP) specific to Brutsch, the hydroelectric turbine, and the connection between Brutsch and the turbine.
- Trains operators in proper SOPs for Brutsch.

Operations

- Coordinates and oversees the proper operation of chlorine disinfection and ultra-violet (UV) disinfection systems.
- Monitors hydraulic situation; directs valve changes necessary to ensure proper water flow for water supply, storage tank elevations and routine hydro-electric generator operation.
- Monitors treatment plant performance and makes treatment changes with approval or under direction of supervisor to meet disinfection treatment targets.
- Supervise the monitoring of SCADA, Telog, and other control systems including the downloading of information as requested by treatment personnel as necessary to modify treatment processes.
- Conducts field tests for chlorine residual, pH, temperature, alkalinity, UV absorbency and other operational parameters, and makes treatment decisions based on testing results and direction from supervisor. Conducts chlorine decay studies.
- Maintains and calibrates field instruments and treatment related equipment with other MWRA employees or vendors as needed.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) An undergraduate degree in civil engineering, chemical engineering, biology, or related field; and

(B) A minimum of seven (7) years working at a major water supply facility with at least three (3) years working in a supervisory capacity. Successful completion of the MWRA sponsored supervisory training program and receipt of the training certificate may be substituted for supervisory experience; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Demonstrated ability in the use and operation of SCADA, Telog and other monitoring equipment.

(B) Basic knowledge of computer systems with a demonstrated knowledge of personal computer, SCADA and TELOG systems.

(C) Demonstrated ability to perform water treatment process laboratory procedures, including: pH, chlorine residual, alkalinity, acid-base titration, turbidity, color, and bulk chemical acceptance tests.

(D) Knowledge of safety procedures as related to hydroelectric and water treatment facilities.

(E) Excellent interpersonal, oral and written communications skills.

SPECIAL REQUIREMENTS:

Valid Massachusetts Class D Motor Vehicle Operators License.

Valid Massachusetts Grade II Treatment Operator and Grade III Distribution operator-in-training license.

TOOLS AND EQUIPMENT USED:

Motor vehicle, power and hand tools, mobile radio, telephone and beeper.

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 duties.

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 stoop, kneel, crouch or crawl. The employee occasionally is required to stand, walk, talk or hear, sit, climb or balance.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move more than 100 pounds. Specific vision abilities, required by this job include close vision, distance vision, color 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 outside weather conditions. The employee regularly works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions and vibration. The employee occasionally works in 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 very loud in field settings, and moderately loud at other work locations.

April 2019

MWRA
POSITION DESCRIPTION

NEW

POSITION: Senior Transmission and Treatment Operator

DIVISION: Operations

DEPARTMENT: Treatment & Transmission

BASIC PURPOSE:

Acts as Lead Operator for an assigned facility for safe and proper control of key transmission and treatment facilities for all of western operations.

SUPERVISION RECEIVED:

Works under the general supervision of the Sr. Program Manager T&T Operations, Sr. Program Manager Process Engineering, and Supervisor T&T Operations.

SUPERVISION EXERCISED:

Exercises close supervision over T&T Operators.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Acts as responsible person for all facility operations at assigned facility during shift. Supervises others in the operation and maintenance of various Transmission and Treatment facilities in order to maintain proper flow and water treatment.

- Monitors hydraulic situation; directs valve changes necessary to ensure proper water flow for water supply, storage tank elevations and routine hydro-electric generator operation throughout the transmission and treatment system according to established Standard Operating Procedures (SOPs).

- Monitors treatment plant performance and makes treatment changes to meet disinfection and/or corrosion control treatment targets.

- Supervisors the monitoring of SCADA, Telog, and other control systems including the downloading of information as requested by treatment personnel as necessary to modify treatment processes.

- Supervises and assists in the application of algaecide at various reservoirs as necessary.

- Acts as on-call operator, as needed, to respond to SCADA alarms during off-shifts; diagnosis alarm situations, assesses needed corrective action and serves as incident commander until relieved.

- Conducts field tests for chlorine residual, pH, temperature, alkalinity, UV absorbency and other operational parameters, and makes treatment decisions based on testing results. Conducts chlorine decay studies.

- Monitors bulk chemical status, schedules chemical deliveries, inspects bulk water treatment chemical deliveries and tests quality of chemicals to ensure that they meet drinking water requirements before authorizing loading of bulk chemicals to MWRA facilities.

- Maintains treatment related equipment at any facility within the Section or as assigned. Has direct responsibility for any required maintenance at a given facility such as chlorine analyzers, turbidimeter, flow pacing equipment, process control equipment as normally found in a water treatment facility such as equipment normally used in the fluoridation, pH control, ozonation and chlorinating processes.

- Supervises operators in a lower grade in maintenance of water treatment related equipment.

- Acts as liaison between Operations personnel for the issuance of work orders on a maintenance management system in order to schedule planned maintenance requiring the service of facilities maintenance staff.

- Calibrates field instruments to ensure that all level, pressure, and water quality on-line measurements are operating within performance ranges.

- Maintains the facility handbook and trains off-shift operators in proper SOPs for the assigned facility to ensure that water supply and treatment facilities are operated correctly and in accordance with established MWRA policies.

- Acts as MetroWest Sit-Sat coordinator with Chelsea O.C.C. and the E.O.C. in the event Section needs to activate Emergency Response Status.

- Maintains attendance records, initiating disciplinary actions and employee evaluations for employees assigned as direct reports.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) An undergraduate degree in civil, chemical, biology, or related field; and

(B) A minimum of seven (7) years working at a major water supply facility with at least three (3) years working in a supervisory capacity. Successful completion of the MWRA sponsored supervisory training program and receipt of the training certificate may be substituted for supervisory experience; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Demonstrated ability in the use and operation of SCADA, Telog and other monitoring equipment.

(B) Demonstrated ability to perform water treatment process laboratory procedures, including: pH, chlorine residual, alkalinity, acid-base titration, turbidity, color, and bulk chemical acceptance tests.

(C) Knowledge of Safety procedures as related to HydroElectric and Treatment facilities.

(D) Excellent interpersonal, oral and written communications skills.

SPECIAL REQUIREMENTS:

Valid Massachusetts Class D Motor Vehicle Operators License.

Valid Massachusetts Grade III Treatment operator-in-training and Grade III Distribution operator-in-training license.

Ability to obtain a Commonwealth of Massachusetts Pesticide Certification License.

TOOLS AND EQUIPMENT USED:

Motor vehicle, power and hand tools, mobile radio, telephone and beeper.

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 duties.

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 stoop, kneel, crouch or crawl. The employee occasionally is required to stand, walk, talk or hear, sit, climb or balance.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move more than 100 pounds. Specific vision abilities, required by this job include close vision, distance vision, color 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 outside weather conditions. The employee regularly works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions and vibration. The employee occasionally works in 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 very loud in field settings, and moderately loud at other work locations.

January 2013

MWRA
POSITION DESCRIPTION

OLD

POSITION: Project Manager, Source Coordination

DIVISION: Operations

DEPARTMENT: Field Operations/Toxic Reduction and Control (TRAC)

BASIC PURPOSE:

Ensures that septage surveillance, inspections, and gasoline/oil separator inspections and reviews performed by TRAC staff meet programmatic and legal requirements. Supervises Regional Inspectors. Responds to oil spills. Identifies, reports on, and responds to industrial storm water discharges to combined sewers.

SUPERVISION RECEIVED:

Works under the general supervision of the Regional Manager.

SUPERVISION EXERCISED:

Exercises direct supervision of two TRAC Regional Inspectors.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Supervises Regional Inspectors and provides them with overall direction concerning technical requirements for inspection to ensure that there is internal consistency and coordination on practices, procedures, and implementations.
- Ensures activities conducted by Regional Inspectors adhere to established federal, state and MWRA pre-treatment program regulations, policies and guidelines.
- Schedules field activities for assigned staff using pre-treatment and other software. Reviews inspections done by TRAC staff to help ensure that they meet programmatic and legal requirements. Reviews inspection reports and recommends corrections as necessary.
- Manages TRAC inspection projects from inception to report issuance. Reviews and recommends inspection policies and procedures within TRAC. Provides direction to the TRAC managers and staff concerning conducting inspections and drafting inspection reports and memos to ensure that there is consistency practices, procedures, and implementation.
- Serves as lead coordinator on special projects and emergency response. Performs inspections, conducts dye testing and coordinates activities with TRAC sampling staff.

- Provides orientation and training on inspection and safety issues and procedures to other TRAC staff. Ensures the training of employees in inspection, quality control, administrative, and safety procedures is up-to-date and provides instruction as appropriate.

- Assists the Regional Manager with interviewing and recommending staff for hire and promotion and developing budgets.

- Reviews the work of Regional Inspectors on septage surveillance and inspections and gasoline/oil separator inspections to ensure that they meet programmatic and legal requirements.

- Reviews plans for new gasoline/oil separators to ensure structural integrity and proper design and conducts field inspections.

- Conducts inspections of septage hauler facilities and drafts septage hauler permits.

- Identifies instances in combined sewer areas where industrial storm water flows to combined sewers and coordinates TRAC's response to such instances.

- Reviews, updates, and revises septage and gasoline/oil separator forms, templates, and other related documents as appropriate.

- Tracks septage and gasoline/oil separator goals and accomplishments and provides reports on accomplishments.

- Maintains accurate and current information relating to septage and gasoline/oil separators on TRAC databases.

- Performs administrative duties such as reviewing and evaluating staff, scheduling work, managing vehicles, approving time sheets, and developing and implementing training for staff members.

SECONDARY DUTIES:

- Reviews and recommends policies and procedures within TRAC.

- Participates in liaison, coordination, and educational activities within the MWRA and with other governmental agencies and the public.

- Participates actively in TRAC multi-disciplinary work groups.

- Drafts reports, memoranda, and other documents.

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A Bachelor's degree in chemistry, biology, environmental sciences, a related engineering or science discipline, or other related field; and

(B) Six (6) to eight (8) years of experience in sanitary engineering including working with the installation and operation of gasoline/oil separators; and

(C) At least 2 years of supervisory experience; or

(D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Thorough knowledge and understanding of sanitary engineering practices and principles.

(B) Understanding of industrial wastewater sampling, pollution prevention and source reduction.

(C) Experience inspecting industrial facilities, issuing discharge permits, and enforcing environmental requirements.

(D) Understanding of the installation and operation requirements for gasoline/oil separators.

(E) Knowledge of local, state and federal regulations related to trucked and hauled waste, storm and ground water issues, and hazardous waste, especially waste oil.

(F) Knowledge of Massachusetts State Plumbing Code.

(G) Demonstrated leadership skills and ability to work as part of a project team, to develop and maintain productive working relationships with contract vendors, and to function independently.

(H) Proficiency with computers including MS Office Suite and other information systems.

(I) Ability to open manholes, move manhole covers, and complete dye testing of sewer lines.

(J) Ability to read and interpret engineering maps, plans, and specifications.

(K) Ability to develop written policies and procedures, emergency response plans, and training programs.

(L) Strong supervisory, written and oral communication skills.

SPECIAL REQUIREMENTS:

- Acts as On-Call Manager for TRAC in rotation with other TRAC staff.
- Valid Massachusetts Class D Motor Vehicle Operators license.

TOOLS AND EQUIPMENT USED:

Inspection equipment, mobile radio, 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 stand and talk or hear. The employee is occasionally required to walk, sit, stoop, kneel, crouch, or crawl, and smell.

The employee must occasionally lift and/or move more than 100 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 vibration. The employee is occasionally exposed to fumes or airborne particles, and toxic or caustic chemicals.

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

July 2020

MWRA
POSITION DESCRIPTION

NEW

POSITION: Source Coordinator

DIVISION: Operations

DEPARTMENT: Field Operations/Toxic Reduction and Control (TRAC)

BASIC PURPOSE:

Ensures that septage surveillance, inspections, and gasoline/oil separator inspections and reviews, and audits of facilities with group or general permits performed by TRAC meet programmatic and legal requirements. Responds to oil spills. Identifies, reports on, and responds to industrial storm water discharges to combined sewers.

SUPERVISION RECEIVED:

Works under the general supervision of the Regional Manager.

SUPERVISION EXERCISED:

None.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Provides overall direction to TRAC Regional Inspectors concerning gasoline/oil separators and septage sites and haulers.
- Reviews the work of Regional Inspectors on septage surveillance and inspections and gasoline/oil separator inspections to ensure that they meet programmatic and legal requirements.
- Reviews plans for new gasoline/oil separators to ensure structural integrity and proper design and conducts field inspections to verify plans.
- Conducts inspections of septage hauler facilities and drafts septage hauler permits.
- Identifies instances in combined sewer areas where industrial storm water flows to combined sewers and coordinates TRAC's response to such instances.
- Reviews septage and gasoline/oil separator forms, templates, and other related documents and updates and revises them as appropriate.

- Tracks septage and gasoline/oil separator goals and accomplishments and provides reports on accomplishments.

- Maintains accurate and current information relating to septage and gasoline/oil separators on TRAC databases.

SECONDARY DUTIES:

- Acts as On-Call Manager for TRAC in rotation with other TRAC staff.

- Reviews and recommends policies and procedures within TRAC.

- Participates in liaison, coordination, and educational activities within the MWRA and with other governmental agencies and the public.

- Participates actively in TRAC multi-disciplinary work groups.

- Drafts reports, memoranda, and other documents.

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A four (4) year undergraduate degree in chemistry, biology, environmental sciences, a related engineering or science discipline, or other related field; and

(B) Five (5) to seven (7) years of experience in sanitary engineering including working with the installation and operation of gasoline/oil separators; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Thorough knowledge and understanding of sanitary engineering practices and principles.

(B) Understanding of the installation and operation requirements for gasoline/oil separators.

(C) Familiarity with computers, including word-processing, spreadsheet, database, and other information systems.

(D) Ability to open manholes, move manhole covers, and complete dye testing of sewer lines.

(E) Ability to read and interpret engineering maps, plans, and specifications.

(F) Strong written and oral communication skills.

SPECIAL REQUIREMENTS:

Valid Massachusetts Class D Motor Vehicle Operators license.

TOOLS AND EQUIPMENT USED:

Inspection equipment, mobile radio, 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 stand and talk or hear. The employee is occasionally required to walk, sit, stoop, kneel, crouch, or crawl, and smell.

The employee must occasionally lift and/or move more than 100 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 vibration. The employee is occasionally exposed to fumes or airborne particles, and toxic or caustic chemicals.

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

May 2018

MWRA
POSITION DESCRIPTION

OLD

POSITION: Regional Manager

DIVISION: Operations

DEPARTMENT: TRAC

BASIC PURPOSE:

Manages the Toxic Reduction and Control (TRAC) Department's Inspection and Permitting Program or Monitoring Program. Directs all inspection and permitting or monitoring activities for the department and provides assistance to other sections within the department.

SUPERVISION RECEIVED:

Reports to the Sr. Program Manager, Field Operations and Permitting

SUPERVISION EXERCISED:

Supervises assigned inspection, permitting or monitoring staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Recommends agency, program or department policy by analyzing all pertinent issues and information regarding the impact of proposed policy and by determining the resources necessary to implement the policy. Reviews, recommends, and manages the implementation of policies and standard operating procedures within TRAC to maintain efficient, high quality programs that are in compliance with EPA and other regulatory requirements.

- Performs administrative duties such as interviewing and recommending staff for hiring and promotion, reviewing and evaluating staff, scheduling work, developing budgets, managing vehicles, equipment, and supply acquisitions and maintenance, approving time sheets, helping to develop and implement training for staff members, and maintaining discipline.

- Ensures that staff coordinate with other TRAC groups and sections and with other MWRA departments and divisions as needed.

- Performs administrative duties including, but not necessarily limited to, interviewing and recommending personnel for hiring or promotion, approving time sheets, scheduling work, developing budgets, performance evaluations, and maintaining discipline.

- Uses computer systems to schedule and coordinate work, to ensure that staff time and

functions are appropriately tracked and reported, and to carry out other job responsibilities.

- Coordinates (as required) TRAC staff preparation and response to emergency spills/releases into sewer system and participates in development and implementation of emergency response policy.
- Participates in development and implementation of TRAC policies and procedures.
- Participates in the selection and hiring of project consultants and oversees the consultant's planning process.
- Participates in liaison, coordination, and educational activities within the MWRA and with other governmental agencies and the public.

Inspection Program

- Provides overall direction to inspection staff concerning the implementation of local limits, planning, and database preparation to meet regulatory requirements.
- Reviews and evaluates monitoring reports, engineering reports, pretreatment proposals and associated technical information, inspection reports, permit applications, and permits and recommends appropriate standards and follow-up actions.
- Develops and implements training programs for staff personnel in inspections and permitting procedures, state-of-the-art waste treatment applications and Federal, State and local regulations.
- Coordinates, as required, inspection staff preparation and response to emergency spills and releases into the sewer system.
- Reviews and evaluates inspection and permitting documents generated by the inspection staff and ensures that they will support enforcement and legal actions and stand up to scrutiny in actions brought by MWRA or others.

Monitoring Program

- Provides overall direction to sampling staff concerning technical requirements for sampling to ensure that there is consistency and coordination among and within the staff on sampling practice, procedure, and implementation.
- Oversees the maintenance of the Monitoring Manual and its SOPs and keeps the manual up-to-date.
- Serves as the primary liaison with the MWRA Central Laboratory on sampling and analysis issues.

- Manages TRAC's sampling operations at the Chelsea facility; ensures that sampling equipment and supplies are available and maintained; develops the TRAC sampling field equipment budget.

- Coordinates, as required, monitoring staff preparation and response to emergency spills and releases into the sewer system.

- Reviews and evaluates monitoring documents generated by the sampling staff and ensures that they will support enforcement and legal actions and stand up to scrutiny in actions brought by MWRA or others.

SECONDARY DUTIES:

- Acts as On-Call Manager for TRAC in rotation with other TRAC staff.

- Participates actively in TRAC multi-disciplinary work groups.

- Drafts reports, memoranda, and other documents.

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Four year undergraduate degree in the chemistry, biology, environmental sciences, a related engineering or science discipline, computer science or information systems science, legal studies or other related field. Advanced degree preferred.

(B) Knowledge and understanding of environmental regulatory issues, policies, and practices related to industrial wastewater treatment and discharge, as acquired through a minimum of 7 to 9 years of experience, of which at least 3 years should be in a supervisory capacity. This should include an understanding of industrial permits, and enforcing environmental requirements.

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of the use, development, maintenance and management of complex computer-based information systems as a tool for supporting pretreatment program.

(B) Ability to negotiate and reach agreement in an enforcement setting and to work with attorneys.

(C) Ability to plan and implement programs.

(D) Demonstrated effectiveness working across organizational boundaries and with persons at all levels in an organization.

(E) Strong written and oral communication skills.

(F) Ability to manage staff, including to organize, direct, train, assign duties to, supervise, motivate, and evaluate staff.

SPECIAL REQUIREMENTS:

Massachusetts Class D Motor Vehicle Operators License.

TOOLS AND EQUIPMENT USED:

Office machines as normally associated, with the use of telephone**,** personal computer including word processing and other software, copy or 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 the job. Reasonable accommodations 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, 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.

The employee must regularly lift and/or move up to 10 pounds, occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, distance 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 regularly works in an office environment.

The noise level in the work environment is a moderately quiet in office setting.

October 2012

MWRA
POSITION DESCRIPTION

NEW

POSITION: Program Manager, Monitoring

DIVISION: Operations

DEPARTMENT: TRAC

BASIC PURPOSE:

Manages the Toxic Reduction and Control (TRAC) Department's Monitoring Program. Directs all monitoring activities for the department and provides assistance to other sections within the department.

SUPERVISION RECEIVED:

Reports to the Sr. Program Manager, Field Operations and Permitting

SUPERVISION EXERCISED:

Supervises assigned monitoring staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Provides overall direction to sampling staff concerning technical requirements for sampling to ensure that there is consistency and coordination among and within the staff on sampling practice, procedure, and implementation.

- Oversees the maintenance of the Monitoring Manual and its standard operating procedures (SOPs) and keeps the manual up-to-date.

- Serves as the primary liaison with the MWRA Central Laboratory on sampling and analysis issues.

- Manages TRAC's sampling operations at the Chelsea facility; ensures that sampling equipment and supplies are available and maintained; develops the TRAC sampling field equipment budget.

- Coordinates, as required, monitoring staff preparation and response to emergency spills and releases into the sewer system.

- Reviews and evaluates monitoring documents generated by the sampling staff and ensures

that they will support enforcement and legal actions and stand up to scrutiny in actions brought by MWRA or others.

- Recommends agency, program or department policy by analyzing all pertinent issues and information regarding the impact of proposed policy and by determining the resources necessary to implement the policy. Reviews, recommends, and manages the implementation of policies and standard operating procedures within TRAC to maintain efficient, high quality programs that are in compliance with EPA and other regulatory requirements.

- Performs administrative duties such as interviewing and recommending staff for hiring and promotion, reviewing and evaluating staff, scheduling work, developing budgets, managing vehicles, equipment, and supply acquisitions and maintenance, approving time sheets, helping to develop and implement training for staff members, and maintaining discipline.

- Ensures that staff coordinate with other TRAC groups and sections and with other MWRA departments and divisions as needed.

- Uses computer systems to schedule and coordinate work, to ensure that staff time and functions are appropriately tracked and reported, and to carry out other job responsibilities.

- Participates in development and implementation of TRAC policies and procedures including emergency response policy.

- Participates in the selection and hiring of project consultants and oversees the consultant's planning process.

- Participates in liaison, coordination, and educational activities within the MWRA and with other governmental agencies and the public.

SECONDARY DUTIES:

- Acts as On-Call Manager for TRAC in rotation with other TRAC staff.

- Participates actively in TRAC multi-disciplinary work groups.

- Drafts reports, memoranda, and other documents.

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Bachelor's degree in the chemistry, biology, environmental sciences, engineering, science, computer science or information systems science, legal studies or related field. Advanced degree preferred; and

(B) Knowledge and understanding of environmental regulatory issues, policies, and practices, industrial permits, and enforcement related to industrial wastewater treatment and discharge, as acquired through a minimum of 7 to 9 years of experience, of which at least 3 years should be in a supervisory capacity; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of the use, development, maintenance and management of complex computer-based information systems as a tool for supporting pretreatment program.

(B) Ability to negotiate and reach agreement in an enforcement setting and to work with attorneys.

(C) Ability to plan and implement programs.

(D) Demonstrated effectiveness working across organizational boundaries and with persons at all levels in an organization.

(E) Strong written and oral communication skills.

(F) Ability to manage staff, including to organize, direct, train, assign duties to, supervise, motivate, and evaluate staff.

SPECIAL REQUIREMENTS:

Massachusetts Class D Motor Vehicle Operators License.

TOOLS AND EQUIPMENT USED:

Office machines as normally associated, with the use of telephone**,** personal computer including word processing and other software, copy or 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 the job. Reasonable accommodations 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, 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.

The employee must regularly lift and/or move up to 10 pounds, occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, distance 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 regularly works in an office environment.

The noise level in the work environment is a moderately quiet in office setting.

September 2021

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Appointment of Superintendent
Clinton Advanced Wastewater Treatment Plant

COMMITTEE: Personnel & Compensation

_____ INFORMATION
__X__ VOTE

Andrea Murphy, Director, Human Resources
Stephen D. Cullen, Director, Wastewater
David F. Duest, Director, DIWWTP
Preparer/Title

David W Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

To approve the appointment of Mr. Robert McDonald to the position of Superintendent at the Clinton Advanced Wastewater Treatment Plant (Non-Union, Grade 14), at an annual salary of $133, 000, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The retirement of the incumbent resulted in a vacancy in the Clinton Superintendent position. The Superintendent of the Clinton Wastewater Treatment Plant reports to the Director of Deer Island. This positon is responsible for the operations and maintenance of the Clinton plant and landfill. The Superintendent manages permit compliance, staffing, plant staff training, the safety program and the plant's $2.6 million operating budget. The positon is also responsible for continued optimization of the phosphorus reduction facility, which started its operation in 2018 with new stricter total phosphorus limits that became effective in April 2019.

Selection Process:

The position of Superintendent, Clinton was posted internally and externally. Three candidates applied for the position. One external candidate was determined to be qualified and was referred for an interview. The Director of Deer Island, the Director of SCADA Metering and Monitoring, and the Special Assistant for Affirmative Action conducted the interview. Upon completion, Mr. Robert McDonald was recommended for the Superintendent position based on the combination of his experience, abilities, knowledge, skills and education.

Mr. McDonald has 29 years of overall experience, including 15 years of experience in wastewater treatment and 14 years in designing, testing and operating hazardous waste treatment systems. He has worked in superintendent positions for wastewater treatment plants for the last five years. Since 2019, Mr. McDonald has been the Superintendent for the Town of Templeton's 0.6 mgd wastewater treatment plant. Prior to that, he was the Superintendent for the Town of Montague's 1.83 mgd wastewater treatment plant from 2016 to 2019. Before that, Mr. McDonald served as Chief Operator for the town of Medfield's 1.52 mgd plant from 2012 to 2016 where he performed

duties very similar to those of a Superintendent. Although these plants are smaller, the processes and maintenance practices are very similar to those used at the Clinton Treatment Plant which has an average plant flow of 3.01 mgd. Earlier in his career, he worked for six years in other wastewater operations positions.

Mr. McDonald has extensive technical experience and knowledge regarding wastewater treatment processes, including advanced levels of treatment (nitrogen and phosphorus removal), which he acquired at both Montague and Templeton. He has served as the Chief Operator and technical lead representing his plants to regulatory agencies over the last ten years. He has extensive experience with setting budgets, working within a unionized environment, hiring staff and procuring equipment. Historically, he has operated his plants under an Enterprise Fund, which he had to develop and get approved through the Town Managers. He has experience with computerized maintenance management systems similar to Maximo and he demonstrated an understanding of facility asset management and tools used under this program.

Mr. McDonald has an Associate's Degree in Electronics Technology from the Porter & Chester Institute in Connecticut. He maintains a Massachusetts Department of Environmental Protection Wastewater Treatment Grade 7C License, a Massachusetts Grade 3 Distribution Water Operator License and a Massachusetts Collection Grade 2 License.

BUDGET/FISCAL IMPACTS:

There are sufficient funds for this position in the FY22 Current Expense Budget.

ATTACHMENTS:

Resume of Mr. Robert McDonald
Position Description
Organization Chart

Robert McDonald

Summary

Licensed & Certified Treatment Specialist with over 30 years of diverse and progressive environmental, wastewater and sewage treatment experience. Water treatment expert and hands-on practitioner with operational, analytical and maintenance proficiency across full spectrum of wastewater systems and equipment. Deeply committed to efficient and clean plant operation for economical, environmental and public safety reasons.

Skills

- Infrastructure planning
- Reporting
- Program implementation
- Community relations
- Key decision making
- Licensed in Massachusetts Grade 7C Wastewater
- Employee discipline
- Project coordination
- Financial administration
- Presentations
- Renovations, building and demolition
- Contractor management
- Project budgeting
- Permit processing

Experience

09/2019 - Current

Superintendent, Wastewater Treatment, **Town Of Templeton**, Templeton, MA

- Presented updates and reports regarding water treatment permit requirements.
- Oversaw policies affecting all employees and contractors.
- Managed projects to complete on schedule by working with contractors or staff.
- Present a yearly budget and manage throughout the year.
- Developed sustainable operational processes, plans and evaluation systems in collaboration with staff.
- Evaluated plans and inspected ongoing construction to keep work in line with project goals.
- Managed safety of worksite and adherence to all OSHA regulations by assigning Assistant Chief operator.
- Oversaw daily work of 7 workers using knowledge of local and national building codes for all areas of construction.

10/2016 - 09/2019

Superintendent, Wastewater Treatment, **Town Of Montague**, Montague, MA

- Presented updates and reports regarding permit requirements to EPA and DEP.
- Managed projects to complete on schedule by working with specialized with staff and contractors.
- Developed sustainable operational processes, plans and evaluation systems in collaboration with staff.
- Managed safety of worksite and adherence to all OSHA regulations by meetings and training.
- Oversaw daily work of 8 workers using knowledge of local and national building codes for all areas of construction.
- Developed yearly budget and managed all spending. Set sewer rates for tax payers.

10/2012 - 10/2016

Chief Operator, Wastewater, **Town Of Medfield**, Medfield, MA

- Analyzed sewage composition and clean water quality and periodically inspected chemical bulk storage tank levels, leakage warning systems and spill containment devices.
- Performed watch duties and maintenance for plant chlorination equipment, boilers, valves, pipes and meters.
- Monitored plant supervisory control and data acquisition system (SCADA), calibrated gauges, meters and controls and recorded readings for next shift.
- Compiled and maintained data and records for permit reporting according to regulatory requirements and documented plant procedural and safety standards.
- Supervised staff, created and assigned work orders and monitored overall plant operation.
- Trained and mentored 3 staff members in cleaning, maintaining and using equipment and on environmental and public safety value of disciplined wastewater treatment.

10/2011 - 10/2012

Wastewater Treatment Plant Operator 2, **MCI Norfolk**, Norfolk, MA

- Compiled and maintained data and records for permit reporting according to regulatory requirements and documented plant procedural and safety standards.
- Sampled and tested wastewater, applied chemical dosing, received chemical shipments and performed wastewater plant preventive maintenance and minor corrective maintenance.

10/2006 - 04/2011

Maintenance Foreman/Operator, **Gardner WWTP**, Gardner, MA

- Cleaned and lubricated equipment on regular schedules to maintain life of machinery and achieve consistent operations.
- Created and maintained daily activity logs to track ongoing operational performance.
- Identified machinery issues and repaired parts to keep equipment up and running.
- Compiled operational data into reports to help management spot trends and resolve problems.
- Received and processed written and verbal instructions, prints and work orders.

Education And Training

08/1984
Associate of Science, Electronics Technology
Porter and Chester Institute - Enfield, Enfield, CT

05/2009
Certificate, Wastewater Management
MAWEA, Wastewater Management Program, Millbury, MA

Activities And Honors

Received an award for Excellence in Operation and Maintenance from EPA while at Medfield WWTP.

Certifications

Mass Grade 7C Wastewater License
Mass Grade 2 Water License
Mass Grade 3 Collections and Distribution License
Mass CDL B

MWRA
POSITION DESCRIPTION

POSITION: Superintendent

DIVISION: Operations

DEPARTMENT: Clinton Wastewater Treatment Plant

BASIC PURPOSE:

Plans and directs the operations, maintenance, and administration of a major metropolitan advanced wastewater treatment plant, while meeting permit requirements and optimizing performance. Has responsibilities for an operating budget over $2 million and a staff of nine employees. Required to be on-call for emergencies 24 hours per day, seven days a week.

SUPERVISION RECEIVED:

Works under the supervision of the Director, Deer Island Treatment Plant

SUPERVISION EXERCISED:

Exercises direct supervision of an Area Manager, Operations Supervisor, and Secretary I and general supervision of the plant's operations and maintenance staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Establishes standard operating policies and procedures (SOPs) for the treatment plant to ensure the plant is properly operated and maintained and in compliance with federal, state and local permits. Annually reviews and updates the plant's Operations and Maintenance manuals and trains staff on those manuals.

- Analyzes and directs plant operations through review of logs, sampling and laboratory reports, maintenance reports and through personal observation.

- Oversees the Capital Improvement Program for the treatment plant to ensure current and future equipment availability. Oversees the preparation of plans, specifications and cost estimates for maintenance, repair, construction and plant improvement projects. Assesses and adjusts construction schedules to reduce impacts on the day-to-day operations.

- Directs the training of plant personnel in operating, maintenance, and health and safety programs. Ensures all staff maintain appropriate licenses to properly operate and maintain the plant.

- Prepares the proposed budgets, variance explanations, personnel requisitions and proposed hiring requests for the treatment plant.

- Approves and audits requisitions for materials and equipment.

- Works with local, state and federal officials and visiting professionals on matters relating to treatment plant operations.

- Oversees wet weather events, monitors weather forecasts and radar to ensure facilities are properly staffed during wet weather. Sends out plant updates and ensures proper operations and process control during wet weather events.

- Oversees personnel management. Ensures that major initiatives 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, SOPs improvements and research and implementation of technology advances. Maximizes effective use of the Maximo maintenance software and related computer programs.

- Manages the department 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.

- Reviews assigned employees' performance per MWRA procedures.

- 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.

- 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) Knowledge of engineering and analytical principles and practices as normally attained through a Bachelor's degree in civil engineering or related field; and

(B) Understanding of the principles of construction, operation and maintenance of sewage treatment plants as acquired by eight (8) to ten (10) years of experience preferably in a Grade 7 wastewater treatment facility using advanced wastewater treatment techniques (nitrogen and phosphorus removal); and

(C) At least four (4) years in a supervisory capacity; or

(D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Excellent working knowledge of the operation and maintenance of a large wastewater treatment facility.

(B) Knowledge of advanced wastewater treatment techniques (nitrogen and phosphorus removal) preferred.

(C) Knowledge of Federal and State laws and regulations relative to wastewater treatment.

(D) Demonstrated ability to plan, organize, direct, train and assign duties to subordinates.

(E) Excellent administrative, interpersonal, management, and communication skills.

(F) Proficient in the use of personal computers and software applications packages for financial analysis and management, such as Microsoft Office Suite, and computerized maintenance management systems, such as MAXIMO.

(G) A working knowledge of control systems and how to properly secure these systems.

(H) Demonstrated ability to successfully manage in a union environment with a diverse workforce.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators license.

A Massachusetts Grade VII Wastewater Treatment Facilities Operators license.

Required to be on-call for emergencies 24 hours a day, 7 days a week.

TOOLS AND EQUIPMENT USED:

Office machines 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 duties.

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 is regularly required to stand and walk. The employee is frequently required to sit and talk or hear.

The employee must frequently lift and/or move up to 10 pounds and occasionally lift and/or move more than 50 pounds. Specific vision abilities required by this job include close, distance, color and 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.

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

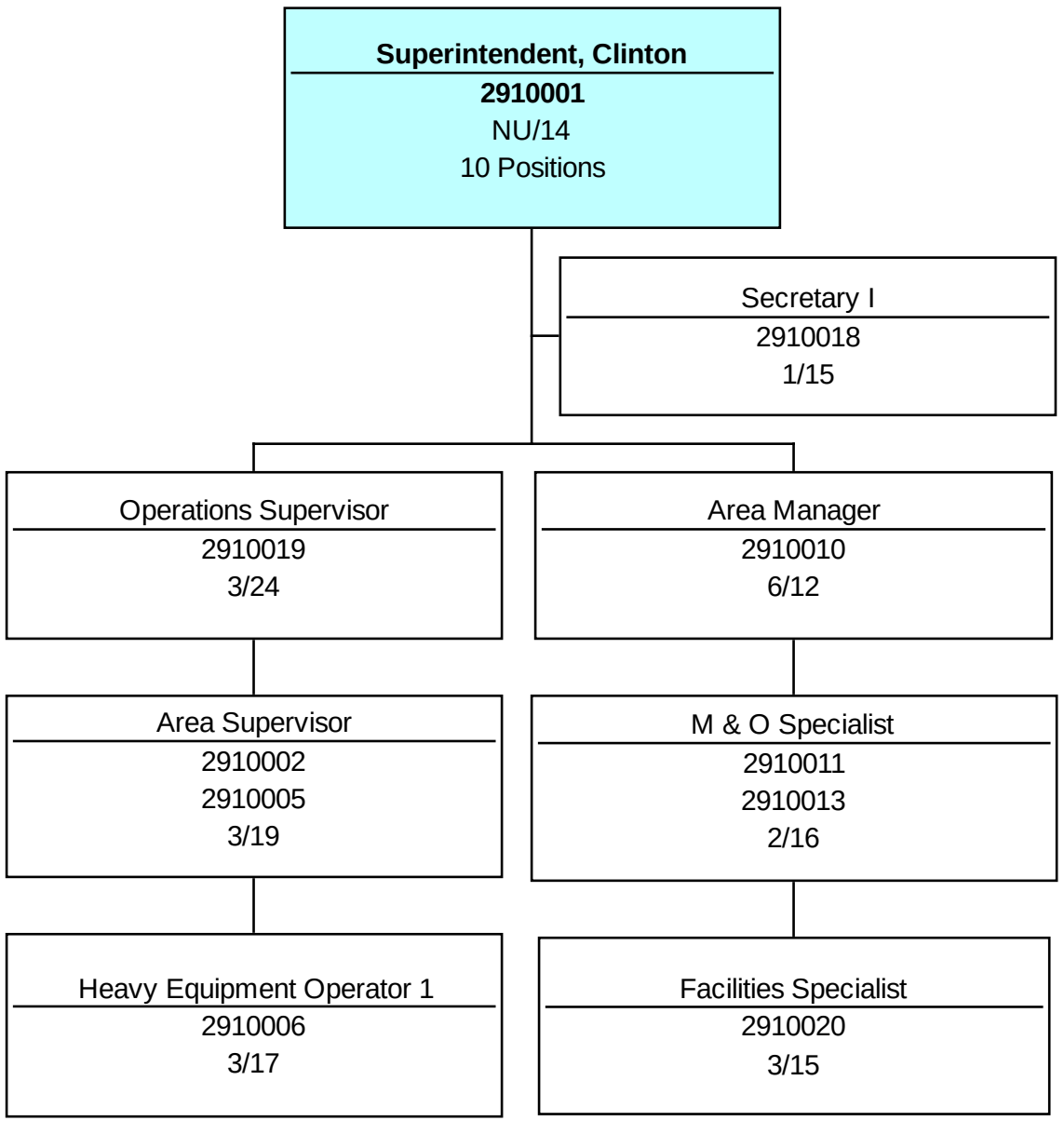
The noise level in the work environment is a moderately quiet office setting.

March 2020

Operations- Wastewater Treatment

Clinton Wastewater Treatment Plant

September, 2021



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Appointment of Manager, Transmission and Treatment

COMMITTEE: Personnel & Compensation

____ INFORMATION
__X__ VOTE

Andrea Murphy, Director, Human Resources
Valerie Moran, Director, Waterworks
Eben Nash, Director, Western Operations
Preparer/Title

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

RECOMMENDATION:

To approve the appointment of Mr. Mark R. Johnson to the position of Manager, Transmission and Treatment, Western Operations (Non-Union, Grade 14) in the Operations Division at the recommended annual salary of $145,000 commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Manager of Transmission and Treatment became vacant upon the promotion of the incumbent. The Manager of Transmission and Treatment reports to the Director of Western Operations and Maintenance. The position oversees a staff of more than 30 and is responsible for managing the 24-hour operations of MWRA's western treatment and transmission water operations facilities, including the John J. Carroll Water Treatment Plant and the William A. Brutsch Treatment Facility. The Manager of Transmission and Treatment is responsible for ensuring the delivery of water from the reservoirs to metropolitan Boston, while meeting regulatory requirements and optimizing performance. The position provides the necessary resources and support to meet operational needs and applicable regulatory requirements, ensuring that proper staffing is maintained, adequate chemical levels are on hand, water treatment policies are being adhered to, and water treatment standards are being met. The position also plays an active role in facility construction coordination activities to ensure minimal impacts to MWRA's water customers.

Selection Process

This position was posted internally and externally. Four internal and four external candidates applied for this position. Three internal and two external candidates were determined to be qualified and were referred for an interview. The Director of Waterworks, the Director of Western Operations, and a representative from MWRA's Affirmative Action and Compliance unit conducted the interviews. Upon completion of the interviews, Mr. Johnson was recommended for the position based on his combination of experience, abilities, knowledge, skills and education.

Mr. Johnson has 36 years of professional experience in the engineering, construction, operations and maintenance of water and wastewater treatment plants. He worked for 25 years for private firms and non-profits in various engineering positions involved in water and wastewater facility planning, engineering, construction, and startup. Then in 2010, he began working at the Upper Blackstone Clean Water group in Millbury, Massachusetts where he is currently the Deputy Director. In this position, Mr. Johnson is responsible for the operation and maintenance of a large wastewater treatment facility. He also oversees all of the engineering aspects of the facility, and manages their construction projects, asset management system, and capital improvement plan. He is also involved in the development of the annual budget.

Mr. Johnson is very knowledgeable about the operation and maintenance of water and wastewater treatment facilities. He has extensive technical experience regarding water and wastewater treatment. He knows the safety practices and process control techniques related to water, wastewater and flow control. He has experience managing staff in a unionized environment and is currently the hiring manager for the Upper Blackstone Treatment Facility.

Mr. Johnson earned a Bachelor of Science and a Master of Science in Civil Engineering from Worcester Polytechnic Institute. He is a registered Professional Engineer in Massachusetts. He will be required to obtain a Grade 3 Distribution Drinking Water Operator in Training and Grade 1 Water Treatment Operator in Training license within 1 year of appointment. He previously held Grade 4 Distribution and Water Treatment Operator in Training licenses, which have since expired. Mr. Johnson is a long-term member of several local and national water, wastewater and engineering professional societies and has been on the standards committee of the American Water Works Association since 1997. He is a member of Engineers Without Borders, and early in his career he worked for the Peace Corps and Care International on water and wastewater projects. In addition, Mr. Johnson taught a course at Suffolk University in Water and Wastewater Engineering to help prepare upper level students for the Fundamentals of Engineering exam.

BUDGET/FISCAL IMPACTS:

There are sufficient funds in the FY22 Current Expense Budget to fund this positon.

ATTACHMENTS:

Resume of Mark Johnson
Position Description
Organization Chart

Mark R. Johnson, P.E.

Experience: Civil Engineering - Environmental, Structural, Construction Management, Strategic Planning, Contract Negotiation, Asset Management, Manufacturing, Research, Education and Mentoring.

Education: BS / MS Civil Engineering
Worcester Polytechnic Institute, Worcester, MA

Affiliations: Holden DPW Facility Building Committee, 2015 to present
Holden Board of Health, 2005-2009 member, 2009-2017 chairman
AWWA / NEWWA, Standards Committee Member, 1997 - present
WEF / NEWEA Member, 1999 – present
ASCE / BSCE Member, 1985 – present
Engineers Without Borders Member and Mentor, 2016 – present

Licensure: MA Civil PE 39809
MA WWTP Operator Grade 7C 13356
MA WW Collections Systems Grade IV
MA WTP Operator Grade 4T 22330 (inactive)
MA WTP Operator Grade 4D 22387 (inactive)

Languages: Spanish – Full Professional Proficiency
French – Minimum Professional Proficiency

Countries of Work: USA, Honduras, Dominican Republic, Venezuela, Haiti and Ecuador

Citizenship: USA and Ireland

Employment:

Upper Blackstone Clean Water – Millbury, MA, Deputy Director / District Engineer / Owner's Project Manager, 2010 to present

Manage the daily and future operation and maintenance of one of New England's largest, and best performing, wastewater treatment plants. Oversee work in all areas of civil and mechanical engineering as well as many aspects of electrical and chemical engineering. Act on behalf of the Director in her absence. Manage the phased construction projects, the asset management of the plant, its capital improvement plan and assist in the development of the annual budget.

Suffolk University – Boston, MA, Lecturer Environmental Engineering, Fall Semester, 2012

Taught senior level course (Water and Wastewater Engineering) which was designed towards graduating students taking and passing the Fundamentals of Engineering exam. Received excellent student and peer reviews.

Project Concern International – Port au Prince, Haiti, Program Manager, 2010

Provided support for USAID Foreign Disaster Assistance program in the water, sanitation, hygiene and shelter sectors. Responsible for 14 direct hires assisting

12,000 displaced persons located in 5 urban areas destroyed by January 12, 2010 earthquake.

Blueleaf Incorporated – Charlton, MA, 2007 to 2010
Performed independent pilot testing and research for water and wastewater treatment systems. Provided treatment plant design services, startup coordination, troubleshooting and training services.

Walsh Construction – Chicago, IL / Millbury, MA, Project Manager, 2004 to 2007
Managed the re-construction of the Upper Blackstone WWTP and the Hartford MDC Water Treatment Facility. Developed and maintained schedules, subcontracts, pay applications, change orders and engineer/owner relationships.

R.H. White Construction – Auburn, MA, Project Manager, 1999 – 2004
Managed all aspects of the construction and rehabilitation of several medium size water and wastewater treatment plants.

Harza Engineering (currently MWH) – Chicago, IL, Project Engineer, 1997 – 1999
Managed all technical and financial aspects of Venezuelan funded water projects. Projects were funded domestically and guaranteed by the US Export-Import Bank. Spanish proficiency required.

Whipps, Inc. – Athol, MA, Application Engineer, 1996 – 1997
Designed and implemented expert computer system to develop design and cost of water control equipment products.

CARE International – Dominican Republic, Project Manager, 1994 – 1996
Successfully started a rural water and sanitation program as part of a larger USAID sponsored child survival program. Spanish proficiency required.

Rodney Hunt Company – Orange, MA, Valve Engineer, 1992 – 1994
Designed cone and butterfly valves and actuators for a variety of domestic and international water projects. Expanded expert computer system to develop design and cost of water control equipment products.

US Peace Corps – Honduras, Water / Sanitation Engineer, 1989 – 1992
Provided technical assistance and training to host country nationals and other PC volunteers on all aspects of community water and sanitation projects. Spanish proficiency required.

Rodney Hunt Company – Orange, MA, Application Engineer, 1985 – 1989
Performed preliminary engineering for sales of water control equipment. Designed and implemented expert computer system to develop design and cost of water control equipment products.

Alden Research Laboratory – Holden, MA, Research Assistant, 1982 – 1984
Performed various technical tasks at a hydraulic research facility while working towards an advanced degree.

Mark R. Johnson, P.E.

Passive Solar Applications – Boylston, MA, Project Manager, 1981 – 1982
Managed all aspects of the design and construction of passive solar additions.

Publications:

How NEWWA is Saving Lives in Honduras. New England Water Works Association Journal. M. Johnson and W. Sullivan, 2002.

Renewable Energy and Community Water in the Dominican Republic. Home Power Magazine. M. Johnson, December 1996.

Flow Measurement Using the Impulse-Momentum Method. Worcester Polytechnic Institute, Alden Research Laboratory. M. Johnson and J. Larsen, 1984.

Hobbies:

Hiking, biking, running, swimming, snowshoeing and bagpiping

MWRA
POSITION DESCRIPTION

POSITION: Manager, Transmission & Treatment

DIVISION: Operations

DEPARTMENT: Treatment & Transmission

BASIC PURPOSE:

Manages the efficient and effective 24-hour operations of MWRA's Western treatment and hydraulic water operations facilities to ensure delivery of water from the reservoirs to metropolitan Boston, while meeting permit requirements and optimizing performance. Oversees all operations and process engineering staff, and provides them with necessary resources and support. Is required to be part of an on-call rotation for emergencies 24 hours a day, 7 days a week.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, Western Operations.

SUPERVISION EXERCISED:

Exercises close supervision of Senior Program Managers and other assigned managerial, supervisory, technical and operational staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Oversees operation of the John J. Carroll Water Treatment Plant and the William A. Brutsch Water Treatment Facility.

- Oversees monitoring and control of CVA, Oakdale Power Station (West Boylston), Cosgrove Intake, and Shaft 4/E flows for adequate water supply, hydroelectric generation and flood control on a 24-hour basis.

- Oversees intake operation, source water treatment, and distribution reservoir treatment as required.

- Oversees the process engineering staff responsible for optimizing operations for proper treatment and flow control of all Transmission & Treatment Facilities. Oversees the evaluation of long-range process control needs for the water treatment and flow control.

- Works with communities in CVA, Wachusett and MetroWest service areas to ensure reliable service and resolve problems. Works with power company officials regarding hydroelectric operations.

- Coordinates with Western Maintenance Department and establishes priorities to assure successful facility operations.

- Participates in capital project design, construction and start-up to ensure effective integration of new and rehabilitated facilities.

- Oversees the establishment and updating of operational procedures in accordance with control strategies. Works with SCADA and Process Engineering staff to implement the transmission and treatment facility SCADA changes.

- 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 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 department programs. 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.

- 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) Knowledge of engineering principles and practices as normally attained through a Bachelor's degree in civil, mechanical or electrical engineering; and

(B) Understanding of planning, supervising and implementing the operation and maintenance of all aspects of water treatment and/or water transmission as normally acquired through eight (8) to ten (10) years experience in the water industry, of which at least four (4) years must be in a management or supervisory position; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Excellent working knowledge of the operation and maintenance of a large water treatment and transmission 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 computer hardware and software including Microsoft Office Suite, databases, data presentation, and analysis tools.

(F) Experience with SCADA systems, statistical process control, and work process continuous improvement preferred.

SPECIAL REQUIREMENTS:

Possession of a valid Massachusetts Class D Motor Vehicle Operators License.

Valid Grade 3D in training and 1T in training Drinking Water Operator licenses are required within one (1) year.

Massachusetts Pesticide Applicator (Core) License is required within one (1) year.

Registered Professional Engineer (P.E.) preferred.

Is required to be part of an on-call rotation for emergencies 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 including pesticides.

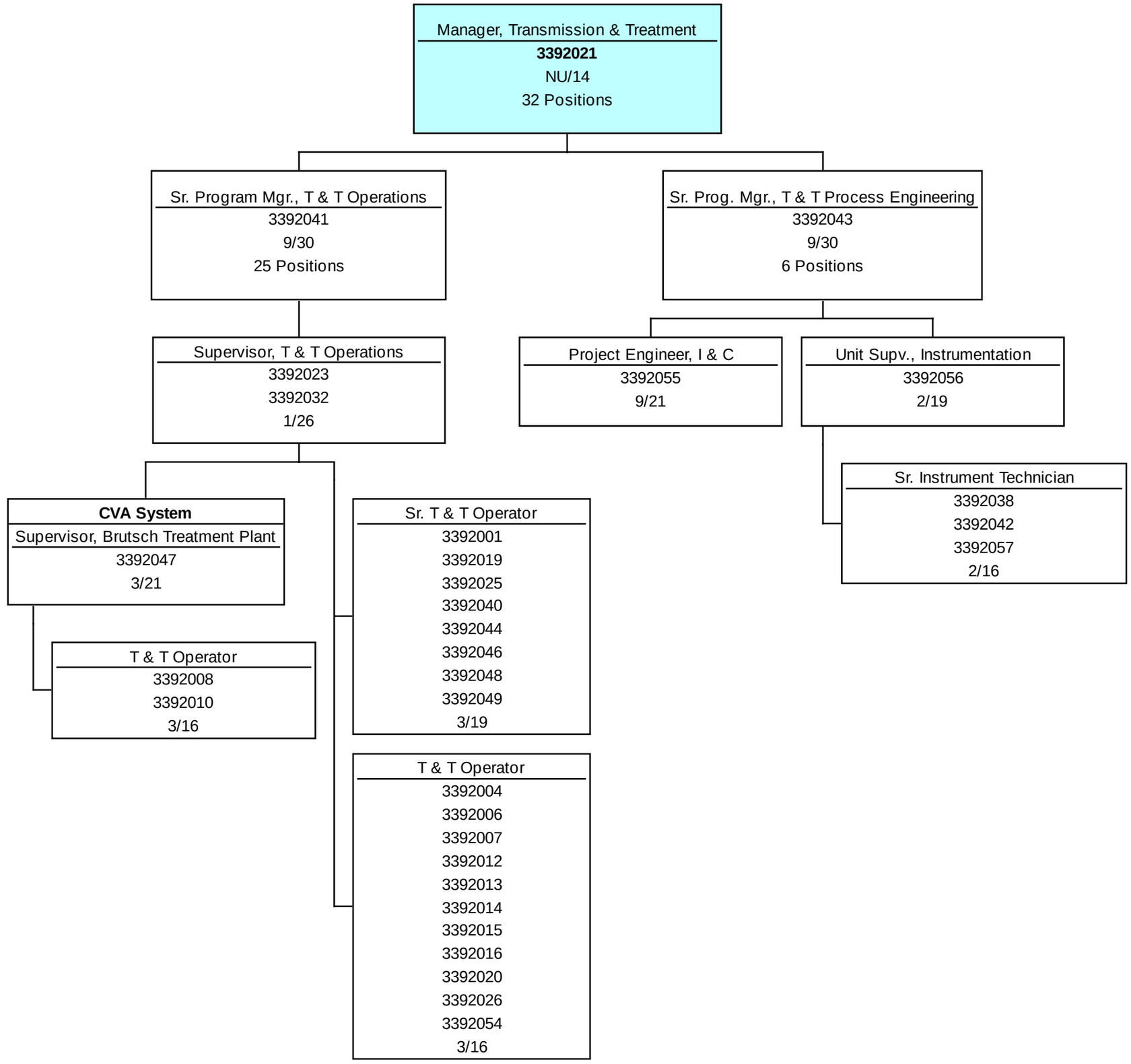
The noise level in the work environment is a moderately quiet in office setting.

NU14
May 2019

Operations-Western Water O&M

Transmission & Treatment

September, 2021



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Appointment of Senior Program Manager, Environmental Monitoring

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COMMITTEE: Personnel & Compensation

____ INFORMATION
__X__ VOTE

Andrea Murphy, Director, Human Resources
Carolyn M. Fiore, Deputy Chief Operating Officer
Betsy Reilley, Director, ENQUAL
Preparer/Title

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

RECOMMENDATION:

To approve the appointment of Mr. David Wu to the position of Senior Program Manager, Environmental Monitoring, (Unit 9, Grade 30) at an annual salary of $134,318.33, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Senior Program Manager, Environmental Monitoring in the Environmental Quality (ENQUAL) Wastewater Section became vacant upon the retirement of the incumbent in August 2021. ENQUAL's Wastewater Section is responsible for managing and reporting on federal and state environmental and regulatory issues (primarily wastewater) related to MWRA's operations and projects. The department's main activities are monitoring sewage influent and effluent quality, monitoring the quality of Boston Harbor (and its rivers, tributaries, beaches, and Massachusetts Bay), managing quality and operations data, complying with the reporting requirements of MWRA's National Pollutant Discharge Elimination System permits and coordinating with the Outfall Monitoring Science Advisory Panel.

This position oversees the design, execution and reporting of environmental quality monitoring programs in Boston Harbor and Massachusetts Bay as required by the NPDES Permit and MWRA planning needs. These programs include water, plankton, benthos, sediment, fish, shellfish, and effluent toxicity testing. The Senior Program Manager oversees the work of consultants performing monitoring in Massachusetts Bay and Boston Harbor, develops contracts and ensures completion and timely submittal of scientific reports. The position interacts with federal, state and local government and regulatory agencies such as the U.S. Environmental Protection Agency and Massachusetts Department of Environmental Protection and the Outfall Monitoring Science Advisory Panel to ensure that MWRA monitoring is scientifically sound, cost-effective and relevant to MWRA projects.

Selection Process:

The position of Senior Program Manager, Environmental Monitoring was posted in August 2021 internally and externally. A total of seven candidates applied; two internal and five external. Two internal candidates and one external candidate were determined to be qualified and were referred for an interview. The Director of ENQUAL, Director of Environmental and Regulatory Affairs and the Associate Special Assistant to Affirmative Action conducted the interviews. Upon completion of the interviews, Mr. David Wu was deemed the best candidate for this position based on his experience, abilities, knowledge, skills and education.

Mr. Wu has over 20 years of experience working with the Environmental Quality Department at MWRA in progressively more responsible positions. Mr. Wu began working at MWRA as an Environmental Scientist where he was responsible for Discharge Monitoring Reports for the Clinton and Deer Island Treatment Plants and other NPDES compliance reporting to regulators. Mr. Wu also worked in the Harbor and Outfall group as a Project Manager, where he was responsible for overseeing, interpreting and submitting results of toxicity monitoring, as well as reports for mussel, lobster and flounder studies.

In Mr. Wu's current position, he oversees a group of technical staff responsible for the management of NPDES-related data, including results from Deer Island Treatment Plant, Clinton Wastewater Treatment Plant, Combined Sewer Overflow (CSO) facilities, the John J. Carroll Water Treatment Plant, and several other wastewater and water facilities, and receiving waters. Mr. Wu prepares and manages permit-required reporting, provides water quality expert analysis for CSO variance receiving waters (the Charles and Mystic Rivers) and oversees beach data and regulations, among other duties. He also interacts frequently with outside agencies, including the Massachusetts Department of Environmental Protection and the U.S. Environmental Protection Agency, as well as various watershed groups.

Mr. Wu has provided leadership and foresight on many issues involving staff development, program planning, and coordination among departments. He has a broad set of experiences, and a proven record of working with other groups within and outside of MWRA, including presenting technical results in an understandable manner. Mr. Wu has a broad view of MWRA programs including NPDES permit compliance, CSOs, Boston Harbor and Massachusetts Bay.

Mr. David Wu has excellent managerial and interpersonal skills, and was recently recommended by MWRA Senior Management to participate in the National Association of Clean Water Agencies' "Core Growth – Building Water's Future Leaders" Training Program, which he has completed. Mr. Wu earned his Grade 6 Combined Wastewater Operators License, and completed EPA's NPDES Permit Writers Training course.

Mr. Wu has a Bachelor of Arts degree and a Masters of Environmental Management degree (concentration in coastal zone management) from Duke University.

BUDGET/FISCAL IMPACTS:

There are sufficient funds for this position in the FY22 Current Expense Budget. The recommended salary is in accordance with guidelines established in Unit 9's current collective bargaining agreement.

ATTACHMENTS:

Resume of David Wu
Position Description
Organizational Chart

DAVID C. WU

PROFESSIONAL EXPERIENCE
Massachusetts Water Resources Authority, Boston, MA
Environmental Quality – Wastewater Department

Acting Senior Program Manager, NPDES (April – June 2019)
Responsible for all NPDES permit compliance activities for MWRA's water and wastewater facilities, including reporting monitoring results from the harbor and outfall monitoring program, while continuing with several responsibilities from the Program Manager, Environmental Compliance and Monitoring position.

Program Manager, Environmental Compliance and Monitoring (February 2016 – present)
Responsible for Boston Harbor and tributary rivers water quality monitoring, Boston Harbor beaches bacterial water quality monitoring, and NPDES permit compliance.

- Water Quality Monitoring
    - Manage, in conjunction with DLS staff, Boston Harbor and tributary rivers (Charles, Mystic, and Neponset) field monitoring projects carried out by DLS' Indigo Team, including the development and management of a storm sampling program for the CSO Assessment.
    - Analyze data and write reports from Charles and Mystic River monitoring projects in support of the CSO Variance for those receiving waters.
    - Coordinate with Indigo Team the permit-required bacterial sampling in Massachusetts Bay; results of this sampling are then made available to DMF.
    - Coordinate bacterial monitoring of Boston Harbor beaches with DLS, DCR, and DCR's outside consultant.
    - Participated in workshops and kept up to date on upcoming changes to state water quality standards.
    - Provide technical assistance with harbor, river, and beach monitoring data to department and other MWRA staff.
- Permit Compliance
    - Provide technical assistance and oversight to coworkers working on NPDES and wastewater quality issues, especially pertaining to the Deer Island Treatment Plant, CSO facilities, and wastewater operations.
        - Involved in 2017 preparations for the new NPDES permit for Clinton Treatment Plant, as well as review of the final permit.
        - Member of discussion groups regarding a future Deer Island NPDES permit and preparing possible MWRA responses to regulators.
    - Review, and if necessary, comment on proposed NPDES permits and proposed regulations that may impact NPDES permits.
    - Authored an analysis of *Enterococcus* in Deer Island effluent and Massachusetts Bay, examining future permit compliance implications of an *Enterococcus* effluent limit; results were presented at the 2017 NEWEA Annual Conference.
    - Member of MWRA's NPDES Steering Committee and CSO Public Notification team.
    - Part of the NPDES On-Call Manager and Wet Weather Manager rotations, which provide 24/7 response to potential NPDES issues and support for web-based near real-time reporting of CSO and SSO discharges, respectively.
- CSO Assessment
    - Participated in the initial development of the CSO Assessment scope for DEP.
    - Developed and managed the CSO facility influent sampling program with TRAC and DLS.
    - Developed and coordinated stormwater and untreated CSO sampling program with TRAC, DLS, and the communities of Arlington, Cambridge, Medford, and Somerville.
    - Reviewed and commented on numerous AECOM documents regarding the development, calibration, and results from the water quality models for the Charles River and Alewife Brook/Mystic River.
    - Continue to assist in reviewing water quality analysis.

- Act as a contact point for outside groups (e.g., DMF, BWSC, Mystic River Watershed Association, etc.) for NPDES and water quality questions and data requests.
    - Member of the Technical Advisory Committee for the Mystic River Phosphrus Alternative TMDL
    - Member of the Save the Harbor/Save the Bay Beaches Science Advisory Committee
    - Coordinated annual meetings between DLS, ENQUAL, and local watershed associations.
- Work with the department's data management group to streamline data management issues relating to harbor, river, NPDES reporting, and wastewater operational data.
- Member of selection committee for contract OP-420, "Wastewater Monitoring for COVID-19."
- Supervise two technical staff, as well as summer interns.

Project Manager (April 2015 – February 2016)
Coordinated effluent and environmental monitoring projects for MWRA's Deer Island Treatment Plant and CSO treatment facilities.
- Interpreted and reported NPDES permit-required whole effluent toxicity (WET) testing results from the Authority's wastewater facilities.
- Communicated with the WET testing contract lab, as well as TRAC and DLS, regarding sampling schedules and issues with test results and interpretations.
- Analyzed results from permit-required flounder, lobster, and mussel biomonitoring projects in Boston Harbor and Massachusetts Bay in collaboration with other MWRA staff and outside consultants.
- Communicated with the consultant, the department's data management group, and DLS regarding both collection and analysis status and general project progress for the effluent biomonitoring project.
- Assisted with the development of water quality factsheets on Boston Harbor beaches, and text and graphics for the 2015 CSO Annual Report.
- Provided technical assistance to coworkers working on NPDES issues.
- Member of the NPDES Steering Committee, and the NPDES On-Call Manager rotation as detailed above.
- Continued to work on projects from my previous position: primarily beach and river data analysis, marine mammal sightings, and internal and external data requests.

Environmental Scientist (December 2000 – April 2015)
NPDES permit compliance specialist for MWRA's Deer Island Treatment Plant and CSO facilities.
- Generated permit-required monthly discharge monitoring reports for the public and regulators.
- Co-authored a study examining the two WET test failures at the Clinton Treatment Plant in 2014 looking for linkages between historical effluent, plant process data, and the test failures.
- Wrote and edited several permit-related annual reports (e.g., Deer Island NPDES compliance report, technical survey of nitrogen removal technologies, marine mammal observation summary).
- Managed permit-related deliverables, including ambient monitoring and Contingency Plan items, approximately 75 annually. Coordinated with the department's webmaster to make deliverables online.
- Extensive experience with MWRA's database system for treatment plant and CSO facility operational and sampling data and responded to internal and external requests for that data.
- Assisted on permit-related duties related to the Clinton Treatment Plant, including review of the 2010 and 2013 draft permits.
- Reviewed current and potential regulations pertaining to the MWRA's treatment facilities.
- Responsible for permit-related pages in the MWRA's Yellow and Orange Notebooks.
- Member of the NPDES Steering Committee, and the NPDES On-Call Manager rotation as detailed above.
- Analyzed and posted to the web daily beach monitoring data during the swimming season.
- In conjunction with coworkers, collated and analyzed river monitoring data for CSO variance reporting.
- Miscellaneous tasks relating to the Authority's environmental monitoring programs (e.g., entering data on marine mammal sightings, checking data for QA/QC purposes).

SELECTED PRESENTATIONS AND POSTERS

NEWEA 2017 Annual Conference, "Indicator bacteria: disinfection and dilution protect Massachusetts Bay," January 24, 2017
Boston Harbor and Islands Science Symposium, "25 Years of Monitoring Data" (poster), April 12, 2017
Northeastern University Marine Science Center, "MWRA Environmental Monitoring," September 20, 2017 (with Ken Keay)
Alewife Corridor Resilience Symposium, "MWRA and Alewife Brook," January 20, 2018
Outfall Monitoring Science Advisory Panel, "Indicator bacteria: disinfection and dilution protect Massachusetts Bay," February 28, 2018
Mystic Science Forum, "MWRA Monitoring in the Mystic/Alewife," April 30, 2019

Mystic River Steering Committee, "MWRA Sampling Update 2019," June 4, 2020
Co-presenter, Wastewater Advisory Committee, CSO Assessment WQ model update, December 4, 2020
Outfall Monitoring Science Advisory Panel, "2019 Nitrogen Load Exceedance," May 11, 2021 (with Ken Keay)

OTHER EXPERIENCE

Recruiting Assistant (Summer – Fall 2000)
Office of Career Services, Harvard University, Cambridge, MA

Fisheries Habitat Researcher (Summer 1999)
North Carolina Environmental Defense Fund, Raleigh, NC

Staff Assistant (Summer 1998)
Office of Continuing Education, Duke University Divinity School, Durham, NC

Marine Sciences Summer Intern (Summer 1996)
College of Marine Sciences, University of Delaware, Lewes, DE

EDUCATION

Master of Environmental Management, May 2000
Nicholas School of the Environment, Duke University, Durham, NC
Concentration: Coastal zone management
Master's project: Ecological and Political Dynamics of Fish Nursery Areas: Marshallberg, NC

Bachelor of Arts, May 1997
Duke University, Durham, NC
Major: History; coursework for marine biology
Honors: Dean's List, 6 semesters.

COMPUTER SKILLS

Extensive experience with Microsoft Office applications, OriginLab Origin Pro, and Adobe Acrobat Pro.
Knowledge of Adobe Illustrator, InDesign, and Photoshop, ESRI ArcMap, Oracle Discoverer and SQL Developer.
Experience with EPA's NetDMR on-line NPDES reporting tool.
Extensive experience with MWRA and Environmental Quality – Wastewater database systems.
Knowledge of HTML and SQL.

ADDITIONAL INFORMATION

Selected for "Core Growth – Building Water's Future Leaders" program, January – July 2021
MWRA Supervisory Development training
Massachusetts Grade 6-Combined Wastewater Operators License (#17393; When and If status)
NEWEA Grade IV Collection Systems Certification (#C-6726)
NEWEA/WEF member, 2017-2021

MWRA
POSITION DESCRIPTION

POSITION: Sr. Program Manager, Environmental Monitoring

DIVISION: Operations

DEPARTMENT: Environmental Quality

BASIC PURPOSE:

Conceives, designs and manages water quality monitoring programs in Boston Harbor and Massachusetts Bay. Implements monitoring program through internal or contractual resources. Reports monitoring results within MWRA and to the regulatory agencies. Participates in National Pollutant Discharge Elimination System (NPDES) permit negotiations and manages related scientific and technical programs.

SUPERVISION RECEIVED:

Works under the general supervision of the Director of Environmental Quality.

SUPERVISION EXERCISED:

Exercises close supervision of scientific staff. Also directs the work of contract employees and/or interns.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Oversees the design, execution and reporting of environmental quality monitoring programs, which may include water, plankton, benthos, sediment, fish and shellfish and effluent toxicity testing, in Boston Harbor and Massachusetts Bay as required by the NPDES Permit and MWRA planning needs.

- Manages consultant contracts for the design, execution and reporting of studies of environmental quality in Boston Harbor and Massachusetts Bay.

- Oversees and directs the work of scientific staff in the group.

- Prepares information necessary for negotiating permit requirements and monitoring plans with state and federal agencies. Manages the preparation of required regulatory agency reports and related special projects.

- Conceives designs and oversees in-house MWRA monitoring of Boston Harbor and Massachusetts Bay, together with the Department of Laboratory Services.

- Develops and/or makes recommendations for changes of MWRA outfall monitoring program by reviewing scientific literature and water quality regulations.

- Participates with the Senior Program Manager of NPDES Compliance to ensure that MWRA's environmental quality reports are in compliance with the requirements of the NPDES Permit.

- Interacts with other MWRA departments to integrate environmental findings and operational issues in order to optimize the environmental benefits of MWRA planning and operations.

- Participates with the Senior Program Manager of NPDES Compliance and the Program Manager of Data Management, to ensure that the Contingency Plan is implemented appropriately.

- Coordinates special project requests with existing department programs.

- Implements monitoring program of approximately $1 to $2 million using in-house or consultant resources.

- Oversees and manages mooring program, including review and analysis of data, and Bays Eutrophication Model (as required in Deer Island Treatment Plant NPDES permit).

- Provides technical review of consultant-prepared reports.

- Organizes and analyzes monitoring data. Prepares reports interpreting data for scientific and lay audiences.

- Directs quality assurance programs for MWRA contractors.

- Tracks consultant progress, including review of invoices and progress reports and coordinates consultant work with other, related project activities.

- Writes Requests for Proposals for Harbor and Outfall Monitoring contracts and serves as chair of the selection committees.

- Assists in the preparation of annual budgets and schedules and ensures compliance.

- Drafts internal and external correspondence and reports of both technical and administrative nature.

- Interacts with federal, state and local government and regulatory agencies such as the U.S. Environmental Protection Agency (EPA) and Massachusetts Department of Environmental Protection (DEP) and the Outfall Monitoring Science Advisory Panel to

ensure that MWRA monitoring is scientifically sound, cost-effective and relevant to MWRA projects.

- Makes policy recommendations for department presentations to the Executive Director on monitoring program findings.

- Presents findings to scientific community and the general public.

SECONDARY DUTIES:

- Performs other related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Knowledge of principles and practices of environmental/marine science as normally attained through an advanced degree, either a masters or Ph.D. degree with specialization in a field such as microbiology, marine biology, environmental management, or physical oceanography or related field; and

(B) Demonstrated knowledge of environmental science/marine science as acquired through eight (8) to ten (10) years related experience of which a minimum of three (3) years is in a supervisory or managerial capacity; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Demonstrated ability to gather, analyze and present technical information in a clear and understandable manner.

(B) Demonstrated ability to lead a project team and develop and maintain productive working relationships with external parties.

(C) Strong analytical and computer skills, including proficiency with statistical and graphical analyses, such as parametric, non-parametric, multivariate and multivariable analyses, spreadsheets, word processing and database application programs.

(D) Ability to analyze and interpret scientific data.

(E) Strong written and oral communication skills.

SPECIAL REQUIREMENTS:

None.

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.

There are no requirements that weight be lifted or force be exerted in the performance of this job, although the employee will have opportunity to participate in field activities that involve lifting weight, e.g., water, sediment or other environmental samples or exerting force. Specific vision abilities required by this job include close vision, distance vision, depth perception, peripheral vision and the ability to adjust focus.

WORK ENVIRONMENT:

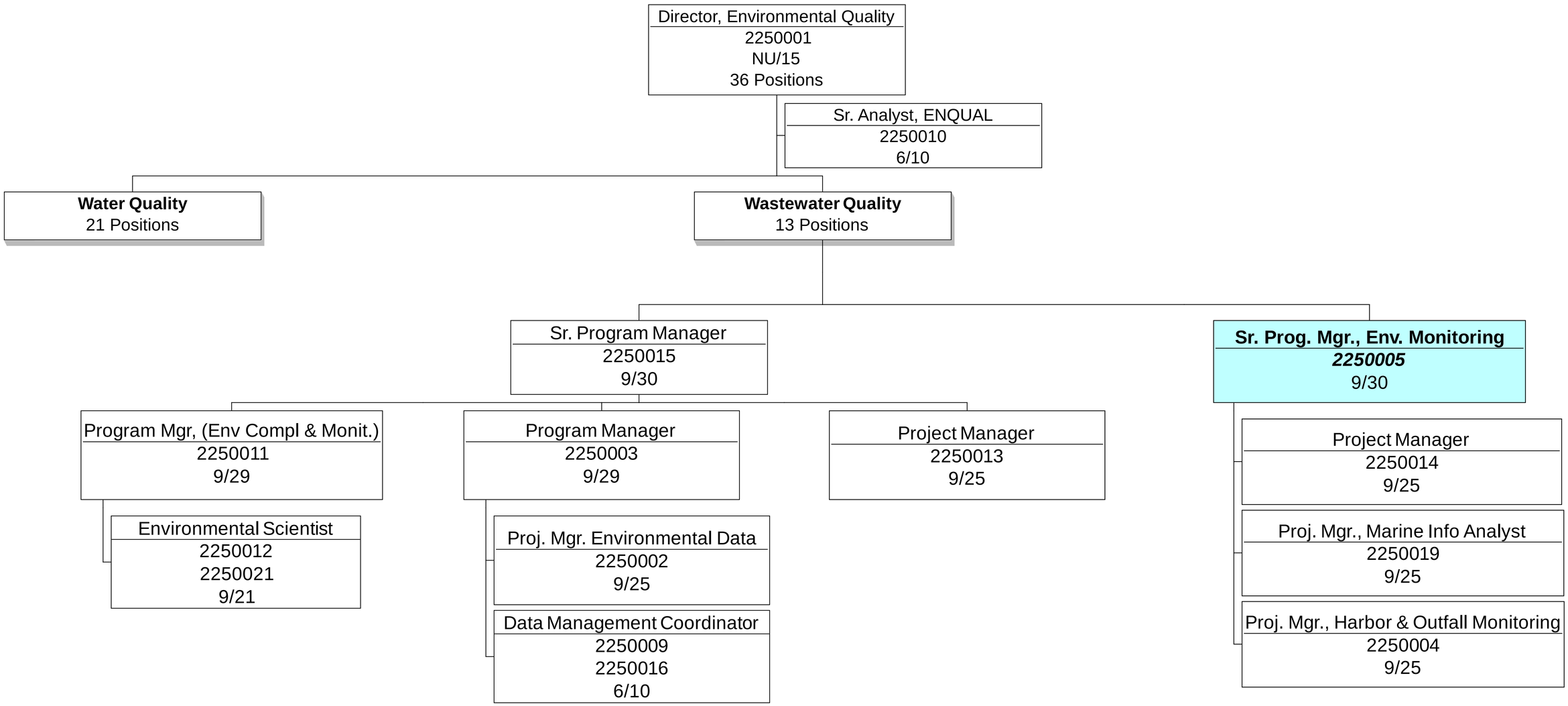
The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the regularly works in an office environment. The employee occasionally works near moving mechanical parts and is occasionally exposed to outdoor weather conditions. The employee may occasionally work on large and small boats in Boston Harbor and Massachusetts Bay. The employee is occasionally exposed to fumes or airborne particles and toxic or caustic chemicals.

The noise level in the work environment is usually a moderately quiet office setting.

July 2021

Programs, Policy & Planning
Environmental Quality
September, 2021



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Appointment of Materials Coordination Manager

COMMITTEE: Personnel & Compensation

_____ INFORMATION
_X_ VOTE

Stephen Cullen, Director, Wastewater
Andrea Murphy, Director, Human Resources
Preparer/Title

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

RECOMMENDATION:

To approve the appointment of Mr. Stephen Feeley to the position of Materials Coordination Manager (Unit 6, Grade 12), in the Facility Management Program, at an annual salary of $101,651.86, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Materials Coordination Manager became vacant in July 2021 as a result of the retirement of the incumbent. This position is responsible for managing and coordinating all procurement, purchasing and inventory control procedures for the Water and Wastewater Metro Operations and Maintenance Departments. It reports to the Director, Wastewater and exercises close supervision of purchasing and logistic support staff. The Materials Coordination Manager provides support for maintenance planning and scheduling efforts by ensuring timely and efficient procurement and delivery of parts, materials and services required for all Metro Operations maintenance activities. The position works closely with the Purchasing Department to determine the proper method and timing of purchases such as stock items, bulk purchases, sole source items, annual service contracts and individual requisitioned items; and to establish minimum and maximum reorder points. The position also manages Metro Operations equipment, tool and vehicle inventory sites, developing policies and procedures to ensure that equipment/tools/vehicles are kept neat, organized, accessible and safe.

Selection Process

The Materials Coordination Manager was posted internally. Eleven candidates applied for the position, and four were determined to be qualified and were referred for an interview. The Director of Wastewater, the Manager of Purchasing, and the Associate Special Assistant for Affirmative Action interviewed the candidates. Upon completion of the interviews, Mr. Feeley was determined to be the best-qualified candidate for the position based on his experience, knowledge, skills, and abilities.

Mr. Feeley has over 30 years of work experience, including extensive experience in purchasing and supervision. Prior to working at the MWRA, he was the general manager of several restaurants for over 20 years, during which time he gained purchasing, budgeting and supervisory experience. After that, he worked at Oracle for two years gaining computer experience, and he owned his own construction company, which gave him familiarity with trades work and the associated tools and equipment.

Mr. Feeley has been employed by MWRA for the past eight years. He started as a Warehouse Materials Handler, and then was promoted in 2018 to a Planning and Scheduling Coordinator position supporting the Metro Maintenance trades. In these positions, he has utilized Lawson and Maximo for job planning, materials acquisition, materials kitting, and inventory control purposes. He has a detailed understanding of MWRA's purchasing and inventory management systems. He has experience with determining the materials needed for a job; initiating purchasing requests, working with vendors, obtaining management approval, receiving, distributing and tracking purchased goods, and preparing staff summaries for sole source requests. He has earned the respect of his supervisors, employees and colleagues. Mr. Feeley attended Suffolk University for three years. His wide-ranging experience, knowledge and skills make him well prepared for the responsibilities of the Materials Coordinator position.

BUDGET/FISCAL IMPACTS:

There are sufficient funds for this position in the FY22 Current Expense Budget.

ATTACHMENTS:

Resume of Stephen Feeley
Position Description
Organizational Chart

Stephen Feeley

CAREER OBJECTIVE:

Leverage my organizational skills to progress my career and challenge myself to grow while positively affecting the M.W.R.A's day-to-day operations.

PROFESSIONAL EXPERIENCE:

Massachusetts Water Resources Authority 2013-Present

Planner Scheduler *11/18-Present*

- Responsible for planning and scheduling of the Electricians and the Heating Ventilation and Cooling Departments
- Source out and coordinate the procurement of materials for projects and departments needs
- Maintain and track any items needed for projects using Maximo
- Process and track services requests as they are entered
- Communicate completely on the status of any projects as needed
- Maintain all records for projects to ensure accuracy and to stream line the ordering process for future needs
- Progress and update service requests until completed to ensure accuracy
- Ensure accurate listing of assets in Maximo

Material Handler / Shipper and Receiver *7/13-11/18*

- Responsible for receiving and identifying over 2.5 million dollars of inventory annually for conformant to ordering specifications.
- Work closely with Managers, supervisors, buyers and scheduler planners for all departments on receiving nonstock items for projects throughout the M.W.R.A.
- Shipping and tracking the repair cycle of assets being shipped out to various suppliers for repairs and reconditioning.
- Coordinate with buyers, management and vendors to resolve any discrepancies in the ordering/delivery process.
- Work with the other material handlers to issue supplies to all departments accurately maintaining over a 99% service level.
- Proficient in Lawson Business Management System, Procurement Process Suite.
- Completed Introduction to Maximo Work Orders 5.2 on April 23, 2015.

Jamison and Griffin Construction *Owner* 2009-2013 / 2005-2007

- Established construction firm managing all aspects of the design and build out process.
- Leveraged sales skills to grow client base to 30 customers across several project segments.
- Due to superior service delivery, 50% of the customer base signed on with the company for more than one project.
- Utilized negotiating skills to manage suppliers and to secure new profitable business.
- Strong organizational skills and project follow up delivered 90% of projects on time and within budget.

Oracle Corporation 2007-2009

Strategic Account Manager

- Specialized in the sales cycle of Oracle's Core Technology, which includes Oracle Database, Enterprise Manager, Business Intelligence, Internet Application Server, Identity Management, Data Warehousing and Integration Products.

- Continually met and exceeded Table Stakes set forth by Oracle Management.
- Recognized as Rookie of the Third Quarter for closing key deals.
- Responsible for coordinating team of six across several technology spaces for optimum coverage of accounts to develop new opportunities and to finalize any transactions.
- Took initiative to guide and help new account managers develop strategies and actively engaged with their customers to help close deals in their accounts.
- Appointed by management to lead other teams accounts sales cycles when a management personnel was not available to fill that role.
- Utilized channel partner network to drive attendance to events, create pipeline, and host lunch and learn events at customer locations.
- Created monthly newsletter and live web casts for select accounts to educate their employees to best practices of current Oracle technology they procured as well as generate interest in additional products that could help maximize their current environments.

Not Your Average Joe's 2006-2007

Part-Time Bartender

- Recognized for generating the most repeat business among current staff.
- Prepared drinks to company specifications to ensure profitability.
- Successful up seller of the company's food and beverages to increase the guest check average.
- Surpassed customer expectations in the problem resolution process.

Inn at Longwood 1999 - 2004

Food and Beverage Director/Restaurant Manager

- Responsible for hotel's restaurant, catering and room service departments with sales of $3.5 million per year.
- Recognized as Manager of the Quarter six times and Manager of the Year 2003.
- Managed 145 employees with 30 direct reports.
- Responsible for hiring, training and managing the performance of staff. Established employee specific goals in order to foster development.
- Designed and delivered server classes to develop upselling skills around wines, appetizers and beverages.
- Increased sales by 5-8% each year by developing sales promotions and contests to motivate staff.
- Created quarterly wine dinners concept to expand the customer base.
- Active board member on hotel's executive committee.
- Entrusted to manage entire $12.5 million operation when General Manager was on leave.

Kinsale Irish Pub and Restaurant 1998 - 1999

Beverage Manager

- Opening manager of 250 seat pub and restaurant with annual sales of $3.5 million per year.
- Hired and built staff to enable the successful startup of the operation.
- Implemented and maintained inventory procedures and cost controls to improve profitability.
- Procured entertainment to create a traditional Irish pub environment.
- Responsible for all beverage ordering including establishing wine lists and signature drink menus.

Duckworth Lane Bistro and Wine Bar 1997 - 1998

General Manager

- Opening General Manager for three new locations with sales of $4.5 million annually.
- Established employee handbook of policies and procedures.
- Responsible for marketing and advertising.
- Implemented international wine list with extensive by the glass program.

Maximilian's Café 1986-1997

General Manager

- Responsible for all aspects of the $1.5 million dollar operation. Within a three-year period advanced from Line Cook to Kitchen Manager to Assistant Floor Manager to General Manager.
- Created menu selections in order to maximize revenues.
- Implemented and maintained inventory procedures and cost controls to improve profitability.
- Developed production card system to ensure product consistency.
- Responsible for monthly financial reporting and controls.
- Managed against monthly budgets; consistently exceeded budget goals.

EDUCATION:

Arlington Catholic, Arlington, MA 1982-1985
Suffolk University, Boston, MA 1985-1988

MWRA
POSITION DESCRIPTION

POSITION: Materials Coordination Manager

DIVISION: Operations

DEPARTMENT: Policy & Administration (Chelsea)

BASIC PURPOSE:

Manages and coordinates all procurement, purchasing and inventory control procedures for Water and Wastewater Metro Operations departments, and assists with the development of their maintenance budgets. Provides support for maintenance work, planning and scheduling efforts by ensuring timely and efficient procurement and delivery of parts, materials and services required for all Metro Operations maintenance activities.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, Wastewater.

SUPERVISION EXERCISED:

Exercises close supervision over the Supervisor, Logistics Unit, Work Order Coordinators, and a Secretary 1.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages the planning, development and implementation of purchasing and procurement procedures for Metro Operations.

- Develops and implements policies to ensure timely and efficient purchasing and procurement support, consistency with Authority-wide policies and responsiveness to specific time-sensitive Metro Operations procurement needs.

- Authorizes Metro Operations purchases and oversees time span order requests through contract completion for major equipment and services.

- Manages and coordinates the planning functions between the Metro Operations departments and the Purchasing unit to determine the proper method and timing of purchases such as stock items, bulk purchases, annual service contracts and individual requisitioned items and establishes minimum and maximum reorder points.

- Develops guidelines with senior department management to determine optimal inventory levels.

- Works with Metro Operations staff and Purchasing to draft staff summary discussions for service contracts and / or purchases greater than $25k.

- Works with Metro Operations staff to prepare sole source purchasing memos.

- Advises the department director and manager of maintenance on complex, sole source or critical need procurements and ensures delivery consistent with public health, safety and regulatory mandates.

- Participates in managing Metro Operations equipment, tool and vehicle inventory sites, verifies that equipment/tools/vehicles are kept neat, organized, accessible and safe and in develops policies and procedures for tool, vehicle and equipment management. Oversees other Metro Operations staff as needed.

- Supervises the Logistics Unit.

- Schedules Police details and asphalt and concrete deliveries, and coordinates with Dig Safe, working in conjunction with field crews to ensure timely and efficient delivery of services and materials

- Oversees the monitoring of field crew confined space entries.

- Provides courier services and mail runs as needed.

- Assists the Metro Operations financial staff with the planning and implementation of the Current Expense Budget (CEB) process.

- Prepares weekly CEB expenditure spreadsheet for maintenance spending over $2k.

- Provides monthly cost analyses reports to the senior department management and ensures projects and purchasing scheduling is consistent with budgeted expenditures.

- Reviews major purchase and service requests for consistency with CEB budgeted expenditures and assists with the development of contingency plans, as required, to maintain spending levels within the CEB.

- Works in conjunction with the Accounts Payable Department on ensuring invoices get paid in a timely manner.

- Oversees Purchasing Card (P-Card) Program by advising Metro Operations users when to use the card for purchases and assisting with random audits of P-Card purchases.

- Works in conjunction with Property Pass department to ensure all tools and equipment, including service contracts and replacement parts for Metro Operations are in compliance with Property Pass Policies and Procedures.

- Directs the implementation of all Authority policies and procedures related to administrative matters including human resources, affirmative action, procurement, service contracts, etc.

- Conducts employee performance reviews in accordance with MWRA policies and procedures.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A Bachelor's Degree in business administration or a related field. An advanced degree preferred; and

(B) Six (6) to eight (8) years experience in purchasing, procurement, budgeting and inventory management, of which a minimum of one (1) year was in a supervisory position; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Excellent analytical, interpersonal, written and verbal communication skills.

(B) Proficiency in the use of personal computers and software applications such as Microsoft Office Suite, Lawson, and Maximo.

(C) Experience with an automated procurement system.

(D) Knowledge of procurement policies and procedures and inventory control management practices.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators license.

TOOLS AND EQUIPMENT USED:

Office machines such as the telephone, personal computer including word processing and other software, 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 this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential duties.

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 and to talk and hear. The employee is occasionally required to walk, sit, climb, balance, stoop, kneel, crouch or crawl.

The employee must frequently lift and/or move up to 50 pounds. Specific vision abilities, required by this job include close vision, distance vision, color 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.

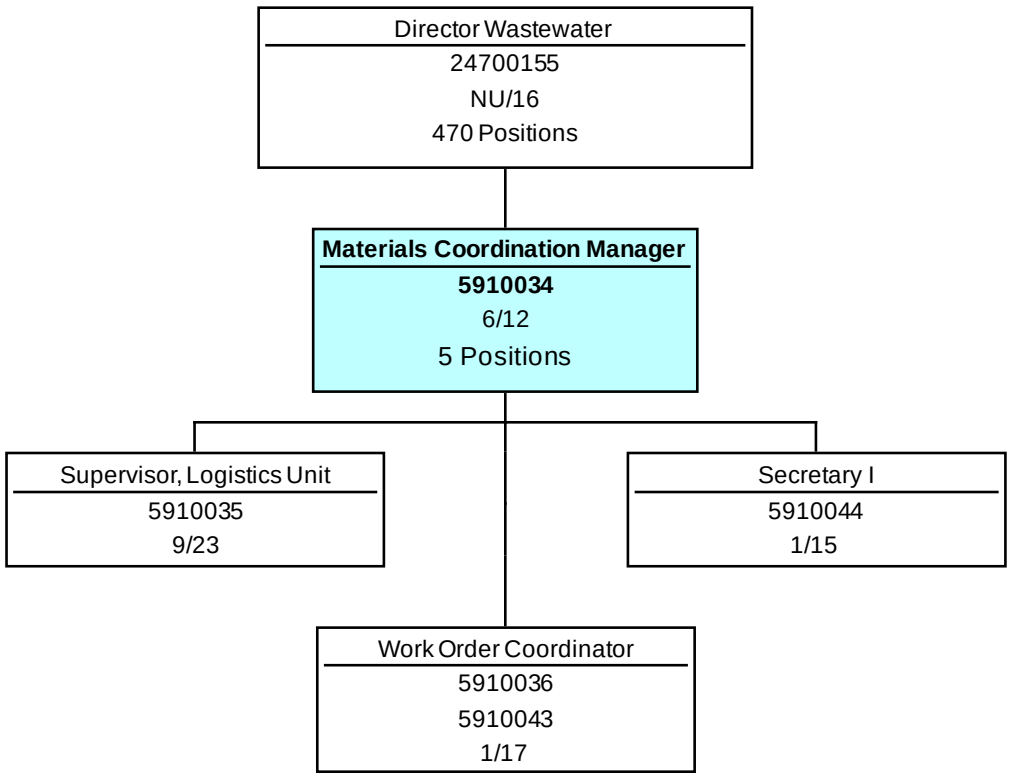
While performing the duties of this job, the employee regularly works in an office environment.

The noise level in the work environment is a moderately quiet office setting.

July 2021

Facility Management

September, 2021



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: FY21 Fourth Quarter Orange Notebook

COMMITTEE: Administration, Finance & Audit

_____ INFORMATION
__X__ 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.

No presentation is planned for the Orange Notebook at the Board meeting.

Residuals Pellet Plant:

Over a period of several years, sludge quantities pumped from the Deer Island Wastewater Treatment Plant to the Pelletizing Plant were consistently above projections. Staff undertook a comprehensive process investigation sparked by that data and ultimately found that a meter in secondary treatment was incorrectly increasing sludge "wasting" rates, and thus increasing total sludge volumes. Correcting the issue decreased sludge volumes going to the digesters, and also increased detention time in the digesters, resulting in greater solids destruction. This ultimately reduced the quantities going to the Pelletizing Plant by approximately 11 percent, which will reduce the cost of disposal. However, the reduced sludge volumes will also somewhat reduce the volume of digester gas available for heat and electricity production. (See page 4.)

Staffing:

Staff turnover has increased, especially retirements, and hiring replacements can take time. Staffing levels at the end of the fiscal year were at 1,130.7 FTEs (full time equivalents). (See page 44.)

Retirements have been particularly high recently, resulting in both promotions and the need for some external hires to replace those leaving. More importantly, retirements represent the loss of critical knowledge and experience. Management has worked to identify appropriate succession

plans, develop written SOPs (standard operating procedures) and other knowledge transfer mechanisms, and, where possible, has attempted to fill the position prior to the incumbent leaving. There were 57 retirements in FY21 out of a total of 80 staff leaving MWRA. In July and August of the current fiscal year, there have already been 25 retirements. (These data are not shown in the Orange Notebook, which covers the end of last fiscal year.)

The loss of staff affected some areas of productivity and increased backlog, although all critical maintenance is occurring and availability of critical equipment remains good. Wastewater pipeline and structures maintenance and inspections were below target on five of the six metrics tracked on page 10 during this fiscal year due to staff availability issues and work assisting other departments with vacuum excavation and engineering support. The metropolitan maintenance backlog rose above the industry standard during the early period of COVID-19, but is returning to normal levels more slowly than expected due to staff vacancies. (See pages 10 and 11.) Deer Island has had particular difficulty filling HVAC and electrician positions. The extended vacancies, along with some staff absences due to COVID-19 quarantining, have resulted in similar difficulties in reducing backlog and meeting some maintenance metrics. However, the key indicator of equipment availability remained well above the industry benchmark of 97 percent at 99.8 percent. (See page 6.)

MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

Fourth Quarter FY2021

Q1	Q2	Q3	Q4

Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
September 15, 2021

Board of Directors Report on Key Indicators of MWRA Performance
Fourth Quarter FY21

Table of Contents

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.

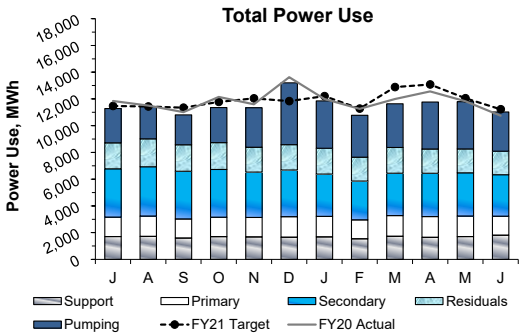
Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer

September 15, 2021

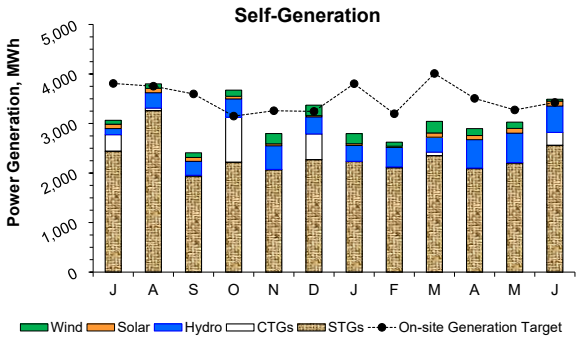
OPERATIONS AND MAINTENANCE

Deer Island Operations

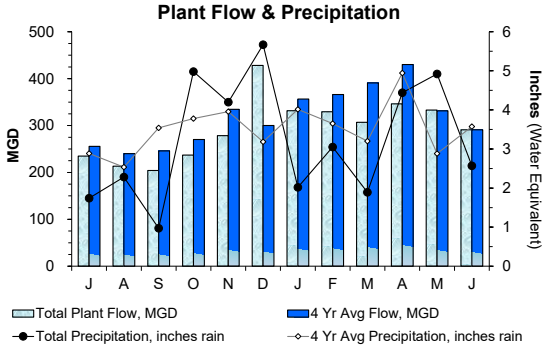
4th Quarter - FY21



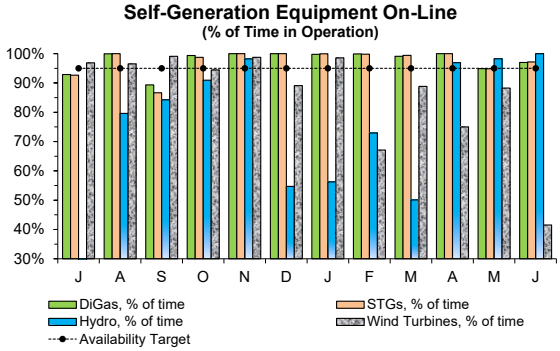
Total power usage in the 4th Quarter was 4.9% below target as plant flow for this period was 7.8% below target with historical data (4 year average) used to generate the electricity model. Power usage was below target for all plant processes, including power usage for raw wastewater pumping which was 8.1% below target due to the lower-than-expected flows. **Overall, total power usage in FY21 was 3.1% below target as total plant flow was 7.3% below the 4 year average plant flow target.**



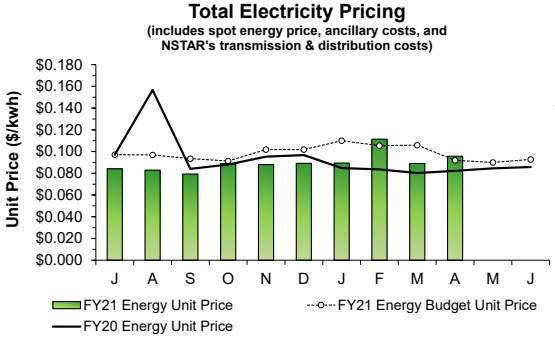
Power generated on-site during the 4th Quarter was 7.7% below target. CTG generation was below target by 57.4% as the units were only operated briefly for checkout purposes in April and May. In June, the CTGs were operated on six (6) days during peak system demand to avoid the capacity charge on DITPs electricity bills, and concurrently on two (2) days for Eversource Demand Response. STGs generation was 12.8% below target as the turbines were offline for several days due to an unanticipated power-related issue on May 22 and to a planned outage for the annual dump condenser cleaning on May 24. Additionally, digester gas production was 12.4% below target which also results in reduced generation. Hydro Turbine generation was 71.6% above target even though Turbine #2 has been offline pending repair of the runner blade assembly due to a budget estimate that was biased low. Wind Turbine generation was 27.6% below target due to mechanical and electrical issues with both turbines this quarter. Generation from the Solar Panels was 1.4% below target**. Overall, power generation was 12.0% below target for FY21.**



Total Plant Flow for the 4th Quarter was 7.8% below target with the budgeted 4 year average plant flow (323.4 MGD actual vs. 350.8 MGD expected) even though precipitation was 5.0% above target (11.93 inches actual vs. 11.40 inches expected). The region had been experiencing drought conditions throughout the spring and only recently began to see the return of significant rainfall and thus more typical plant flows. **Total Plant Flow in FY21 was 7.3% below target as precipitation was on 8.1% below target.**

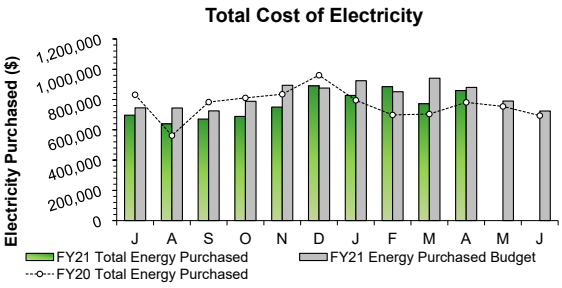


The availability of the DiGas system, STGs, and Hydro Turbine all met their 95% availability target during the 4th Quarter, while Wind Turbine availability fell below target. Wind Turbine availability was 68.3% due to electrical and mechanical issues with both turbines. Turbine #2 has been out of service since May 29 awaiting the arrival of OEM replacement parts from overseas.



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 Price in April (the most current invoice available) was 4.1% above target with budgetary estimates. The actual total energy unit price in May and June 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.

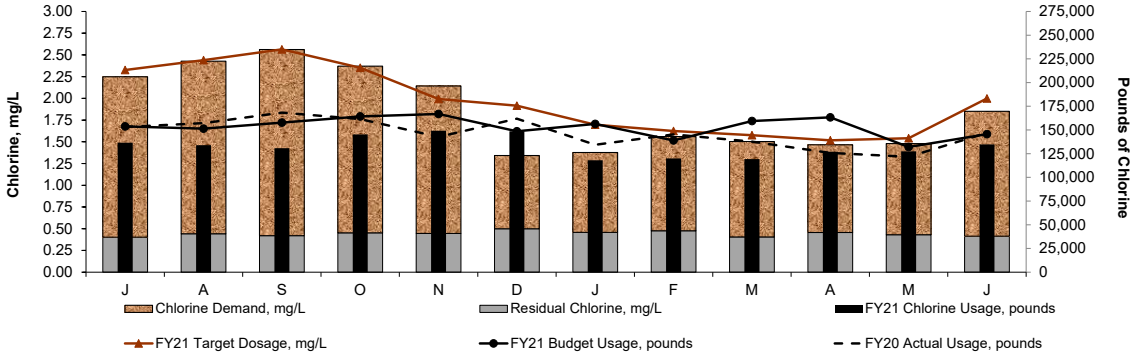
Note: Only the actual energy prices are reported. Therefore, the dataset lags by two (2) months due to the timing of invoice receipt and review.



The Electricity cost data for Electricity Purchased in May and June are not yet available. Year-to-date Total Cost of Electricity is $688,393 (8.2%) lower than budgeted through April as the Total Energy Unit Price was 9.9% lower than target while the Total Electricity Purchased was only 1.8% above target.

Note: Only months with complete Electricity Purchased data are reported. Therefore, the dataset lags by two (2) months due to the timing of invoice receipt and review.

Deer Island Sodium Hypochlorite Use



The disinfection dosing rate in the 4th Quarter was 5.0% below target with budgetary estimates. Actual sodium hypochlorite usage in pounds of chlorine was 11.7% lower than expected as the 4 year average plant flow used for estimating the hypochlorite usage target was 7.8% lower-than-expected. DITP maintained an average disinfection chlorine residual of 0.43 mg/L this quarter with an average dosing rate of 1.60 mg/L (as chlorine demand was 1.16 mg/L). **Overall in FY21, disinfection dosing was 5.0% below target and sodium hypochlorite usage in pounds of chlorine was 13.5% below target.**

The overall disinfection dosing rate (target and actual) is dependent on plant flow, target effluent total chlorine residual levels, effluent quality and

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	0	0	0	100.0%	0.00
A	1	1	0	99.97%	1.17
S	0	0	0	100.0%	0.00
O	2	1	1	99.9%	2.62
N	3	3	0	99.0%	13.63
D	3	3	0	97.4%	41.94
J	1	1	0	99.8%	4.62
F	0	0	0	100.0%	0.00
M	0	0	0	100.0%	0.00
A	2	2	0	99.6%	10.40
M	1	1	0	99.5%	8.40
J	1	1	0	99.84%	3.80
Total	14	13	1	99.49%	86.58

99.7% of all flows were treated at full secondary during the 4th Quarter. There were four (4) secondary blending events due to high plant flows from heavy rain. These blending events resulted in 22.60 hours of blending and 101.10 MGal of primary-only treated effluent with secondary effluent. The Maximum Secondary Capacity during the entire quarter was 700 MGD. Secondary permit limits were met at all times during the 4th Quarter of FY21.

Overall in FY21, 99.5% of all flows were treated at full secondary. There were a total of 14 separate secondary blending events; all but one (1) were due to high plant flows resulting from heavy rain (sometimes in combination with snowmelt). A brief 13 minute dry weather secondary blending event occurred on October 19 during the process of recovering from an unanticipated plant-wide power loss event. These secondary blending events combined produced a total of 86.58 hours of blending and 558.26 MGal of flow blended with secondary effluent.

Deer Island Operations & Maintenance Report

Environmental/Pumping:
The plant achieved an instantaneous peak flow rate of 953.3 MGD in the 4th Quarter during the early morning of May 29. This peak flow occurred during a storm event that brought 2.2 inches of precipitation to the metropolitan Boston area. Overall, Total Plant Flow in the 4th Quarter was 7.3% below target with the 4 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). These pumps were powered by 600 volts service which were changed to 4,160 volts service as part of this project to make them consistent with the other major pumps in both the South System Pump Station (SSPS) and the North Main Pump Station (NMPS). The contractor completed the upgrade of WTF Pump #1 in April and the 30 day performance test was successfully completed on May 9. As a result, the upgrade has now been completed on all six (6) pumps and this contract was declared substantially complete.

Secondary Treatment:
Annual turnaround maintenance on Train #2 at the Cryogenic Oxygen Facility began during the last week of April and continued through the first week of May. This turnaround maintenance is performed on roughly half of the components and systems in the Cryogenic Oxygen Facility and is a two (2) week process. Train #1 was in operation while Train #2 was offline during this maintenance. The same turnaround maintenance will be performed on Train #1 in the fall.

Disinfection:
The West Disinfection Basin (Basin #2) was taken offline for 1.8 days, during dry weather/low plant flow conditions, from April 13 to April 15 to allow staff to replace the faulty gearbox and mixer for one (1) of the two (2) chlorine flash mixers located at the head end of the disinfection basin. The target chlorine residual (prior to dechlorination) was increased during operation of the single disinfection basin (Basin #1) to compensate for the reduced chlorine contact time thus ensuring fecal coliform inactivation below effluent permit limits. Additionally, the sodium bisulfite feed was also increased to ensure sufficient dechlorination at these higher residual chlorine levels to meet effluent total chlorine residual permit limits. The DEP and EPA were provided with a courtesy notification in advance of this maintenance activity.

Deer Island Operations & Maintenance Report (continued)

Odor Control Treatment:
In May, carbon adsorber (CAD) units #2 in the East Odor Control (EOC) Facility, #4 in the West Odor Control (WOC) Facility, and #4 in the Residual Odor Control (ROC) Facility were emptied and refilled with new activated carbon media as part of routine maintenance to replace spent activated carbon.

Residuals Treatment:
The rehabilitation of Gravity Thickener #5 under the major Gravity Thickener Rehabilitation project was completed in May. As a result, the rehabilitation has now been completed on all six (6) gravity thickeners. These gravity thickeners are used to concentrate sludge that is generated from the primary treatment process, and scum that is generated from all treatment processes. The sludge and scum thickening equipment and five (5) of the six (6) Fiberglass-Reinforced Plastic (FRP) domed covers had reached the end of their useful lives and were in need of replacement. This rehabilitation project upgraded all six (6) gravity thickeners including the complete replacement of each tank's sludge and scum thickening equipment as well as replacement of five (5) of the six (6) FRP dome covers (the FRP domed cover for Gravity Thickener #2 has already been replaced). Additionally, critical components which were previously fabricated from carbon steel, including the center columns and center cages, are now fabricated from type 316 stainless steel in order to provide superior protection against hydrogen sulfide gas which is present in high concentrations in this highly corrosive environment.

Energy and Thermal Power Plant:
Overall, total power generated on-site accounted for 27.2% of Deer Island's total power use for the 4th Quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 26.4% of Deer Island's total electrical power use for the quarter.

The boilers in the Thermal Power Plant were taken offline starting in the late evening of May 23 to allow the contractor and DITP Maintenance staff to complete the annual dump condenser cleaning on May 24 prior to placing the steam system in summer operating mode. Boiler 201 was returned to operation later that evening, following the dump condenser work, to restore steam production and steam turbine power generation. The Thermal Power Plant began operating the steam system in summer mode starting on May 27 to maximize the energy generation from the steam turbines while minimizing additional fuel oil usage during the seasonally lower plant heat demand period.

CTG-2B was operated for 3.7 hours on June 8 for an ISO-New England declared Demand Response summer audit event and concurrently during peak system demand to avoid the capacity charge. The CTGs were operated a total of six (6) days in June during peak system demand.

Regulatory:
Emissions compliance testing on the Secondary Odor Control (SOC) treatment system on DITP was conducted by consultants from June 23 to June 24. The SOC treatment system treats combined process air from the secondary batteries and the reactors. The DITP Air Quality Operating Permit issued by the MA DEP requires that DITP conduct emissions compliance testing for the various 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 outlet of the odor control system over a 24-hour period for TRS and NMHC at the outlet (stack) of the odor control system. Even though it is not required by the operating permit, the inlet was also sampled for target Volatile Organic Compounds (VOCs). All the preliminary test results show that DITP was in compliance. The draft report summarizing the test results is currently being prepared by the consultants.

Public Access:
MWRA, state and local officials, and fishing advocates cut the ribbon on the new Deer Island Recreational Fishing Pier on June 24 for its official grand opening. Energy and Environmental Affairs (EEA) Secretary Kathleen Theoharides joined MWRA, state and local officials, fishing advocates, and youth anglers for the ribbon cutting ceremony. The fishing pier was constructed by the Department of Fish and Game's (DFG) Division of Marine Fisheries (DMF), in cooperation with DFG's Office of Fishing and Boating Access, the MWRA, and the City of Boston. The $2.4 million project was paid for mostly with funds from the sale of Massachusetts recreational saltwater fishing permit, with additional assistance from the MWRA. The unofficial opening of the fishing pier took place on November 25, 2020 when the public was able to begin using the pier.

Clinton Operations & Maintenance Report

Dewatering Building
Operation's staff washed down gravity thickener # 1. They also unplugged and pumped down GT scum well. Maintenance cleaned out grit, rags, and debris out of # 3 sludge thickened transfer pumps suction header.

Chemical Building
Maintenance completed the cleaning and rebuilding of # 1 soda ash pump. Staff also disassembled and cleaned # 2 soda ash pump. Operations staff cleaned calibration columns on both polymer pumps. Maintenance installed a new # 1 RAS pump. Staff Jetted clean soda ash feed line "A'. Maintenance repaired leak on hypochlorite pump chemical feed system piping. They also installed a new # 2 hypochlorite pump.

Aeration Basins
Operations staff cleaned pH and DO probes. Maintenance staff replaced drive motor on Aerzen 6B blower. They also completed oil changes on #4 and #6 Aerzen blowers. Maintenance staff with help from contractor replaced and calibrated three pH probes. Deer Island staff replaced control transformer on 6A aeration blower.

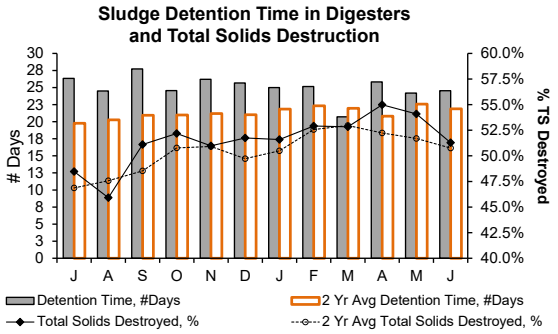
Phosphorus Building
Maintenance staff acid washed all three disk filters, cleaned troughs, and inspected all nozzles. Operation staff cleaned both CL17 chlorine analyzers.

Headworks
Maintenance staff continues to work on # 1 bucket elevator system. Contractor replaced leaking boiler condensate piping and installed new fill valve. Maintenance installed sparge air system arm and diffusers on #1 aerated grit tank piping. Staff cleaned mechanical bar rack and filled gear box with 220 meropa oil. Contractor completed welding # 2 classifier belly pan.

Digester Building
Maintenance staff checked all equipment for proper operation. Operations staff cleaned the foam on the floating cover. Contractor installed new ultrasonic sensor on floating cover. Maintenance staff greased Ovivo mixer on floating cover.

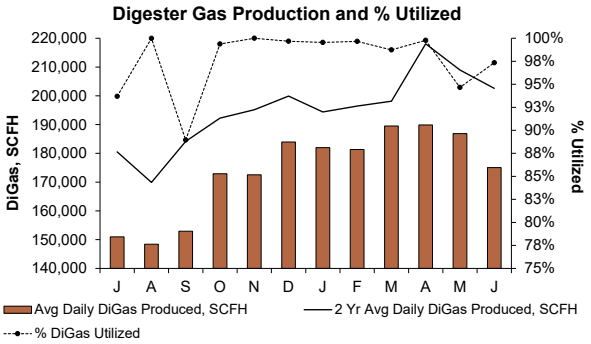
Deer Island Operations and Residuals

4th Quarter - FY21



Total solids (TS) destruction following anaerobic sludge digestion averaged 53.5% during the 4th Quarter, 3.7% above target with the 2 year average of 51.6%. Sludge detention time in the digesters was 24.9 days, 14.2% above target, as DI operated with an average of 8.0 digesters. **Overall in FY21, TS destruction averaged 51.5%, 2.2% higher than the 2 year average of 50.4%. Sludge detention time was 25.0 days, 17.5% higher than the 2 year average of 21.3 days.**

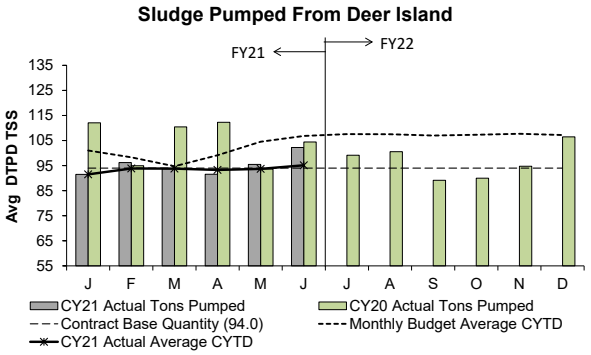
Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting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



The Avg Daily DiGas Production in the 4th Quarter was 12.4% below target with the 2 Year Avg Daily DiGas Production due to much lower-than-expected primary sludge production which breaks down more readily during anaerobic sludge digestion. On average, 97.3% of all the DiGas produced in the quarter was utilized at the Thermal Power Plant (TPP). **Overall in FY21, the Avg Daily DiGas Production was 10.9% below target, with an average of 97.6% utilization of DiGas at the TPP.**

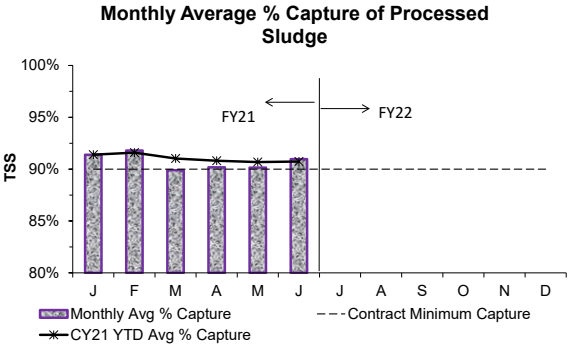
Residuals Pellet Plant

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 94.0 DTPD/TSS as an annual average (for the extended contract period of January 1, 2021 through December 31, 2022). The monthly invoice is based on 94.0 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 94.0 DTPD/TSS each year (FY21's budget is 107.9 DTPD/TSS and FY22's budget is 106.2 DTPD/TSS).

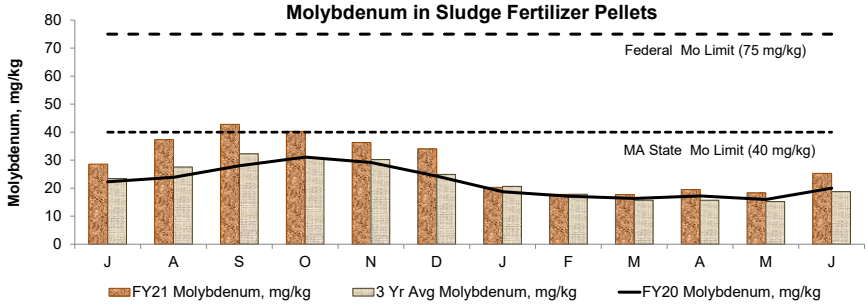


The average quantity of sludge pumped to the Biosolids Processing Facility (BPF) in the 4th Quarter was 96.4 TSS Dry Tons Per Day (DTPD) - 18.9% below target with the FY21 budget of 119.0 TSS DTPD for the same period.

The CY21 average quantity of sludge pumped through June is 95.1 DTPD - 11.0% below target compared with the CY21-to-date average budget of 106.8 DTPD during 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 4th Quarter was 90.43% and the CY21-to-date average capture was 90.73%.



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.

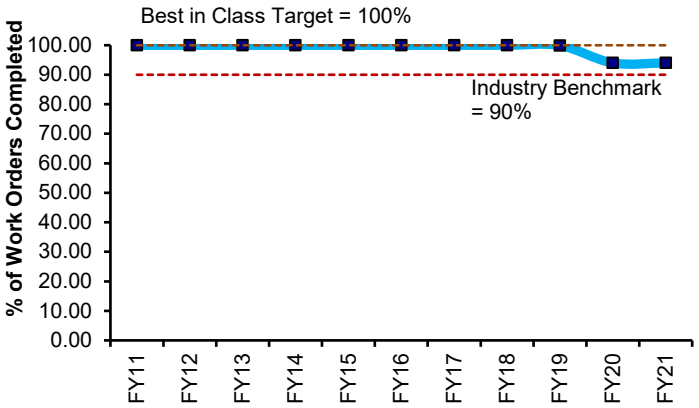
Overall, the levels have been below the DEP Type 1 limit for all three (3) metals. For Mo, the level in the MWRA sludge fertilizer pellets during the 4th Quarter averaged 16.6 mg/kg, 27.0% above the 3 year average, 47% below the MA State Limit, and 72% below the Federal Limit.

Deer Island Yearly Maintenance Metrics

4th Quarter - FY21

Proactive and Productivity Measures

Preventive Maintenance



The industry benchmark is 90% for Preventive Maintenance (PM) completion. Upon reaching the 90% goal in FY05, the target goal was increased to the "Best in Class" Target of 100% PM completion. Reliability-Centered Maintenance (RCM) and PM optimization efforts have continued since FY01. PM completion rate was 94% in FY21 We managed to meet the Industry Benchmark, but the slight decrease was caused by vacancies and COVID-19 staff absences due to quarantining.

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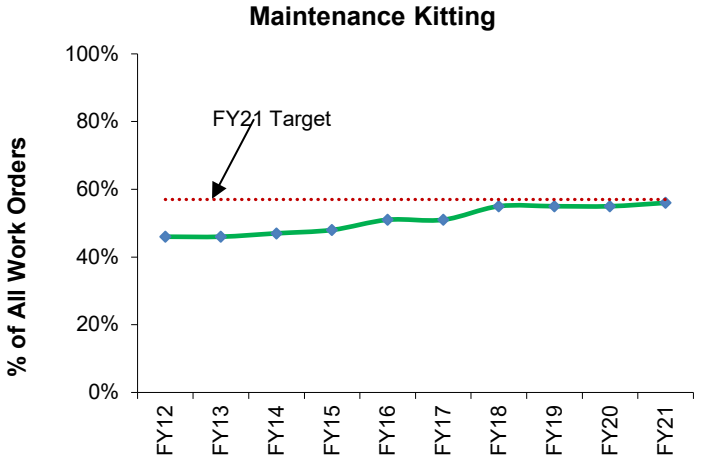
Maintenance Kitting



Preventive Maintenance (PM) inventory items were loaded into Maximo to assign spare parts for equipment to PM work orders. DITP reached the PM kitting goal of 100%. In FY12 a new graph (above) was developed to track kitting of all maintenance work orders in an effort to increase wrench time. Staff continues to fine-tune the process to "kit" all maintenance work orders. Kitting is considered a best practice by maintenance and reliability professionals. It entails staging parts necessary to complete maintenance work.

Kitting allows maintenance staff to spend more time "turning the wrench" and less time waiting for parts at the stockroom window. Kitting for FY21 was 56%, just below DITP's goal of 57%, kits were prepared, but some had to be put on hold because of vacancies and COVID-19 staff absences due to quarantining.

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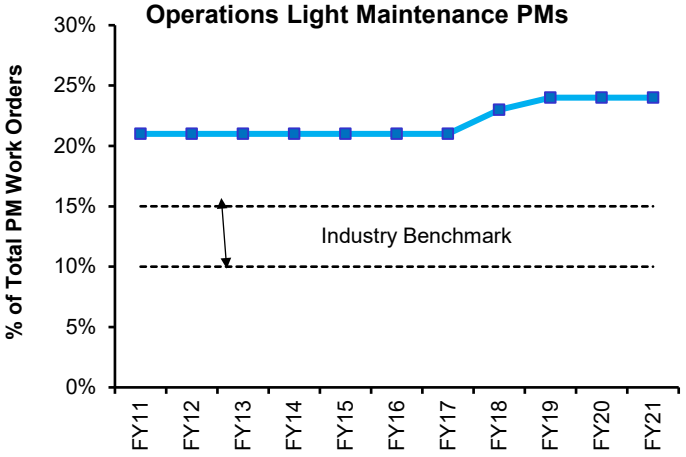
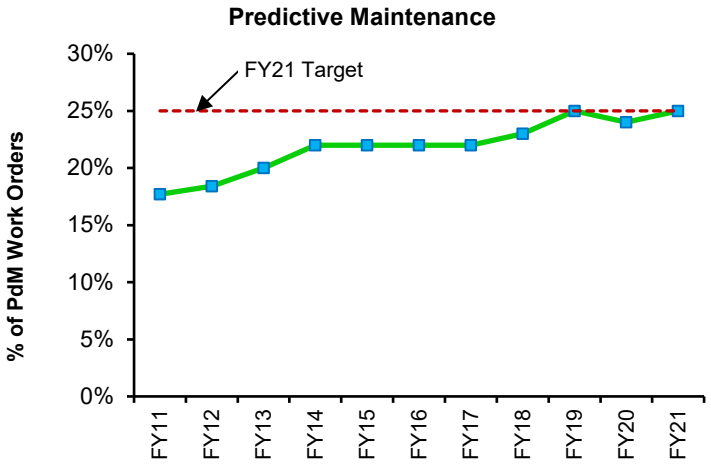
Operations Light Maintenance PMs



The percentage of preventive maintenance work order hours completed by Operations staff (non maintenance staff) increased from less than 1% in January 2002 to the current level of 24% in FY21. DITP reached the industry benchmark range of 15% in April 2003 and has exceeded the goal through FY21. Operations completes approximately 664 PM work orders per month. Operations work percentage stayed on track as operations was fully staffed through COVID-19.

Predictive Maintenance

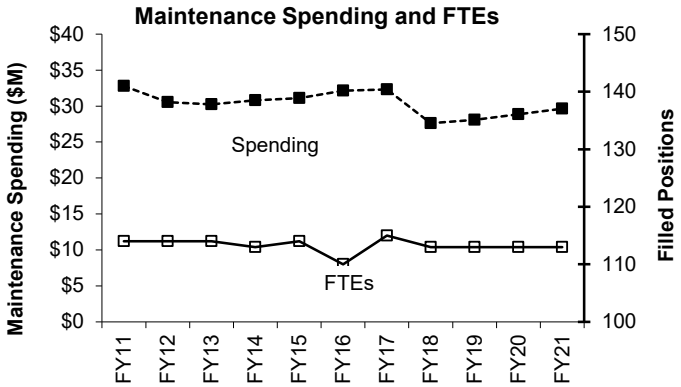


Predictive maintenance has steadily increased from 2% in FY03 to 25% in FY21, DITP's met the FY21 goal of 25%. This percentage in predictive maintenance was achieved through the expanded use of lubrication, vibration, thermography, and acoustic ultrasonic testing techniques. The Condition Monitoring Group continually reviews and investigates new opportunities and initiatives to expand condition monitoring testing and analysis. The slight increase of Predictive Maintenane work orders, is due to less total work orders being generated beauses vacancies and COVID-19 staff absences for quarantining.

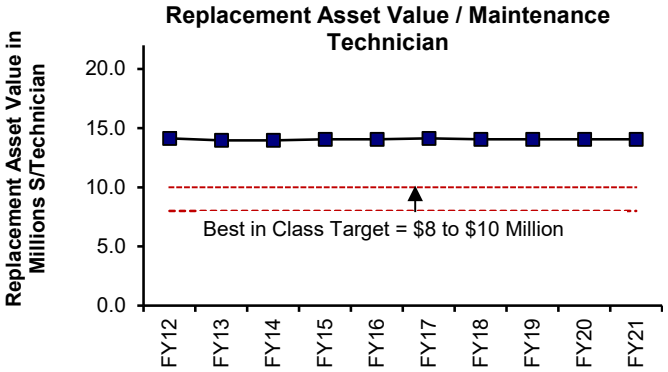
Deer Island Yearly Maintenance Metrics

4th Quarter - FY21

Overall Maintenance Program Measures

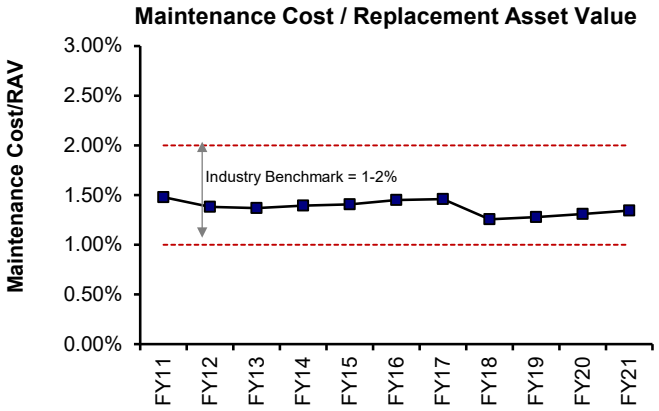


DITP's Maintenance staff is currently at 113 FTE's. Maintenance staff levels ended at 113, but for the majority of the year we had limited staff due to COVID-19, retirement and hiring challenges. Maintenance has worked to meet our goals though implementation of numerous maintenance efficiencies including: Operations preforming light maintenance, cross-functional training and flexibility, and Reliable-Centered Maintenance. This year's Maintenance spending increased for materials and services, but not all parts were installed.

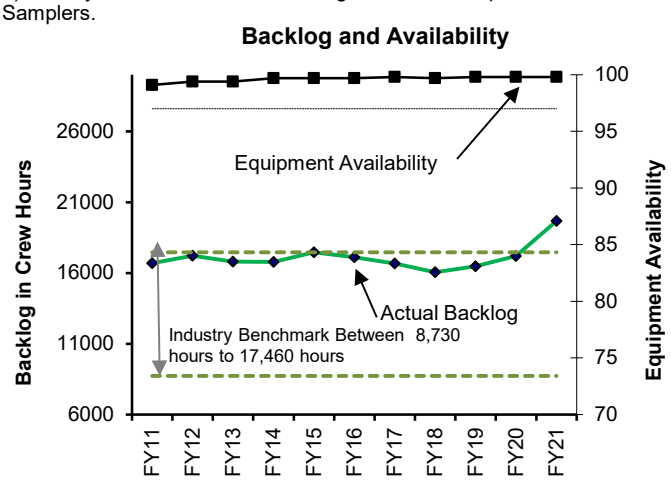


DITP adopted a "best in class" target of $8-$10 Million/Technician for maintenance staffing. DITP remains above this Best in Class. However, as the plant ages and additional equipment replacements are expected, DITP management will reassess staffing as needed.

The Maintenance Spending graph shows actual annual maintenance spending and significant CIP asset replacements (equipment costs only). Maintenance budgeting continues to evaluate plant assets and requirements for replacement of obsolete equipment to ensure the plant operates at maximum efficiency. In FY21, overall spending increased slightly from FY20 due to some large Maintenance Projects; Winthrop Motors and VFD Replacements, Gravity Thickener Rehabilitation, Gravity Thickener Overflow Piping Replacement, Gas Protection System Replacements, Coating Contract (Digesters, Overflow Boxes, Primary Scum Wells and Carbon Absorbers), two Hydro Plant Electrical Building Air Handler Replacements, Installation of two W3 Strainers, and the installation of New Explosion Proof Grit Samplers.



The industry benchmark for annual maintenance spending is between 1% to 2% of replacement asset value, currently DITP is at 1.32%. The plant's replacement asset value is calculated at approximately $2.6 billion dollars. DITP's current maintenance spending is within the industry benchmark. Maintenance spending has increased since last year. DITP Maintenance CEB spending is $23.7 million coupled with CIP spending of $5.9 million (equipment costs only), totaling $29.6 million.



Industry benchmark for Equipment Availability is 97%. Deer Island has exceeded this benchmark over for the last ten years. In FY21 the availability was 99.8%. The high percentage in Equipment Availability during FY21 is due to redundancy of equipment and effective/efficient maintenance practices.

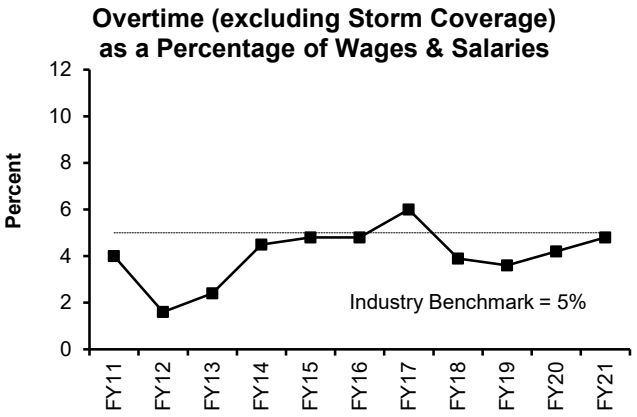
Industry Benchmark for Backlog is between 8,730 to 17,460 hours for maintenance based on current staffing, the total average backlog for FY21 was 19,672 hours, which exceeds industry benchmark, due to vacancies and COVID-19 staff absences due to quarantining.

Non-Critical work orders were deferred for critical work orders, to ensure Deer Island Plant would operate at maximum capacity.

Deer Island Yearly Maintenance Metrics

4th Quarter - FY21

Overall Maintenance Program Measures (cont.)



Management continues its effort to keep overtime below the industry benchmark. DITP maintenance overtime was 4.8% for FY21. Management has taken steps to reduce overtime spending by limiting overtime to repair critical equipment and systems only. DITP has been under the Industry Benchmark every year except FY17, due to the increase in overtime for the Eversource Cable Outage.

The slight increase in overtime from last year was because of vacancies and staff absences due to quarantining.

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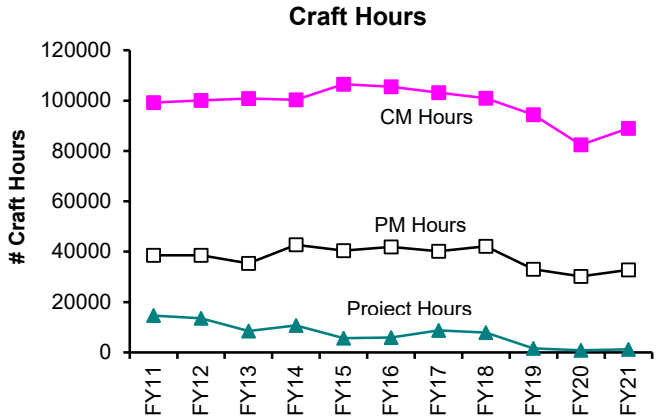
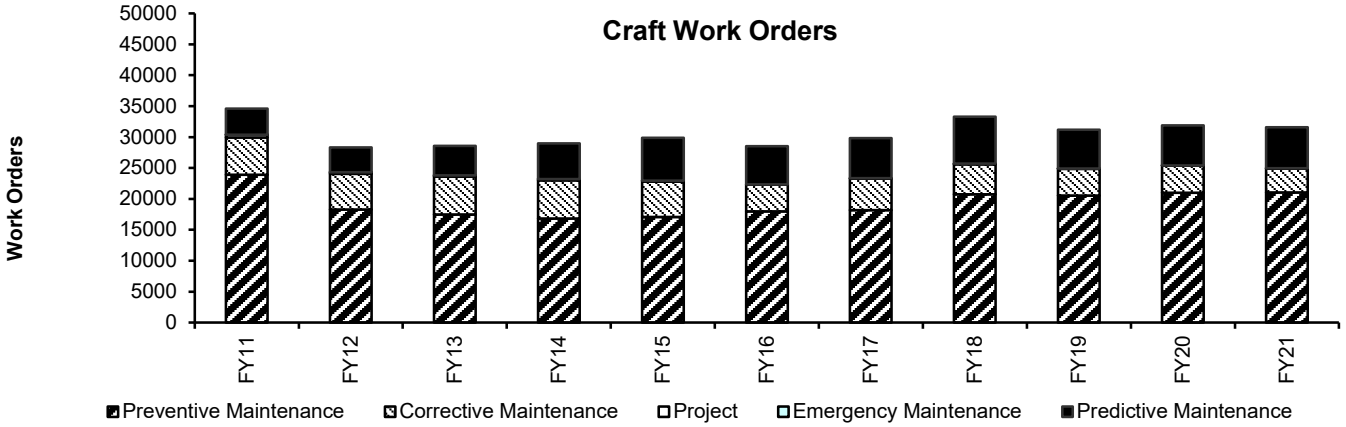


Continued optimization of the Preventive Maintenance (PM) program through the transfer of some light maintenance tasks from Maintenance to Operations staff (24% of PM work orders in FY21), elimination of duplicate work orders, combining some PM's, increasing PM frequency due to equipment history. This process was delayed because of vacancies and staff absences due to quarantining.

This years significant increase in Corrective Maintenance (CM) hours was due to staff focused on (CM) work orders to ensure all critical equipment was on-line. Project work was put on hold.

Maintenance did complete some significant maintenance work in FY21: Overhauled Centrifuges #11 and #12, Primary AHU Coil Replacement BD:SA.AHU-2, Resuduals Air Coil Replacement, Grit Screw Replacement AD:GR.CLSF-16, Fabrication of Grit Screws, Relacement Heating Actuator Valve for FA:SA.AHU-5, and Replacement of Secondary Air Condensing Unit Electrical Building #9.



During FY21, the overall number of work orders decreased by 56 from the previous year. The decrease in work orders was because of vacancies and staff absences due to quarantining.

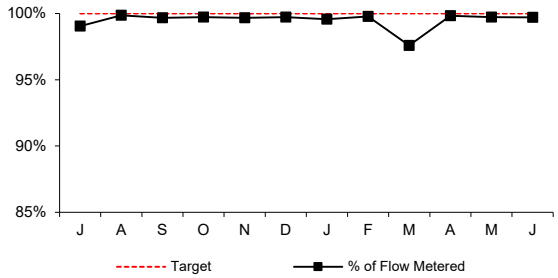
The Planning department is continuously modifying PM, PdM, and CM Job Plans to ensure maintenance is being performed efficiently and effectively, while ensuring reliability and availability of DITP's Assets.

Operations Division Metering & Reliability

4th Quarter 2021 - FY21

WATER METERS

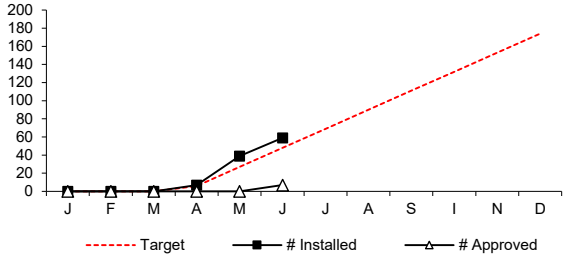
Percent of Total Revenue Water Deliveries Calculated Using Meters



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 Q4 FY21, 0.25% of the billed water flow was estimated. 99.75% was based on meter actuals. A total of 2.85% of the total flow was measured using annubar meters, mostly due to bypass valves that were opened in Lexington to increase the available flow to Burlington.

WASTEWATER METERS

Wastewater Meter Replacement Project Status

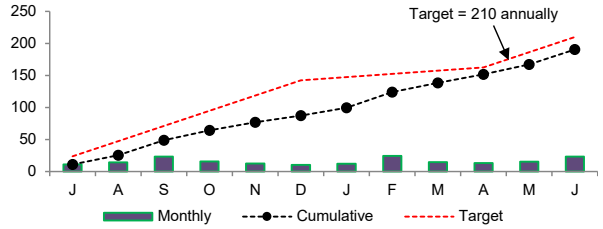


The Wastewater Meter Replacement Project was approved at the October 2020 Executive Board meeting. The first installations were performed in the final week of April. During the Q4 of FY21 the contractor installed a total of 59 meters and confirmed 7 meters out of a total of 174. The table above tracks the # of installed meters over the course of the project. The contract requires completion of installations in CY2021.

While the meters are being replaced, communities will be assessed based on a monthly average volume from the previous 3 calendar years.

WATER DISTRIBUTION SYSTEM PIPELINES

Miles Surveyed for Leaks



During the 4th Quarter of FY21, 51.94 miles of water mains were inspected. The total inspected for the fiscal year to date is 190.48.

Leak Backlog Summary

Month	J	A	S	O	N	D	J	F	M	A	M	J	Totals
Leaks Detected	2	2	5	3	1	1	5	0	0	2	1	0	22
Leaks Repaired	2	1	3	2	2	4	3	1	2	2	3	0	25
Backlog	6	7	9	10	9	6	8	7	5	5	3	3	n/a

During the 4th Quarter three leaks were detected, and five were repaired. Refer to FY21 Leak Report below for details. Also, community service ranging from individual leak location to hydrant surveys were conducted for Arlington, Malden, Medford, Newton, Revere & Somerville.

4th Quarter 2021 - Leak Report

Date Detected	Location of Leaks	Repaired
07/05/20	Riverside Ave. @ Commercial St. Medford	07/08/20
07/28/20	Harvard Pilgrim Health, Wellesley	07/30/20
08/03/20	#93 Worcester Street, Wellesley	08/05/20
09/03/20	Felton St. @ Water St., Waltham	09/22/20
09/12/20	#56 Forbes Hill Rd., Quincy. Sec-22	09/12/20
09/24/20	Frontage Rd. @ Venner Rd., Arlington	09/25/20
09/24/20	#93 Worcester St., Wellesley. Sec-80	10/07/20
10/16/20	Morton St. @ Blue Hill Ave. Boston	10/23/20
10/20/20	Lee St. @ Boylston St. Brookline	11/12/20
10/30/20	#263 Brdwy. RT-1 Southbound-Saugus	11/05/20
07/20/17	Mystic Valley Parkway, Medford	12/04/20
09/02/20	Mt Vernon Ave @ E. Albion St., Somerville	12/04/20
11/06/20	#109 Broadway @ Spring St., Saugus	12/10/20
12/01/20	Second St. @ Carter St., Chelsea	12/09/21
06/17/15	Washington St. at East Dedham - Sect 78	01/14/21
01/08/21	#2 Lynnfells Pkwy/Fellsview, Stoneham	01/25/21
01/21/21	#1305 Columbus Pk Sewer Station, So. Boston	01/21/21
01/08/21	#2 Lynnfells Pkwy/Pond St., Stoneham	02/22/21
01/14/21	West St. @ Pierce St. Hyde Park	03/02/21
01/14/21	Vose Ave. @ Pleasant St. Hyde Park	03/02/21
06/08/15	Allandale Rd. @ Grove St., Brookline	04/15/21
04/07/21	Washington St @ Broad St., Lynn Sec-87	04/09/21
04/27/21	Fellsway E. Ext @ Brook St., Stoneham	05/04/21
12/04/16	1025 W. Roxbury Pkwy, Brookline. Sect 95	05/13/21
05/13/21	Broad St. @ Market St., Lynn	05/20/21

Date Detected	Location of Leaks/Unrepaired
07/01/16	241 Forest St. Winchester, Sect 89, leakig blow off valve. No surfacing. Need redundant NIH pipeline to enable isolation.
12/04/16	710 Ashland St/Summer St. Lynn, Sect 91. Not surfacing Leaking emergency connection valve btw MWRA & LWSC systems. LWSC has difficulty isolating 16" main.
08/27/20	Hyde Park Ave. @ River St., Hyde Park. BWSC is in process of isolating their water main first.

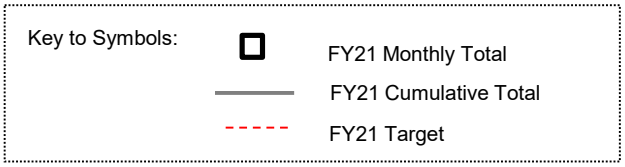
Water Distribution System Valves

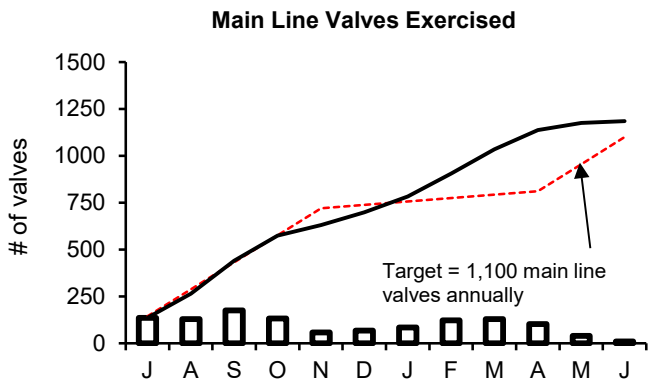
4th Quarter FY21

Background

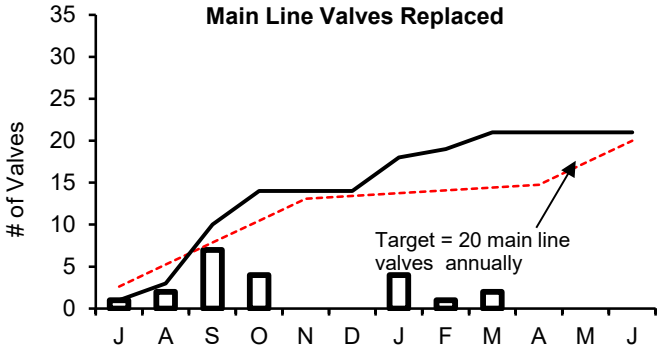
Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in roadway locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but 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	
		FY21 to Date	FY21 Targets
Main Line Valves	2,159	96.9%	95%
Blow-Off Valves	1,317	98.5%	95%
Air Release Valves	1,380	95.5%	95%
Control Valves	49	100.0%	95%

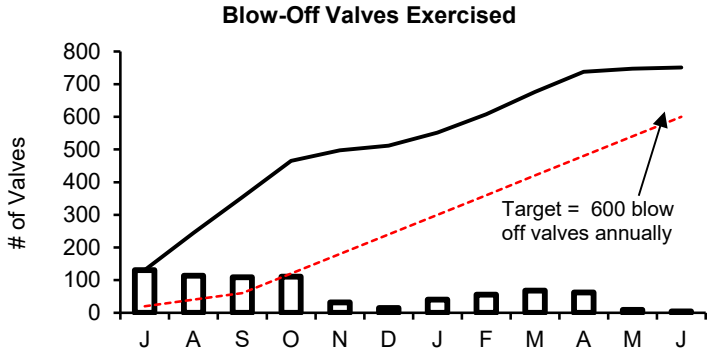




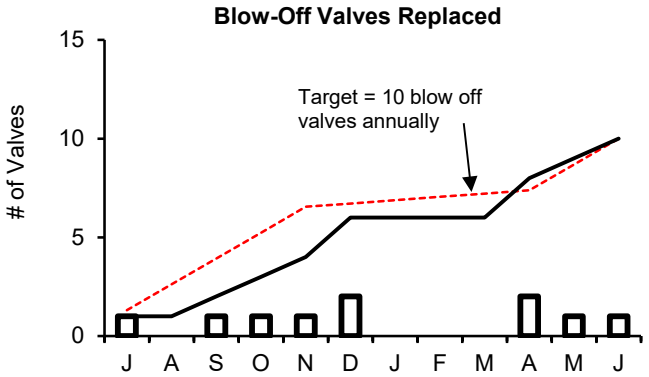
During the 4th Quarter FY21, 151 main line valves were exercised. The total exercised for the fiscal year to date is 1,185.



During the 4th Quarter FY21, there were no main line valves replaced. The total replaced for the fiscal year to date is 21.



During the 4th Quarter FY21, 75 blow off valves were exercised. The total exercised for the fiscal year to date is 751.



During the 4th Quarter FY21, there were 4 blow off valves replaced. The total replaced for the fiscal year to date is 10.

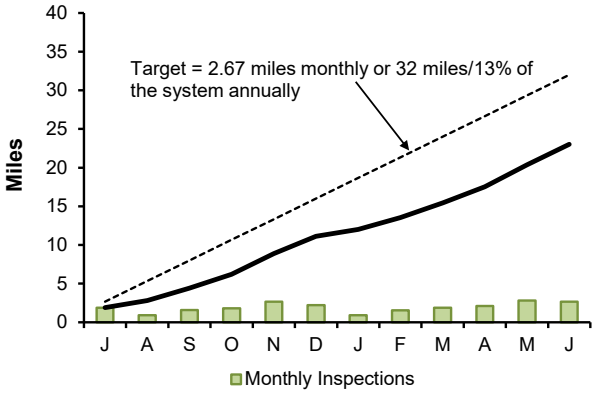
Wastewater Pipeline and Structure Inspections and Maintenance

4th Quarter 2021 - FY21

Wastewater Pipeline and Structure Inspection and Maintenance performances measures have seen improved progress toward FY21 targets, but have fallen short of expected targets. This was primarily due to key staff vacancies and some Covid -19 exposures.

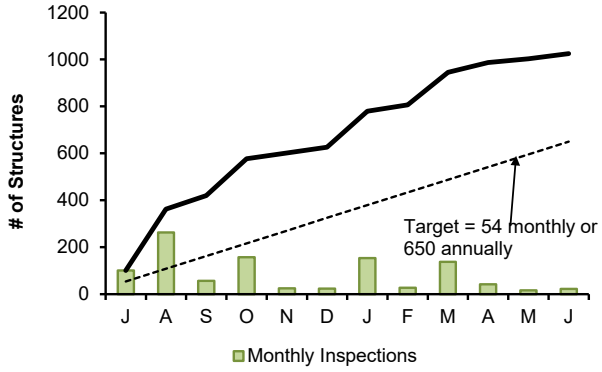
Inspections

Pipeline Inspections



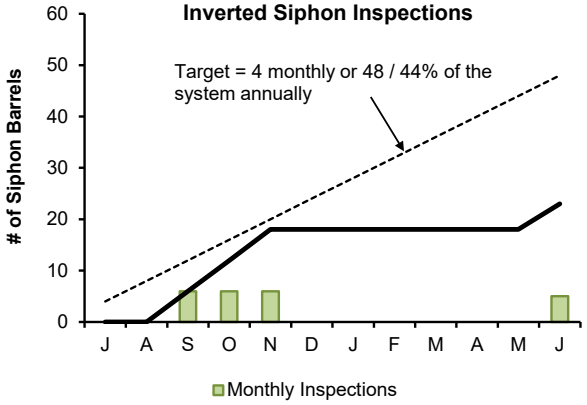
Staff internally inspected 7.58 miles of MWRA sewer pipe during this quarter.The year to date total is 23.02 miles. No Community Assistance was provided. Shortcomings for the quarter were a direct result of staffing availability, and equipment issues.

Structure Inspections



Staff inspected the 36 CSO structures and performed 90 other additional manhole/structure inspections during this quarter. The year to date total is 1025 inspections.

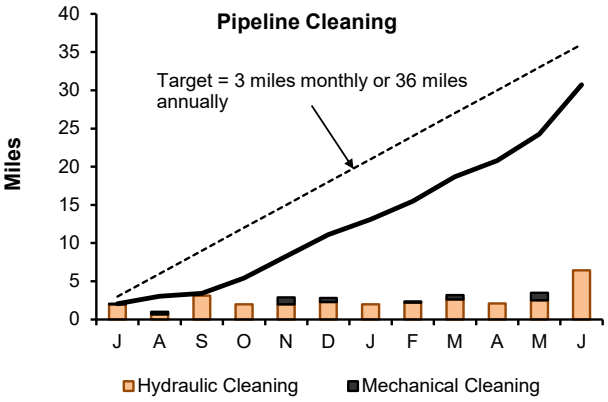
Inverted Siphon Inspections



Staff inspected 5 siphon barrel this quarter. The year total is 23 inspections. Shortcomings for the quarter were a direct result of staffing availability, and equipment issues.

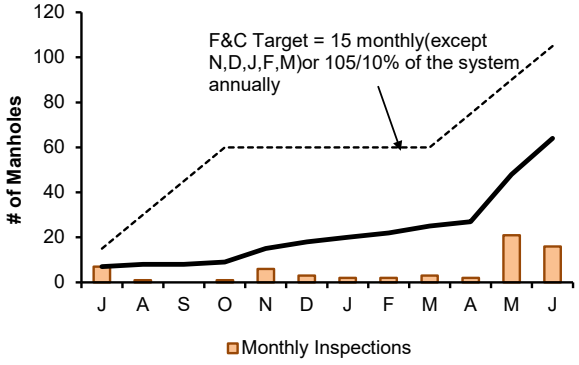
Maintenance

Pipeline Cleaning



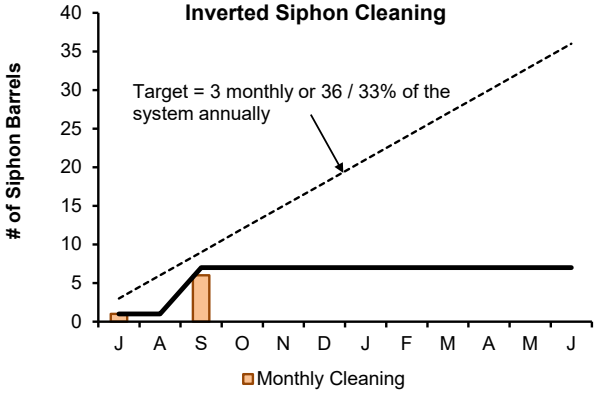
Staff cleaned 11.04 miles of MWRA sewer pipe, and removed 49 yards of grit. The year to date total is 30.72 miles. No Community Assistance was provided. Shortcomings for the quarter were a direct result of staffing availability.

Manhole Rehabilitation



Staff replaced 39 frame and cover replacement this quarter.The year to date total is 64. Shortcomings for the quarter were a direct results of staffing availabilty.

Inverted Siphon Cleaning

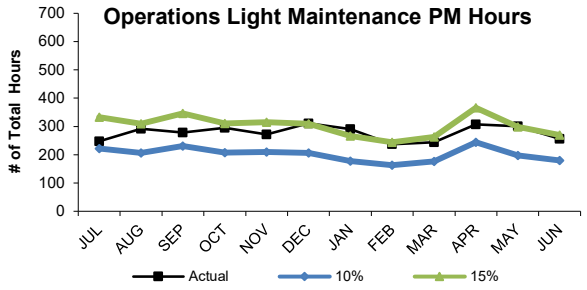


Staff did not clean any siphon barrel this quarter. Shortcomings for the quarter were a direct results of staffing availability.

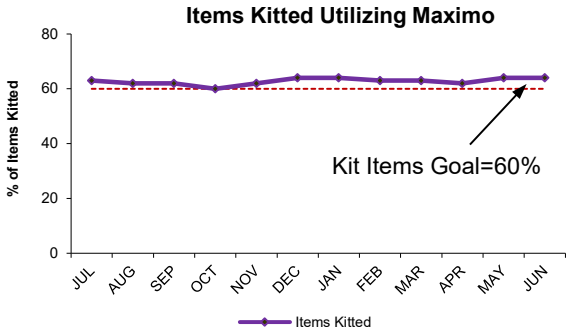
Field Operations' Metropolitan Equipment & Facility Maintenance

4th Quarter - FY21

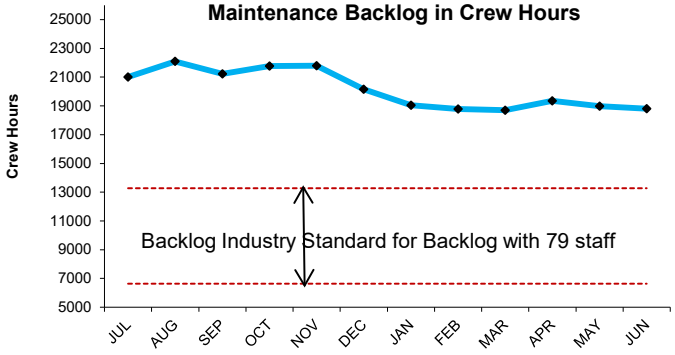
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion was raised to 100% for Fiscal Year 2010. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus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



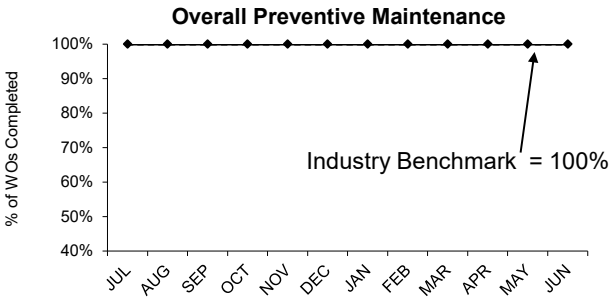
Operations staff averaged 288 hours per month of preventive maintenance during the 4th Quarter of FY21, an average of 14% of the total PM hours for the 4th Quarter, which is within the industry benchmark of 10% to 15%.



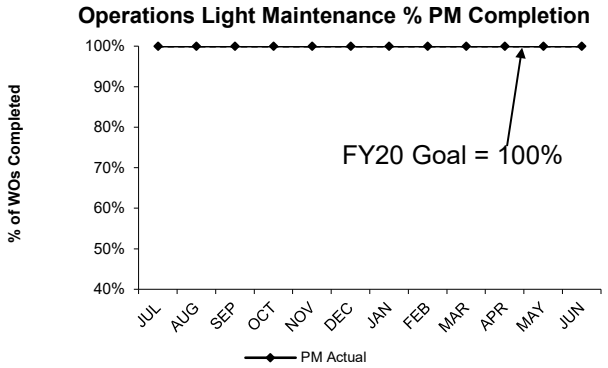
Operations' FY21 maintenance kitting goal has been set at 60% of all work orders to be kitted. Kitting is the staging of parts or material neccesary to complete maintenance work. In the 4th Quarter of FY21, 63% of all applicable work orders were kitted. This resulted in more wrench time and increased productivity.



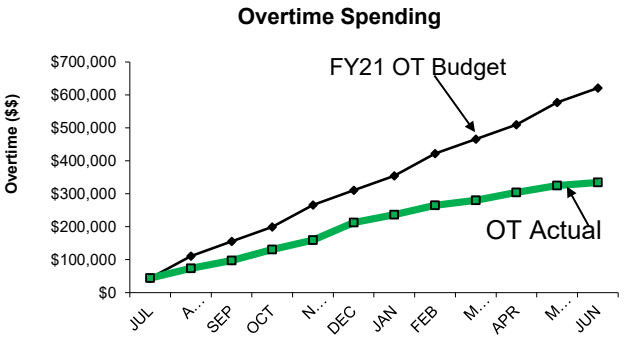
The 4th Quarter of FY21 backlog average is 19,050 hours. Management's goal is to continue to control overtime and try to get back within the industry benchmark of 6,636 to 13,275 hours. The increase is due to the previous reduction in staffing levels due to COVID19.



The Field Operations Department (FOD) preventive maintenance goal for FY21 is 100% of all PM work orders. Staff completed 100% of all PM work orders in the 4th Quarter of FY21.



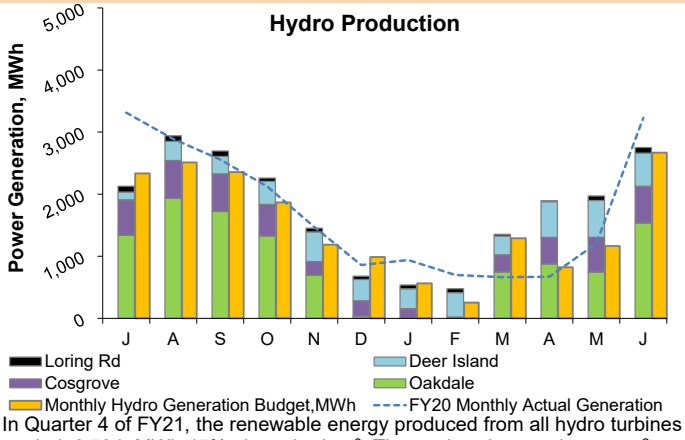
Wastewater Operations complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY21 PM goal is completion of 100% of all PM work orders assigned. Operations completed 100% of PM work orders in the 4th Quarter of FY21.



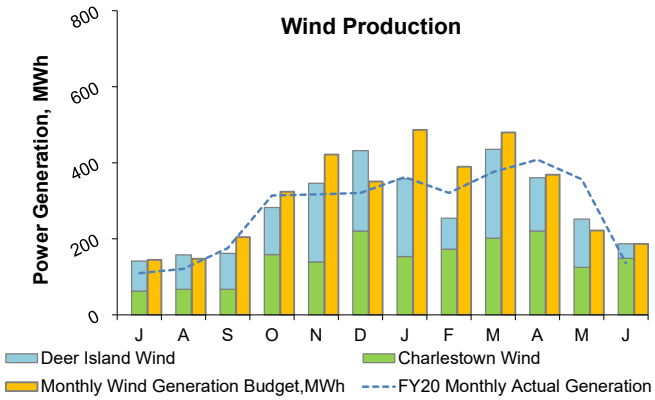
Maintenance overtime was $33,630 under budget on average, per month, for the 4th Quarter of FY21. Overtime was used for critical maintenance repairs and wet weather events. The overtime budget for FY21 was $621,114 and we were $287,756 under budget for the fiscal year.

Renewable Electricity Generation: Savings and Revenue

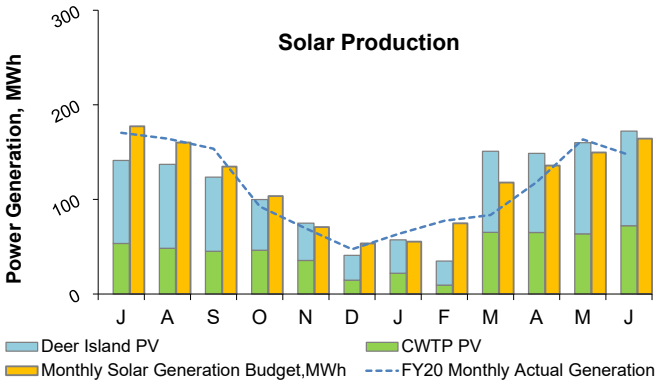
4th Quarter - FY21



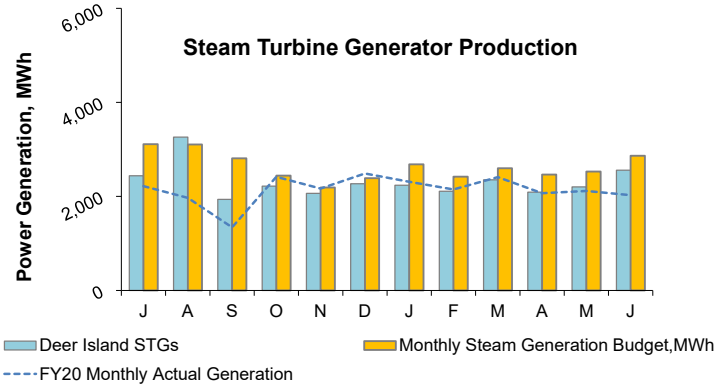
In Quarter 4 of FY21, the renewable energy produced from all hydro turbines totaled 6,734 MWh;45% above budget[3]. The total savings and revenue[2] to date in FY21 (actuals through April[1]) is $650,407 ; 2% below budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).



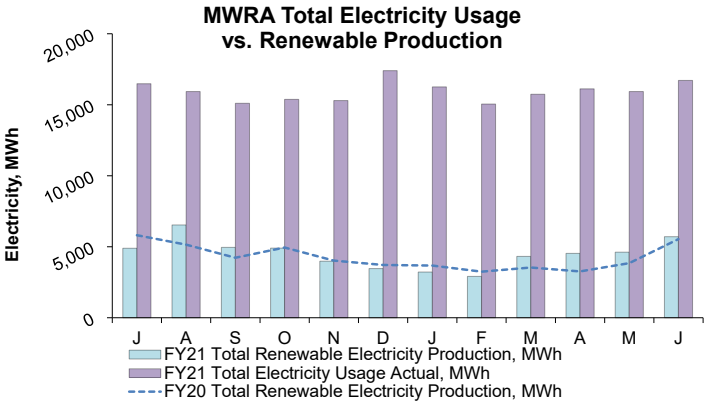
In Quarter 4 of FY21, the renewable energy produced from all wind turbines totaled 800 MWh; 3% above budget[3]. The total savings and revenue[2] to date in FY21 (actuals through April) is $426,882, 13% below budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).

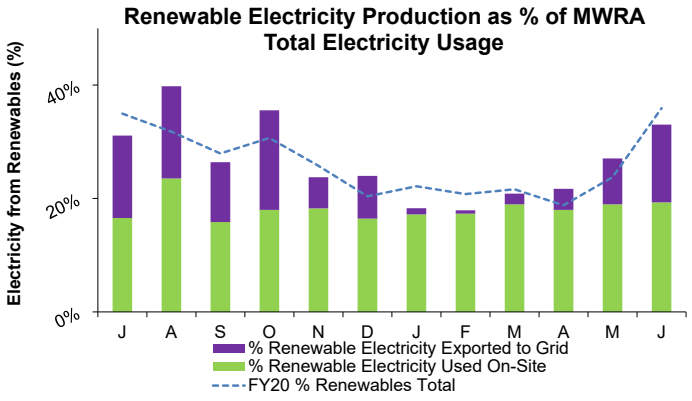


In Quarter 4 of FY21, the renewable energy produced from all solar PV systems totaled 481 MWh; 7% above budget[3]. The total savings and revenue[2] to date in FY21 (actuals through April[1]) is $126,821 10% below budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).



In Quarter 4 of FY21, the renewable energy produced from all steam turbine generators totaled 6,852 MWh; 13% below budget[3]. The total savings and revenue[2] to date in FY21 (actuals through April[1]) is $2,055,103, 21% below budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).



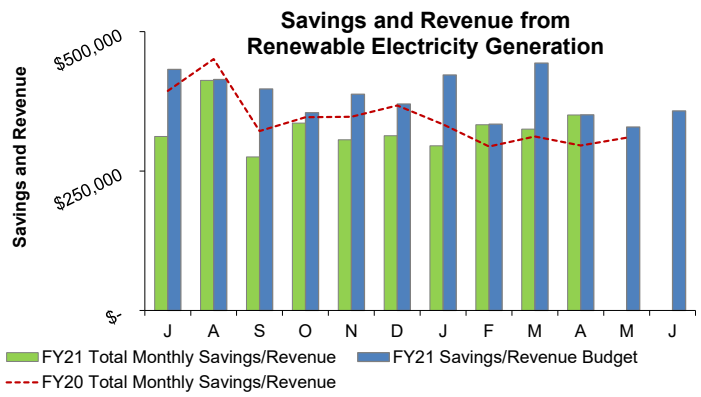


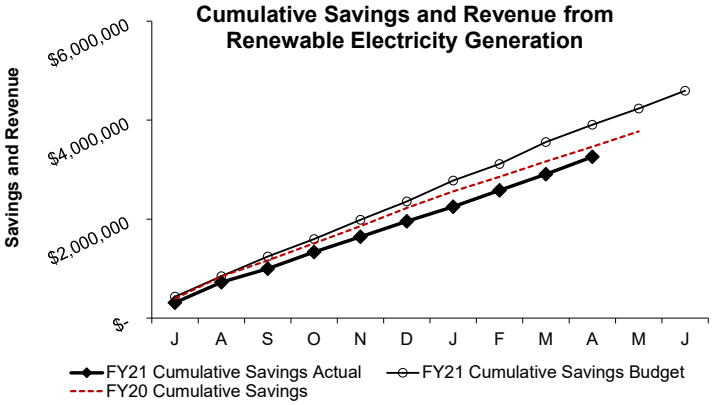
In Quarter 4 of FY 21, MWRA's electricity generation by renewable resources totaled 14,866 MWh, 8% above budget. MWRA's total electricity usage was approximately 48,773 MWh. The MWRA total electricity usage is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and 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.
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

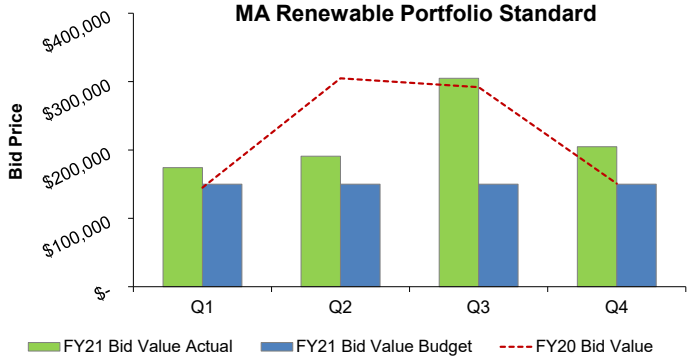
4th Quarter - FY21

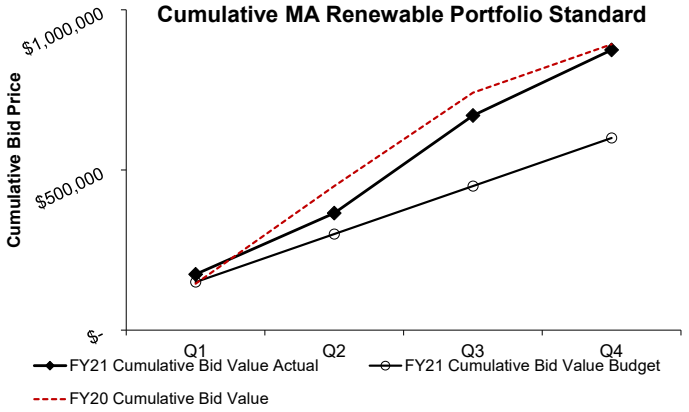




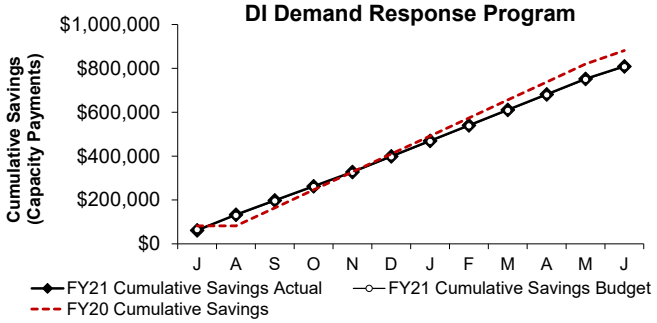
Savings and revenue from MWRA renewable electricity generation in the first 10 months of FY21 (actuals only through April) is $3,258,213 which is 17% below the budget[3].

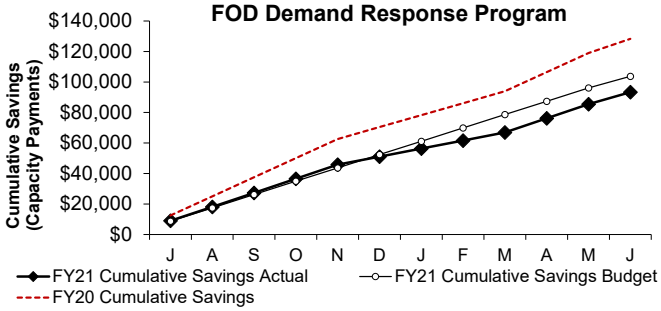
Savings and revenue[2] from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS RECs).
The use of DITP digester gas as a fuel source 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 4th Quarter[1] from MWRA's renewable energy assets; 3,512 Q4 CY2020 Class I Renewable Energy Certificates (RECs) , 1,850 Class II RECs, and 39 Q4 CY2020 Solar RECs were sold for a total value of $204,771 RPS revenue; which is 37% above budget[3] 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.



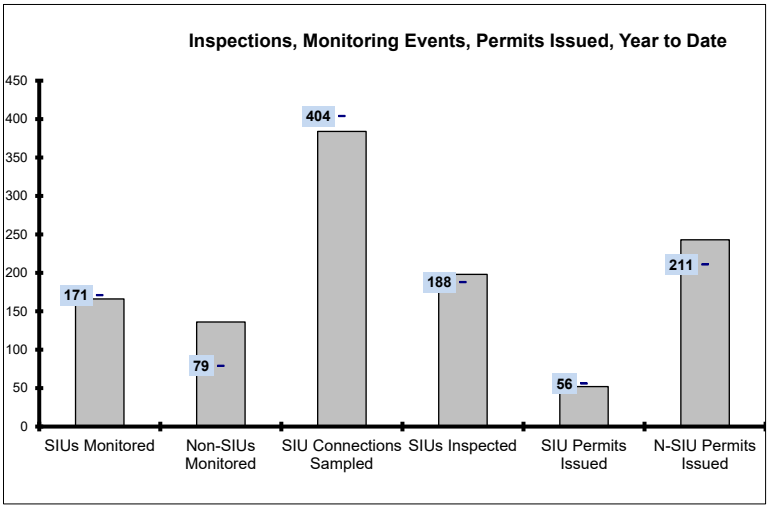


Currently Deer Island, JCWTP, Loring Rd, and Brutsch participate in the ISO-New England Demand Response Programs[4]. By agreeing to reduce demand and operate the facility generators to help reduce the ISO New England grid demand during periods of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates the generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. FY21 Cumulative savings (Capacity Payments only) through June[1] total $809,267 for DI and $93,324 for FOD through June[1].

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

4th Quarter - FY21



EPA Required SIU Monitoring Events
for FY20: 171
YTD : **166**

Required Non-SIU Monitoring Events
for FY20: 79
YTD : **136**

SIU Connections to be Sampled
For FY20: 404
YTD: **384**

EPA Required SIU Inspections
for FY20: 188
YTD: **198**

SIU Permits due to Expire
In FY20: 56
YTD: **52**

Non-SIU Permits due to Expire
for FY20: 211
YTD: **243**

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.

Throughout FY21, TRAC continued to see impacts to our permitted universe due to the COVID pandemic. Impacts included industry closures and changes to business practices that directly impact the industrial discharge.

Number of Days to Issue a Permit

	0 to 120		121 to 180		181 or more		Permits Issued	
	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU
Jul	1	4	0	4	0	3	1	11
Aug	2	15	0	1	0	1	2	17
Sep	1	20	0	3	0	1	1	24
Oct	2	15	0	1	0	2	2	18
Nov	2	17	0	1	0	1	2	19
Dec	3	9	0	0	0	1	3	10
Jan	5	12	1	2	0	1	6	15
Feb	0	11	1	1	0	0	1	12
Mar	5	15	0	2	0	3	5	20
Apr	0	6	0	3	0	0	0	9
May	4	18	0	2	0	2	4	22
Jun	24	54	1	4	0	8	25	66
% YTD	94%	81%	6%	10%	0%	9%	52	243

EPA requires MWRA to issue or renew 90 percent 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 percent of SIU permits to be issued within 180 days. This month brings to an end the MWRA fiscal year, FY21.

In the fourth quarter, 126 permits were issued, 29 of which were SIUs. Twenty-eight of the SIU permits were issued within the 120-day timeframe. There were 97 non-SIU permits issued. Of the 97 Non-SIU permits issued in the quarter, 19 were issued late.

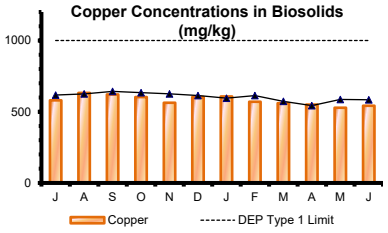
The reasons for late issuances include: waiting for critical data needed for permit processing; project delays and/or COVID related delays mainly in hotel operations, new start-ups, septage hauling and construction dewatering. Some of these translated to late payment of the relevant permit charges and hence, permits issued late.

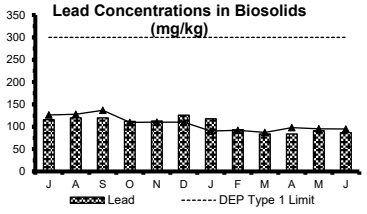
For the Clinton Sewer Service area, three SIU permits were issued in the fourth quarter of the fiscal year.

During FY21, nine SIUs changed status from SIU to Non-SIU or went out of business. As a result, the universe of SIU permits available for issuance during FY21 was smaller than initially projected (less that 50 SIU permits were available for renewal).

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; changes in operations necessitating a change in SIU designation; 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; and also, increased/decreased inspections leading to permit category changes requiring additional monitoring events.

TRAC did not complete the monitoring goal because three industries did not discharge during the year and three industries went out of business before TRAC could sample their discharge. The remainder of TRAC's goals were completed.





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.

Overall, 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

4th Quarter – FY21

These two pages provide a partial snapshot of activities in the water and wastewater field operations.

Western Water Operations and Maintenance

- Wachusett Aqueduct Pump Station Testing: Staff activated the Wachusett Aqueduct to send water to WAPS for testing over four days in May Six of seven pumps were tested successfully sending water out the surge relief tower and into the forebay. Electrical repairs have been made to the seventh pump and now all 7 pumps are available for service if needed, providing redundancy to the Cosgrove tunnel.

- Brutsch Water Treatment Facility: SCADA was completed in June. Operations, maintenance, and valve crew support were needed to complete the upgrade, which was performed due to pending obsolescence. It allowed for implementing updated control system standards, ensuring future reliability, improving cyber security measures, and enhanced maintenance features.

- Norumbega Covered Storage Tank Cell 2: Staff successfully isolated cell 2 at Norumbega in May and performed a test of the dewatering system, to finalize the project requirements to completely dewater the cell and clean the tank floor. Cell 2 tank cleaning is expected to take place in 2022.

Metro Water Operations and Maintenance

- Water Pipeline Program: Staff completed four Blow-Off Retrofit projects during the quarter. One on Section 78 in Brookline, one on Section 70 in Melrose and two on Section 95 in Brookline. Work continued on repairing the Watertown Section in Waltham, a 24-inch high-density polyethylene (HDPE) pipe. Three sites were excavated allowing work on three mechanical couplings and a fourth allowing work at a transition coupling. Additional work during the month included excavating and shoring to support a valve repair on Section 70, and preparing Lee Street in Brookline for final paving after a major water main break. Leak detection was performed on over 51 miles of MWRA water main and assistance was provided to eight customer communities.

Operations Engineering

- Staff continued providing management and coordinating with Arcadis to support design and bidding efforts on the Carroll Water Treatment Plant control system upgrade.

Staff continued community assistance as needed:

- Newton System, installed pressure recorders and reviewed data to determine possible closed valve(s)
- Staff supported the planning for possible Wayland and Natick emergency connections to MWRA due to local PFAS contamination, and developed operational plans for the isolation and dewater of the Hultman for the installation of a valve at the Rte30 Hultman connection.

- Staff continued to manage the lead loop study at CWTP
- Staff assisted in several wet weather storm events, compiled and finalized storm reports, monitored and reported on CSO activation durations and volumes and provided follow up on operational and SCADA issues.

Wastewater Operations & Maintenance

- Remote Headworks Upgrades: Wastewater Operations staff continued to work with Engineering & Construction staff and the contractor on the Remote Headworks Upgrades Project. All channels are in service. Operations staff continued to attend training on the new systems.

- Nut Island Headworks Odor Control & HVAC Improvements: The contractor continued to perform work on the facility odor control system, replacement of the facility's four (4) emergency spillway gates and replacement of the facility boilers. Operations staff assisted with shutdowns of the odor control system on 6/8/21 and 6/10/21.

- Union Park CSO Facility Operation & Maintenance: Operations, Process Control and Procurement staff have begun the process of going out to bid and hiring a contractor for the Management, Operation and Maintenance of the Union Park CSO Facility.

- Prison Point – Planned Utility Power Outage: Eversource informed the MWRA that they had to perform maintenance to their electrical distribution system which would impact the Prison Point CSO Facility. This resulted in a five (5) day utility power outage to Prison Point, April 18 to 22. Eversource supplied a portable generator to the MWRA and the facility was powered by this portable generator for the duration of the outage. The portable generator was staffed 24/7 and fueled by the generator contractor. The work was completed with no operational impact.

Field Operations Highlights

4th Quarter – FY21

Metro Equipment and Facility Maintenance

- Belmont Pump Station: MWRA electricians change out the Variable Frequency Drive for pump #3.

- Commonwealth Ave Pump Station: The motor for the #1 pump failed. MWRA electricians and mechanics changed out the motor. The existing motor will be repaired and become the stations spare motor.

- Chelsea Maintenance Facility: HVAC technician's replace the Unit Heater in the electrical shop.

- Hayes Pump Station: Pump #1 was not pumping to capacity. MWRA mechanics removed the rotating assembly and replaced with a new assembly. The older assembly will be re-built and become the station spare.

- Nut Island Headworks: MWRA mechanics repaired the motor mounting bolts on #1 vortex.

- Commonwealth Ave. Pump Station: MWRA mechanics replaced the bearings for #3 pumping unit.

- Wastewater Facilities: MWRA electricians assisted construction with the final testing of the Towable Generator Project at Nut Island Headworks, Quincy Pump Station and Braintree/Weymouth Pump Station.

- Alewife Pump Station: MWRA electricians working with electrical vendor Infra-Red repaired the stations emergency generation switch gear.

- Chestnut Hill Underground Pump Station: A security audit was conducted at the facility. The lighting in the rear stair well was found to be deficient. MWRA electricians installed new light fixtures.

- IPS: MWRA mechanics completed an over haul of the #1 screening conveyor.

- Chelsea Maintenance Facility: MWRA HVAC Specialist working with Facilities and an outside rigging company replaced two Roof Top Units (RTU's) for the Maintenance Building.

Environmental Quality-Wastewater

- Ambient Monitoring: Monitoring consultants successfully conducted the April, May, and June water column surveys of the 2021 field season, and the annual flounder survey, under modifications imposed by COVID-19 Health and Safety guidelines. Results from the June water column survey triggered a Contingency Plan caution threshold because of high abundance at stations near the outfall of the algae responsible for red tide in New England waters. Completed reports on bay and harbor benthos, flounder, and the Massachusetts Bay model. Presentations on an upgraded water quality model made to a meeting of expert reviewers and to the May 11 OMSAP meeting led to consensus that the updated model can be used for permit-required modeling. MWRA summarized the 2020 monitoring findings available to date at the May 11 OMSAP meeting. OMSAP, regulators, and representatives of the public present commended MWRA and its consultants for successfully continuing the monitoring and data analyses despite the challenges imposed by the COVID-19 pandemic.

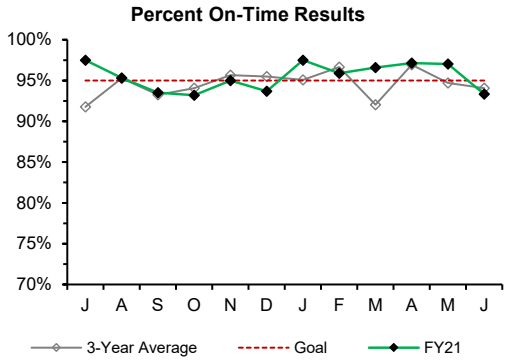
- Harbor/CSO Receiving Water Monitoring: Biweekly harbor wide and CSO receiving water monitoring continued with appropriate COVID-19 safety protocols.

- Permitting and Compliance Reporting: Staff submitted monthly and quarterly discharge monitoring reports and as-needed reports of blending and essential maintenance. Staff gathered information for upcoming NPDES permit applications.

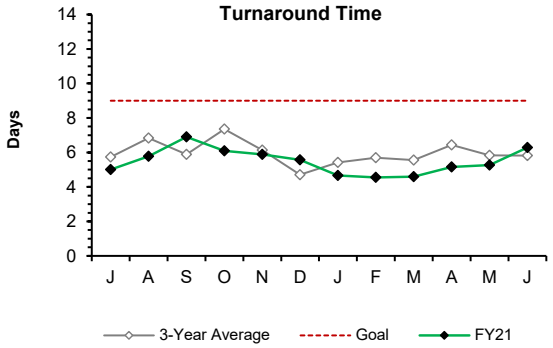
- Coordination with other MWRA Departments: Staff continued to work with Engineering & Construction and the DCOO on the receiving water quality analysis portion of the CSO Post-Construction Monitoring & Performance Assessment project. Staff participated in interdepartmental Data Users/Data Quality Team. Staff coordinated installation of CSO Variance required informational signs along Alewife Brook and Mystic River.

- Cooperation with other agencies: Staff participated in Massachusetts Bays Partnership meetings (Management Committee, Science/Technical Advisory subcommittee, Boston Harbor Ecosystem Network). Staff participated in stakeholder meetings held by MassDEP to provide input for regulations implementing CSO notification law. Staff met with Charles and Mystic River watershed associations to discuss CSO program.

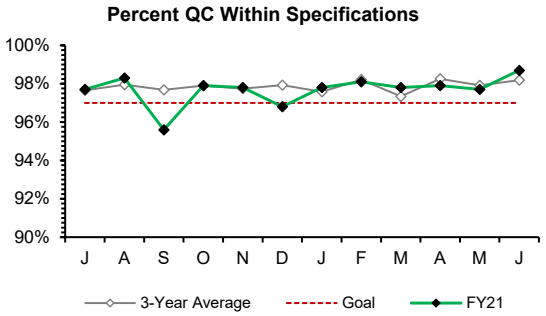
Laboratory Services
4th Quarter - FY21



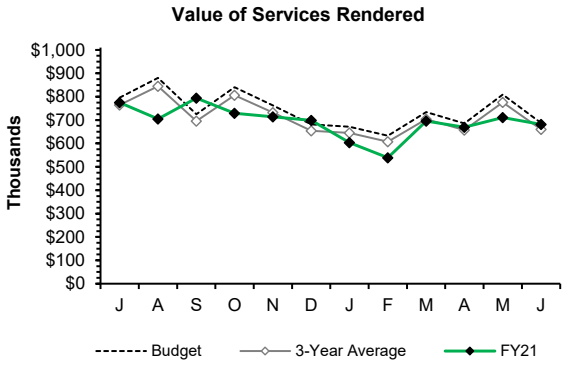
The Percent On-Time measurement met the 95% goal for FY21.



Turnaround Time met the 9-day goal.



Percent of QC tests meeting specifications met the 97% goal for FY21.



Value of Services Rendered finished Fy21 slightly below the annual budget projection.

Highlights:

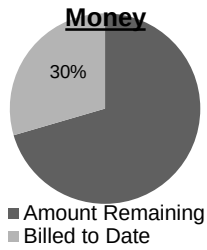
Performance: FY21 average Turnaround Time, Percent on time and Percent QC within Specification all met targets. Value of Services Rendered fell slightly slightly below the three year average.

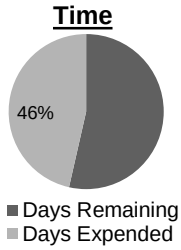
School Lead Program: MWRA's lab completed 968 lead and copper tests from 78 schools and childcare facilities in 26 communities during FY21. An additional 104 lead tests were completed in support of DPH investigations of exposed children in FY21. Since 2016, MWRA's Laboratory has conducted over 38,800 tests from 511 schools and daycares in 44 communities.

COVID-19 Testing: The wastewater pilot project continued throughout FY21. Sample results are posted on MWRA.com as they are received.

CONSTRUCTION PROGRAMS

Projects In Construction
4th Quarter – FY21





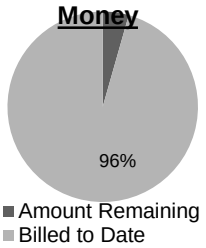
Permanent Metering Replacement and Installation

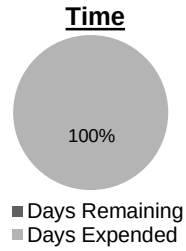
Project Summary: This project consists of the replacement of new installation of 174 flow meters in sewer manholes located throughout the MWRA service district.

Contract Amount: $3,286,114 *Contract Duration:* 450 Days

Notice to Proceed: 3-Dec-20 *Contract Completion:* 26-Feb-22

Status and Issues: As of June, the Contractor has installed 59 meters. The meter confirmations are up to date.





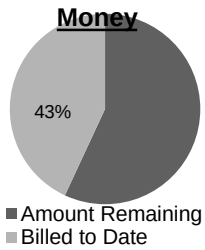
Chelsea Creek Headworks Upgrade

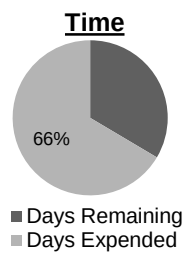
Project Summary: This project involves a major upgrade to the entire facility including: automation of screening collection & solids conveyance, replacement of the odor control, HVAC and electrical systems.

Contract Amount: $85,153,789.06 *Contract Duration:* 1,594 Days

Notice to Proceed: 22-Nov-16 *Contract Completion:* 4-Apr-21

Status and Issues: As of June, the Contractor installed firestopping throughout the Headworks, worked on caulking interior walls, they Installed caulking at the Channel 1 influent shaft covers in the Lounge and worked on caulking external doors, windows and louvers. In addition, they continued modernization of the freight elevator and worked on painting the elevator car support beams.





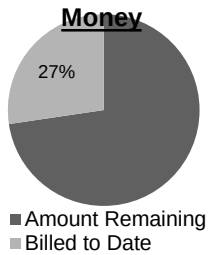
Dorchester Interceptor Sewer

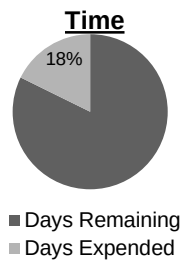
Project Summary: MWRA's Dorchester Interceptor conveys flows to MWRA's Columbus Park Connection and Headworks in South Boston

Contract Amount: $4,707,485 *Contract Duration:* 540 Days

Notice to Proceed: 6-Jul-20 *Contract Completion:* 29-Dec-21

Status and Issues: As of June, the Contractor completed water cured inversion No. 5 between SMH 172+90 and SMH 167+81; No. 4 between 172+90 to 179+72; No. 15 across Granite Ave SMH 130+93 to SMH 128+18. In addition, a 2 man, manhole rehabilitation crew was mobilized to repair leaks and epoxy coat SMH's through the DCR property on Adams Street.





Rehabilitation of WASM 3

Project Summary: This project consists of the rehabilitation of 13,800 feet of 56-inch and 60-inch diameter water main in Arlington, Somerville and Medford.

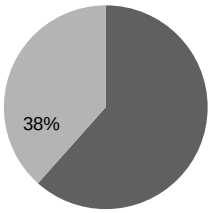
Contract Amount: $19,537,850.00 *Contract* Duration: 1,383 Days

Notice to Proceed: 28-Oct-20 *Contract Completion:* 11-Aug-24

Status and Issues: As of June, the Contractor set up an irrigation system to water the DCR property, after which they will continue to irrigate the hydroseed on the DCR property.

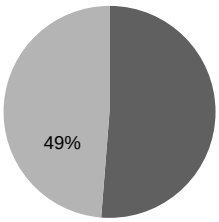
Projects In Construction
4th Quarter – FY21

Money



Amount Remaining
Billed to Date

Time



Days Remaining
Days Expended

Nut Island Odor Control and HVAC

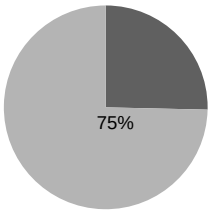
Project Summary: This project will provide upgrades to the odor control system, heating, ventilation and air conditioning system and other equipment.

Contract Amount: $58,115,295.10 *Contract Duration:* 1,034 Days

Notice to Proceed: 12-Feb-20 *Contract Completion:* 12-Dec-22

Status and Issues: As of June, the Contractor backfilled and compacted chemical feed pipes to chemical fill station. Formed, installed rebar, and placed concrete for equipment pad for new chemical fill station. Backfilled and compacted equipment pad and reset fence and fence posts plumb and level.

Money



Amount Remaining
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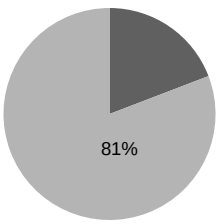


Days Remaining
Days Expended

Chemical Tank Relining & Pipe Replacement

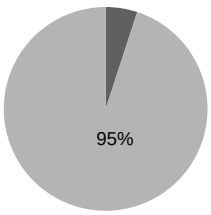
Project Summary: This project involves replacing the chlorobutyl rubber linings in 3 sodium hypochlorite and 2 sodium bisulfite storage tanks and assorted gravity thickener overflow piping at Deer Island.

Contract Amount: $8,680,743 *Contract Duration:* 850 Days

Notice to Proceed: 13-Aug-19 *Contract Completion:* 10-Dec-21

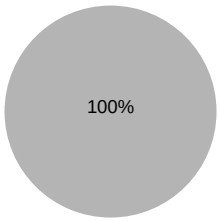
Status and Issues: During June, the Contractor completed weld repairs of Sodium Hypochlorite Tank No. 2; inspected Sodium Bisulfite Tank No. 2 after lining removal. They performed nozzle and weld repairs and completed the installation of overflow pipe for Gravity Thickener No. 2.

Money



Amount Remaining
Billed to Date

Time



Days Remaining
Days Expended

Winthrop Terminal VFD and Motor

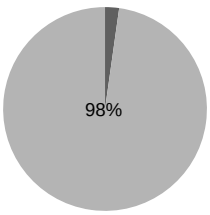
Project Summary: This project involves the replacement of 6, 600-HP motors, VFDs and associated electrical components in the Winthrop Terminal Facility.

Contract Amount: $11,950,754 *Contract Duration:* 1,549 Days

Notice to Proceed: 16-Jun-16 *Contract Completion:* 12-Sep-20

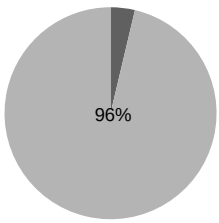
Status and Issues: As of June, the Contractor achieved substantial completion and began working on punchlist items.

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.

Contract Amount: $19,979,541.22 *Contract Duration:* 1,190 Days

Notice to Proceed: 11-May-18 *Contract Completion:* 13-Aug-21

Status and Issues: As of June, the Contractor completed valve replacements in Gallery A5, below the DiStor and on top of the DiStor. The nitrogen purge and leaking coupling repair of DiStor 1 is on hold due to a 24" dewatering line in need of repair. DiStor 1 is full of water and needs to be drained through the 24" dewatering line.

CSO CONTROL PROGRAM

4th Quarter – FY21

All 35 projects in the CSO Long-Term Control Plan (LTCP) were complete as of December 2015 in compliance with 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 verifying whether the court-ordered LTCP levels of CSO control are attained. Of the $912.5 million budget in the FY21 CIP for the CSO Control Program, **approximately $5.8 million remain to be spent**, as described below.

Project/Item	Status as of June 30, 2021
BWSC Dorchester Interceptor Inflow Removal	This agreement with BWSC provided up to $3.76 million in MWRA financial assistance for reimbursement of the eligible costs of construction to remove inflow from the BWSC's Dorchester Interceptor system. BWSC awarded one construction contract for inflow removal in the amount of $1.58 million. **BWSC completed the contract work on June 30, 2021, when the financial assistance agreement ended. $2.18 million of remaining funds in the Dorchester agreement has been transferred into a new agreement by which BWSC will construct sewer separation and other CSO improvements in East Boston (see below).**
BWSC East Boston Sewer Separation and other CSO Improvements	**On April 14, 2021, the MWRA Board of Directors authorized the East Boston CSO financial assistance agreement in the amount of $2.18 million for a term of two years, from July 1, 2021 through June 30, 2023. BWSC and MWRA executed the agreement on June 10, 2021. BWSC has awarded East Boston Sewer Separation Contract 3 and is finalizing design of an upgraded connection to the MWRA system to lower CSO discharges at Outfall BOS014.**
City of Cambridge Memorandum of Understanding and Financial Assistance Agreement	The City of Cambridge attained substantial completion of its last MWRA CSO plan project in December 2015 in compliance with Schedule Seven. The $100.2 million MOU/FAA by which MWRA funded the eligible costs of the Cambridge-implemented CSO projects ended on June 30, 2018. MWRA recently completed final eligibility review of the Cambridge construction contracts and expects to issue a final eligibility certification **this summer**.
City of Somerville Financial Assistance Agreement	By this agreement, MWRA will provide up to $1.4 million upon construction award of City of Somerville's repair of its combined sewer trunk line upstream of the Somerville Marginal CSO Facility. Pursuant to the agreement, the repair work is intended to maintain the full in-system storage capacity of the trunk sewer to support CSO control. Somerville is finalizing design and expects to award the construction contract in the fall of 2021.
MWRA CSO Performance Assessment – Contract 7572	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 LTCP goals are attained. The current contract amount is $5.28 million **of which approximately $4.5 million has been spent**. 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 receiving water quality modeling and CSO and stormwater sampling; the evaluation of certain additional CSO controls; other requirements intended to minimize CSO discharges, their impacts and public health risk; and preparation of updated CSO control plans for these waters. In compliance with the CSO variances, MWRA has implemented a subscriber-based system to notify the public of CSO discharges at its permitted outfalls within four hours of the start of discharge at each location, using meter readings. MWRA also reports estimated discharge volumes on its CSO notification web page. Cambridge and Somerville are also parties to the variances and have implemented notification systems for their own outfalls. · AECOM continues to make progress with CSO variance-required project evaluations and other site-specific investigations to mitigate CSO discharges at locations where LTCP goals are not yet attained. In these efforts, MWRA is maintaining close coordination with the CSO communities. CSO mitigation implemented in late 2020/early 2021 included: BWSC completed its East Boston sewer separation Contract 1, Chelsea raised the overflow weir at Outfall CHE004, Cambridge removed heavy sediments in the Outfall CAM401A system, and MWRA is designing a replacement for the interceptor connection at Outfall CHE008 - all expected to bring associated outfalls into attainment with LTCP discharge goals. In addition, Cambridge completed the partial sewer separation improvements that have reduced discharges from the Cottage Farm facility. **More recent work includes MWRA's ongoing design of a new interceptor connection at Chelsea's Outfall CHE008, replacement of a faulty tide gate in the Somerville Marginal Facility outfall, evaluations supporting a new interceptor connection upstream of the Somerville Marginal Facility, and evaluations to improve flow conveyance at Outfall BOS017 in Charlestown. BWSC continues with construction of East Boston sewer separation Contract 2, has awarded Contract 3, and also has commenced construction of South Boston sewer separation Contract 1 that will lower CSO discharges to Fort Point Channel.** · AECOM updated the MWRA hydraulic model to Q1-2021 system conditions in part to produce an updated Typical Year CSO performance assessment relative to the LTCP activation and volume goals. The updated assessment shows attainment of the goals at 70 of 86 discharge locations active in the late 1980's, including outfalls that have been closed. MWRA forecasts attainment at an additional six outfalls with scheduled completion after 2021 of recently recommended MWRA and community CSO improvements (many are mentioned above). At 10 discharge locations, MWRA and the CSO communities continue to identify and evaluate alternatives to further reduce discharges. · Utilizing receiving water quality models of the Lower Charles River and the Alewife Brook/Upper Mystic River AECOM completed and calibrated last fall, it performed water quality assessments of current river conditions and the impacts of remaining CSO and non-CSO (dry weather and stormwater) pollution sources. **MWRA distributed a draft Water Quality Assessment Report to EPA, DEP, the CSO communities, Charles River Watershed Association, and Mystic River Watershed Association and is addressing comments received.**

CIP Expenditures

4th Quarter – FY21

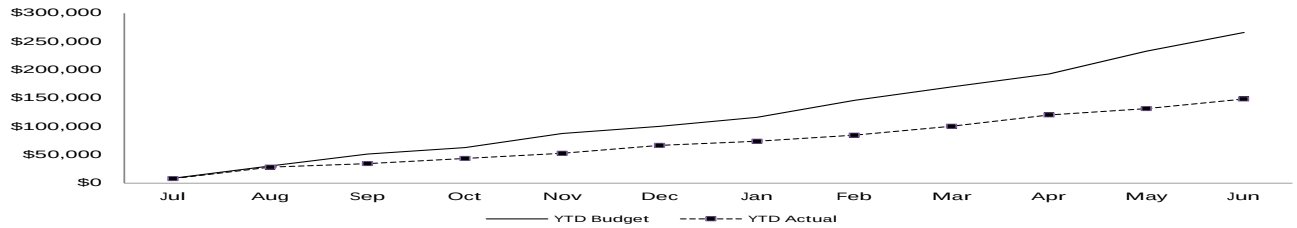
FY21 Capital Improvement Program Expenditure Variances through June by Program ($ in thousands)				
Program	FY21 Budget Through June	FY21 Actual Through June	Variance Amount	Variance Percent
Wastewater	$153,470	$98,560	($54,910)	-36%
Waterworks	$90,301	$45,592	($44,709)	-50%
Business and Operations Support	$22,003	$4,211	($17,792)	-81%
Total	$265,774	$148,363	($117,411)	-44%

Project underspending within Wastewater was due to updated schedules for the Prison Point CSO Rehabilitation, DI Primary & Secondary Clarifier Rehab, DI Motor Control Center and Switchgear Replacement Construction, and Remote Access Shaft Improvements, delay in award and software training for the Wastewater Metering contract, work was delayed, and time extension for the Chelsea Creek Headworks Upgrades, delays in equipment delivery, and Covid-19 shutdown for Nut Island Odor Control & HVAC Construction, updated final cost for Dorchester I/I Removal work, delay in award for Ward Street and Columbus Park Headworks Upgrades Design/CA, work anticipated in FY21 that was completed in FY20 for the Pellet Pipe Relocation and the Residuals Mechanical/Electrical/Dryer Drum Replacements, start-up delay for the Dorchester Interceptor Sewer, and timing of community repayments due to less than anticipated communities deferring their loan repayments for the I/I Local Financial Assistance program. This underspending was partially offset by contractor progress for the Winthrop Terminal Facility (WTF) VFD Replacement, and DI Gravity Thickener Rehab contracts. Project underspending in Waterworks was due to timing of community repayments due to less than anticipated communities deferring their loan repayments for the Water Loan program, updated schedules for Section 89 & 29 Replacement, CP-3 Sections 23, 24, and 47 Rehab, and CWTP SCADA Upgrades, timing of consultant work for the Tunnel Preliminary Design & MEPA Review, timing of final work and balancing credit change order for SEH Section 111 Construction 3, and delay in award and repair clamps issue for CP-1 Shafts 6, 8, and 9A. This underspending was partially offset by contractor progress for WASM 3 CP-1, Commonwealth Avenue Pumping Station Rehab, SEH Section 111 Construction 2, and consultant progress for Section 56 Repl./Saugus River Design/CA.

Budget vs. Actual CIP Expenditures

($ in thousands)

Total FY21 CIP Budget of $265,774



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 6/30/21	$228.0 million
Unused capacity under the debt cap:	$1.65 billion
Estimated date for exhausting construction fund without new borrowing:	Apr-22
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper/Revolving loan outstanding: Commercial paper capacity / Revolving Loan	$128 million $350 million
Budgeted FY21 Cash Flow Expectancy*:	$203 million

* Cash based spending is discounted for construction retainage.

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results and UV Absorbance

4th Quarter – FY21

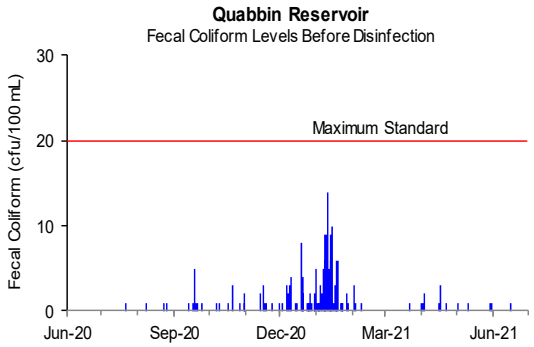
Source Water – Microbial Results

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 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.**

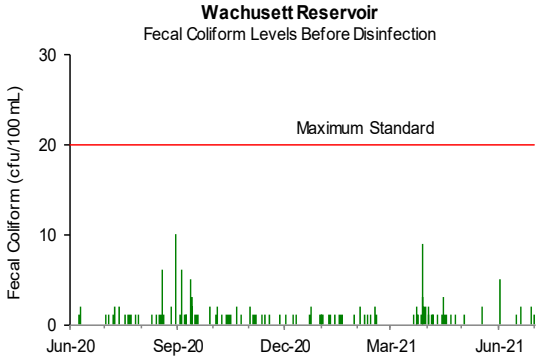


Sample Site: Wachusett Reservoir

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 4th Quarter were below 20 cfu/100mL. **For the current six-month period, 0.0% of the samples exceeded a count of 20 cfu/100mL.**

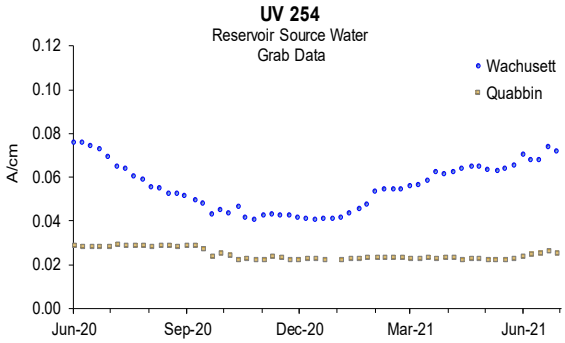


Source Water – UV Absorbance

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 averaged 0.023 A/cm for the quarter.

Wachusett Reservoir UV-254 levels averaged 0.066 A/cm for the quarter.



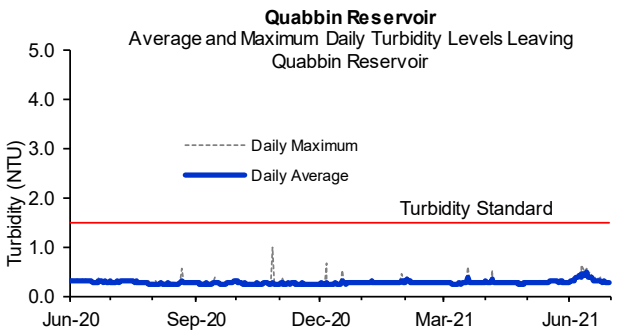
Source Water – Turbidity

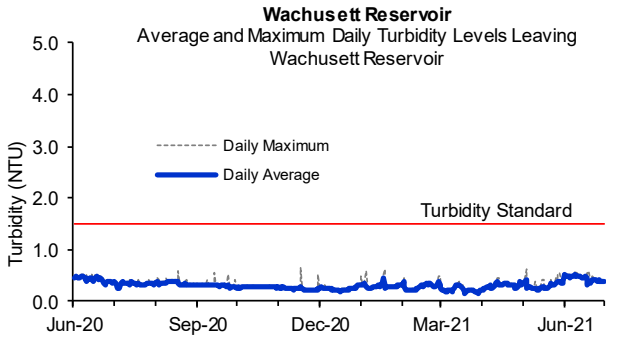
4th Quarter – FY21

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.



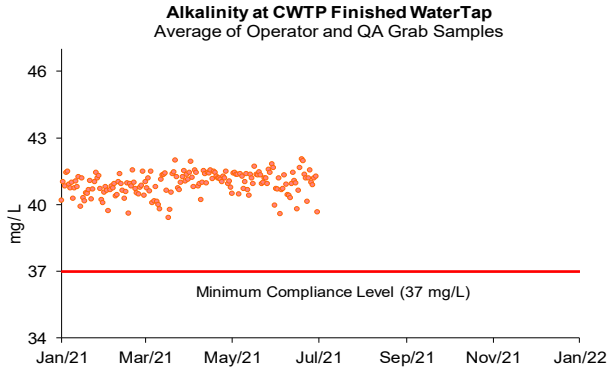


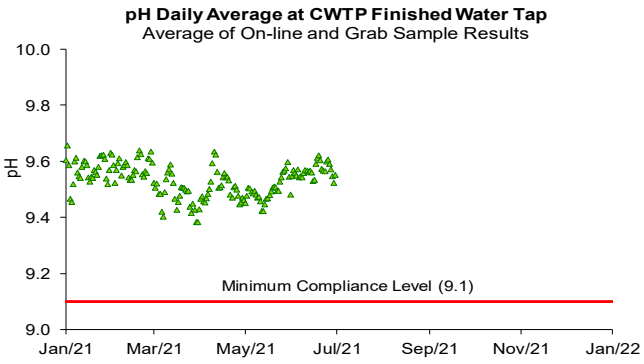
Treated Water – pH and Alkalinity Compliance

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.

Quarterly distribution system samples were collected over a course of two weeks in June. Distribution system sample pH ranged from 9.5 to 9.6 and alkalinity ranged from 40 to 42 mg/L. No sample results were below DEP limits for this quarter.





Treated Water – Disinfection Effectiveness

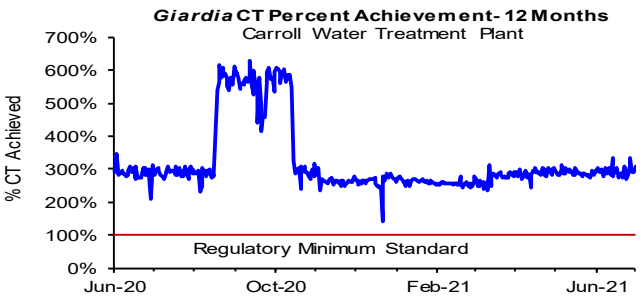
4th Quarter – FY21

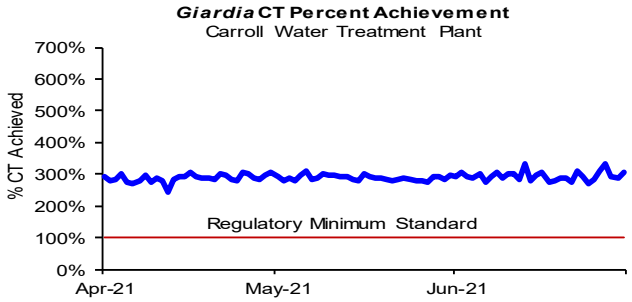
At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA 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:

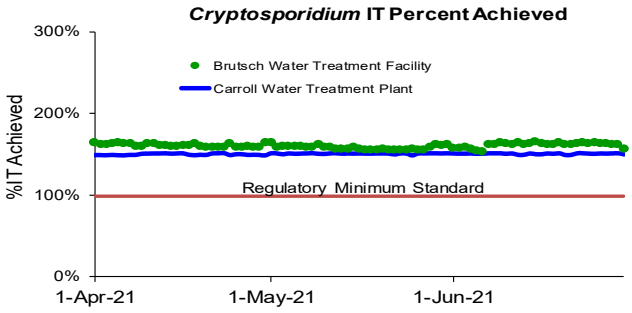
- Ozone dose at the CWTP varied between 1.9 to 2.8 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- *Cryptosporidium* IT was maintained above 100% for the quarter. Off-spec water was less than 5%.
- The ozone dose was proactively raised in 2020 from mid August to mid October in response to elevated reservoir total coliform levels. This is visible in the top left graph.
- The slight dip in Giardia CT Achievement on December 21, 2020 was due to Train B returning to service after undergoing winter maintenance. Giardia CT Achievement was met this day. This is visible in the top left graph.

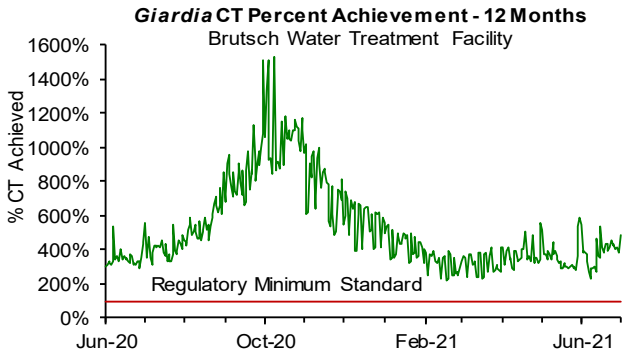


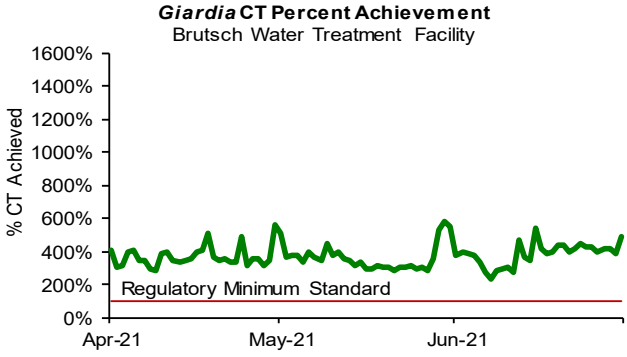


Quabbin Reservoir (CVA Supply) at: Brutsch Water Treatment Facility

- The chlorine dose at BWTF is adjusted in order to achieve MWRA's seasonal target of 0.75 - 0.85 mg/L (November 1 – May 31) and 0.85 - 1.05 mg/L (June 1 – October 31) at Ludlow Monitoring Station.
- The chlorine dose at BWTF varied between 1.2 to 1.8 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% for the quarter. Off-spec water was less than 5%.







Source Water - Algae

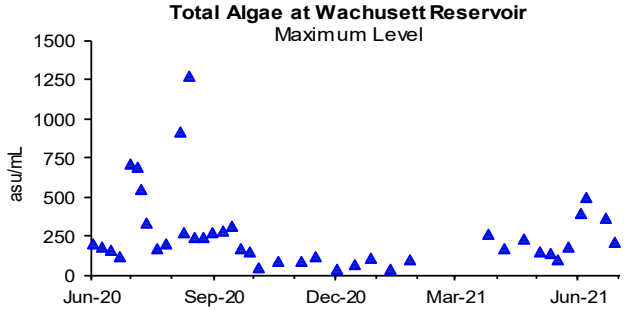
4th Quarter – FY21

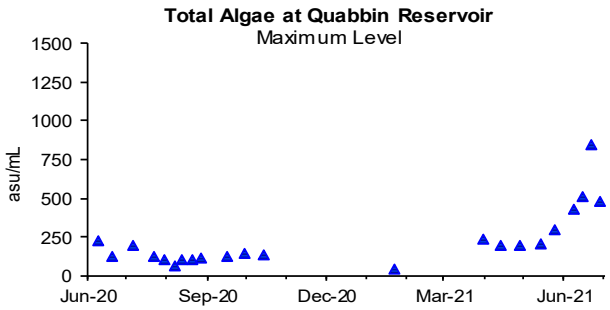
Algae levels in the Wachusett and Quabbin Reservoir are monitored by DCR and MWRA. These results, along with taste and odor complaints, are used to make decisions on source water treatment for algae control.

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 4th quarter, there were seven taste and odor complaints which may be related to algae reported from the local water departments.

In June, *Chrysosphaerella*, a taste and odor causing algae species, bloom occurred the Quabbin Reservoir. See the MWRA Press Release: https://www.mwra.com/01news/2021/061421-quabbinalgae.html.



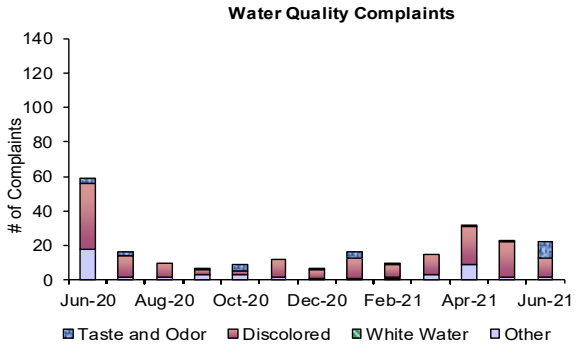


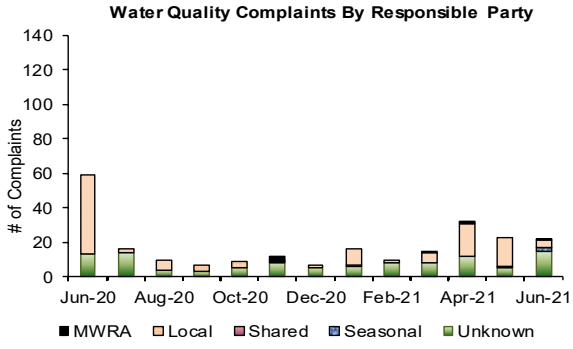
Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

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 77 complaints during the quarter compared to 85 complaints from 4th Quarter of FY20. Of these complaints, 53 were for "discolored water", 11 were for "taste and odor", and 13 were for "other". Of these complaints, 40 were local community issues, 2 were MWRA related, 1 was a shared MWRA/community issue, 2 were seasonal in nature, and 33 were unknown in origin.





Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

4th Quarter – FY21

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*). *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 4th Quarter, four of the 6,529 samples (0.06% system-wide) submitted to MWRA labs for analysis tested positive (South Hadley – May, Boston, Framingham, Peabody - June). One of the 1954 MWRA locations or Community/MWRA Shared samples (0.05%) tested positive for total coliform. No samples tested positive for *E.coli*. Only 0.1% of the Fully Served community samples had chlorine residuals lower than 0.2 mg/L for the quarter.

NOTES:

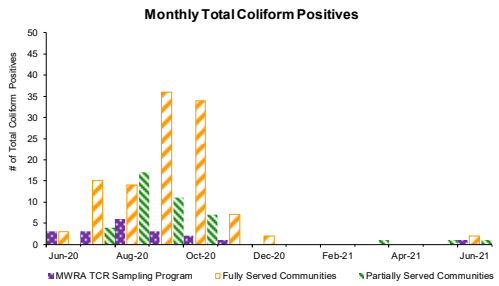
a) MWRA total coliform and chlorine residual results include data from community locations. In most cases these community results are indicative of MWRA water as it enters the community system; however, some are strongly influenced by local pipe conditions. Residuals in the MWRA system are typically between 1.0 and 2.8 mg/L.

b) The number of samples collected depends on the population served and the number of repeat samples required.

c) These communities are partially supplied, and may mix their chlorinated supply with MWRA chloraminated supply.

d) Part of the Chicopee Valley Aqueduct System. Free chlorine system.

e) Burlington sampling started June 2021.



			Total Coliform # Samples (b)	Total Coliform # (%) Positive	*E.coli* # Positive	Assessment Required
MWRA	a	MWRA Locations	399	1 (0.25%)	0	
		Shared Community/MWRA sites	1555	0 (0%)	0	
		Total: MWRA	1954	1 (0.05%)	0	No
Fully Served		ARLINGTON	169	0 (0%)	0	
		BELMONT	104	0 (0%)	0	
		BOSTON	783	1 (0.13%)	0	No
		BROOKLINE	223	0 (0%)	0	
		CHELSEA	169	0 (0%)	0	
		DEER ISLAND	52	0 (0%)	0	
		EVERETT	169	0 (0%)	0	
		FRAMINGHAM	240	1 (0.42%)	0	No
		LEXINGTON	118	0 (0%)	0	
		LYNNFIELD	18	0 (0%)	0	
		MALDEN	234	0 (0%)	0	
		MARBLEHEAD	72	0 (0%)	0	
		MARLBOROUGH	126	0 (0%)	0	
		MEDFORD	192	0 (0%)	0	
		MELROSE	117	0 (0%)	0	
		MILTON	102	0 (0%)	0	
		NAHANT	30	0 (0%)	0	
		NEWTON	276	0 (0%)	0	
		NORTHBOROUGH	48	0 (0%)	0	
		NORWOOD	99	0 (0%)	0	
		QUINCY	338	0 (0%)	0	
		READING	130	0 (0%)	0	
		REVERE	195	0 (0%)	0	
		SAUGUS	104	0 (0%)	0	
		SOMERVILLE	252	0 (0%)	0	
		SOUTHBOROUGH	30	0 (0%)	0	
		STONEHAM	91	0 (0%)	0	
		SWAMPSCOTT	57	0 (0%)	0	
		WALTHAM	216	0 (0%)	0	
		WATERTOWN	130	0 (0%)	0	
		WESTON	45	0 (0%)	0	
		WINTHROP	72	0 (0%)	0	
		Total: Fully Served	*5001*	*2 (0.04%)*		
Partially Served	c	BEDFORD	57	0 (0%)	0	
		BURLINGTON	24	0 (0%)	0	
		CANTON	90	0 (0%)	0	
		NEEDHAM	123	0 (0%)	0	
		PEABODY	209	1 (0.48%)	0	No
		WAKEFIELD	140	0 (0%)	0	
		WELLESLEY	114	0 (0%)	0	
		WILMINGTON	87	0 (0%)	0	
		WINCHESTER	91	0 (0%)	0	
		WOBURN	195	0 (0%)	0	
		Total: Partially Served	*1130*	*1 (0.09%)*		
CVA	d	MWRA CVA Locations	104	0 (0%)	0	
		CHICOPEE	186	0 (0%)	0	
		SOUTH HADLEY FD1	63	1 (1.59%)	0	No
		WILBRAHAM	45	0 (0%)	0	
		Total: CVA	*398*	*1 (0.25%)*		
		Total: Community Samples	*6529*	*4 (0.06%)*		

Chlorine Residuals in Fully Served Communities

	2020							2021					
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
% <0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1
% <0.2	0.4	0.5	0.4	1.0	1.1	1.4	0.4	0.2	0.1	0.0	0.0	0.0	0.2
% <0.5	1.5	2.2	2.9	4.1	5.1	3.7	2.5	1.9	0.8	0.2	0.3	0.2	0.6
% <1.0	4.3	6.5	8.4	10.7	12.2	9.3	5.3	3.6	2.5	1.5	2.0	1.0	2.1
% ≥1.0	95.7	93.6	91.6	89.4	87.8	90.7	94.7	96.5	97.6	98.5	98.0	99.0	97.9

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

4th Quarter – FY21

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.

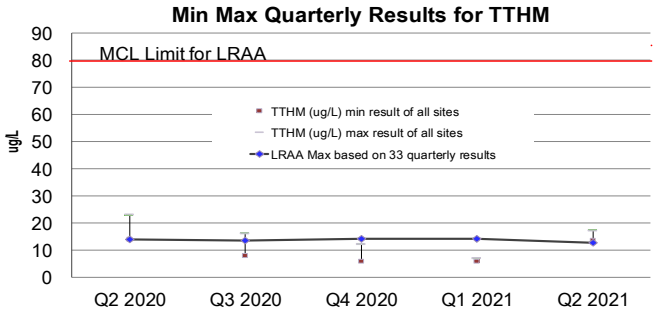
The locational running annual average calculated quarterly at each individual sampling location must be below the Total HAA5 or Total TTHM MCL standard. The charts below show the highest and lowest single values for all sites, and the LRAA of the highest location each quarter.

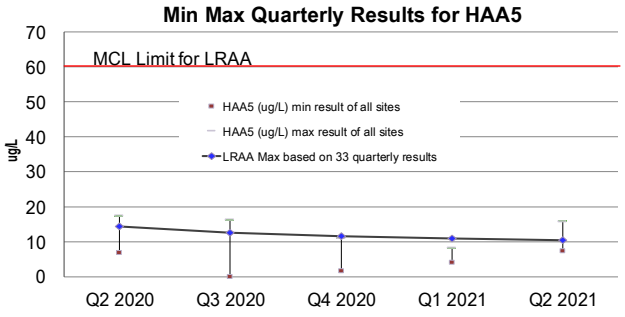
Partially served and CVA communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their individual results. The chart below combines data for all three CVA communities data (Chicopee, Wilbraham and South Hadley FD1). Each community is regulated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

Bromate is tested monthly as required 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 ug/L.

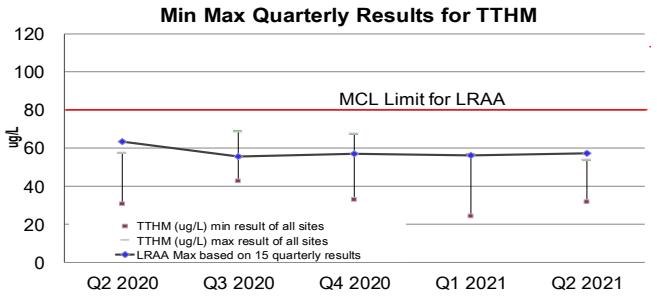
The LRAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remain below current standards. The Max LRAA in the quarter for TTHMs = 14.7 ug/L; HAA5s = 10.5 ug/L. The current RAA for Bromate = 0.0 µg/L No LRAA exceedances or violations occurred this quarter for MetroBoston and any of the CVA communities. MWRA and the CVA communities continue to closely monitor and manage the disinfection process to minimize DBP production.

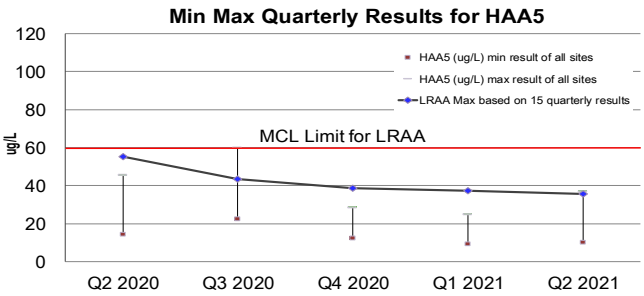
MetroBoston Disinfection By-Products





CVA Disinfection By-Products (Combined Results)





Water Supply and Source Water Management

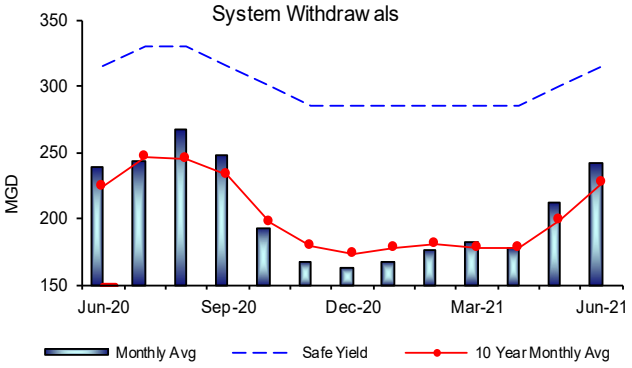
4th Quarter – FY21

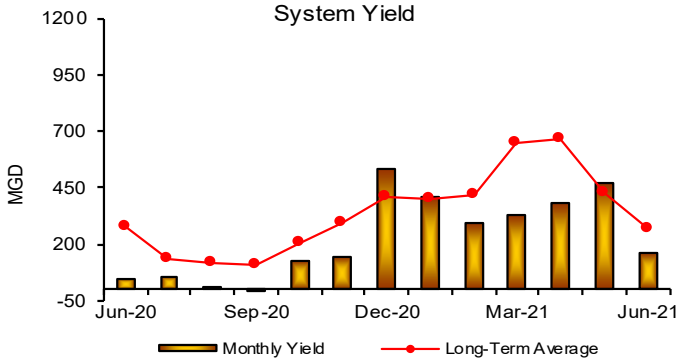
Background

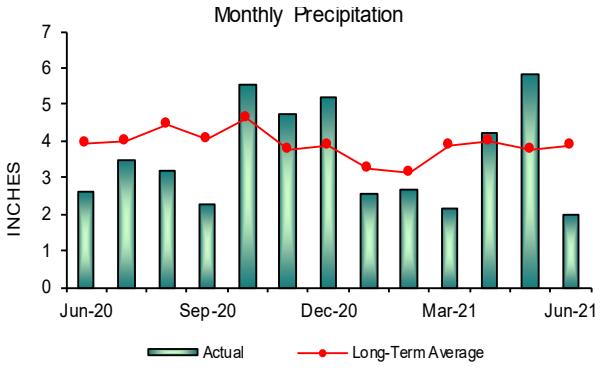
A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir 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.

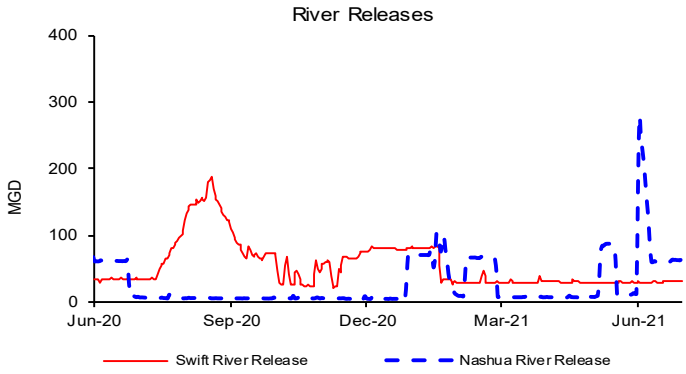
Outcome

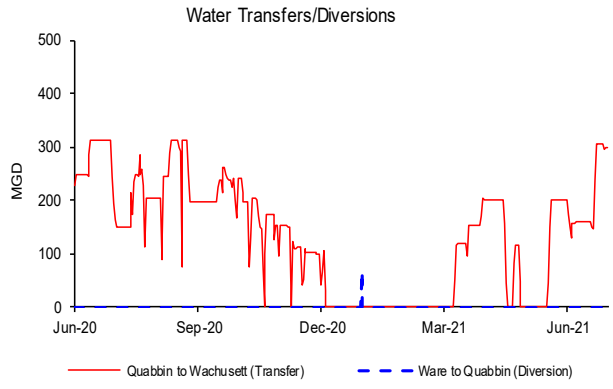
The volume of the Quabbin Reservoir was at 94.1% as of June 30, 2021; a 0.70 % increase for the quarter, which represents a gain of more than 2.7 billion gallons of storage and an increase in elevation of 0.37'. System withdrawal and precipitation for the quarter were above their long term averages. Yield for the quarter was below its long term quarterly average. Quabbin is in Normal Operating Range for this time of year.

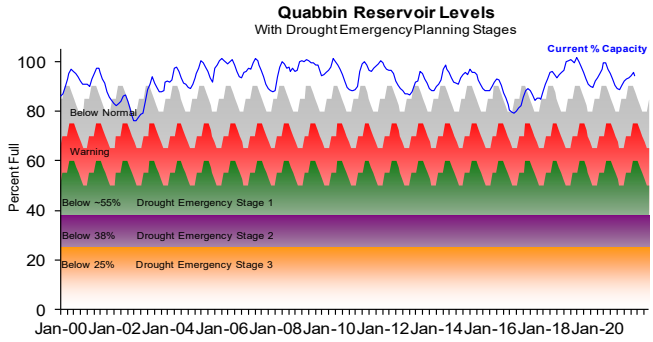












WASTEWATER QUALITY

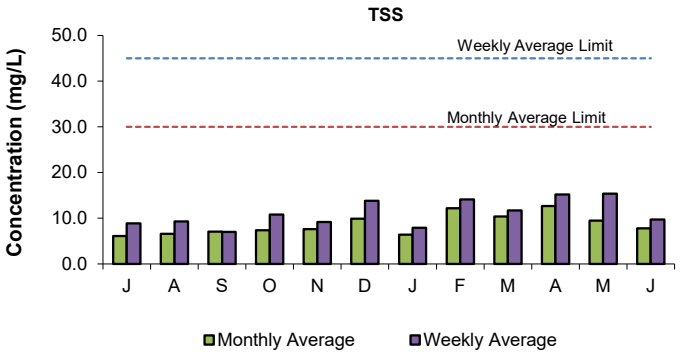
NPDES Permit Compliance: Deer Island Treatment Plant

4th Quarter - FY21

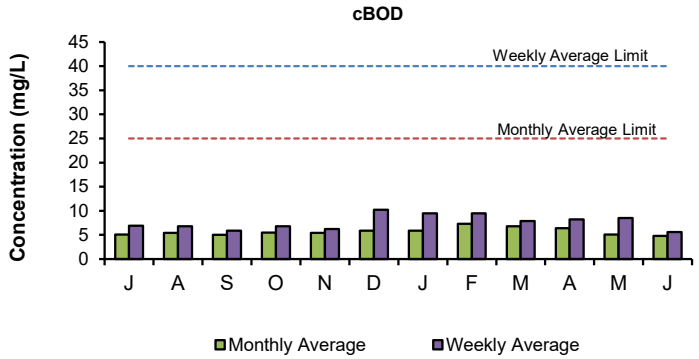
NPDES Permit Limits

Effluent Characteristics		*Units*	*Limits*	*April*	*May*	*June*	*4th Quarter Violations*	*FY21 YTD Violations*
Dry Day Flow (365 Day Average):		mgd	436	260.4	257.8	262.0	0	0
cBOD:	Monthly Average	mg/L	25	6.4	5.1	4.8	0	0
	Weekly Average	mg/L	40	8.2	8.5	5.6	0	0
TSS:	Monthly Average	mg/L	30	12.7	9.5	7.8	0	0
	Weekly Average	mg/L	45	15.2	15.4	9.7	0	0
TCR:	Monthly Average	ug/L	456	0.0	0.0	0.0	0	0
	Daily Maximum	ug/L	631	0.0	0.0	0.0	0	0
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	13.0	15.0	41.0	0	0
	Weekly Geometric Mean	col/100mL	14000	7.0	6.0	7.0	0	0
	% of Samples >14000	%	10	0.0	0.0	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	0	0
PCB, Aroclors:	Monthly Average	ug/L	0.000045	UNDETECTED			0	0
Acute Toxicity:	Mysid Shrimp	%	≥50	>100	>100	>100	0	0
	Inland Silverside	%	≥50	>100	>100	>100	0	0
Chronic Toxicity:	Sea Urchin	%	≥1.5	100	100	100	0	0
	Inland Silverside	%	≥1.5	100	100	100	0	0

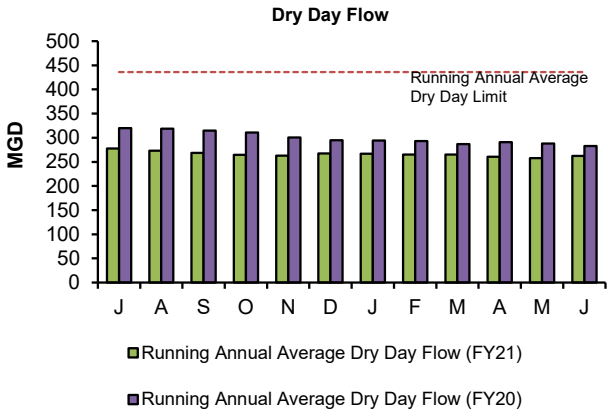
There have been no permit violations in FY21 to date at the Deer Island Treatment Plant (DITP).



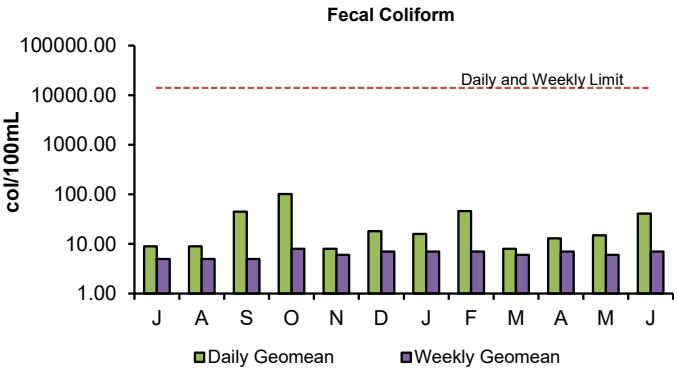
Total Suspended Solids (TSS) in the effluent is a measure of the amount of solids that remain suspended after treatment. All TSS measurements for the 4th Quarter were within permit limits.



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 4th 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 4th 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 4th Quarter, all permit conditions for fecal coliform were met.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant

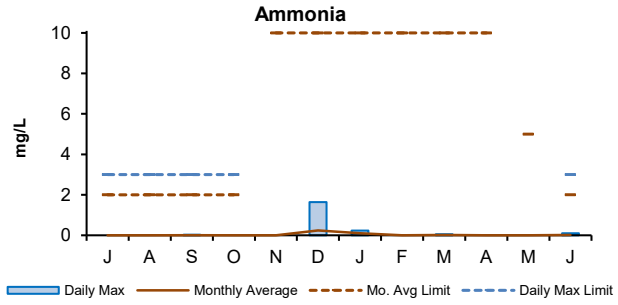
4th Quarter - FY21

NPDES Permit Limits

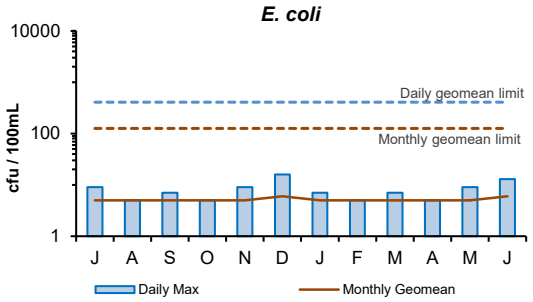
Effluent Characteristics		*Units*	*Limits*	*April*	*May*	*June*	*4th Quarter Violations*	*FY21 YTD Violations*
Flow:	12-month Rolling Average:	mgd	3.01	2.22	2.21	2.27	0	0
BOD:	Monthly Average:	mg/L	20	0.70	0.80	0.90	0	0
	Weekly Average:	mg/L	20	0.90	1.50	1.40	0	0
TSS:	Monthly Average:	mg/L	20	1.70	1.70	1.80	0	0
	Weekly Average:	mg/L	20	2.30	2.30	2.30	0	0
pH:		SU	6.5-8.3	7-7.6	7.1-7.7	7-7.6	0	0
Dissolved Oxygen:	Daily Average Minimum:	mg/L	6	9.40	9.00	8.60	0	0
E. Coli:	Monthly Geometric Mean:	cfu/100mL	126	5	5	6	0	0
	Daily Geometric Mean:	cfu/100mL	409	5	9	13	0	0
TCR:	Monthly Average:	ug/L	17.6	0.13	0.00	0.00	0	0
	Daily Maximum:	ug/L	30.4	4.00	0.00	0.00	0	0
Copper:	Monthly Average:	ug/L	11.6	8.94	8.57	7.66	0	0
	Daily Maximum:	ug/L	14.0	8.94	8.57	9.00	0	0
Total Ammonia Nitrogen: November 1st - March 31st	Monthly Average:	mg/L	10.0	0.00	0.00	0.02	0	0
	Daily Maximum:	mg/L	35.2	0.00	0.00	0.10	0	0
Total Phosphorus: November 1st - March 31st	Monthly Average:	ug/L	1000	49	40	48	0	0
	Daily Maximum:	ug/L	RPT	106	59	72	0	0
Acute Toxicity+:	Daily Minimum:	%	≥100	N/A	N/A	>100	0	0
Chronic Toxicity+:	Daily Minimum:	%	≥62.5	N/A	N/A	100	0	1

There has been one permit violation in FY21 at the Clinton Treatment Plant.
1st Quarter: There was one permit violation in the first quarter. The quarterly chronic toxicity result of 25% was below the minimum permit limit of 62.5%.
2nd Quarter: There were no permit violations in the 2nd Quarter.
3rd Quarter: There were no permit violations in the 3rd Quarter.
4th Quarter: There were no permit violations in the 4th Quarter.

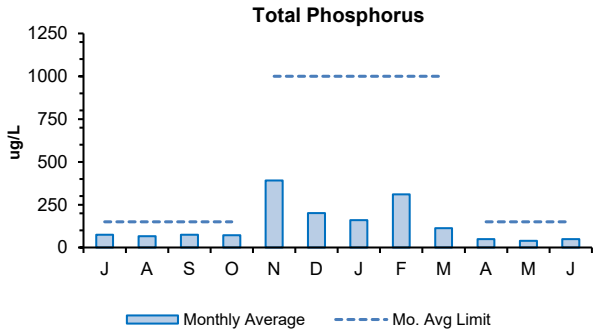
+ Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



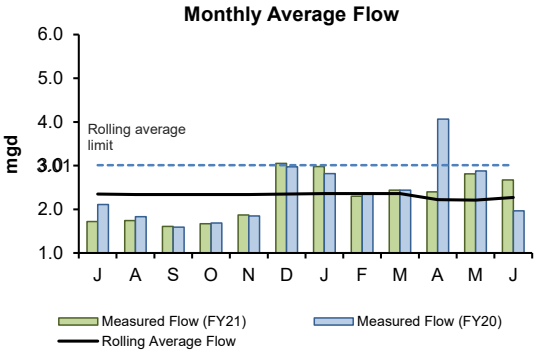
The 4th Quarter's monthly average and daily maximum concentrations of ammonia were below the permit limits. The monthly average and daily maximum limits for the 4th Quarter are 2.0 and 3.0 mg/L respectively. The permit limits are most stringent from June to October when warm weather conditions are most conducive to potential eutrophication.



E. coli is an indicator for the possible presence of pathogens. There were no violations of permit limits in the 4th Quarter.The monthly and daily limits are 126 cfu/100 mL and 409 cfu/100 mL respectively.



Total phosphorus limits are most stringent during the growing season from April to October. The 4th Quarter's monthly average concentrations for total phosphorus were below permit limits.

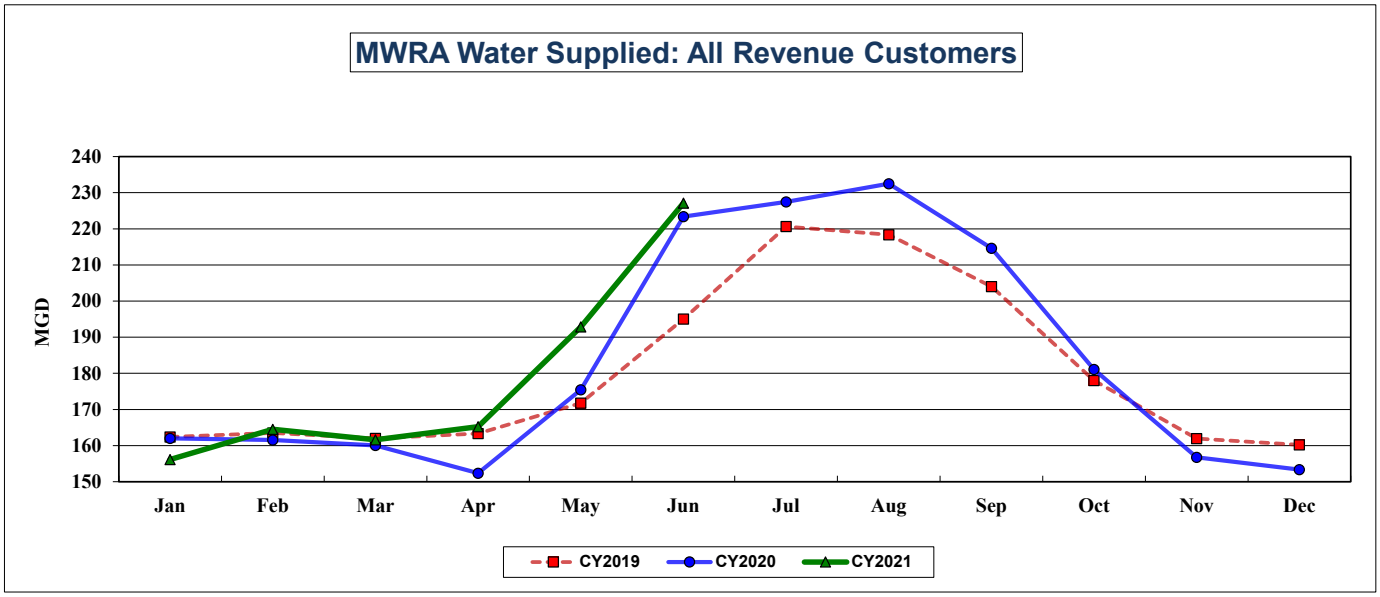


The graph depicts the rolling annual average monthly flow, measured in million gallons per day, exiting the plant. The 12-month rolling average flows during the 4th Quarter were below the permit limit.

COMMUNITY FLOWS AND PROGRAMS

Customer Water Use

4th Quarter - FY21



MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2019	162.367	163.492	161.984	163.350	171.773	195.025	220.621	218.376	203.996	177.998	161.941	160.207	169.662	180.220
CY2020	162.016	161.551	160.018	152.368	175.435	223.405	227.454	232.496	214.617	181.110	156.727	153.367	172.416	183.462
CY2021	156.148	164.513	161.615	165.219	192.854	227.139	0.000	0.000	0.000	0.000	0.000	0.000	177.935	177.935

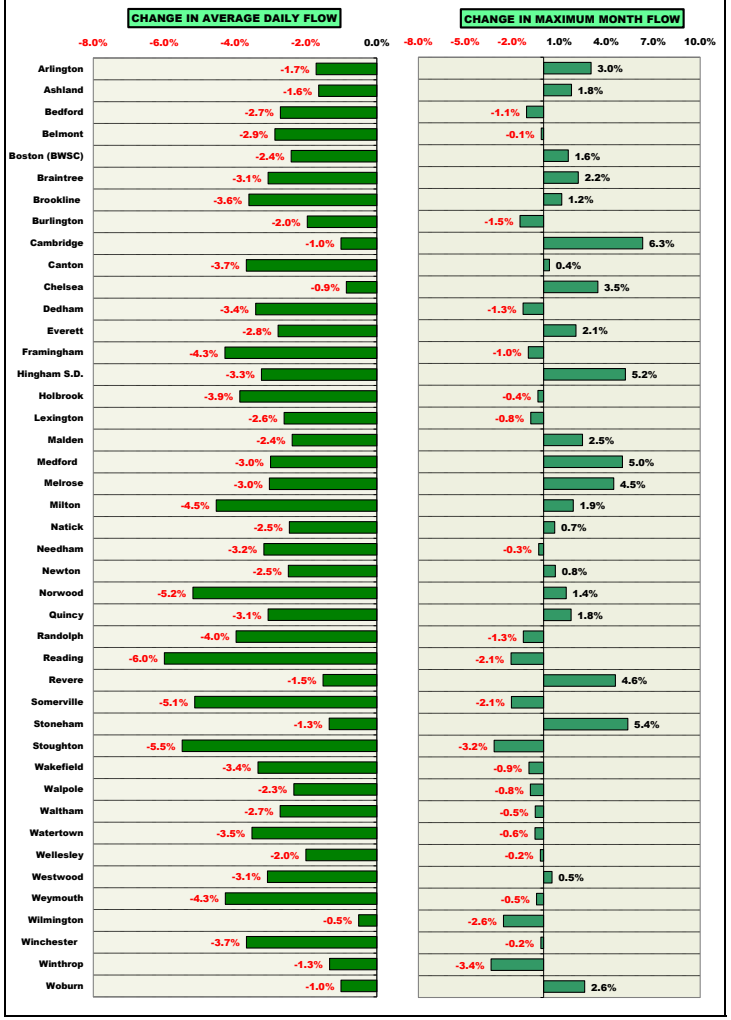
The June 2021 Community Water Use Report was recently distributed to communities served by the MWRA Metropolitan and Chicopee Valley waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2021 water use will be used to allocate the FY2023 water utility rate revenue requirement.

MWRA customers used an average of 195.1 mgd in the 4th quarter (Apr-Jun 2021) of FY2021. This is an increase of 11.3 mgd or 6.2% compared to the 4th quarter of FY2020.

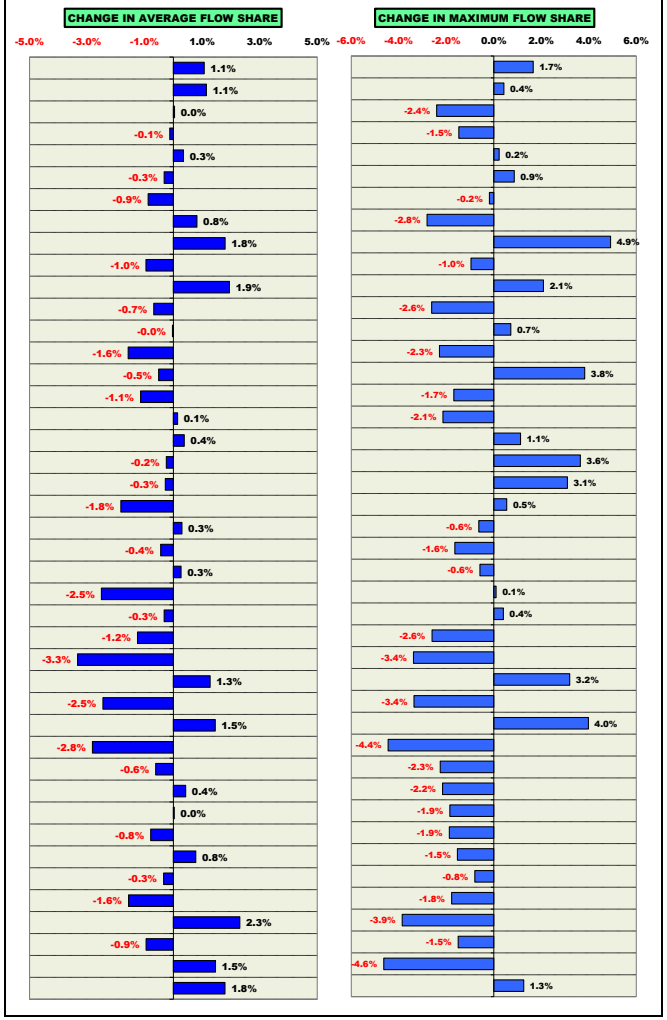
Community Wastewater Flows
4th Quarter - FY21

How CY2019-21 Community Wastewater Flows Could Effect FY2023 Sewer Assessments

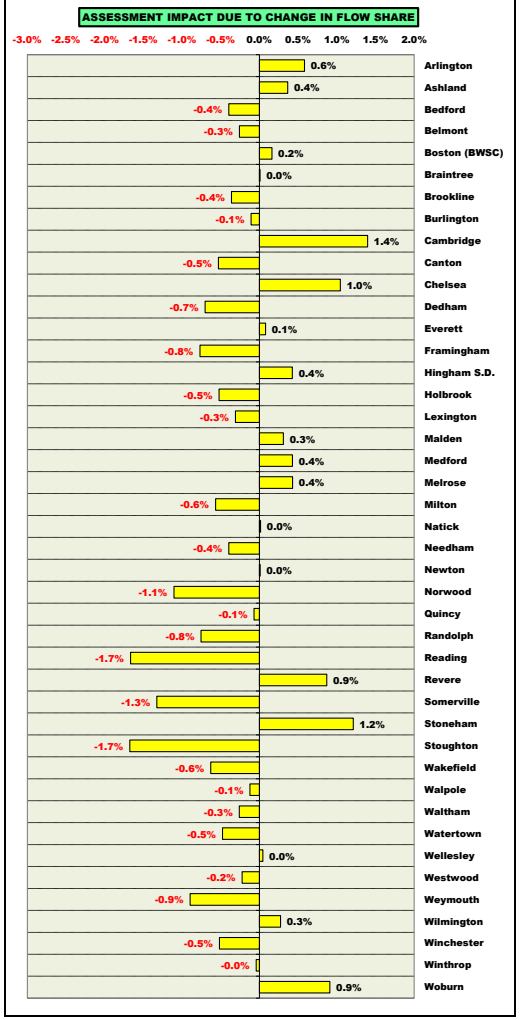
The flow components of FY2023 sewer assessments will be calculated using a 3-year average of CY2019 to CY2021 wastewater flows compared to FY2022 assessments that will use a 3-year average of CY2018 to CY2020 wastewater flows.



But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the RELATIVE change in CY2019 to CY2021 flow share compared to CY2018 to CY2020 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]



[1] MWRA uses a 3-year flow average to calculate sewer assessments. Three-year averaging smoothes 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 actual flows for 2018 and 2019, and January to March, and June to December 2020. April & May 2020 based on the average of three prior years, adjusted for 2020 water use. January to Decmber 2021 estimate based on the average of the three prior years.

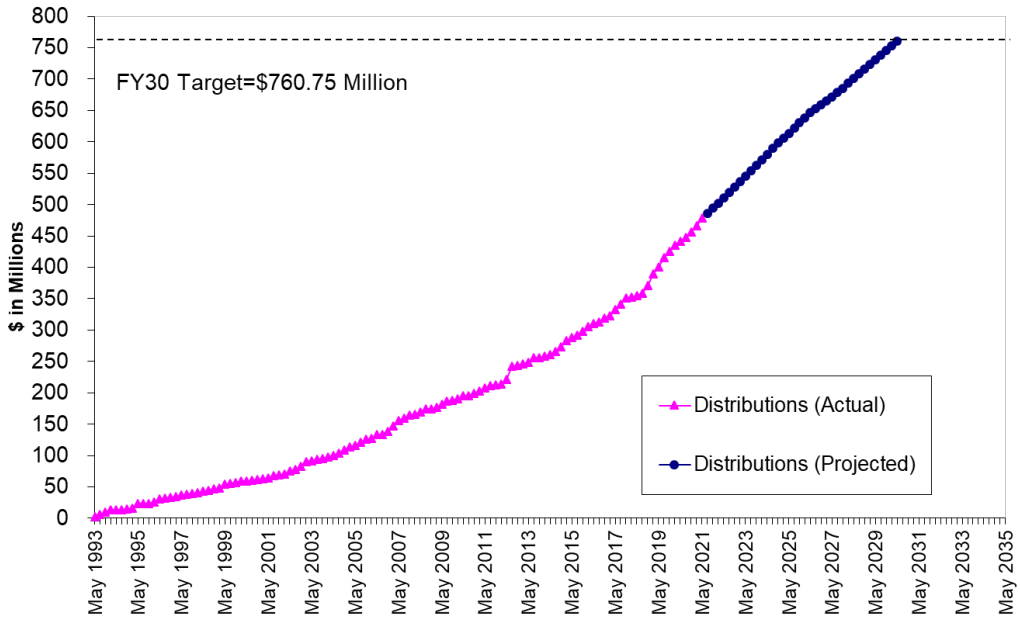
[3] Flow data is preliminary and subject to change pending additional MWRA and community review.

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

Infiltration/Inflow Local Financial Assistance Program

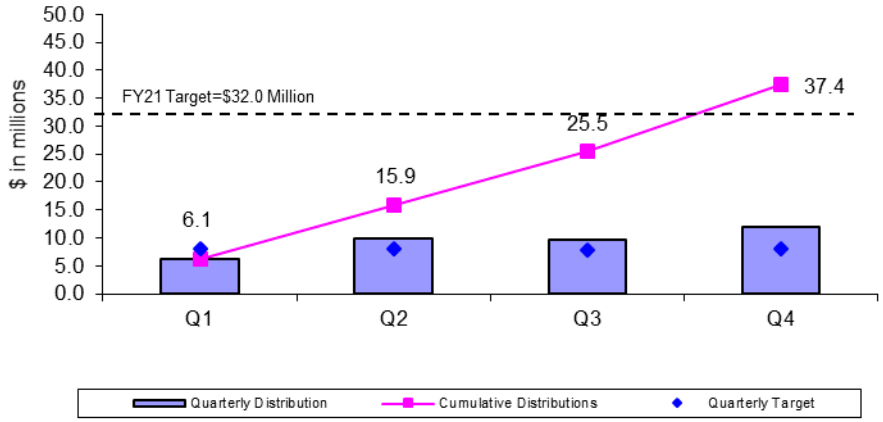
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides $760.75 million in grants and interest-free loans (average of about $20 million per year from FY93 through FY30) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned 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 ten-year loan-only funds.

I/I Local Financial Assistance Program Distribution FY93-FY30



During the 4rd Quarter of FY21, $11.9 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Boston, Malden, Quincy and Watertown. Total grant/loan distribution for FY21 is $37.4 million. From FY93 through the 4th Quarter of FY21, all 43 member sewer communities have participated in the program and $478 million has been distributed to fund 629 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.

FY21 Quarterly Distributions of Sewer Grant/Loans

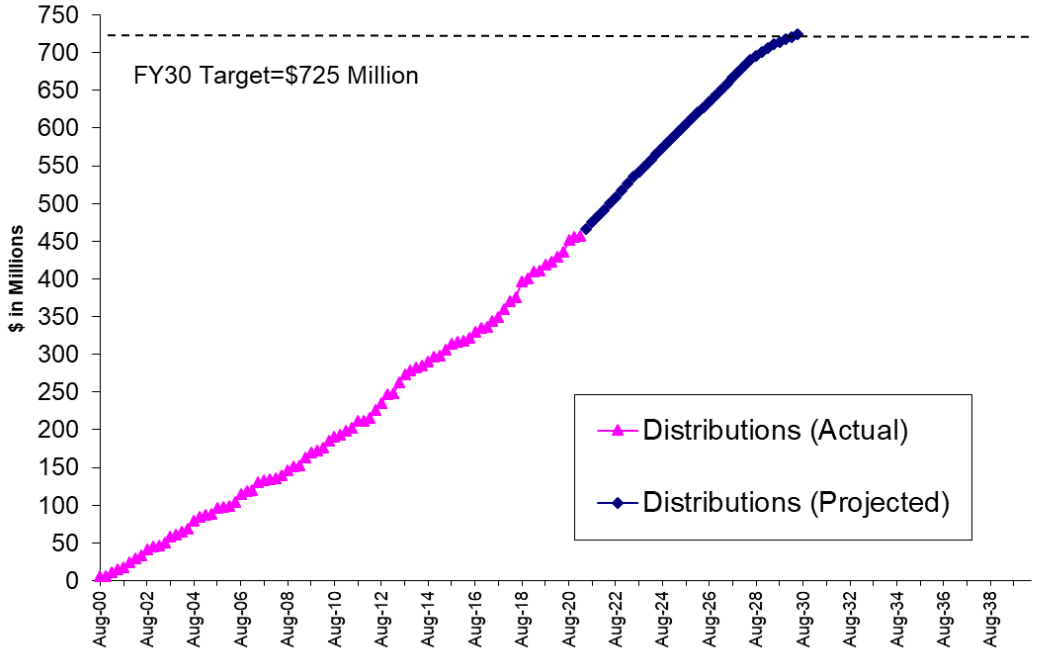


Community Support Programs
4th Quarter – FY21

Local Water System Assistance Program

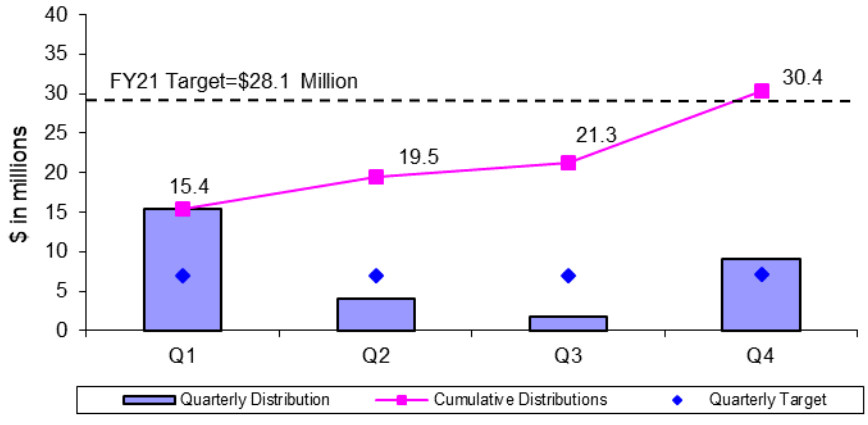
MWRA's Local Water System Assistance Programs (LWSAP) provides $725 million in interest-free loans (an average of about $24 million per year from FY01 through FY30) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. There have been 3 phases: Phase 1 at $222 Million, Phase 2 at $210 Million, and Phase 3 at $293 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 4th Quarter of FY21, $9.1 million in interest-free loans was distributed to fund local water projects in Arlington, Boston, Dedham Westwood Water District, Marblehead, Revere, and Watertown. Total loan distribution for FY21 is $30.4 million. From FY01 through the 4th Quarter of FY21, $467 million has been distributed to fund 486 local water system rehabilitation projects in 43 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.

FY21 Quarterly Distributions of Water Loans



Community Support Programs

4th Quarter – FY21

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 – MWRA made three Lead Loans.

FY18 was the second year of the Lead Loan Program - MWRA made five Lead Loans.

FY19 was the third year of the Lead Loan Program - MWRA made four Lead Loans.

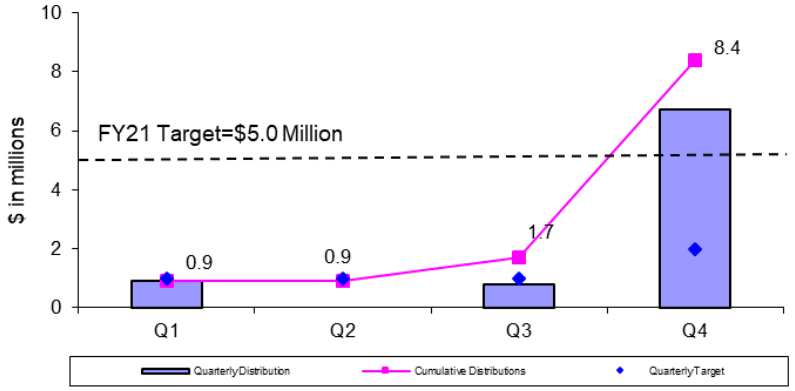
FY20 was the fourth year of the Lead Loan Program - MWRA made eight Lead Loans.

FY21 is the fifth year of the Lead Loan Program – MWRA made seven Lead Loans.

Summary of Lead Loans:

Watertown in FY21	$0.6 Million
Marlborough in FY21	$2.0 Million
Everett in FY21	$1.5 Million
Boston in FY21	$2.6 Million
Winthrop in FY21	$0.8 Million
Chelsea in FY21	$0.3 Million
Winchester in FY21	$0.6 Million
Everett in FY20	$0.5 Million
Marlborough in FY20	$1.0 Million
Winchester in FY20	$0.6 Million
Winthrop in FY20	$0.7 Million
Weston in FY20	$0.2 Million
Everett in FY20	$1.0 Million
Somerville in FY20	$0.9 Million
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
Winchester in FY17	$0.5 Million
TOTAL	$25.2 Million

FY21 Quarterly Distributions of Lead Service Line Replacement Loans

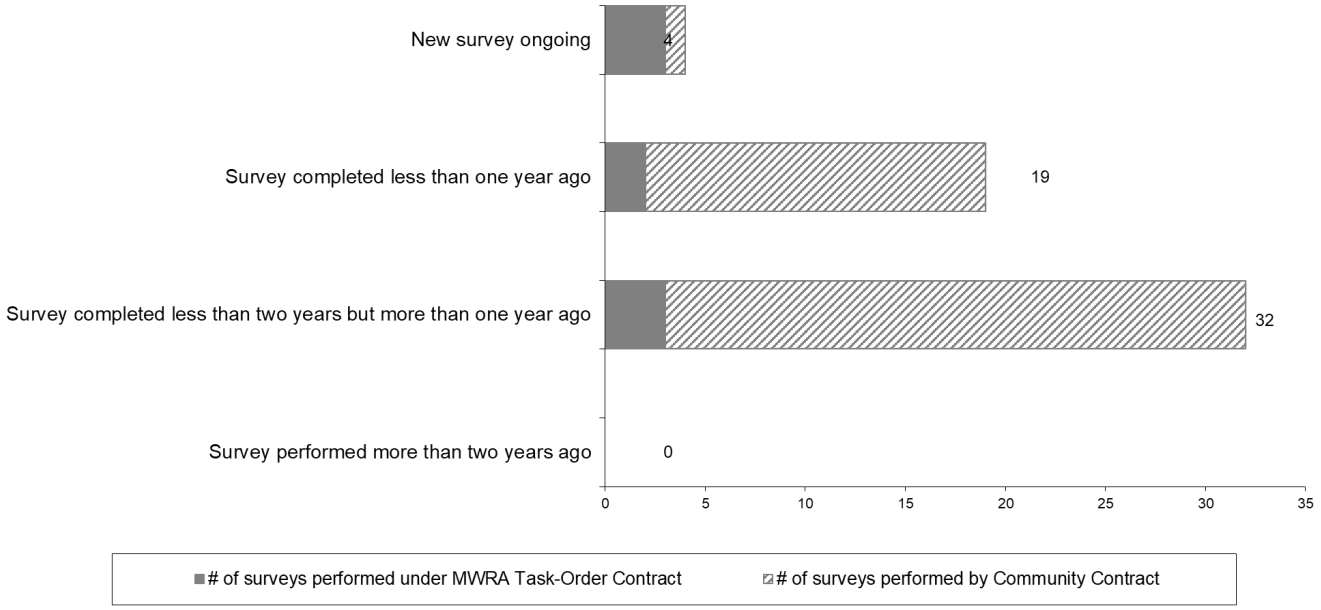


Community Support Programs

4th Quarter – FY21

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 4th Quarter of FY21, 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 200 mgd. The local Water Conservation Program includes distribution of water conservation education brochures (indoor - 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	360	10,753	61,917	10,204	83,234
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	880	1,635	3,042	1,157	6,714
Toilet Leak Detection Dye Tablets	_____	293	352	5,008	285	5,938

BUSINESS SERVICES

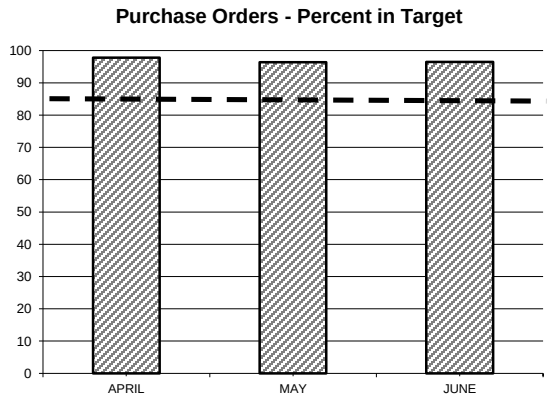
Procurement: Purchasing and Contracts

4th Quarter - FY21

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

Outcome: Processed 95% of purchase orders within target; Average Processing Time was 4.41 days vs. 4.57 days in Qtr 4 of FY20. Processed 76% (13 of 17) of contracts within target timeframes; Average Processing Time was 138 days vs. 193 days in Qtr 4 of FY20.

Purchasing



	No.	TARGET	PERCENT IN TARGET
$0 - $500	573	3 DAYS	92.8%
$500 - $2K	584	7 DAYS	95.1%
$2K - $5K	417	10 DAYS	96.8%
$5K - $10K	37	25 DAYS	91.8%
$10K - $25K	43	30 DAYS	88.3%
$25K - $50K	14	60 DAYS	85.7%
Over $50K	35	90 DAYS	91.4%

The Purchasing Unit processed 1703 purchase orders, 355 more than the 1348 processed in Qtr 4 of FY20 for a total value of $11,880,029 versus a dollar value of $10,674,862 in Qtr 4 of FY20.

Contracts, Change Orders and Amendments

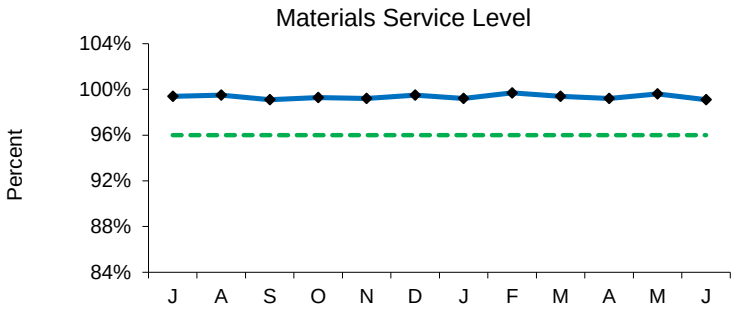
Procurement processed seventeen contracts with a value of $7,712,896 and six amendments with a value of $1,490,534. Eighteen change orders were executed during the period. The dollar value of all non-credit change orders during Q4 FY21 was $883,104 and the value of credit change orders was ($1,286,604).

Four contracts were not processed within the target timeframes. The first contract was delayed due to delays by the contractor obtaining the required signatures to execute the contract based on the signatory's remote work situation and availability. Another contract was delayed due to the extension of the proposal due date to accommodate the bid document release schedule of the associated construction project (7117). A third contract was delayed due to changes to the RFQ/P requirements, timeline and costs in addition to delays in receiving insurance certificates and a MA Foreign Corp Certificate due to COVID-19 circumstances. The final contract was delayed due to administrative delays during the contract execution due to COVID-19 circumstances.

Staff reviewed 29 proposed change orders and 29 draft change orders.

Materials Management

4th Quarter - FY21



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 7,612 (99.3%) of the 7,665 items requested in Q4 from the inventory locations for a total dollar value of $464,652.

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 FY21 goal is to reduce consumable inventory from the July '20 base level ($8.8 million) by 2.0% (approximately $176,369), to $8.6 million by June 30, 2021 (see chart below). This goal has been achieved. Consumable inventory reduction amounted to $230,553, a value of $54,184 over the goal.

Items added to inventory this quarter include:

- Deer Island – gauges, pressure transmitters, controllers, interface communication, actuators, temperature sensor assembly, and temperature metering pump and temperature modules for I&C; level transmitter for Residuals; pump for Power & Pump; safety harnesses, weed killer, eyewash station, lamps, filters and flush valves for entire plant.
- Chelsea – filters, hoses and sample probes for Safety; snow plow modules and harnesses, fuses, filters, fittings, brake pads and rotors and ignition coils for Fleet Service; conveyors, motor controllers and recorders for Work Coordination; bends for Pipeline; frames and covers for Water Operations & Maintenance; syringe filters for TRAC; padlock keys for FOD.
- Southboro – no items were added this quarter for Southboro.

Property Pass Program:

- Eleven audits were conducted during Q4.
- Scrap revenue received for Q4 amounted to $25,476. Year to date revenue received amounted to $64,958.
- Revenue received from online auctions held during Q4 amounted to $42,024. Year to date revenue received amounted to $284,470.

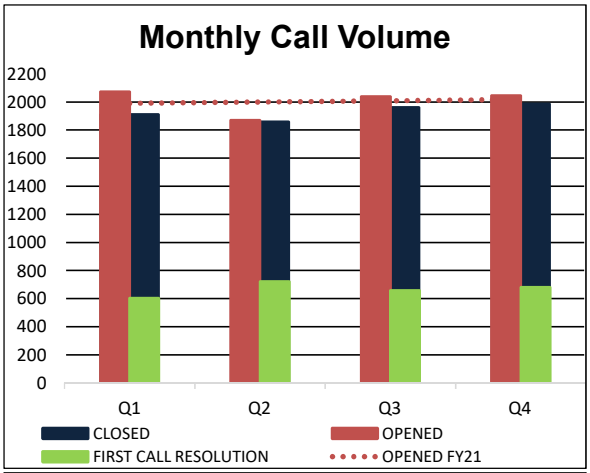
Items	Base Value July-20	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	8,818,459	8,587,906	-230,553
Spare Parts	8,797,946	9,160,439	362,493
Total	17,616,405	17,748,345	131,940

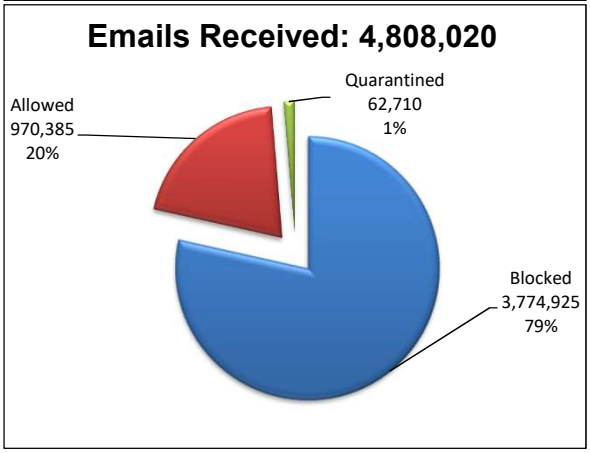
Note: New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

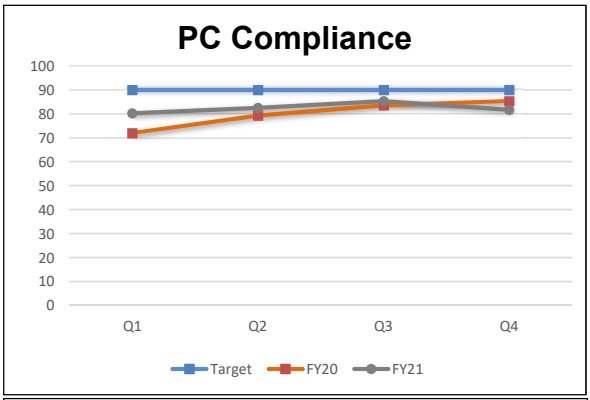
MIS Program

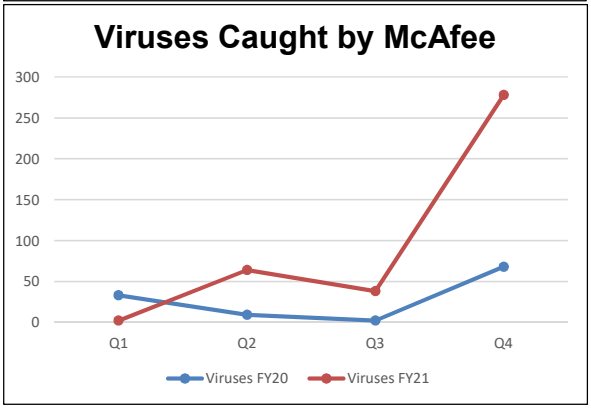
Fourth Quarter – FY21

Numbers & Statistics









Project Updates

Infrastructure & Security

AWIA Risk and Resiliency Assessment: Remediation work to resolve vulnerabilities continued. At the end of the quarter, 64% of the identified tasks were "Completed"; 3% were "In Progress"; and 33% were identified as longer term projects.

Cyber Security Awareness Training: 99% of the assigned 889 employees have completed their assignments. 46% of the additional 270 Water and Wastewater staff that do not use computers regularly have completed their training.

PBX (Telephone System) Upgrade: Bid was awarded to ePlus; Planning for the installation, configuration, and roll-out of the new phones began. Cabling and other required infrastructure upgrades continued through Q4 and will complete in Q1 FY22.

Aquarius: Application has been upgraded to NG (newest version) on a new SQL Server.

New SQL Server: Multiple new 2019 servers that support Tiscor, Lobby TRAC, Telog, and PI installed this quarter.

Deer Island: Upgraded internet circuit from an outdated T1 to a 50 MB.

Digital Signage: Pilot in Chelsea Maintenance building completed successfully. Staff scoping requirements for 7 new locations

Other Software & Custom Applications

COVID Self-Certification: Went live with web app and phone app that allows employees to self-certify they are COVID symptom-free prior to entering the workplace.

ECM/Electronic Document Management: Internal and vendor team kick off meetings held. Started looking at data migration requirements, finalized controlled vocabulary, and had multiple meetings with vendor on infrastructure, records management, and departmental files structures. Exploring standardization of documentation processes and folder hierarchies across Engineering, Construction, DI-TIC and DISC.

MWRA Website Replacement: Preliminary meetings with Procurement for project to upgrade the platform and modernize both the external website and Pipeline.

Learning Management System: Internal staff training complete. Began migration of existing course content into the LMS. Several course catalogs/learning paths (grouping of courses) along with outside license records have been added. Integration with LinkedIn established. Employee and historical data migration continues to be explored.

Visitor Management: Added an additional visitor group to account for unannounced visitors / deliveries. Received go-ahead from business sponsor to begin User Acceptance Testing after successful demo completed. UAT scripts and Job Aids completed.

PIMS Appeon PowerBuilder Upgrade: Installed new PIMS client on updated servers. User Acceptance Testing completed.

Library, Record Center, & Training

Library: Undertook 23 research requests (69 YTD), supplied 21 books for circulation (83 YTD), provided 19 articles (62 YTD), and 12 (145 YTD) standards. The MWRA Library Portal supported 704 end-user searches (2,686 YTD). Research topics include historic drawings of Marlborough, historic drawings of Farm Pond Gatehouse, Schenk's Dam Toe, EPA-Sen. Grassley letters.

Record Center (RC): The Record Center added 288 (745 YTD) new boxes, handled 584 (1,185 YTD) total boxes, and shredded 10 (42 YTD) 65 gallon bins of confidential documentation on-site. Analysis of scope for document scanning due to building consolidation underway. The RC manager attended 3 (9 YTD) RCB virtual meetings. The RC did 57 (72 YTD) physical box searches for requested information. Requested searches included Tunnel Redundancy information, Litigation, construction projects, HR related items, Walnut Hill and Metro West information.

Training: In Q4, 73 online IT lessons were taken (139 YTD), by 11 employees (33 YTD), spanning 152 hours (244 YTD).

Legal Matters

4th Quarter - FY21

PROJECT ASSISTANCE

Real Estate, Contract, Environmental and Other Support:

- **8(m) Permits:** Reviewed seventy-eight (78) 8(m) permits. Finalized Fens Gatehouse Direct Connect Permit 20 09 186DC – MWRA's Boston Marginal Conduit.

- **Real Property:** Reviewed property rights, title documents and outlined processes for acquisition of property interests to support MWRA's Tunnel Redundancy Department with the Metropolitan Water Tunnel Program. Reviewed CNY lease with respect to responsibility for damage related to water damage that occurred in Building 39 as a result a failed water tank on January 4, 2021 and drafted response to landlord. Drafted license related to Dorchester Interceptor Rehabilitation Contract 7279. Reviewed Chelsea Lease relative to option to purchase 2 Griffin Way property in Chelsea and reviewed property rights through chain of title documents and title certification for the 2 Griffin Way property. Reviewed requirements for deed restriction at MWRA's Chelsea Headworks. Reviewed MWRA's property rights in the area of 69 Clinton Road in Brookline and in the area of the former Green property, which is adjacent to DITP. Researched Payment in Lieu of Taxes and Applicability to Non-Watershed Property for MWRA. Researched eminent domain taking powers for MWRA and MBTA. Reviewed Wachusett Watershed Fee Acquisition, W-001229 for approximately 36.08 acres in Leominster and Sterling. Reviewed proposed realignment of water easement for MWRA's Northern Intermediate High Section 89 water main located in the area of 2 Hill Street, Woburn as it relates to housing development and MWRA Contract 7117 - Northern Intermediate High Section 89 Replacement Pipeline. Reviewed Sudbury Aqueduct property rights in area of 1058 and 1062 Beacon Street in Newton, MWRA's property rights in area of Norumbega covered storage property, MWRA's property rights in area of Cosgrove intake in Clinton, and easement rights related to proposed traffic lights near Griffin Way in Chelsea. Finalized license related to Dorchester Interceptor Rehabilitation Contract 7279. Reviewed property rights in area of 16 Courtney Road in West Roxbury related to complaint to quiet title, where MWRA is a named party, to determine the origin of a drainage easement. Researched MWRA's property rights in the areas of I90/I95; and reviewed title documents in Waltham, outlined acquisition process for property interest to support MWRA's Metropolitan Water Tunnel Program. Reviewed Chelsea lease and amendments; edited and finalized estoppel certificate. Drafted memorandum of understanding for Section 89 Waterline Replacement Project for MWRA Contract 7117. Reviewed property rights for 2 Hill Street, Woburn and MWRA's easement. Reviewed property rights along Eastern Avenue and Griffin Way, Chelsea for anticipated traffic light signal project. Researched and advised on eminent domain taking powers for MWRA. Drafted conveyance agreement for property disposition to City of Quincy for 2 Cleverly Court. Reviewed property rights for Nash Hill Telecommunication Tower. Reviewed House Bill 3770 and case law on project labor agreements.

- **Public Records Requests:** During the months of April, May and June, MWRA received and responded to one hundred eighty three (183) public records requests.

LABOR, EMPLOYMENT AND ADMINISTRATIVE

New Matters

Four 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 national origin, race, and color, following his non-selection for a promotion.

Matters Concluded

Received an arbitrator's decision in favor of the MWRA following a hearing on a grievance alleging that it violated a collective bargaining agreement when grievant was suspended and demoted for safety violations and making misleading statements.

LITIGATION/CLAIMS

New lawsuits/claims: In re Mercedes-Benz Emissions Litigation,
United States District Court for the District of New Jersey;
16-cv-881 (KM) (ESK)
Law Division has been notified of a class action lawsuit that relates to "Bought or Leased Mercedes-Benz or Sprinter Blue TEC II Diesel Vehicles" that may be eligible for certain cash payments and/or an extended warranty. Six MWRA fleet vehicles qualify for inclusion in the settlement.

DiGregorio, et al. v. Griffin Way, LLC v. MWRA,
C.A. No. 2084-CV-02429-K
On May 18, 2021, MWRA was served with a Third Party Complaint in a personal injury action against Griffin Way, LLC, by a former employee of the MWRA Retirement Board arising out of a slip and fall in the lobby of MWRA's Chelsea facility in September 2019. Plaintiff alleges Griffin Way, as owner of the property, was negligent in failing to keep the property in a safe condition. The Third Party Complaint, in turn, seeks indemnity from MWRA as the tenant of the building. Plaintiff seeks medical and other expenses, as well as a loss of consortium claim by her husband.

Kilgannon v. Boston Water Sewer Commission, et als.,
21 MISC 000240 (MDV)
Plaintiff filed a Quiet Title Action in the Land Court against various parties seeking a declaration that a drainage easement referenced on a 1924 plan of real property owned by him at 16 Courtney Road in West Roxbury has been abandoned and, therefore, extinguished. Staff confirmed that MWRA maintains no assets or infrastructure in or around the location of the property. A Case Management Conference was held on June 4, 2021. All defendants, including MWRA, BWSC and DCR, either assented or did not object to judgment in Plaintiff's favor. The court ordered Plaintiff to file certain motions for appropriate disposition of the case by July 2, 2021.

Closed Cases: (Former employee) v. MWRA, C.A. No.19-CV-01847
A Stipulation of Dismissal was filed with the court on May 28, 2021. The matter is now closed.

MWRA v. NEL Corp., Dewberry, et al., Suffolk Superior Court C.A. No. 18-CV 01156-BLS1
A Stipulation of Dismissal was filed with the court on June 16, 2021. The matter is now closed.

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of June 2021	As of Mar 2021	As of Dec 2021
Construction/Contract/Bid Protest (other than BHP)	0	1	1
Tort/Labor/Employment	3	4	3
Environmental/Regulatory/Other	3	2	2
Eminent Domain/Real Estate	1	0	0
Total	**7**	**7**	**6**
Other Litigation matters (restraining orders, etc.)	2	2	2
TOTAL – all pending lawsuits	**9**	**9**	**8**
Claims not in suit: 1. Granados MVA Claim	1	1	0
Bankruptcy	1	1	1
Wage Garnishment	2	2	2
TRAC/Adjudicatory Appeals	0	0	0
Subpoenas	0	0	0
TOTAL – ALL LITIGATION MATTERS	**13**	**13**	**11**

Significant Developments There are no new Significant Developments to report.
Closed Claims: There are no closed claims to report.

Subpoenas Wage During the Fourth Quarter of FY 2021, no subpoenas were received and no subpoenas were pending at the end of the Fourth Quarter FY 2021.

Garnishments There are two wage garnishment matters that are active and monitored by Law Division.

TRAC/MISC.

New Appeals: There are no new appeals in the 4th Quarter FY 2021.

Settlement by Agreement of Parties There are no Settlements by Agreement of Parties in the 4th Quarter FY 2021.

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 4th Quarter FY 2021.
Final Decisions There are no Final Decisions issued in the 4th Quarter FY 2021.

INTERNAL AUDIT AND CONTRACT AUDIT ACTIVITIES
4th Quarter FY21

Highlights

During the 4th quarter FY21, Internal Audit (IA) completed a review of Compliance Status of Employees' Mandatory Confined Space Entry Training. IA noted several employees who require confined space entry training are overdue. IA provided several recommendations relating to identifying, tracking and reporting those employees who need required training. Support to staff on Return to Work Guidance continued through May as the Authority prepared for a hybrid work in office/work from home model. An internal review of water and wastewater licenses and certifications is progressing.

In addition, IA completed a true-up of 2020 operating expenses for the HEEC cable, reviewed the Fore River Railroad 2020 tax return, and completed preliminary reviews of 3 professional service contracts while 3 others are in process. IA issued 51 indirect cost rate letters to professional service consultants. Management advisory services included support on the MWRA's leases and recovery of overcharged office supplies is progressing.

Status of Recommendations

During FY21, 10 recommendations were closed.

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
Fuel Use & Mileage Tracking (12/31/18)	3	5	8
Asset Tracking – Fleet Data Verification (8/21/19)	1	15	16
Fleet Services Non-Plated Equipment Inspections (3/30/20)	9	6	15
Overhead Crane Inspections (4/28/21)	11	0	11
Compliance Status of Employees' Mandatory Confined Space Entry Training (6/30/21)	8	0	8
Total Recommendations	*32*	*26*	*58*

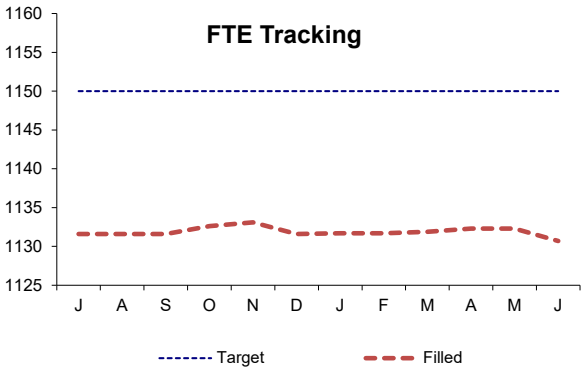
Cost Savings

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.

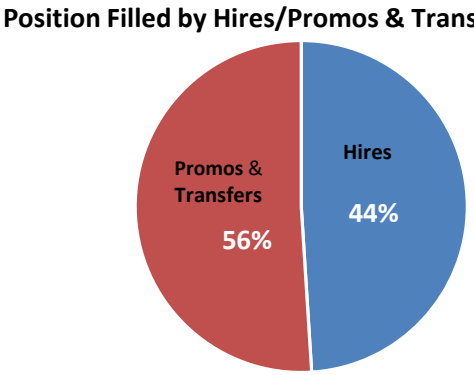
Cost Savings	FY17	FY18	FY19	FY20	FY21 Q4	TOTALS
Consultants	$272,431	$118,782	$262,384	$643,845	$563,525	$1,860,967
Contractors & Vendors	$3,037,712	$1,323,156	$3,152,884	$2,097,729	$1,547,223	$11,158,704
Internal Audits	$224,178	$204,202	$210,063	$212,517	$214,458	$1,065,418
Total	**$3,534,321**	**$1,646,140**	**$3,625,331**	**$2,954,091**	**$2,325,206**	**$14,085,089**

OTHER MANAGEMENT

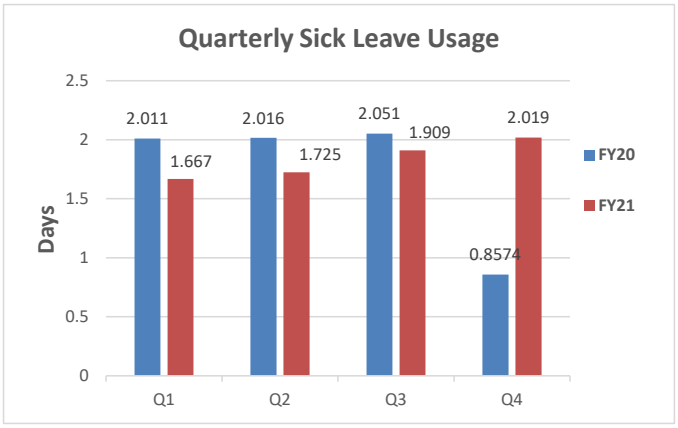
Workforce Management
4th Quarter - FY21



FY21 Target for FTE's = 1150
FTE's as of June 2021 = 1130.7
Tunnel Redundancy as of June 2021 = 10.0



	Pr/Trns	Hires	Total
FY19	112 (60%)	76 (40%)	188
FY20	84 (59%)	58 (41%)	142
FY21	81 (56%)	64(44%)	145

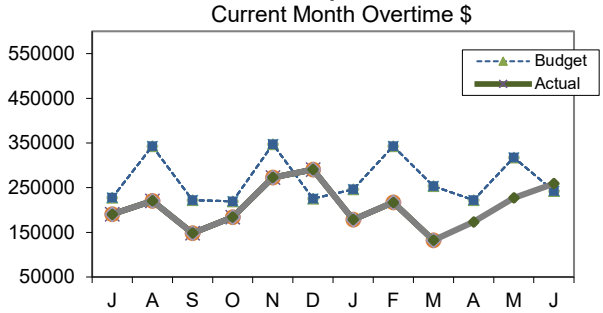


	Number of Employees	YTD (usage to date)	Annualized Total	Annual FMLA %	FY20
Admin	141	5.87	5.87	15.6%	6.48
Aff. Action	7	3.60	3.60	0.0%	6.42
Executive	4	4.17	4.17	0.0%	1.81
Finance	35	3.14	3.14	0.0%	4.09
Internal Audit	6	0.90	0.90	0.0%	5.08
Law	12	5.83	5.83	8.9%	6.71
OEP	5	1.33	1.33	0.0%	1.00
Operations	920	7.95	7.95	19.5%	7.27
Tunnel Redundancy	10	1.63	1.63	17.8%	4.93
Public Affairs	11	1.13	1.13	0.0%	7.96
MWRA Avg	**1151**	**7.32**	**7.32**	**18.6%**	**6.94**

Sick leave usage in 4th Quarter of FY21 is higher than usage in the 4th Quarter of FY20.

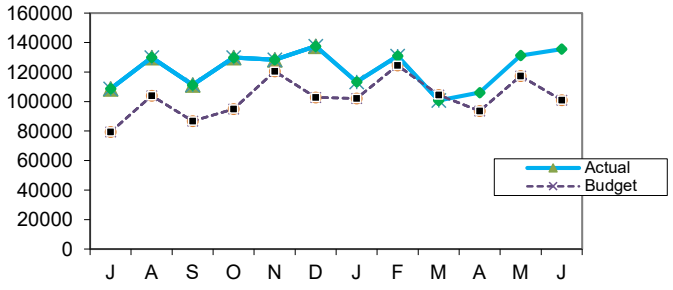
Percent of sick leave usage for FY21 attributable to Family and Medical Leave Act (FMLA) is 18.6%

Field Operations
Current Month Overtime $



Total Overtime for Field Operations for the fourth quarter of FY21 was $660k which is ($123k) under budget. Emergency overtime was $328k, which is ($77k) under budget. Rain Events totaled $232k and Emergency Maintenance was $46k and Emergency Operations was $2k. Coverage overtime was $214k which is $43k over budget, reflecting the quarter's shift coverage requirements. Planned overtime was $118k, which is ($86k) under budget with combined spending of $61k for all Maintenance, $26k for Planned Operations and $11k for Training.

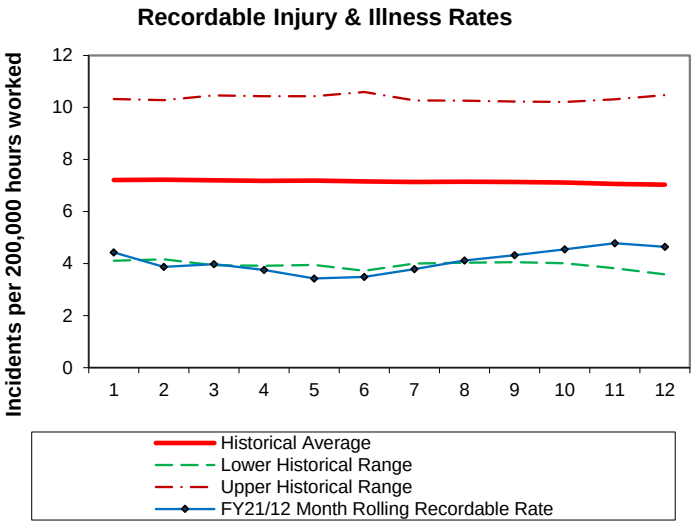
Deer Island Treatment Plant
Current Month Overtime $

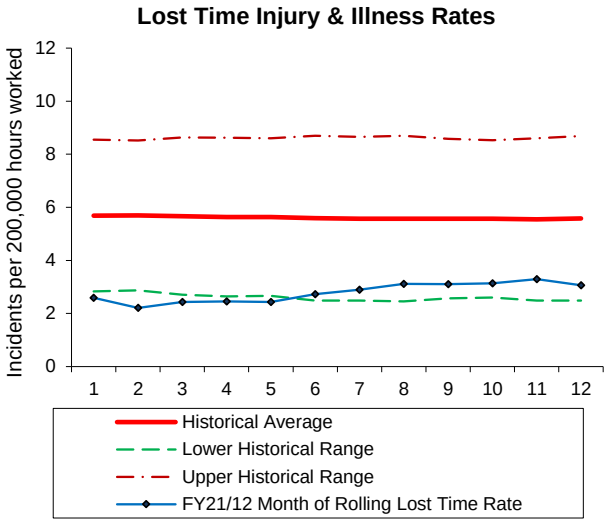


Deer Island's total overtime expenditure for the fourth quarter was $373K, which was $61K or 19.6% over budget. In the fourth quarter, Deer Island experienced higher than anticipated shift coverage of $60K and planned/unplanned of $24K. This was offset by lower than anticipated storm coverage of ($23K). YTD Deer Island's overtime spending is $1.3M, which is $198K or 17.5% over budget due to higher than anticipated shift coverage of $195K; and planned/unplanned overtime of $12K. This is offset by lower storm coverage of $9K. During October, Eversource conducted 4 days of annual maintenance on the HEEC cable which accounted for $27K of the overspending for the year. COVID-19 related OT has accounted for $74K of the overspending for the fiscal year.

Workplace Safety

4th Quarter - FY21





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 FY21. 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

	4th Quarter Information		
	New	Closed	Open Claims
Lost Time	7	12	59
Medical Only	12	16	19
Report Only	3	3	
	QYTD		FYTD
Regular Duty Returns	7		17
Light Duty Returns	0		0
Indemnity payments as of June 30 2021 included in open claims listed			19

COMMENTS:

Regular Duty Returns

Apr	0	Employees returned to full duty/no restrictions
May	3	Employees returned to full duty/no restrictions
June	4	Employees returned to full duty/no restrictions

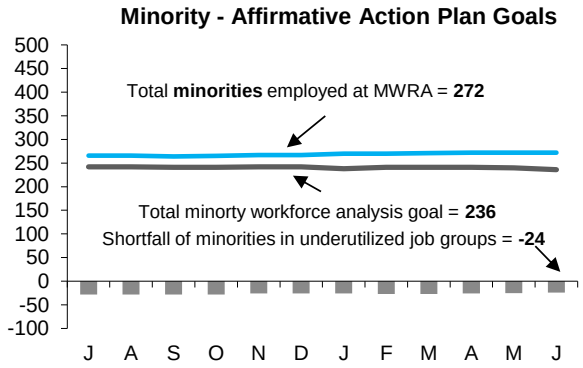
Light Duty Returns

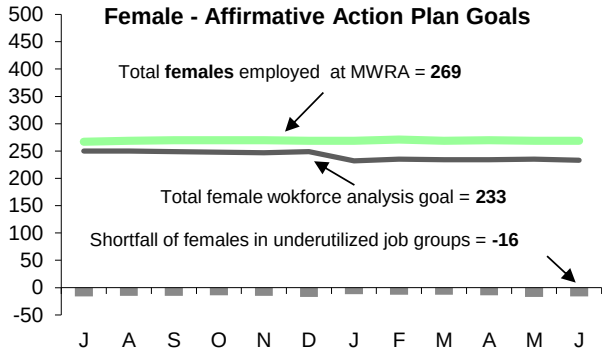
Apr N/A
May N/A
June N/A

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

4th Quarter - FY21





Highlights:

At the end of Q4 FY21, 5 job groups or a total of 24 positions are underutilized by minorities as compared to 5 job groups for a total of 29 positions at the end of Q4 FY20; for females 5 job groups or a total of 16 positions are underutilized by females as compared to 8 job groups or a total of 17 positions at the end of Q4 FY21. During Q4, 4 minorities and 4 females were hired. During this same period 1 minority and 2 females were terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 6/30/2021	Minorities as of 6/30/2021	Achievement Level	Minority Over or Under Underutilized	Females As of 6/30/2021	Achievement Level	Female Over or Under Underutilized
Administrator A	24	3	1	2	12	6	6
Administrator B	24	1	7	-6	7	5	2
Clerical A	30	10	6	4	27	23	4
Clerical B	23	8	6	2	3	7	-4
Engineer A	82	25	18	7	18	20	-2
Engineer B	60	20	16	4	13	9	4
Craft A	115	15	21	-6	0	4	-4
Craft B	139	21	19	2	3	3	0
Laborer	71	22	16	6	5	3	2
Management A	92	22	28	-6	34	19	15
Management B	43	11	9	2	9	10	-1
Operator A	67	5	9	-4	3	2	1
Operator B	68	21	9	12	3	1	2
Professional A	27	4	6	-2	17	12	5
Professional B	174	51	41	10	85	74	11
Para Professional	49	15	10	5	22	22	0
Technical A	57	16	13	3	7	12	-5
Technical B	6	2	1	1	1	1	0
Total	**1151**	**272**	**236**	**60/-24**	**269**	**233**	**52/-16**

AACU Candidate Referrals for Underutilized Positions

Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions/ Transfers	AACU Ref. External	Position Status
Administrative B	Director, SCADA, Metering &Monitoring	1	Int./Ext.	1	0	Promo = WM
Administrative B	Director, Western Operations & Maint.	1	Int.	1	0	Promo = WM
Craft A	Sewer Maintenance Supervisor	1	Int.	1	0	Promo = WM
Craft A	M&O Specialist	1	Int./Ext.	1	0	Transfer = WM
Craft A	Specialty Valve Foreman	1	Int.	1	0	Promo = WM
Craft A	Unit Supervisor	1	Int.	1	0	Promo = WM
Craft A	WSS Foreman	1	Int.	1	0	Transfer = WM
Engineer A	Program Manager	1	Int./Ext.	1	0	Promo = WF
Engineer A	Program Manager, Electrical (Chelsea)	1	Int.	1	0	Promo = M
Engineer A	Program Manager, SCADA (Tech)	1	Int./Ext.	1	0	Promo = AM
Engineer A	Senior Engineer	1	Int./Ext.	0	0	NH = WM
Engineer A	Senior Engineer	1	Int./Ext.	1	0	Promo = WF
Management A	Manager, Operations (Wastewater)	1	Int./Ext.	0	0	NH = WM
Operators A	Director, Environmental & Reg Affairs	1	Int.	1	0	Promo = WF

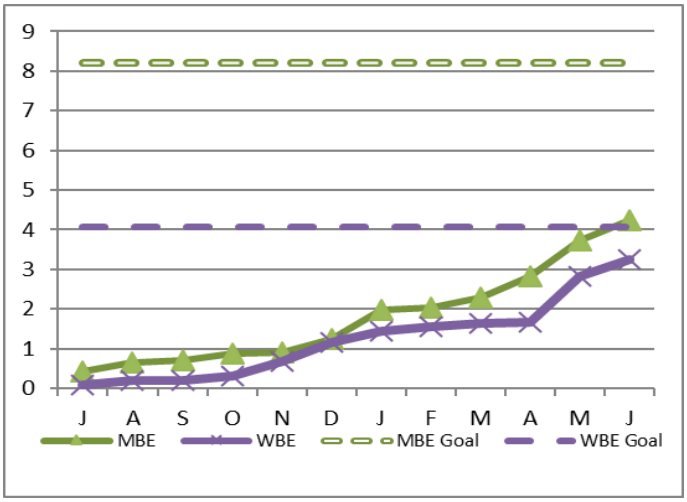
MBE/WBE Expenditures

4th Quarter - FY21

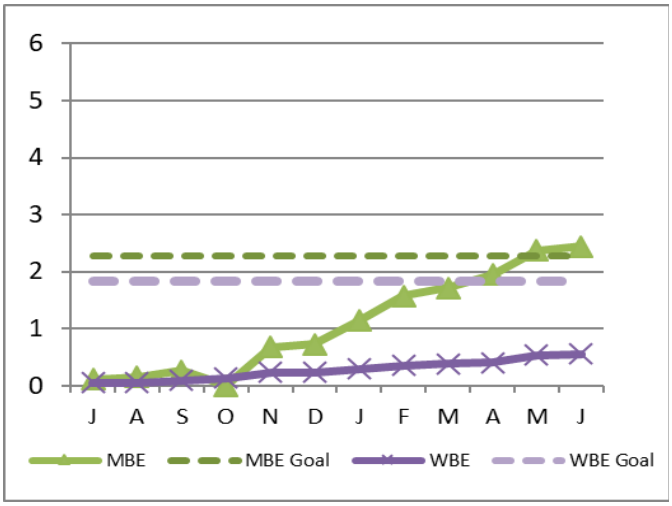
MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. The goals for FY21 are based on 85% of the total construction and 75% of the total professional projected spending for the year. Certain projects have been excluded from the goals as they 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 June.

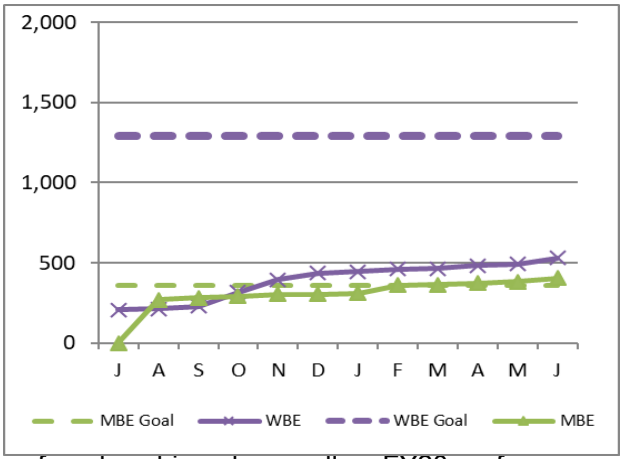
Construction



Professional Services



Goods/Services



FY21 spending and percentage of goals achieved, as well as FY20 performance are as follows:

MBE					WBE			
FY21 YTD		**FY20**			**FY21 YTD**		**FY20**	
Amount	**Percent**	**Amount**	**Percent**		**Amount**	**Percent**	**Amount**	**Percent**
4,234,355	51.6%	3,641,145	45.6%	Construction	3,238,772	79.3%	2,446,388	61.7%
2,439,855	107.0%	2,322,007	111.9%	Prof Svcs	554,298	30.3%	942,850	56.6%
403,728	113.2%	340,656	94.1%	Goods/Svcs	528,645	40.9%	993,375	81.3%
7,077,938	65.3%	6,303,808	60.5%	**Totals**	4,321,715	60.0%	4,382,613	63.9%

FY21 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

MWRA FY21 CEB Expenses

4th Quarter – FY21

As of June 2021, total expenses are $778.4 million, $13.0 million or 1.6% lower than budget, and total revenue is $793.1 million, $1.8 million or 0.1% over budget, for a net variance of $14.7 million.

Direct Expenses are $239.5 million, $12.7 million or 5.0% under budget.

1

- **Wages & Salaries** are under budget by $3.1 million or 2.7%. Regular pay is $3.0 million under budget, due to lower head count, and timing of backfilling positions. YTD through June, the average Full Time Equivalent (FTE) positions was 1,140, twenty-three fewer than the 1,163 FTE's budgeted.
- **Utilities** are $2.3 million under budget or 9.6%, driven by Diesel Fuel, which is $1.3 million under budget, as Deer Island has not yet topped off its tanks. In addition, under spending for Electricity of $987k of which $664k is from Deer Island and $105k is from Water Operations, both due to favorable pricing and lower demand. Lower flows at Deer Island (7.2% under budget) contributed to lower electricity demand. Water Operations is under budget primarily due to lower rates and quantity.
- **Maintenance** expenses are $2.0 million under budget or 6.0%, primarily due to the timing of projects.
- **Other Services** are $1.3 million under budget or 5.3%, primarily due to under spending for Sludge Pelletization of $1.1 million due to lower YTD quantities, Grit Screen Removal of $149k also due to lower YTD quantities, partially offset by higher spending of $175k for Other Services.
- **Professional Services** are $1.0 million under budget or 11.9%, primarily due to under spending for Computer Systems Consultants of $1.0 million due to timing of several MIS projects and Engineering Services of $453k, partially offset by overspending on Lab Testing and Analysis of $439k, which is driven by the Biobot engagement.
- **Fringe Benefits** are $708k under budget or 3.2%, primarily due to Health Insurance of $589k due to lower headcount.
- **Worker's Compensation** expenses are $634k under budget or 25.6%, primarily due to Compensation payments reflecting fewer accidents and reduced severity of those accidents.
- **Overtime** expenses are $604k under budget or 12.0%, primarily due to reduced need for emergency and planned overtime for maintenance in Field Operations, partially offset by higher spending on DI for shift coverage including Covid-19 coverage and unplanned maintenance including HEEC maintenance.
- **Indirect Expenses** are $58.9 million, $1.7 million over budget or 2.9%. The HEEC cable costs totaled $10.2 million through June, $3.0 million above budget as revised costs for the new HEEC Cable. Watershed Reimbursements were $577k under budget reflecting lower operating costs and combined with Pension Expense which was $1.0 million below budget combined to partially offset HEEC overspending. The pension contribution requirement was revised in response to the most recent actuarial valuation report's funding schedule which reduced pension expense by $1.0 million for FY21.

Capital Finance Expenses totaled $480.0 million and was $1.9 million or 0.4% below budget after the impact of the spring defeasance. Surplus was a result of lower than budget variable interest expense of $9.9 million due to lower interest rates combined with lower SRF spending of $9.2 million due to bond issue timing, lower Water Pipeline CP of $5.1 million due to lower than budgeted interest rates, offset by higher Senior Debt of $22.3 million, as a result of defeasance expenditures of $25.6 million.

Revenue and Income –

Total Revenue and Income is $793.1 million, $1.8 million over budget. Other Revenue of $8.6 million was over budget by $2.5 million, reflecting receipt of $1.3 million from the Commonwealth for Debt Service Assistance. Also, higher energy revenue of $505k, income from the disposal of equipment of $317k, and miscellaneous revenue of $231k. This revenue gain was reduced by lower investment income. Investment income totaled $4.2 million, $926k million under budget due to lower than budgeted interest rates (0.47% vs 0.68%) slightly offset by higher than budgeted average balances.

	Jun 2021 Year-to-Date			
	Period 12 YTD Budget	Period 12 YTD Actual	Period 12 YTD Variance	%
EXPENSES				
WAGES AND SALARIES	$ 112,919,298	$ 109,857,067	$ (3,062,231)	-2.7%
OVERTIME	5,019,295	4,415,142	(604,153)	-12.0%
FRINGE BENEFITS	22,402,224	21,694,636	(707,588)	-3.2%
WORKERS' COMPENSATION	2,476,655	1,842,853	(633,802)	-25.6%
CHEMICALS	12,091,255	11,652,051	(439,204)	-3.6%
ENERGY AND UTILITIES	24,200,847	21,887,023	(2,313,824)	-9.6%
MAINTENANCE	32,618,569	30,660,795	(1,957,774)	-6.0%
TRAINING AND MEETINGS	405,264	150,787	(254,477)	-62.8%
PROFESSIONAL SERVICES	8,377,283	7,377,648	(999,635)	-11.9%
OTHER MATERIALS	6,706,916	6,272,620	(434,296)	-6.5%
OTHER SERVICES	24,983,777	23,656,946	(1,326,831)	-5.3%
TOTAL DIRECT EXPENSES	**$ 252,201,383**	**$ 239,467,568**	**$ (12,733,817)**	**-5.0%**
INSURANCE	$ 3,059,218	$ 3,361,487	$ 302,269	9.9%
WATERSHED/PILOT	26,422,138	25,844,695	(577,443)	-2.2%
HEEC PAYMENT	7,215,200	10,189,727	2,974,527	41.2%
MITIGATION	1,692,344	1,652,058	(40,286)	-2.4%
ADDITIONS TO RESERVES	1,815,077	1,815,077	-	0.0%
RETIREMENT FUND	11,000,000	10,000,000	(1,000,000)	-9.1%
POST EMPLOYEE BENEFITS	6,065,490	6,065,490	-	0.0%
TOTAL INDIRECT EXPENSES	**$ 57,269,467**	**$ 58,928,534**	**$ 1,659,067**	**2.9%**
STATE REVOLVING FUND	$ 97,811,162	$ 88,657,488	$ (9,153,674)	-9.4%
SENIOR DEBT	258,730,904	281,064,031	22,333,127	8.6%
DEBT SERVICE ASSISTANCE	-	-	-	---
CURRENT REVENUE/CAPITAL	16,200,000	16,200,000	-	0.0%
SUBORDINATE MWRA DEBT	96,339,598	96,339,598	-	0.0%
LOCAL WATER PIPELINE CP	5,686,864	545,023	(5,141,841)	-90.4%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
VARIABLE DEBT	-	(9,915,154)	(9,915,154)	---
DEFEASANCE ACCOUNT	-	-	-	---
DEBT PREPAYMENT	3,900,000	3,900,000	-	0.0%
TOTAL CAPITAL FINANCE EXPENSE	**$ 481,885,588**	**$ 480,008,046**	**$ (1,877,542)**	**-0.4%**
TOTAL EXPENSES	**$ 791,356,438**	**$ 778,404,148**	**$ (12,952,292)**	**-1.6%**
REVENUE & INCOME				
RATE REVENUE	$ 769,385,000	$ 769,385,000	$ -	0.0%
OTHER USER CHARGES	9,208,367	9,443,294	234,927	2.6%
OTHER REVENUE	6,095,403	8,578,511	2,483,108	40.7%
RATE STABILIZATION	1,500,000	1,500,000	-	0.0%
INVESTMENT INCOME	5,167,668	4,242,037	(925,631)	-17.9%
TOTAL REVENUE & INCOME	**$ 791,356,438**	**$ 793,148,842**	**$ 1,792,404**	**0.1%**

Cost of Debt
4th Quarter – FY21

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 ($3.40 billion)	3.39%
Variable Debt ($330.7million)	0.49%
SRF Debt ($894.1 million)	1.60%
Weighted Average Debt Cost ($4.63 billion)	2.84%

Most Recent Senior Fixed Debt Issue
August 2020

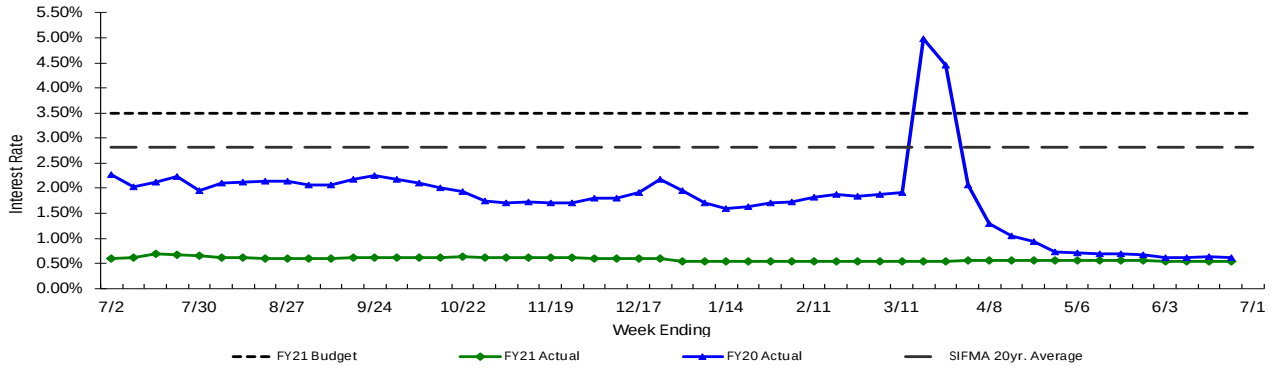
2020 Series B ($160.0 million) 2.33 %

Bond Deal	1995B	1996A	1997D	1998AB	2000A	2000D	2002B	2002J	2003D	2004A	2004B	2005A	2006AB	2007AB
Rate	5.34%	5.78%	5.40%	5.04%	6.11%	5.03%	5.23%	4.71%	4.64%	5.05%	4.17%	4.22%	4.61%	4.34%
Avg Life	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	25.9 yrs	24.4 yrs

Bond Deal	2009AB	2010AB	2011B	2011C	2012AB	2013A	2014D-F	2016BC	2016D	2017BC	2018BC	2019BC	2019EFG	2020B
Rate	4.32%	4.14%	4.45%	3.95%	3.93%	2.45%	3.41%	3.12%	2.99%	2.98%	3.56%	2.82%	2.66%	2.33%
Avg Life	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	9.73 yrs.	15.6 yrs

Weekly Average Variable Interest Rates vs. Budget

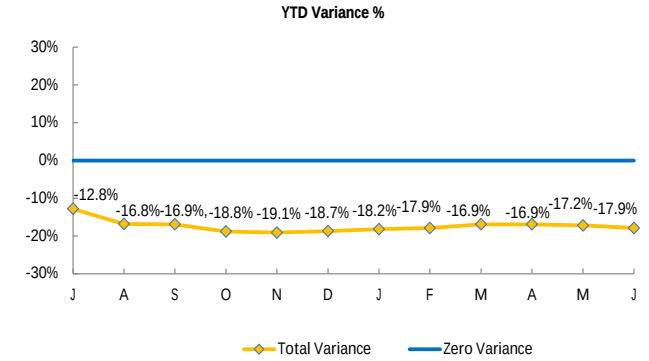
MWRA currently has ten variable rate debt issues with $596.6 million outstanding, excluding commercial paper. Of the ten outstanding series, four have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In June, the SIFMA rate was 0.03% 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

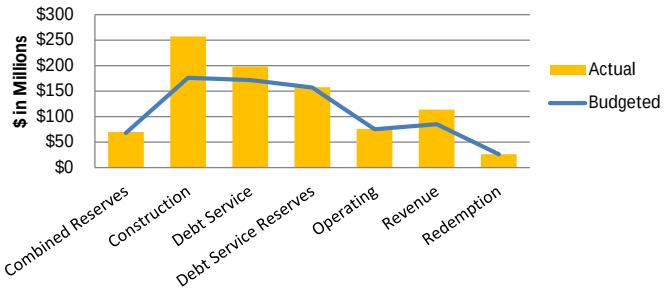
4th Quarter – FY21

Year To Date



	YTD BUDGET VARIANCE ($000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	$24	($301)	(277)	-33.3%
Construction	$203	($183)	19	4.4%
Debt Service	$67	($144)	(78)	-18.1%
Debt Service Reserves	$7	($458)	(451)	-18.3%
Operating	$3	$37	40	11.3%
Revenue	$104	($139)	(35)	-11.4%
Redemption	$1	($145)	(145)	-43.4%
Total Variance	$407	($1,333)	($926)	-17.9%

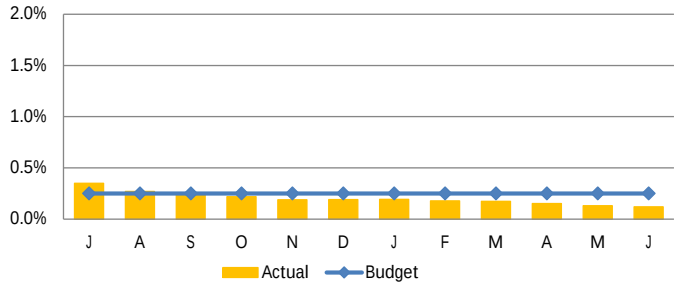
YTD Average Balances Budgeted vs. Actual



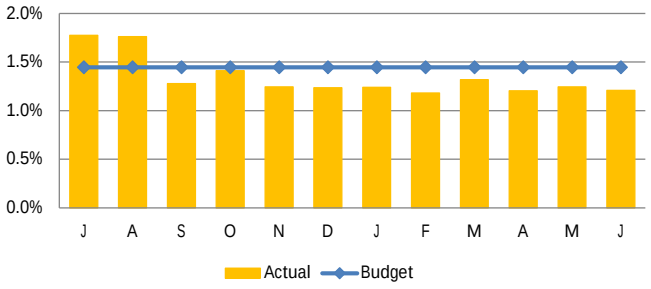
YTD Average Interest Rate Budgeted vs. Actual

Monthly

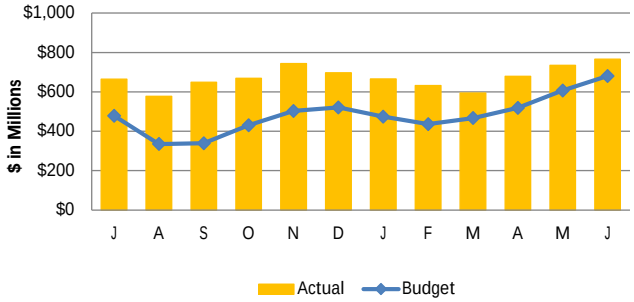
Short -Term Interest Rates



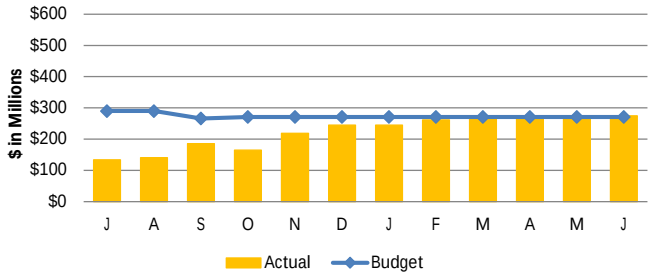
Long -Term Interest Rates



Short-Term Average Balances



Long-Term Average Balances



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Delegated Authority Report – July and August 2021

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

Michele S. Gillen
Director, Administration

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

Douglas J. Rice
Director, Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period July 1 – August 31, 2021.

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.

DISCUSSION:

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 JULY 1 - 31, 2021

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1	07/12/21	**ENERGY EFFICIENT LED LIGHTING UPGRADE AT THE CLINTON WASTEWATER TREATMENT PLANT AND THE JOHN J. CARROLL WATER TREATMENT PLANT** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR ENERGY EFFICIENT LED LIGHTING UPGRADE AT THE CLINTON WASTEWATER TREATMENT PLANT AND THE JOHN J. CARROLL WATER TREATMENT PLANT FOR A TERM OF 150 CALENDAR DAYS.	OP-414	AWARD	THIELSCH ENGINEERING, INC.	$383,343.00
C-2	07/13/21	**FUEL STORAGE AND DAY TANK SYSTEM REPLACEMENT AT THE GILLIS AND LEXINGTON STREET PUMPING STATIONS AND HAYES PUMP STATION** FURNISH AND INSTALL REINFORCED CONCRETE SLABS, VERTICAL EXTENSIONS OF THE EXISTING CONCRETE VAULT WALLS AND REMOVE AND DISPOSE OF EXISTING REINFORCED CONCRETE SLABS.	7554	1	NRC EAST ENVIRONMENTAL SERVICES, INC.	$75,000.00
C-3	07/13/21	**NORTHERN INTERMEDIATE HIGH SECTION 110 - STONEHAM** FURNISH AND INSTALL TEMPORARY OVERLAY PAVING; REMOVE AND REPLACE GATE VALVE COUPLINGS; FURNISH AND INSTALL A TEMPORARY ASPHALT SIDEWALK; EXCAVATE AND RAISE TO GRADE TWO BURIED MWRA GATE VALVE BOXES.	7067	17	ALBANESE D&S, INC.	$107,860.00
C-4	07/13/21	**DIESEL GENERATOR MAINTENANCE** INCREASE REPLACEMENT PARTS ALLOWANCE; PERFORM UNSPECIFIED MAINTENANCE/REPAIR AT THE JOHN J. CARROLL WATER TREATMENT PLANT DURING NORMAL BUSINESS HOURS.	OP-402	1	KNM HOLDINGS, LLC d/b/a ASNE	$129,800.00
C-5	07/19/21	**WACHUSETT DAM LOWER GATEHOUSE BRIDGE CRANE DEMOLITION** REVISE SCAFFOLDING SYSTEM, FURNISH AND INSTALL ADDITIONAL SCAFFOLD, EXTEND RENTAL COSTS, ERECT AND DISMANTLE THE SCAFFOLDING SYSTEM AND EXTEND THE CONTRACT TERM BY 84 CALENDAR DAYS FROM JUNE 30, 2021 TO SEPTEMBER 22, 2021.	7780	1	COSTELLO DISMANTLING CO., INC.	$31,982.13
C-6	07/19/21	**SOMERVILLE MWR205 TIDE GATE REPLACEMENT** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR MWR205 TIDE GATE REPLACEMENT FOR A TERM OF 270 CALENDAR DAYS.	OP-429	AWARD	GARDNER CONSTRUCTION & SERVICES, INC.	$100,000.00
C-7	07/19/21	**FIRE ALARM SYSTEM SERVICES, CENTRAL AND WESTERN MASSACHUSETTS** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR FIRE ALARM SERVICES, CENTRAL AND WESTERN MASSACHUSETTS FOR A TERM OF 1,095 CALENDAR DAYS.	OP-432	AWARD	ENCORE HOLDINGS, LLC d/b/a/ ENCORE FIRE PROTECTION	$252,164.00
C-8	07/23/21	**OVERHEAD DOOR MAINTENANCE SERVICES, VARIOUS MWRA FACILITIES** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR OVERHEAD DOOR MAINTENANCE SERVICES AT VARIOUS MWRA FACILITIES FOR A TERM OF 730 CALENDAR DAYS.	OP-431	AWARD	SAFEWAY OVERHEAD CRANE SERVICE, INC.	$89,848.00

CONSTRUCTION/PROFESSIONAL SERVICES DELEGATED AUTHORITY ITEMS AUGUST 1 - 31, 2021

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1	08/17/21	**NORTHERN INTERMEDIATE HIGH SECTION 110 - STONEHAM** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: DELETE THE REQUIREMENT TO FURNISH AND INSTALL FIVE ONE-INCH COPPER WATER SERVICES, DELETE THE REQUIREMENT TO REMOVE, HANDLE, TRANSPORT AND DISPOSE OF GROUP 1B, LINED LANDFILL EXCAVATED MATERIALS, TOWN OF STONEHAM FIRE AND POLICE DETAIL SERVICES, ESCALATION OF CERTAIN COMMODITIES SUCH AS DIESEL, GASOLINE, ASPHALT AND CONCRETE.	7067	18	ALBANESE D&S, INC.	($319,562.00)
C-2	08/17/21	**TECHNICAL ASSISTANCE CONSULTING SERVICES, JOHN J. CARROLL WATER TREATMENT PLANT** INCREASE THE LEVEL OF EFFORT FOR THE DESIGN OF REDUNDANCY OF LIQUID OXYGEN YARDS, DESIGN OF REPAIRS TO THE STORAGE TANK TRENCH, STRUCTURAL INSPECTION OF THE PRIMARY ACCESS ROAD BRIDGE AND OTHER AS NEEDED SERVICES.	7713	1	HAZEN AND SAWYER	$250,000.00
C-3	08/17/21	**TECHNICAL ASSISTANCE CONSULTING SERVICES, JOHN J. CARROLL WATER TREATMENT PLANT** INCREASE THE LEVEL OF EFFORT FOR THE DESIGN OF THE WELL AND PIPELINE FOR THE QUABBIN ADMINISTRATION BUILDING, DESIGN OF THE OZONE INLET CHANNEL ISOLATION AND OTHER AS NEEDED SERVICES.	7714	1	STANTEC CONSULTING SERVICES, INC.	$250,000.00
C-4	08/18/21	**WACHUSETT LOWER GATE HOUSE WINDOW AND DOOR REPLACEMENT** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR WACHUSETT LOWER GATE HOUSE WINDOW AND DOOR REPLACEMENT FOR A TERM OF 270 CALENDAR DAYS.	7788	AWARD	J. J. CARDOSI, INC.	$639,000.00
C-5	08/20/21	**HVAC SYSTEMS MAINTENANCE** INCREASE BOILER AND HOT WATER SYSTEM REPAIRS, REPLACEMENT PARTS ALLOWANCE AND FACTORY AUTHORIZED REPRESENTATIVE SERVICE ALLOWANCE.	OP-403	3	ENE SYSTEMS, INC.	$30,240.00
C-6	08/20/21	**FIRE PROTECTION SPRINKLER SYSTEM SERVICE** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR FIRE PROTECTION SPRINKLER SYSTEM SERVICE FOR A TERM OF 730 CALENDAR DAYS.	OP-428	AWARD	J. C. CANNISTRARO	$267,510.00
C-7	08/23/21	**COMBUSTION TURBINE GENERATOR MAINTENANCE** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: NON-EMERGENCY AND EMERGENCY MAINTENANCE AND REPAIR SERVICES, REPLACEMENT PARTS, AUTHORIZED FACTORY SERVICES REPRESENTATIVE AND FIRE DEPARTMENT SERVICES ALLOWANCE.	S549	3	O'CONNOR CORPORATION	($74,900.65)

PURCHASING DELEGATED AUTHORITY ITEMS July 1 - 30, 2021

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	07/12/21	**FOUR-YEAR RENTAL OF A CONSTRUCTION TRAILER** Award of a purchase order contract to the lowest responsive bidder for the four-year rental of a construction trailer to be used at Wachusett Dam Lower Gatehouse in Clinton.	WRA-4996		The Eagle Leasing Company	$41,548.00
P-2	07/19/21	**MAINTENANCE AND SUPPORT OF CISCO SMARTNET SWITCHES** Award of a one-year purchase order under State Contract ITT50 to the lowest responsive bidder for Maintenance and Support of Cisco SMARTnet Switches to provide Local Area Network connectivity for all MIS computer devices for the period August 1, 2021 to July 31, 2022.	WRA-4994Q		ePlus Technology, Inc.	$45,254.40
P-3	07/19/21	**SUPPLY AND DELIVERY OF SODIUM BISULFITE** Award of a one-year purchase order to the lowest responsive bidder for the supply and delivery of sodium bisulfite for the John J. Carroll Water Treatment Plant.	WRA-4979		JCI Jones Chemicals, Inc.	$139,370.00
P-4	07/19/21	**SUPPLY AND DELIVERY OF LIQUID OXYGEN** Award of a two-year purchase order to the lowest responsive bidder for the supply and delivery of liquid oxygen to provide two means of primary disinfection at the John J. Carroll Water Treatment Plant, in accordance with EPA's Long-Term 2 Enhanced Surface Water Treatment rule.	WRA-4978		Airgas Inc.	$968,972.80
P-5	07/23/21	**SUPPLY AND DELIVERY OF CARBON DIOXIDE** Award of a one-year purchase order to the lowest responsive bidder for the supply and delivery of carbon dioxide at the John J. Carroll Water Treatment Plant.	WRA-4977		Linde Inc.	$450,000.00
P-6	07/26/21	**SUPPLY AND DELIVERY OF AQUA AMMONIA** Award of a one-year purchase order to the lowest responsive bidder for the supply and delivery of aqua ammonia at the John J. Carroll Water Treatment Plant.	WRA-4989		Borden & Remington Corporation	$205,114.20
P-7	07/26/21	**SUPPLY AND DELIVERY OF HYDROFLUOROSILICIC ACID** Award of a one-year purachase order to the lowest responsive bidder for the supply and delivery of hydrofluorosilicic acid, which is a source of fluoride that is commonly added to public drinking water supplies to help prevent tooth decay as recommended by the Centers for Disease Control and Prevention.	WRA-4990		Pencco, Inc.	$357,709.84

PURCHASING DELEGATED AUTHORITY ITEMS August 1 - 31, 2021

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	08/03/21	**PURCHASE OF REPLACEMENT GRATING** Award of a purchase order to the lowest responsive bidder for replacement grating for the Deer Island egg-shaped anaerobic digesters.			Danner Associates, LLC	$29,808.00
P-2	08/03/21	**PURCHASE OF SEWER LINE CLEANING AND MANHOLE REHABILITATION** Award of a purchase order to the lowest responsive bidder for sewer line cleaning and manhole rehabilitation.	WRA-4991Q		Green Mountain Pipeline Services, LLC	$33,700.00
P-3	08/03/21	**DISPOSE OF AND/OR RECYCLE EXCAVATED MATERIAL** Award of a one-year purchase order to the lowest responsive bidder to dispose of and/or recycle excavated material.	WRA-4997		Northgate Recycling, Inc.	$90,000.00
P-4	08/11/21	**PURCHASE OF 90 FIVE-YEAR WEBEX MEETING ACTIVE USER SUBSCRIPTIONS** Award of a purchase order under state contract ITT72 Category 9 to the lowest responsive bidder for 90 five-year Webex Meeting Active User Subscriptions.	WRA-5004Q		ePlus Technology, Inc.	$92,170.80
P-5	08/17/21	**UPGRADE THE GEOGRAPHIC INFORMATION SYSTEM SECURITY** Award of a purchase order to the lowest responsive bidder for Professional Services to upgrade the Geographic Information System Security.	WRA-4973		Argis Solutions Inc.	$25,500.00
P-6	08/17/21	**200 LONGITUDINAL FLIGHTS** Award of a purchase order to the lowest responsive bidder for cross collector and 200 longitudinal flights in the primary and secondary clarifier at the Deer Island Treatment Plant.	WRA-4987		Evoqua Water Technologies, LLC	$54,806.00
P-7	08/19/21	**PURCHASE OF ONE AIR HANDLING UNIT** Award of purchase order to the lowest responsive bidder for one air handling unit for the Thermal/Power Plant at the Deer Island Treatment Plant.	WRA-4988		Trane US, Inc.	$64,168.00
P-8	08/19/21	**PURCHASE OF ARUBA HARDWARE** Award of purchase order under state contract ITC73 to the lowest responsive bidder for Aruba hardware to expand and upgrade the wireless infrastructure at the Chelsea, DI, Southborough warehouse, labs and certain conference rooms.	WRA-5005Q		Worldcom Exchange, Inc.	$78,474.30
P-9	08/19/21	**PURCHASE OF ONE NEW TEN-WHEEL DIESEL-POWERED DUMP TRUCK** Award of a purchase order to the lowest responsive bidder for one new ten-wheel diesel-powered dump truck for the Water Pipe Maintenance Unit.	WRA-4999		Boston Freightliner, Inc.	$156,849.00
P-10	08/19/21	**SUPPLY AND DELIVERY OF 430,000 GALLONS OF ULTRA-LOW SULFUR #2 DIESEL FUEL** Award of a purchase order under state contract ENE47 to the lowest responsive bidder for the supply and delivery of 430,000 gallons of ultra-low sulfur #2 diesel fuel for the Deer Island Treatment Plan Thermal/Power Plant.	WRA-5009		Global Montello Group Corporation	$926,005.00
P-11	8/31/2002	**1,500 OKTA SUBSCRIPTIONS, IMPLEMENTATION SERVICES, AND ONE YEAR OF SUPPORT** Award of a purchase order under state contract ITS60 to the lowest responsive bidder for 1,500 Okta subscriptions, implementation services, and one-year of support.	WRA-5007Q		Carahsoft Technology Corporation	$71,051.80
P-12	08/31/21	**TWO PURCHASE ORDERS FOR SIX NEW CHEVROLET EQUINOX SPORT UTILITY VEHICLES, FIVE NEW ALL ELECTRIC CHEVROLET BOLT SPORT UTILITY VEHICLES EIGHT VARIOUS NEW PICKUP TRUCKS, AND FOUR NEW CARGO VANS** Award of two purchase orders under state contract VEH98 to the lowest responsive bidders for replacement vehicles including six new Chevrolet Equinox sport utility vehicles, five new all electric Chevrolet Bolt sport utility vehicles, eight new various pickup trucks, and four new cargo vans.	WRA-4998		Liberty Chvrolet, Inc. Gordon Chevrolet, Inc.	$533,852.00 $336,091.10

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: FY21 Year-End Financial Update and Summary

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

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

Thomas J. Durkin
Director, Finance

RECOMMENDATION:

For information only. This staff summary provides the financial results and variance highlights for Fiscal Year 2021, based on the audited fiscal-year financial close.

DISCUSSION:

The total FY21 year-end variance is $14.7 million (after $25.6 million defeasance), due to lower direct expenses of $12.7 million, higher indirect expenses of $1.7 million, lower debt service costs of $1.9 million, and higher revenue of $1.8 million.

The largest variances in comparison with the budget are highlighted below:

Direct expenses were $12.7 million below budget, driven by lower spending for Wages & Salaries, Utilities, Maintenance, Other Services, Professional Services, Fringe Benefits, Workers Compensation, and Overtime.

Indirect expenses were $1.7 million greater than budget due to updated costs for the HEEC capacity and service charge, partially offset by lower spending on Pension Expense and Watershed Reimbursement associated with lower costs for compensation, fringe benefits, professional services, equipment, and maintenance, partially offset by a prior period adjustment.

Debt Service expenses were $1.9 million below budget driven by lower than anticipated interest rates, lower than anticipated SRF spending due to bond issue timing, and lower Local Water Pipeline CP interest rates, partially offset by higher than anticipated senior debt, as a result of defeasance expenditures.

Revenue was $1.8 million greater than budget, driven by Other Revenue of $2.5 million, and Other User Charges of $235,000, offset by lower Investment Income of $926,000.

Of the $14.7 million surplus, $1.3 million in Debt Service Assistance, as in prior years, was applied against the FY22 budget. In addition, $761,000 will be set aside as a wages and salaries

contingency for the Watershed Division in the event its FTE count increases beyond 136 during FY22.

Staff are recommending that the remaining approximately $12.7 million of the FY21 surplus be used to defease debt to provide targeted rate relief for communities between FY23-26. This rate management strategy has proven to be very effective in the past few years in managing assessment increases over time. The proposed defeasance scenario is being presented to the Board at this meeting in a separate staff summary.

FY21 Current Expense Budget

The CEB expense variances for FY21 by major budget category were:

- Lower Direct Expenses of $12.7 million or 5.0% under budget. Spending was lower for Wages & Salaries, Utilities, Maintenance, Other Services, Professional Services, Fringe Benefits, Worker's Compensation, Overtime, Chemicals, Other Materials, and Training and Meetings.

- Higher Indirect Expenses of $1.7 million or 2.9% over budget due primarily to the updated HEEC capacity and service charge, Insurance expense, partially offset by lower Pension and Watershed Reimbursement expenses.

FY21 Budget and FY21 Actual Variance by Expenditure Category
(in millions)

	FY21 Budget YTD	FY21 Actual YTD	$ Variance	% Variance
Direct Expenses	$252.2	$239.5	-$12.7	-5.0%
Indirect Expenses	$57.3	$58.9	$1.7	2.9%
Capital Financing	$481.9	$480.0	-$1.9	-0.4%
Total	**$791.4**	**$778.4**	**-$13.0**	**-1.6%**

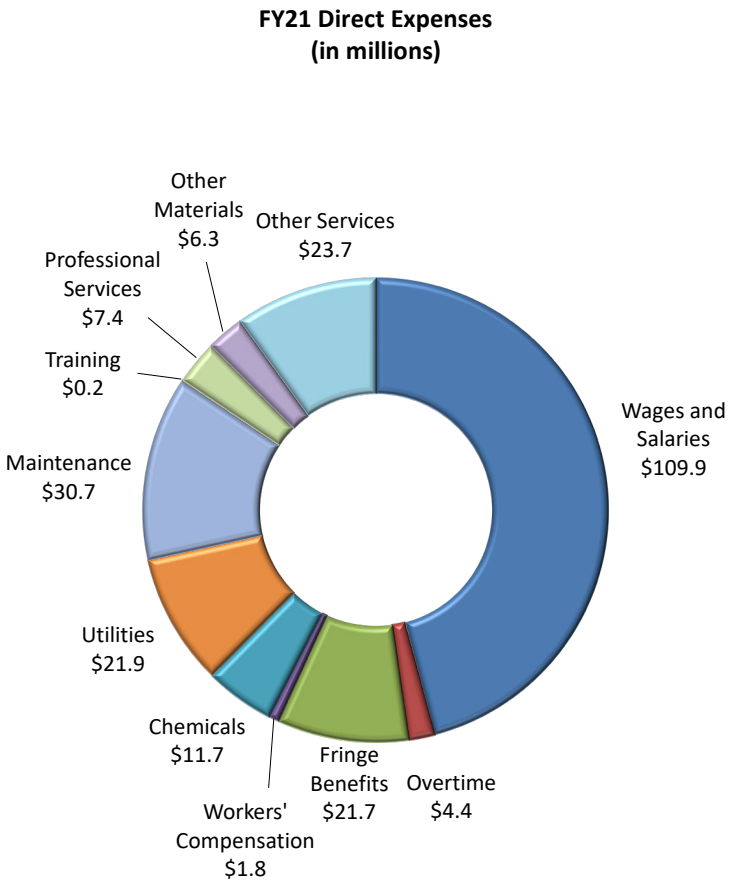
Totals may not add due to rounding

Total Revenues of $793.1 million were $1.8 million or 0.1% higher than budget due to higher Other Revenue, partially offset by lower Investment Income.

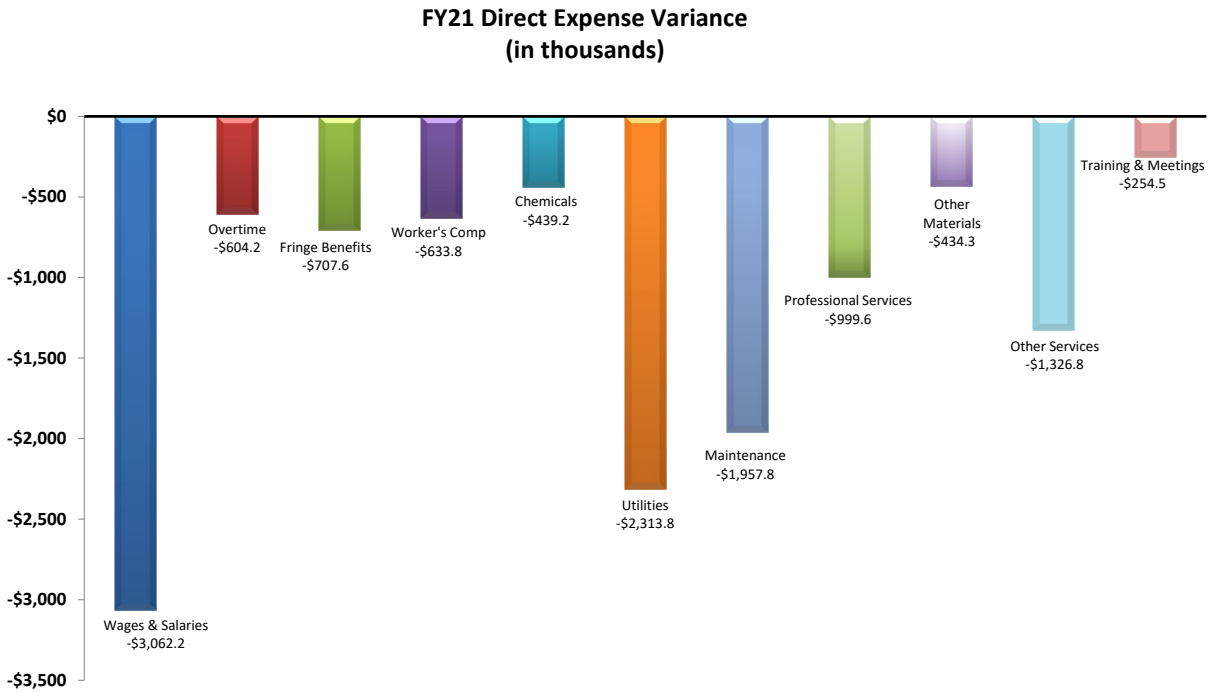
Please refer to Attachment 1 for a more detailed comparison by line item of the budget variances for FY21.

Direct Expenses

FY21 direct expenses totaled $239.5 million, which was $12.7 million or 5.0% less than budgeted.

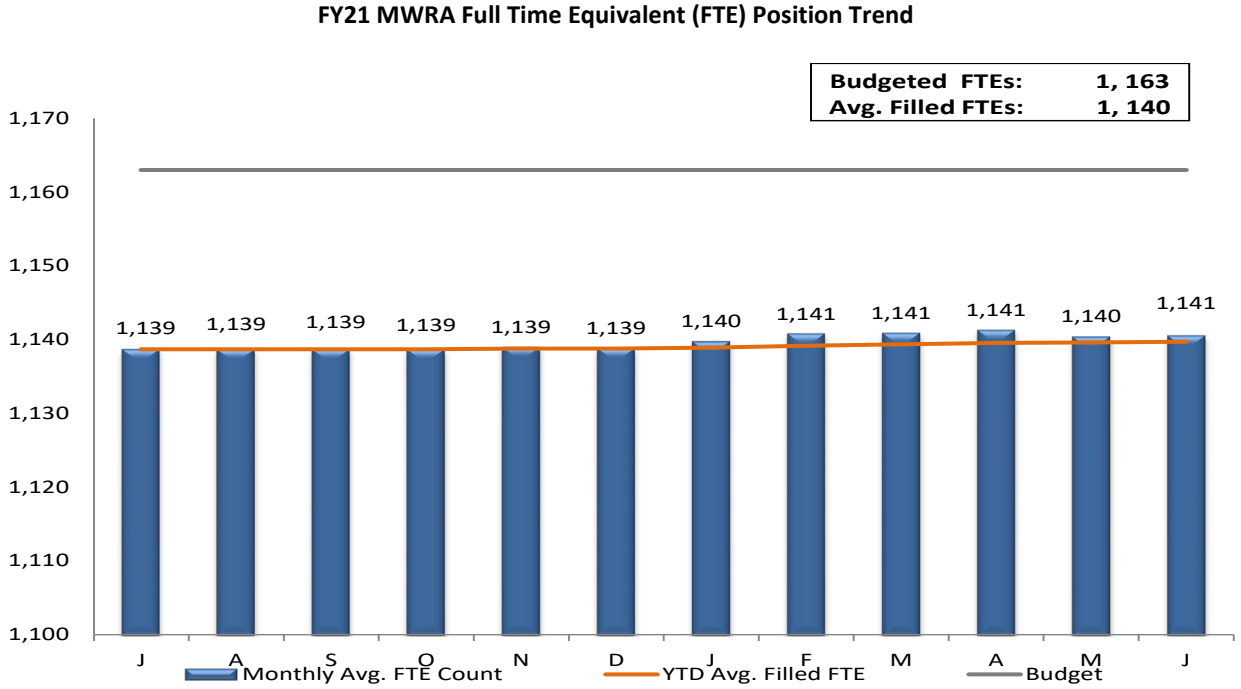


The budget variance is due to lower spending for Wages & Salaries, Utilities, Maintenance, Other Services, Professional Services, Fringe Benefits, Worker's Compensation, Overtime, Chemicals, Other Materials, and Training and Meetings.



Wages and Salaries

Wages and Salaries are under budget by $3.1 million or 2.7%. Through June, there were 23 fewer average FTEs (1,140 versus 1,163 budget) or 2.0% and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions also contributed to Regular Pay being under budget.



Utilities

Utilities were less than budget by $2.3 million or 9.6%. The budget variance is largely due to underspending in Diesel Fuel which is under budget by $1.3 million due to a purchase delay in order to inspect the tanks at Deer Island. Delivery is now expected in the Fall. In addition, Electricity underspending of $1.0 million primarily at Deer Island ($664,000) is driven by lower pricing associated with real time energy and ancillary pricing which has been lower under the Direct Energy contract. This was offset by higher usage. Also, lower spending in Field Operations ($255,000) is due to lower rates and quantities.

Maintenance

Maintenance was lower than budget by $2.0 million or 6.0%, largely driven by the timing of projects and use of service contracts. Maintenance Materials were under budget by $1.5 million driven by Plant and Machinery Materials ($1.0 million) due to timing of materials including rolling stock, 24" and 30" W3 strainers, flights and shoes, energy efficient projects including LED lighting upgrades, and eyewash water upgrade, HVAC Materials ($295,000) due to timing of purchases including condensing units, air conditioning back-ups, and exhaust fans, Electrical Materials ($269,000) primarily due to backlog of materials on hand and electrician vacancies, Pipe Materials ($251,000) due to less than anticipated valve pipings and fittings needed. Maintenance Services are under budget by $0.5 million driven by lower Building & Grounds Services ($893,000) and Electrical Services ($510,000) both primarily due to underspending on service contracts, Special Equipment Services ($437,000), partially offset by higher Plant and Machinery Services ($844,000) due to timing and additional work for several contracts and Pipe Services ($369,000) for additional pipe and paving work.

Other Services

Other Services were lower than budget by $1.3 million or 5.3%. The budget variance is due to lower than budgeted spending for Sludge Pelletization of $1.1 million and Grit and Screenings Removal of $149,000, both due to lower than expected year-to-date quantities. This is partially offset by greater than budgeted spending in Other Services of $175,000 primarily in Water Operations due to the Brookline water pipeline break.

Professional Services

Professional Services were lower than budget by $1.0 million or 11.9%. The overall underspending is due to lower than budgeted spending in Computer Systems Consultant of $1.0 million in MIS primarily due to timing delays of projects including Website Redesign, PIMS Power Builder, Landesk, and Crystal Report Writer; Engineering of $453,000 primarily in Field Operations; and Legal Services of $241,000 in Law and Administration. This is partially offset by higher Lab and Testing Analysis of $439,000 in Operations driven by the Biobot contract.

Fringe Benefits

Fringe Benefit spending was lower than budget by $0.7 million or 3.2%. This is primarily driven by lower Health Insurance costs of $589,000, 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 that are less expensive. Dental Insurance and Medicare were under budget by $66,000 and $61,000, respectively.

Worker's Compensation

Worker's Compensation expenses were lower than budget by $0.6 million or 25.6%. The lower expenses were primarily due to favorable variances in compensation payments ($631,000) and administrative expenses ($12,000), partially offset by higher medical payments ($10,000). This reflects fewer accidents and reduced severity of those accidents. Due to the uncertainties of when spending will happen, the budget is spread evenly throughout the year

Overtime

Overtime expenses were lower than budget by $0.6 million or 12.0% primarily in Field Operations ($697,000) mainly for emergency and planned overtime; and Engineering & Construction ($123,000). This was partially offset by higher spending for Deer Island ($232,000) for shift coverage including Covid-19 coverage and unplanned maintenance including HEEC.

Chemicals

Chemicals were lower than budget by $0.4 million or 3.6%. Lower than budget spending on Sodium Hypochlorite of $359,000 is driven by Field Operations due to lower dosing at the Carroll Water Treatment Plant and lower usage at Deer Island based on lower flows; Ferric Chloride of $91,000 due to less than anticipated use by Deer Island to keep the orthophosphate levels in the digesters at the desired target level; Sodium Bisulfite of $78,000 driven by Wastewater Treatment Plant and Wastewater Transport and Water Operations; and Polymer of $77,000 driven by Deer Island due to less usage for centrifuge operations. This is partially offset by higher spending on Carbon Dioxide of $201,000 drven by Water Operations due to the force majeure surcharge and higher dose to meet pH target; and Hydrogen Peroxide of $106,000 driven by Deer Island due to higher H2S gas levels. Deer Island flows are 7.2% lower than the budget and Carroll flows are 1.9% higher than the budget through June. It is important to note that Chemical variances are also based on deliveries which in general reflect the usage patterns and timing.

Other Materials

Other Materials were lower than budget by $0.4 million or 6.5% driven by $274,000 for Other Materials primarily due to lower quantity of gravel needed at the Clinton landfill, Equipment/Furniture of $169,000, Vehicle Expense of $160,000 primarily due to less driving because of vehicle staging as well as less use of plows and sanders due to last winter being mild, and Vehicle Purchases/Replacements of $111,000 due to timing of spending. This was partially offset by greater than budgeted spending for Computer Hardware of $335,000 in MIS and Health/Safety Materials of $147,000, both driven by purchases due to Covid-19 to support telework.

Training and Meetings

Training and Meetings expenses were lower than budget by $0.3 million or 62.8% driven by the timing of spending as well as conferences that were postponed or canceled due to the pandemic.

Indirect Expenses

Indirect Expenses totaled $58.9 million, which is $1.7 million or 2.9% greater than budget. The variance is primarily driven by the cost for the new HEEC cable ($3.0 million), as well as updated Insurance costs ($0.3 million) primarily due to higher premiums for property and excess general liability. Those are partially offset by lower spending on Pension Expense ($1.0 million) and Watershed Reimbursement ($0.6 million). Based on the latest information from HEEC, MWRA will owe HEEC additional costs related to FY20. We began accruing for it in November 2020 after we were made aware. This is partially offset by lower Pension expense ($1.0 million). After approval of the FY21 Current Expense Budget, the retirement system received a new Public Employee Retirement Administration Commission approved required contribution. The required contribution was reduced from $11.0 million to $10.0 million.

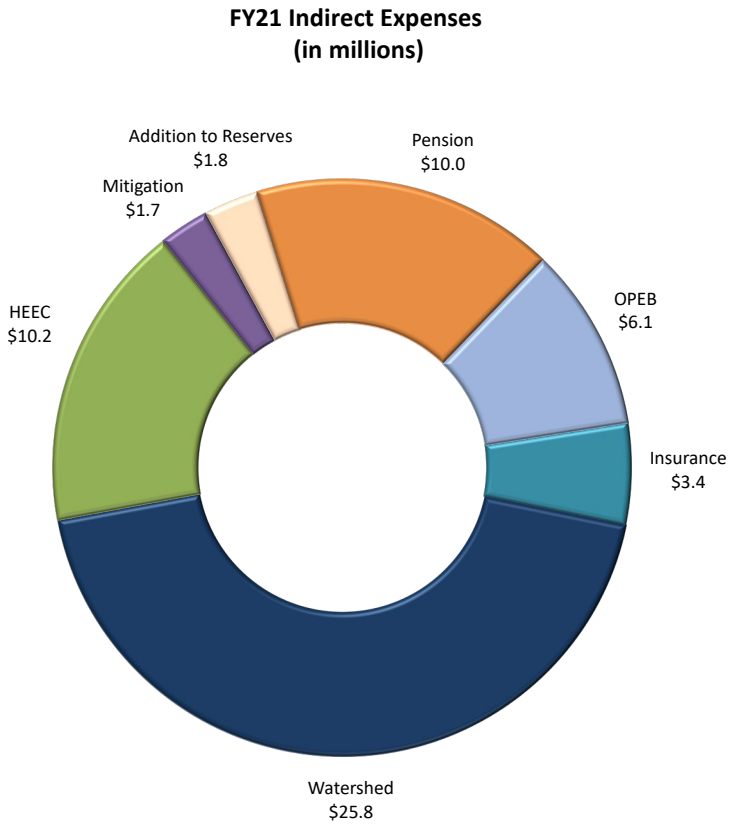
Based on FY21 operating activity only, the Watershed Division is $1.4 million or 7.9% under budget. This is driven by lower spending on Wages and Salaries, Fringe Benefits, Professional Services, Equipment, and Maintenance. When factoring in the FY20 balance forward ($959,000) which was paid during Q1 of FY21, and the lower PILOT payment ($132,000), Watershed Reimbursement is $577,000 or 2.2% below budget for FY21.

FY21 Watershed Protection Variance

$ in millions	YTD Budget	YTD Actual	YTD $ Variance	YTD % Variance
Operating Expenses	19.1	17.4	-1.7	-9.0%
Operating Revenues - Offset	1.2	0.9	-0.3	-26.2%
FY21 Operating Totals	**17.9**	**16.5**	**-1.4**	**-7.9%**
DCR Balance Forward (FY20 4th quarter accrual true-up)	0.0	1.0	1.0	
FY21 Adjusted Operating Totals	**17.9**	**17.5**	**-0.4**	**-2.5%**
PILOT	8.5	8.4	-0.1	-1.6%
Total Watershed Reimbursement	**26.4**	**25.8**	**-0.6**	**-2.2%**

Totals may not add due to rounding

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 monthly in arears. Accruals are being made monthly based on estimated expenses provided by DCR and trued-up monthly based on the monthly invoice. MWRA's budget is based on the annual Fiscal Year Work Plan approved by the Massachusetts Water Supply Protection Trust. The FTE count at the end of June was 134 (and 133.3 on a year-to-date basis) vs. a budget of 150.

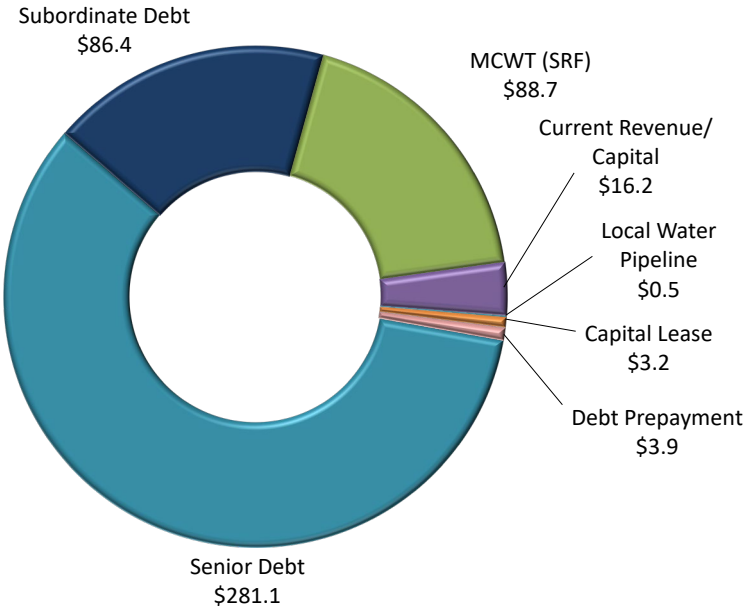


Capital Financing

Capital Financing expenses include the principal and interest payments for fixed senior 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, Optional Debt Prepayment, and the Chelsea Facility lease payment.

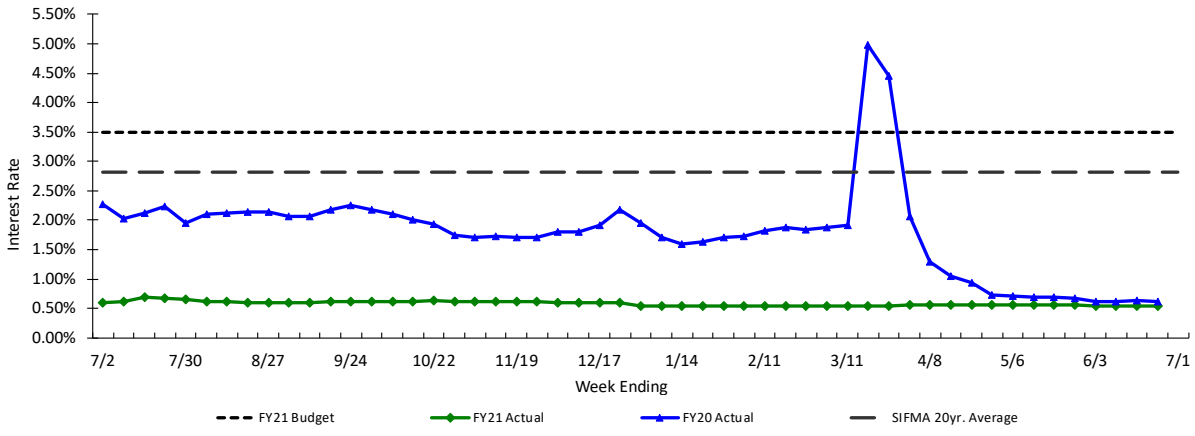
Year-to-date Capital Financing expenses for FY21 totaled $480.0 million, which is $1.9 million or 0.4% less than budget. In June, the year-to-date debt related savings of $26.1 million was used to defease outstanding bonds. The favorable variance is the result of the lower than budgeted variable interest rates, timing of the SRF transaction, lower water pipeline CP, offset by greater than anticipated Senior Debt due to the impact of the defeasance.

FY21 Capital Finance
($ in millions)



The graph below reflects the FY21 actual variable rate trend by week against the FY21 Budget.

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



Revenue and Income

Revenues of $793.1 million were $1.8 million or 0.1% over budget. Other Revenue was $2.5 million or 19.6% over budget due to Debt Service Assistance of $1.3 million received from the Commonwealth, Energy Revenue of $505,000 due to participation in a demand response program with Eversource, Disposal of Surplus Materials of $317,000, and Miscellaneous Revenue of $231,000 primarily associated with worker's compensation reimbursement for older claims. In addition, Other User Charges were over the budget by $235,000 primarily due to the entrance fee payments from the Rivers School in Weston and Crescent Ridge Dairy in Sharon. This was partially offset by lower Investment Income of $926,000 or 17.9% due to lower than budgeted interest rates (0.47% vs. 0.68%), slightly offset by higher than budgeted average balances.

ATTACHMENTS:

Attachment 1 – Variance Summary June 2021
Attachment 2 – Current Expense Variance Explanations
Attachment 3 – FY21 Actual vs. FY21 Projection

ATTACHMENT 1
FY21 Actuals vs. FY21 Budget

	Jun 2021 Year-to-Date				
	Period 12 YTD Budget	Period 12 YTD Actual	Period 12 YTD Variance	%	FY21 Approved
EXPENSES					
WAGES AND SALARIES	$ 112,919,298	$ 109,857,067	$ (3,062,231)	-2.7%	$ 112,919,298
OVERTIME	5,019,295	4,415,142	(604,153)	-12.0%	5,019,295
FRINGE BENEFITS	22,402,224	21,694,636	(707,588)	-3.2%	22,402,224
WORKERS' COMPENSATION	2,476,655	1,842,853	(633,802)	-25.6%	2,476,655
CHEMICALS	12,091,255	11,652,051	(439,204)	-3.6%	12,091,255
ENERGY AND UTILITIES	24,200,847	21,887,023	(2,313,824)	-9.6%	24,200,847
MAINTENANCE	32,618,569	30,660,795	(1,957,774)	-6.0%	32,618,569
TRAINING AND MEETINGS	405,264	150,787	(254,477)	-62.8%	405,264
PROFESSIONAL SERVICES	8,377,283	7,377,648	(999,635)	-11.9%	8,377,283
OTHER MATERIALS	6,706,916	6,272,620	(434,296)	-6.5%	6,706,916
OTHER SERVICES	24,983,777	23,656,946	(1,326,831)	-5.3%	24,983,777
TOTAL DIRECT EXPENSES	**$ 252,201,383**	**$ 239,467,568**	**$ (12,733,817)**	**-5.0%**	**$ 252,201,383**
INSURANCE	$ 3,059,218	$ 3,361,487	$ 302,269	9.9%	$ 3,059,218
WATERSHED/PILOT	26,422,138	25,844,695	(577,443)	-2.2%	26,422,138
HEEC PAYMENT	7,215,200	10,189,727	2,974,527	41.2%	7,215,200
MITIGATION	1,692,344	1,652,058	(40,286)	-2.4%	1,692,344
ADDITIONS TO RESERVES	1,815,077	1,815,077	-	0.0%	1,815,077
RETIREMENT FUND	11,000,000	10,000,000	(1,000,000)	-9.1%	11,000,000
POST EMPLOYEE BENEFITS	6,065,490	6,065,490	-	0.0%	6,065,490
TOTAL INDIRECT EXPENSES	**$ 57,269,467**	**$ 58,928,534**	**$ 1,659,067**	**2.9%**	**$ 57,269,467**
STATE REVOLVING FUND	$ 97,811,162	$ 88,657,488	$ (9,153,674)	-9.4%	$ 97,811,162
SENIOR DEBT	258,730,904	281,064,031	22,333,127	8.6%	258,730,904
DEBT SERVICE ASSISTANCE	-	-	-	---	-
CURRENT REVENUE/CAPITAL	16,200,000	16,200,000	-	0.0%	16,200,000
SUBORDINATE MWRA DEBT	96,339,598	96,339,598	-	0.0%	96,339,598
LOCAL WATER PIPELINE CP	5,686,864	545,023	(5,141,841)	-90.4%	5,686,864
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%	3,217,060
VARIABLE DEBT	-	(9,915,154)	(9,915,154)	---	-
DEFEASANCE ACCOUNT	-	-	-	---	-
DEBT PREPAYMENT	3,900,000	3,900,000	-	0.0%	3,900,000
TOTAL CAPITAL FINANCE EXPENSE	**$ 481,885,588**	**$ 480,008,046**	**$ (1,877,542)**	**-0.4%**	**$ 481,885,588**
TOTAL EXPENSES	**$ 791,356,438**	**$ 778,404,148**	**$ (12,952,292)**	**-1.6%**	**$ 791,356,438**
REVENUE & INCOME					
RATE REVENUE	$ 769,385,000	$ 769,385,000	$ -	0.0%	$ 769,385,000
OTHER USER CHARGES	9,208,367	9,443,294	234,927	2.6%	9,208,367
OTHER REVENUE	6,095,403	8,578,511	2,483,108	40.7%	6,095,403
RATE STABILIZATION	1,500,000	1,500,000	-	0.0%	1,500,000
INVESTMENT INCOME	5,167,668	4,242,037	(925,631)	-17.9%	5,167,668
TOTAL REVENUE & INCOME	**$ 791,356,438**	**$ 793,148,842**	**$ 1,792,404**	**0.1%**	**$ 791,356,438**

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY21 Budget YTD June	FY21 Actuals June	FY21 YTD Actual vs. FY21 Budget		Explanations
			$	%	
Direct Expenses					
Wages & Salaries	112,919,298	109,857,067	(3,062,231)	-2.7%	Wages and Salaries are under budget by $3.1 million. Year to date, there have been 23 fewer average FTEs (1,140 versus 1,163 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions.
Overtime	5,019,295	4,415,142	(604,153)	-12.0%	Lower spending mainly in Field Operations ($697,000) primarily in planned and emergency overtime. Also, Engineering & Construction ($123,000), offset by higher spending for Deer Island ($232,000) for shift coverage including Covid-19 coverage and unplanned maintenance including HEEC.
Fringe Benefits	22,402,224	21,694,636	(707,588)	-3.2%	Lower than budget in **Health Insurance** of $589,000, 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, **Dental Insurance** and **Medicare** were under budget by $66,000 and $61,000, respectively.
Worker's Compensation	2,476,655	1,842,853	(633,802)	-25.6%	The lower expenses were due to favorable variances in **Compensation Payments** of $631,000 and **Administrative Expenses** of $12,000, partially offset by **Medical Payments** of $10,000. These lower payments reflect fewer accidents to date. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.
Chemicals	12,091,255	11,652,051	(439,204)	-3.6%	Lower than budget spending on **Sodium Hypochlorite** of $359,000 driven by Field Operations due to lower dosing at JCWTP and lower usage at DITP based on lower flows; **Ferric Chloride** of $91,000 due to less than anticipated use driven by DITP to keep the orthophosphate levels in the digesters at the desired target level; **Sodium Bisulfite** of $78,000 driven by Wastewater Treatment and Wastewater and Water Operations; and **Polymer** of $77,000 driven by DITP due to less usage for centrifuge operations, This is offset by higher than budget spending on **Carbon Dioxide** of $201,000 driven by Water Operations due to the force majeure surcharge and higher dose to meet pH target**;** and **Hydrogen Peroxide** of $106,000 driven by DITP due to higher H2S gas levels. DITP flows are 7.2% lower than the budget and CWTP flows are 1.87% higher than the budget through June. 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	24,200,847	21,887,023	(2,313,824)	-9.6%	Underspending in **Electricity** of $1.0 million primarily at DITP ($0.7 million) driven primarily by lower pricing associated with real time energy and ancillary pricing has been lower under the Direct Energy contract. This was offset by higher usage. Also, Field Operations ($0.3 million) is under budget primarily due to lower rates and quantity. Diesel Fuel is under budget by $1.3 million due to delay of purchase in order to inspect the tanks at DITP. Delivery now expected in the Fall.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY21 Budget YTD June	FY21 Actuals June	FY21 YTD Actual vs. FY21 Budget		Explanations
			$	%	
Maintenance	32,618,569	30,660,795	(1,957,774)	-6.0%	Underspending in **Ongoing Maintenance** by $2.0 million is largely driven by the timing of projects and use of service contracts. Maintenance Materials which are under budget by ($1.5 million), driven by **Plant & Machinery Materials** ($1.0 million) primarily due to timing of materials including rolling stock, 24" and 30" W3 strainers, flights and shoes, energy efficient projects including LED lighting upgrades, and eye wash water upgrade; **HVAC Materials** ($0.3 million) due to timing of purchases including condensing units, air conditioning back-ups and exhaust fans, **Electrical Materials** ($0.3 million) primarily due to lower spending on emergency lighting due to backlog of materials on hand and electrician vacancies, **Pipe Materials** ($0.3 million) due to less than anticipated valve piping and fittings needed, and **Special Equipment Materials** ($0.2 million), partially offset by **Warehouse Inventory** ($0.5 million) and **Automotive Materials** ($0.1 million). Also, *Maintenance Services* are under budget by $0.5 million driven by **Building & Grounds Services** ($0.9 million), and **Electrical Services** ($0.5 million), primarily due to underspending on service contracts, **Special Equipment Services** ($0.4 million), partially offset by **Plant and Machinery Services** ($0.8 million) driven by timing and more work than anticipated for several contracts including DITP painting and coatings and cryogenics contracts partially offset by timing of tank cleaning at Norumbega and Nash Hill, **Pipe Services** ($0.4 million) for additional pipe and paving work and **Computer Software Licenses** ($0.2 million).
Training & Meetings	405,264	150,787	(254,477)	-62.8%	Lower than budget spending on **Training & Meetings** by $255,000 is driven by MIS ($75,000), Field Operations ($28,000), DI ($27,000), Water Redundancy ($22,000), Engineering & Construction ($12,000), and Procurement ($11,000) primarily due to timing and conferences that were postponed or canceled.
Professional Services	8,377,283	7,377,648	(999,635)	-11.9%	Lower than budget spending in **Computer Systems Consultant** of $1.0 million in MIS primarily due timing delays of projects including Website Redesign, Landesk upgrade, and staff augmentation projects which includes upgrading custom applications. Several projects (PGP Server, Websense & Ironport appliances) were eliminated due to changes in technology direction. Management consoles is delayed due to its dependence on the new MSSP contract; **Engineering** of $453,000 primarily in Field Operations; **Legal Services** of $241,000 in Law and Administration; partially offset by **Lab and Testing Analysis** of $439,000 in Operations due to the Biobot contract.
Other Materials	6,706,916	6,272,620	(434,296)	-6.5%	Driven by lower than anticipated spending for **Other Materials** of $273,000 primarily due to lower quantity of gravel needed at the Clinton landfill, $160,000 for **Vehicle Expense** primarily due to less driving when vehicles were staged at various locations and last winter being mild, and **Equipment/Furniture** of $169,000, and Vehicle Purchases/Replacements of $111,000 due to timing, partially offset by higher than budgeted spending for **Computer Hardware** of $335,000 in MIS and **Health/Safety Materials** of $146,000 both driven by purchases due to Covid-19 and teleworking.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY21 Budget YTD June	FY21 Actuals June	FY21 YTD Actual vs. FY21 Budget		Explanations
			$	%	
Other Services	24,983,777	23,656,946	(1,326,831)	-5.3%	Lower than budgeted spending for **Sludge Pelletization** of $1.1 million due to lower year-to-date quantities; and **Grit & Screening Removal** of 149,000 also due to lower quantities, partially offset by higher than budgeted spending for **Other Services** of $175,000 primarily in Water Operations due to the Brookline water pipeline break.
Total Direct Expenses	**252,201,383**	**239,467,568**	**(12,733,815)**	**-5.0%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY21 Budget YTD June	FY21 Actuals June	FY21 YTD Actual vs. FY21 Budget		Explanations
			$	%	
Indirect Expenses					
Insurance	3,059,218	3,361,487	302,269	9.9%	Higher premiums received for property and excess general liability ($339,000) offset by Lower Payments/Claims costs ($425,000).
Watershed/PILOT	26,422,138	25,844,695	(577,443)	-2.2%	Watershed costs are lower than budget by $577,000 due to lower costs associated with Wages and Salaries, Maintenance, Fringe Benefits, Professional Services, Equipment, and partially offset by a prior period adjustment.
HEEC Payment	7,215,200	10,189,727	2,974,527	41.2%	Increase is due to updated cost for HEEC capacity and service charge.
Mitigation	1,692,344	1,652,058	(40,286)	-2.4%	
Addition to Reserves	1,815,077	1,815,077	-	0.0%	
Pension Expense	11,000,000	10,000,000	(1,000,000)	-9.1%	After approval of the FY21 CEB, the retirement system received a new PERAC approved required contribution. The required deposit was reduced from $11.0 million to $10.0 million.
Post Employee Benefits	6,065,490	6,065,490	-	0.0%	
Total Indirect Expenses	**57,269,467**	**58,928,534**	**1,659,067**	**2.9%**	
Debt Service					
Debt Service	481,885,588	480,008,046	(1,877,542)	-0.4%	Surplus was a result of lower than budget variable interest expense of $9.9 million due to lower interest rates combined with lower SRF spending of $9.2 million due to bond issue timing, lower Water Pipeline CP of $5.1 million, offset by higher Senior Debt of $22.3 million, as a result of defeasance expenditures of $25.6 million.
Debt Service Assistance	-	-	-		
Total Debt Service Expenses	**481,885,588**	**480,008,046**	**(1,877,542)**	**-0.4%**	
Total Expenses	**791,356,438**	**778,404,148**	**(12,952,290)**	**-1.6%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY21 Budget YTD June	FY21 Actuals June	FY21 YTD Actual vs. FY21 Budget		Explanations
			$	%	
Revenue & Income					
Rate Revenue	769,385,000	769,385,000	-	0.0%	
Other User Charges	9,208,367	9,443,294	234,927	2.6%	Rivers School in Weston entrance fee of $42,000 and Crescent Ridge Dairy in Sharon of $34,000, and other user charges of $159,000.
Other Revenue	6,095,403	8,578,511	2,483,108	40.7%	Payments from the Commonwealth of MA of $1.3 million for debt service assistance which is not budgeted; Energy Revenue of $505,000; Disposal of surplus materials of $317,000; Miscellaneous Revenue of $231,000 primarily associated with worker's compensation reimbursement for older claims; $100,000 for permit fees; and $68,000 in grant money.
Rate Stabilization	1,500,000	1,500,000	-	0.0%	HEEC Reserve.
Investment Income	5,167,668	4,242,037	(925,631)	-17.9%	Investment Income is under budget due to lower than budgeted interest rates (0.47% actual vs. 0.68% budget) slightly offset by higher than budgeted average balances.
Total Revenue	**791,356,438**	**793,148,842**	**1,792,404**	**0.23%**	
Net Revenue in Excess of Expenses	**-**	**14,744,694**	**14,744,694**		

Attachment 3
FY21 Actual vs. FY21 Projection

TOTAL MWRA	FY21 Projection	FY21 Actual	Change FY21 Actual vs. FY21 Projection	
			$	%
EXPENSES				
WAGES AND SALARIES	$ 107,989,029	$ 109,857,067	$ 1,868,038	1.7%
OVERTIME	4,489,934	4,415,142	(74,792)	-1.7%
FRINGE BENEFITS	21,676,008	21,694,636	18,628	0.1%
WORKERS' COMPENSATION	2,127,167	1,842,853	(284,314)	-13.4%
CHEMICALS	11,582,380	11,652,051	69,671	0.6%
ENERGY AND UTILITIES	23,091,134	21,887,023	(1,204,111)	-5.2%
MAINTENANCE	32,092,117	30,660,795	(1,431,322)	-4.5%
TRAINING AND MEETINGS	220,148	150,787	(69,361)	-31.5%
PROFESSIONAL SERVICES	7,523,757	7,377,648	(146,109)	-1.9%
OTHER MATERIALS	6,646,576	6,272,620	(373,956)	-5.6%
OTHER SERVICES	24,272,660	23,656,946	(615,714)	-2.5%
TOTAL DIRECT EXPENSES	**$ 241,710,910**	**$ 239,467,568**	**$ (2,243,342)**	**-0.9%**
INSURANCE	$ 3,274,058	$ 3,361,487	$ 87,429	2.7%
WATERSHED/PILOT	24,833,965	25,844,695	1,010,730	4.1%
HEEC PAYMENT	10,431,993	10,189,727	(242,266)	-2.3%
MITIGATION	1,652,058	1,652,058	-	0.0%
ADDITIONS TO RESERVES	1,815,077	1,815,077	0	0.0%
RETIREMENT FUND	10,000,000	10,000,000	-	0.0%
POSTEMPLOYMENT BENEFITS	6,065,490	6,065,490	-	0.0%
TOTAL INDIRECT EXPENSES	**$ 58,072,641**	**$ 58,928,534**	**$ 855,893**	**1.5%**
DEBT SERVICE				
STATE REVOLVING FUND	$ 88,657,490	88,657,488	$ (2)	0.0%
SENIOR DEBT	255,429,061	271,148,877	15,719,816	6.2%
SUBORDINATE DEBT	86,537,398	96,339,598	9,802,200	11.3%
LOCAL WATER PIPELINE CP	545,023	545,023	-	0.0%
CURRENT REVENUE/CAPITAL	16,200,000	16,200,000	-	0.0%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	3,900,000	3,900,000	-	0.0%
DEFEASANCE ACCOUNT	25,634,969	-	(25,634,969)	-100.0%
TOTAL DEBT SERVICE	**$ 480,121,000**	**$ 480,008,046**	**(112,954)**	**0.0%**
TOTAL EXPENSES	**$ 779,904,552**	**$ 778,404,148**	**$ (1,500,404)**	**-0.2%**
REVENUE & INCOME				
RATE REVENUE	$ 769,385,000	$ 769,385,000	$ 0	0.0%
OTHER USER CHARGES	9,253,367	9,443,294	189,927	2.1%
OTHER REVENUE	6,818,283	8,578,511	1,760,228	25.8%
RATE STABILIZATION	1,500,000	1,500,000	-	
INVESTMENT INCOME	4,341,478	4,242,037	(99,441)	-2.3%
TOTAL REVENUE & INCOME	**$ 791,298,127**	**$ 793,148,842**	**$ 1,850,715**	**0.2%**
SURPLUS AFTER DEFEASANCE	**$ 11,393,575**	**$ 14,744,694**	**$ 3,351,119**	**29.4%**

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Fiscal Year 2021 Year-End Capital Improvement Program Spending Report

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COMMITTEE: Administration, Finance & Audit

____VOTE
_X_INFORMATION

David W. Coppes
Chief Operating Officer

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

Thomas J. Durkin
Director, Finance

At the end of each fiscal year, staff present the Board with a recap of the Capital Improvement Program. FY21 was the third year of MWRA's five-year spending cap for FY19-23 established at $984.8 million. The FY21 capital budget was $265.8 million. The FY21 capital spending totaled $148.4 million, $117.4 million or 44.2% lower than budget.

Despite FY21 being a challenging year, the Authority did have some successes. In FY21, the Authority reached substantial completion of the Southern Extra High Redundancy Section 111 Construction 3 project, which is the last phase of the new redundancy pipeline project. In addition, Commonwealth Avenue Pumping Station Improvements, Winthrop Terminal Facility Variable Frequency Drives Replacements, Deer Island Gas Protection System Replacement Phase 1, Charles River Sewer Rehab Sections 191 and 192, Residuals Mechanical/Electrical/Dryer Drum Replacements and Pellet Pipe Relocation contracts were all substantially completed.

The Authority made significant progress on several major projects including the Gravity Thickener Rehabilitation, Chemical Tank and Digester Pipe, Chelsea Creek Upgrades Construction, Nut Island Odor Control and HVAC Improvements, and the Dorchester Interceptor Sewer.

In FY21, MWRA managed 87 design and construction contracts and awarded 35 contracts valued at $145.2 million.

RECOMMENDATION:

For information only. The Fiscal Year 2021 Year-End Capital Program Spending Report highlights MWRA's major capital program accomplishments during FY21 and provides explanations for spending variances.

Please see Attachment A for the full Report.

DISCUSSION:

Projects that were completed or reached substantial completion in FY21 included:

- Southern Extra High Redundancy Section 111 Construction 3 - $20.2 million
- Winthrop Terminal Facility VFD Replacement - $12.0 million
- Residuals Asset Protection Electrical/Mechanical/Drum Dryer Replacements -$10.8 million
- Commonwealth Avenue Pumping Station Improvements Construction - $8.0 million
- Residuals Asset Protection Pellet Pipe Relocation - $4.7 million
- As-Needed Design Contract 16 - $2.4 million
- Charles River Valley Sewer Sections 191 and 192 Rehab. - $1.6 million
- Winthrop Terminal Facility Variable Frequency Drives Replacement - $12.0 million
- Deer Island Gas Protection System Replacement Phase 1 - $1.4 million
- Carroll Water Treatment Plant Technical Assistance 9 and 10 - $1.2 million
- Deer Island As-Needed Design Contracts 8-3 - $1.1 million
- Fencing Contract 6760Y - $0.4 million
- WQRS Aquarius - $0.2 million

MWRA made significant progress on a number of water and wastewater projects, including:

- Nut Island Headworks Odor Control and HVAC Improvements Construction - 39% complete
- Interceptor Renewal 3 Dorchester Interceptor Sewer Construction - 74% complete
- Fuel Tank Replacement Phase 1 - Southern Extra High Redundancy Section 111 Phase 3 – 63% complete
- Chemical Tank and Digester Pipe Construction - 74% complete
- Chelsea Headworks Upgrades - 96% complete
- Deer Island Gravity Thickener Rehabilitation - 98% complete

MWRA pipelines rehabilitated or constructed in FY21 totaled 1.3 miles for wastewater projects and 0.8 miles for water projects.

Please see Attachment D for a detailed breakdown of the linear footage of pipeline rehabilitated or constructed by project for FY21.

Major contracts awarded by MWRA in FY21 with the following Notice to Proceed or Award dates include:

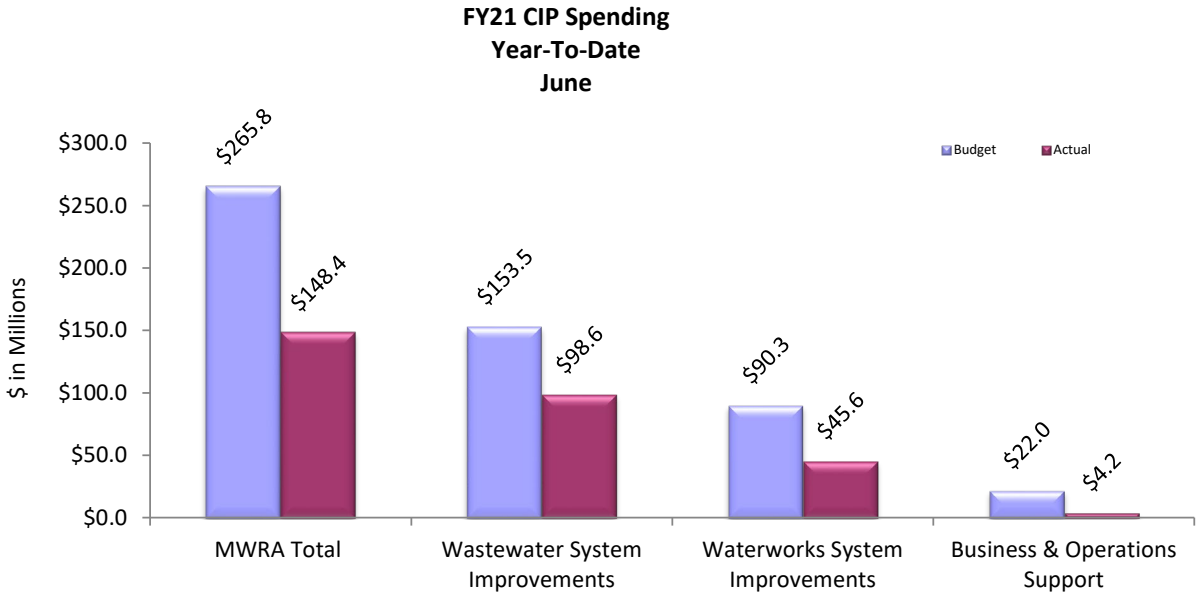
- Clinton Valves and Pipe Replacement - September 2020
- Weston Aqueduct Supply Mains CP-1 - October 2020
- Carroll Water Treatment Plant Hypochlorite System Modifications - October 2020
- Tops of Shafts 6, 8, 9A Rehab - October 2020
- Hayes Pump Station Rehabilitation Design - November 2020
- Weston Aqueduct Sluice Gate Construction - November 2020

- As-Needed Design 19 - November 2020
- As-Needed Design 18 - December 2020
- Wastewater Meter Asset Protection Meter Replacement - December 2020
- Ward Street and Columbus Park Headworks Upgrades Design/Construction Administration - January 2021
- Steel Tank Improvement Design/Construction Administration - January 2021
- Carroll Water Treatment Plant Technical Assistance 11 and 12 - January 2021
- River Road Improvements - Wachusett - February 2021
- Northern Extra High Improvements Design/Engineering Services During Construction - February 2021
- Wachusett Dam Bridge Crane Removal - March 2021
- Enterprise Content Management - March 2021
- Cosgrove Boat Storage - April 2021
- Harbor Outfall Monitoring and Loading System Upgrade (HOML) - April 2021
- Maintenance Garage/Wash Bay/Storage Building Design/Construction Administration/Resident Inspection - May 2021
- Weston Aqueduct Supply Mains/Spot Pond Supply Mains West Pressure Reducing Valves Construction - May 2021
- Water System Hydraulic Model - May 2021
- Northern Intermediate High Sections 89 & 29 Replacement - May 2021
- Fencing Contract (6760Z) - May 2021
- Hazardous Materials Technical Assistance 609TA/610TA - May 2021
- Telephone System Upgrade - May 2021
- Northern Intermediate High Sections 89 & 29 Replacement Resident Engineering Inspection - June 2021
- South System Pump Station VFD Replacement Design/Engineering Services During Construction/Resident Engineering Inspection - June 2021
- Quabbin Aqueduct Shaft 2 Construction - June 2021
- Shaft 5 Improvements Design/Construction Administration - June 2021
- MAXIMO Interface Enhancements - June 2021
- Appraisal Services 607TA/608TA - May and June 2021
- WQRS Aquarius - May 2021

Please see Attachment C FY21 Planned versus Actual/Revised CIP Notices to Proceed for a complete list of contracts awarded.

FY21 also included overall spending of $46.2 million for the community financial assistance programs on both the water and wastewater sides. Inflow and Infiltration (I/I) spending consisted of $24.2 million in grants and $13.2 million in loans offset by $6.1 million in prior period loan repayments for net spending of $31.3 million. The Local Water System Assistance Program spending was $38.7 million in loans, including CVA communities, offset by $23.8 million in prior period loan repayments for net spending of $14.9 million that includes Lead Service Line Replacement loans of $8.4 million.

Major Variances to FY21 Budget



For FY21, total Capital Improvement Program spending was budgeted at $265.8 million. Total spending was $148.4 million, which was $117.4 million or 44.2% below budget. Underspending was reported in Wastewater of $54.9 million, $44.7 million in Waterworks Improvements, and $17.8 million in Business and Operations Support.

The table below reports the FY21 spending and variances by major program:

$ in Millions	Budget	Actuals	$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	74.2	45.9	(28.4)	-38.2%
Treatment	38.5	17.6	(20.9)	-54.2%
Residuals	3.7	1.4	(2.3)	-61.0%
CSO	5.0	2.3	(2.7)	-53.5%
Other	32.0	31.3	(0.7)	-2.3%
Total Wastewater System Improvements	**$153.5**	**$98.6**	**($54.9)**	**-35.8%**
Waterworks System Improvements				
Drinking Water Quality Improvements	2.8	1.6	(1.2)	-43.2%
Transmission	25.1	17.5	(7.6)	-30.2%
Distribution & Pumping	24.6	10.7	(13.9)	-56.4%
Other	37.9	15.8	(22.1)	-58.3%
Total Waterworks System Improvements	**$90.3**	**$45.6**	**($44.7)**	**-49.5%**
Business & Operations Support	**$22.0**	**$4.2**	**($17.8)**	**-80.9%**
Total MWRA	**$265.8**	**$148.4**	**($117.4)**	**-44.2%**

The $117.4 million variance is the net of $117.7 million in less than budgeted spending on 40 projects offset by $0.3 million in more than budgeted spending on 4 projects. The main reasons for the variances were:

Interception and Pumping: Net underspending of $28.4 million

- $15.7 million for Prison Point Rehabilitation Construction due to updated schedule.
- $3.1 million for Wastewater Metering Construction due to delay in award and software training, and $0.7 million for Wastewater Metering Planning/Design due to time extension through the construction installation and warranty period.
- $2.4 million for Chelsea Creek Headworks Upgrades Construction and Resident Engineering Inspection due to work behind schedule and time extension.
- $2.1 million for Nut Island Odor Control and HVAC Construction due to delays in equipment delivery, COVID-19 shut down and time extension.
- $0.9 million for Dorchester Interceptor Sewer Construction and CA/RI due to delayed Notice to Proceed as well as winter moratorium.
- $0.5 million for Prison Point Design/CA/REI due to delay in construction award.
- This underspending was partially offset by overspending of $0.1 million for Interceptor Renewal 7, Malden and Melrose - Study/Design/CA due to consultant progress.

Other Waterworks: Net underspending of $22.1 million

- $18.3 million for Local Financial Assistance due to timing of community repayments due to less than anticipated communities deferring their loan repayments.
- $3.3 million for Carroll Water Treatment Plant SCADA Design and Construction due to updated schedule for the SCADA Construction.
- This underspending was partially offset by overspending of $0.3 million for Cosgrove Intake Roof Replacement, $0.2 million for Bellevue 2/Turkey Hill Tanks Painting, and $0.1 million for Gillis Pumping Station/Cottage Farm CSO Roof Replacement due to FY20 planned work that was completed in FY21.

Wastewater Treatment: Net underspending of $20.9 million

- $15.4 million for Clarifier Rehabilitation Phase 2 - Construction, Design and REI due to updated schedules.
- $2.4 million for MCC Switchgear Replacement - Design/ESDC/REI and Construction due to updated construction schedule.
- $1.1 million for less than anticipated as-needed task order work.
- $0.6 million for Miscellaneous VFD Replacements FY19-FY23 due to timing of work.
- This underspending was partially offset by overspending of $2.2 million for Winthrop Terminal Facility VFD Replacement – Construction, $0.9 million for Gravity Thickener Rehabilitation, $0.3 million for Gas Protection System Replacement Phase 1 due to contractor progress, and $0.4 million for CHP Alternatives Study due to timing of work.

Business and Operations Support: Net underspending of $17.8 million

- $3.1 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work.
- $2.6 million for MSSP/SIEM, $2.0 million for Lawson Upgrade, $2.0 million for Cabling, $1.2 million for MAXIMO Interface Enhancements and Upgrades, $1.0 million for SANS Storage, and $0.8 million for Enterprise Content Management due to schedule changes.

- $0.8 million for Vehicle Purchases due to timing, and $0.7 million for Security Equipment and Installation due to timing of physical security initiatives.

Water Distribution and Pumping: Net underspending of $13.9 million
- $5.1 million for Section 89/29 Replacement - Construction, ESDC and RE/RI Services, and $4.8 million for Sections 23, 24, 47 Rehabilitation and CA/RI due to schedule changes.
- $2.1 million for SEH Redundancy Pipeline Section 111 - Construction Phase 3 due to timing of final work and balancing credit change order.
- $0.9 million for Sections 50/57 Water due to contract scope reduction.
- $0.4 million for NEH Improvements Design & ESDC due to contract award later than anticipated and updated schedule.
- $0.3 million for NIH Section 89 and 29 Design/CA/RI due to less than anticipated construction administration/resident inspection budgeted spending.
- This underspending was partially offset by overspending of $0.5 million for Section 56 Replacement/Saugus River - Design/CA due to consultant progress, and $0.3 million for Southern Extra High Section 111 Construction 2 due to contractor progress.

Waterworks Transmission: Net underspending of $7.6 million
- $2.4 million for Tunnel Preliminary Design and MEPA Review and $0.2 million for Program Support Services due to timing of consultant work.
- $1.8 million for CP-1 Shafts 6, 8, and 9A due to award of contract later than anticipated and repair clamps issue.
- $1.1 million for WASM/SPSM West PRV Construction and $1.0 million for Wachusett Lower Gatehouse Pipe Replacement due to updated schedules.
- $0.6 million for Wachusett Lower Gatehouse Building Rehab due to updated schedule as a result of contract being repackaged into multiple contracts.
- $0.3 million for River Road Improvements due to award later than anticipated.
- This underspending was partially offset by overspending of $2.4 million for WASM 3 Rehabilitation, CP-1 and $0.4 million for Commonwealth Avenue Pumping Station Construction due to contractor progress.

Combined Sewer Overflow: Net underspending of $2.7 million
- $2.8 million for Dorchester Inflow Removal Construction due to updated cost partially offset by $0.1 million for CSO Performance Assessment due to greater than anticipated consultant progress.

Residuals: Net underspending of $2.3 million
- $1.7 million for Pellet Conveyance Piping Relocation and $0.6 million for Residuals Mechanical/Electrical/Dryer Drum Replacements due to work anticipated in FY21 completed in FY20.

Drinking Water Quality Improvements: Net underspending of $1.2 million
- $0.7 million for updated schedules for CP-7 Existing Facilities Modifications, $0.2 million for Carroll Water Treatment Plant Parapet Wall Repairs, and $0.2 million for Carroll Soda Ash and Ammonia Replacement.

Other Wastewater: Net underspending of $0.7 million

- $0.7 million for Community I/I Financial Assistance due to timing of community repayments due to less than anticipated communities deferring loan repayments.

Please see Attachment B for detailed FY21 CIP variance explanations of all FY21 projects.

FY22 Outlook

Looking ahead to FY22, the projected capital spending is $217.5 million including contingency of $9.7 million. Projects with the largest budgeted spending in FY22 include Deer Island Asset Protection of $25.8 million, Infiltration/Inflow Local Financial Assistance of $25.1 million, Corrosion and Odor Control of $24.8 million, Facility Asset Protection of $20.8 million, Local Water System Assistance Program of $17.9 million, and Metropolitan Redundancy Interim Improvements of $13.5 million.

In FY22, 80 contracts or phases of projects with a total budget of $420.0 million are expected to be awarded. Staff will be completing the design and progressing to the bid and award stage on several major projects such as the Deer Island Clarifier Rehabilitation Phase 2 Construction, Prison Point CSO Rehabilitation Construction, Deer Island Fire Alarm System Construction, New Connecting Mains Shaft 7 to WASM 3 CP3 Sections 23,24,47 Rehabilitation, Deer Island Motor Control Center and Switchgear Replacement Construction, Waltham Water Pipeline Construction, and Braintree-Weymouth Improvements Construction.

Please see Attachment E for FY22 Planned Contract Awards.

ATTACHMENTS:

A. Fiscal Year 2021 Year-End Capital Program Spending Report
B. FY21 CIP Year-End Variance Report
C. FY21 Planned versus Actual/Revised Contract Awards
D. Linear Footage of Rehabilitated or New Pipelines in FY21
E. FY22 Planned Capital Contract Awards

MASSACHUSETTS **W**ATER **R**ESOURCES **A**UTHORITY

Capital Program Spending Report

for

Fiscal Year 2021

September 15, 2021

Fiscal Year 2021 Year-End Capital Program Spending Report

Table of Contents –

Introduction

Since its inception in 1986, MWRA has expended $8.8 billion on capital initiatives. Of this spending 71% has supported improvements to Wastewater treatment, interception, pumping and combined sewer overflow (CSO) systems, 27% has supported Waterworks treatment, transmission, distribution and water protection improvements, and 2% has supported Business and Operations Support initiatives. Through FY20, nearly 80% of the capital spending has been for court mandated projects. The long-term strategy for capital work is identified in the Authority's Master Plan which was first published in 2006, updated in 2013 and 2019, and serves as a road map for inclusion of projects in the Capital Improvement Program (CIP) in every budget cycle. Going forward, MWRA expects to spend $3.0 billion on system improvements between FY22-FY31 with main emphasis on Asset Protection and Water System Redundancy initiatives including the Metropolitan Tunnels Long-Term Redundancy Project.

MWRA Capital Spending FY1986 - FY2031 (in millions)

	Expenditures FY86 - FY21		Planned Expenditures FY22 - FY31	
Program	Amount	% of Total	Amount	% of Total
Wastewater	$6,242	71%	$1,599	53%
Waterworks	$2,433	27%	$1,360	45%
Business & Operations Support	$156	2%	$66	2%
Total MWRA	**$8,831**	**100%**	**$3,024**	**100%**

To date, MWRA has spent $907.4 million on the Wastewater CSO program and plans to spend an additional $6.0 million through FY25.

To date, MWRA has distributed $253.1 million in grants and $225.1 million in no-interest loans to fund 629 separate projects in 43 communities under the I/I Local Financial Assistance Program. Additionally, $491.6 million in Local Water Pipeline Assistance Program loans has been distributed to member communities.

FY21 Spending

Total CIP spending in FY21 was $148.4 million which was $117.4 million or 44.2% less than the $265.8 million budgeted.

Spending by program in FY21 was:

Program	FY21 Budget (in millions)	FY21 Actuals (in millions)	Variance	% Variance
Wastewater	$153.5	$98.6	($54.9)	-35.8%
Waterworks	$90.3	$45.6	($44.7)	-49.5%
Business & Operations Support	$22.0	$4.2	($17.8)	-80.9%
Total	**$265.8**	**$148.4**	**($117.4)**	**-44.2%**

FY21 included spending of $47.2 million not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) program and the Local Water Pipeline programs. These programs are either loan or grant programs to support the MWRA's member communities' local water and sewer infrastructure. In FY21, MWRA expended $51.8 million in water and I/I loans and $24.2 million in I/I grants offset by $29.9 million in prior period loan repayments for net spending of $46.2 million. After accounting for programs which are not directly under MWRA's control, the FY21 CIP underspending is $95.6 million or 48.6%.

FY21 Capital Program Highlights

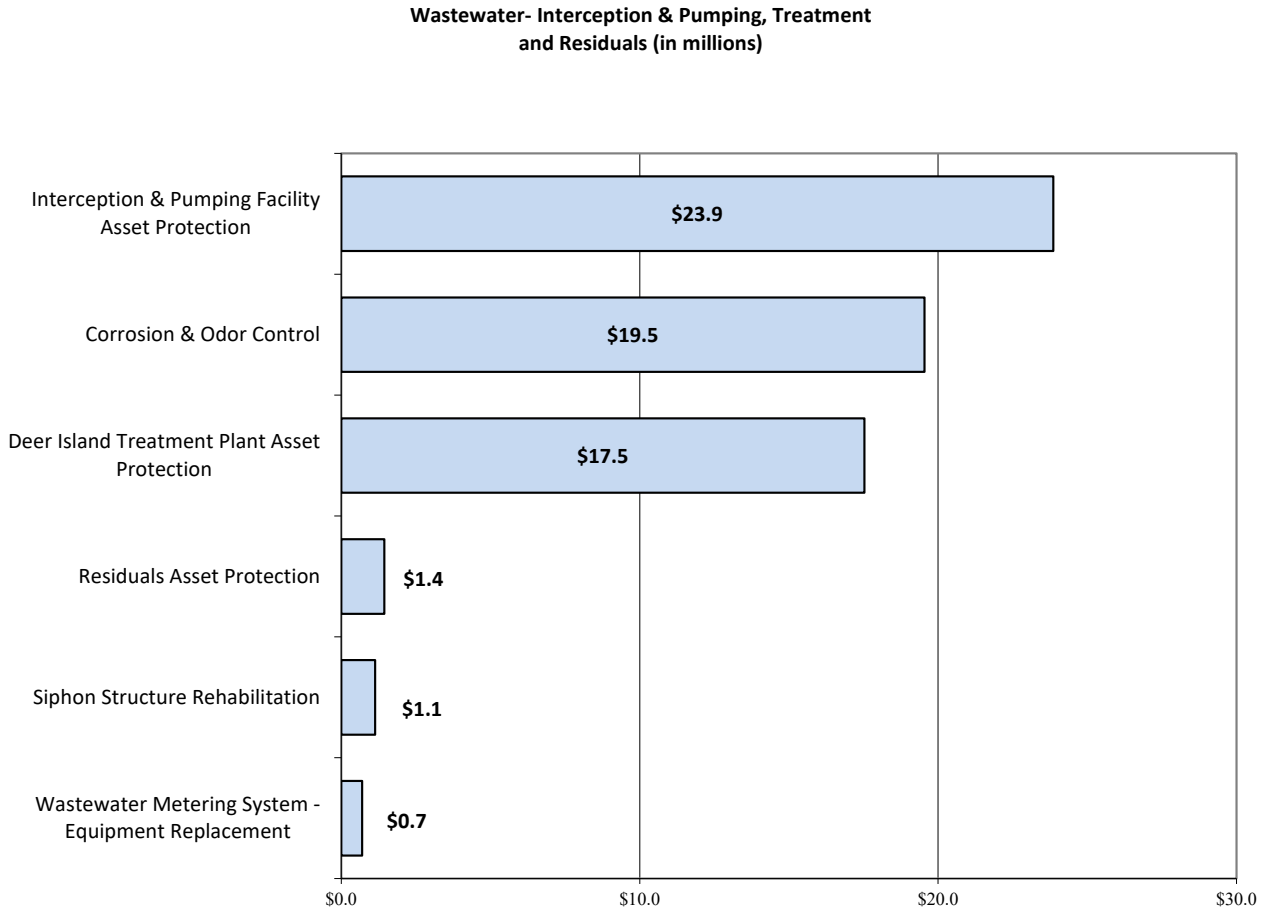
This section highlights the spending and key accomplishments by major program categories and projects.

Wastewater System

During FY21, the MWRA spent $98.6 million on Wastewater system projects: $45.9 million for Interception & Pumping projects, $17.6 million for Treatment projects, 1.4 million for Residuals, $2.3 million for CSO projects, and $31.3 million for Other Wastewater projects.

Wastewater Interception & Pumping, Treatment, and Residuals Projects

Total FY21 spending for Interception & Pumping was $45.9 million, Treatment was $17.6 million, and Residuals was $1.4 million. The largest spending occurred on the following:



Key Accomplishments in Wastewater - Interception and Pumping:

- Charles River Valley Sewer Sections 191 & 192 Rehab.
    - Substantially complete in July 2020

- Hayes Pump Station Rehabilitation Design
    - Notice to Proceed issued in November 2020

- Wastewater Meter Asset Protection Meter Replacement
    - NTP issued in December 2020

- Ward Street & Columbus Park Headworks Upgrades Design/Construction Administration
    - NTP issued in January 2021

- Interceptor Renewal 3 Dorchester Interceptor Sewer Construction
    - Significant progress was made on project in FY21 - contract 74% complete

- Chelsea Creek Headworks Upgrades Construction
    - Significant progress was made on project in FY21 – contract 96% complete

- Nut Island Headworks Odor Control and HVAC Improvements Construction
    - Significant progress was made on project in FY21 – contract 39% complete

- Fuel Oil Tank Replacement Phase 1
    - Significant progress was made on project in FY21 – contract 63% complete

***Key Accomplishments in Wastewater – Treatment and Residuals*:**

- Clinton Valves and Pipe Replacement
    - NTP issued in September 2020

- DI Radio Repeater System Upgrade 1
    - Substantially completed in November 2020

- Residuals Asset Protection Electrical/Mechanical/Drum Dryer Replacements
    - Substantially complete in December 2020

- Residuals Asset Protection Pellet Pipe Relocation
    - Substantially complete in December 2020

- DI As-Needed Designs 8-3
    - Substantially completed in March 2021

- DITP Winthrop Terminal Facility Variable Frequency Drives Replacement Construction
    - Substantial complete in April 2021

- DI Gas Protection System Replacement Phase 1
    - Substantially complete in May 2021

- South System Pump Station VFD Replacement Design/ESDC/REI
    - NTP issued in June 2021

- Gravity Thickener Rehabilitation

- Significant progress was made on project in FY21 – contract 98% complete

- DITP Chemical Tank and Digester Pipe Construction
  - Significant progress was made on project in FY21 – contract 74% complete

Wastewater System – Combined Sewer Overflow (CSO) Projects

Total FY21 spending for CSO projects was $2.3 million which was primarily for the CSO Performance Assessment which began in November 2017 as well as Dorchester Infiltration/Inflow work.

Key Accomplishments in CSO:

- All CSO sewer separation reached substantial completion in FY16 in compliance with Schedule Seven of the Federal Court's Orders in the 1985 Clean Water Act enforcement action. In addition, the CSO Performance Assessment commenced in November 2017. The Somerville Marginal In-System Storage agreement was approved in August 2018. BWSC completed an inflow removal construction contract by June 30, 2021, when the Dorchester Agreement came to an end. In June 2021, MWRA and BWSC entered a new financial assistance agreement transferring $2.2 million of remaining funds in the Dorchester Agreement for construction of "East Boston Sewer Separation Contract 3 and Other CSO Improvements.

Wastewater - Other

This category includes spending only for the community managed Infiltration/Inflow (I/I) Local Financial Assistance Program.

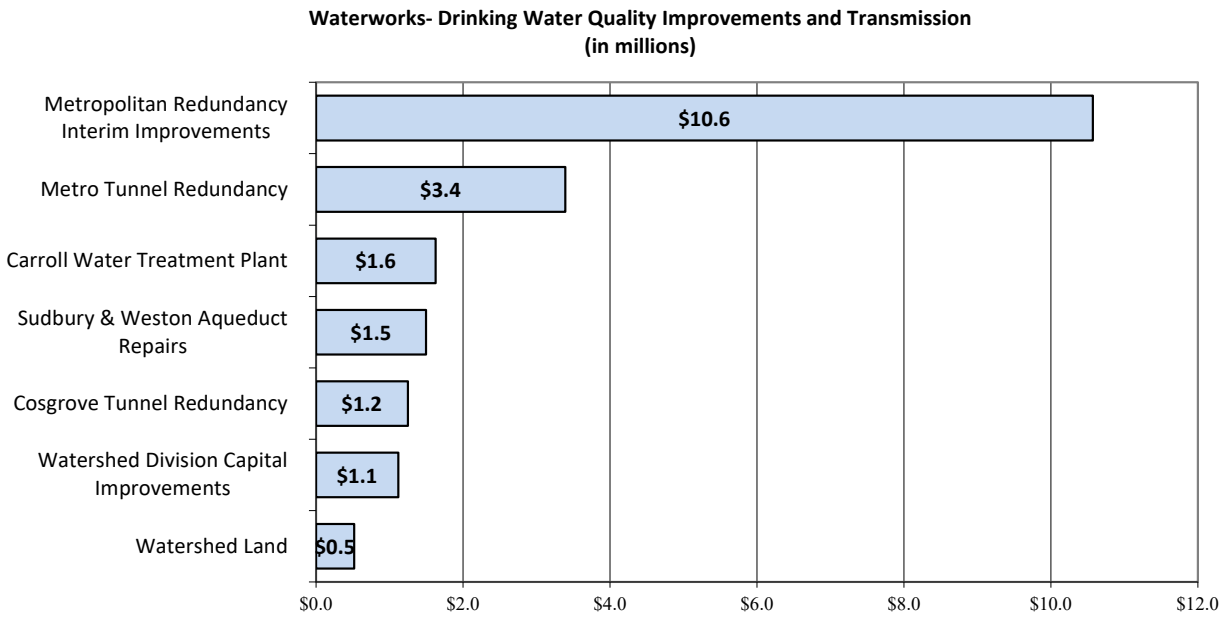
In FY21, MWRA distributed $24.2 million in grants and $13.2 million in no-interest loans which is offset by repayment of prior-period loans of $6.1 million resulting in net spending of $31.3 million.

Waterworks System

During FY21, the MWRA spent $45.6 million on Waterworks system projects: $1.6 million for Drinking Water Quality Improvement projects, $17.5 million for Transmission projects, $10.7 million for Distribution and Pumping projects, and $15.8 million for Other Waterworks projects.

Waterworks System – Drinking Water Quality Improvements and Transmission

Total FY21 spending for Drinking Water Quality Improvements and Transmission projects was $1.6 million and $17.5 million, respectively. Projects with the largest spending are listed below:



Key Accomplishments in Drinking Water Quality Improvements:

- Carroll Water Treatment Plant Technical Assistance 11 and 12
    - NTPs Issued in January 2021

- Carroll Water Treatment Plant Hypochlorite System Modifications
    - NTP Issued in October 2020

- Carroll Water Treatment Plant Technical Assistance 9 and 10
    - Completed in December 2020

- Cosgrove Boat Storage
    - NTP Issued in April 2021

Key Accomplishments in Transmission:

- Weston Aqueduct Supply Mains 3 CP-1
    - NTP issued in October 2020

- Tops of Shafts 6, 8, 9A Rehab
    - NTP issued in October 2020

- Weston Aqueduct Sluice Gates Construction
    - NTP issued in November 2020

- River Road Improvements - Wachusett
    - NTP issued in February 2021

- Wachusett Dam Bridge Crane Removal
    - NTP issued in March 2021

- Commonwealth Avenue Pumping Station Improvements Construction
    - Substantially complete in March 2021

- Maintenance Garage/Wash Bay/Storage Building Design Construction Administration/Resident Inspection
    - NTP issued in May 2021

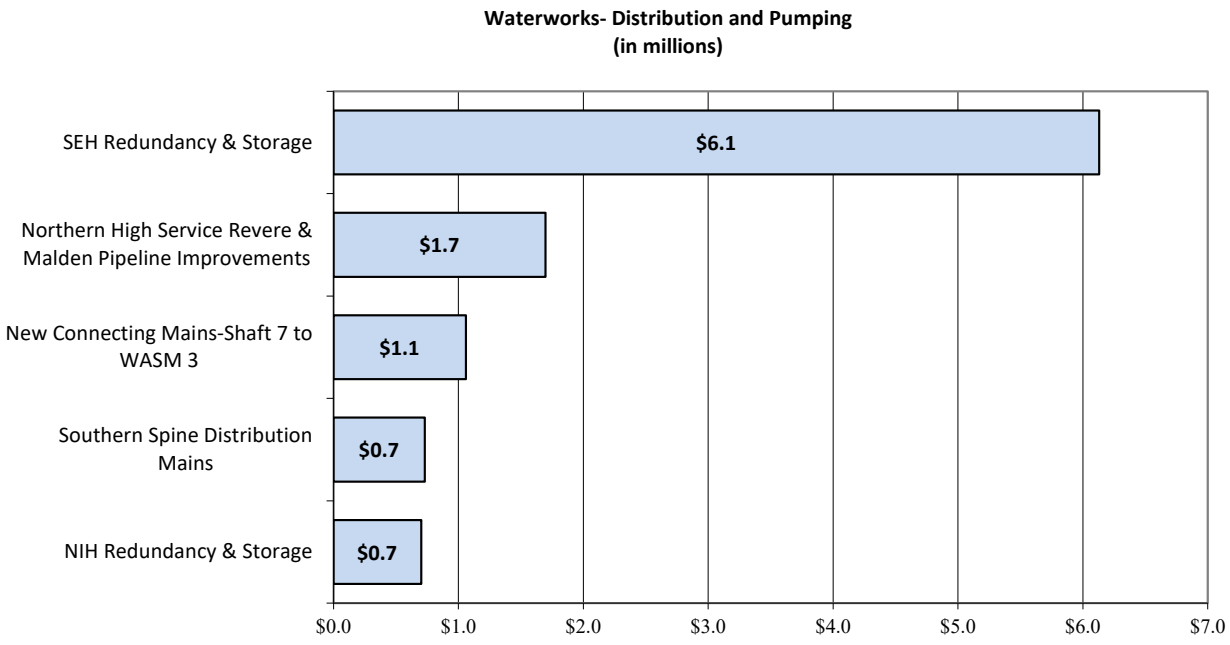
- Weston Aqueduct Supply Mains/Spot Pond Supply Mains West Pressure Reducing Valves Construction
    - Awarded in May 2021

- Quabbin Aqueduct Shaft 2 Construction
    - NTP issued in June 2021

- Shaft 5 Improvements Design/Construction Administration
    - NTP issued in June 2021

Waterworks System - Distribution and Pumping

Total FY21 spending for Distribution and Pumping projects totaled $10.7 million. Projects with the largest spending are listed below:



Key Accomplishments in Distribution and Pumping:

- Northern Extra High Improvements Design/Engineering Services During Construction
    - NTP Issued in February 2021

- Southern Extra High Redundancy Section 111 Construction 3
    - Substantially complete in May 2021

- Northern Intermediate High Sections 89 & 29 Replacement
    - Awarded in May 2021

- Northern Intermediate High Section 89 & 29 Replacement Resident Engineering/Inspection
    - NTP issued in June 2021

Waterworks – Other

Total FY21 spending for Waterworks Other totaled $15.8 million.

This category includes the community assistance program for the local water pipelines and other MWRA Waterworks projects.

In FY21, MWRA distributed $38.7 million in Local Water Pipeline Assistance Program loans to member communities offset by repayment of prior-period loans of $23.8 million which resulted in total net receipts of $14.9 million.

- Steel Tank Improvements Design/Construction Administration
    - NTP issued in January 2021

- Water System Hydraulic Model
    - Awarded in May 2021

Business & Operations Support

Total FY21 spending for Business and Operations Support totaled $4.2 million.

Key Accomplishments in Business & Operations Support:

- As-Needed Designs19
    - NTP issued in November 2020

- As-Needed Design 18
    - NTP issued in December 2020

- As-Needed Design 16
    - Completed in December 2020

- Enterprise Content Management
    - NTP issued in March 2021

- Harbor Outfall Monitoring and Loading System Upgrade (HOML)
    - NTP issued in April 2021

- Fencing Contract (6760Y)
    - Substantially complete in April 2021

- Fencing Contract (6760Z)
    - NTP issued in May 2021

- Hazardous Materials Technical Assistance 609TA/601TA
    - NTP's issued in May 2021

- Telephone System Upgrade
    - NTP issued in May 2021

- MAXIMO Interface Enhancements
    - Awarded in June 2021

- Appraisal Services 607TA/608TA

- NTP's issued in May and June 2021, respectively

- WQRS Aquarius
  - Completed in June 2021

Total New or Rehabilitated Pipeline

In addition to measuring spending on CIP projects, MWRA tracks the mileage of pipeline that is rehabilitated or added to its infrastructure. During FY21, the MWRA rehabilitated or constructed 1.3 miles of wastewater pipeline and 0.8 miles of water pipeline. These numbers do not include the rehabilitated or replaced pipelines of our member communities which are funded through our Inflow/Infiltration (I/I) and Water Loan programs as referenced above.

Refer to Attachment D for the specific linear footage of rehabilitated or new pipelines by project in FY21.

FY21 Spending Variances

Total FY21 capital spending was $148.4 million which was $117.4 million or 44.2% less than the $265.8 million budget. The variance is primarily due to underspending for the Interception & Pumping Facility Asset Protection, Deer Island Treatment Plant Asset Protection, Local Water System Assistance Program, IT Infrastructure Program, and NIH Redundancy & Storage.

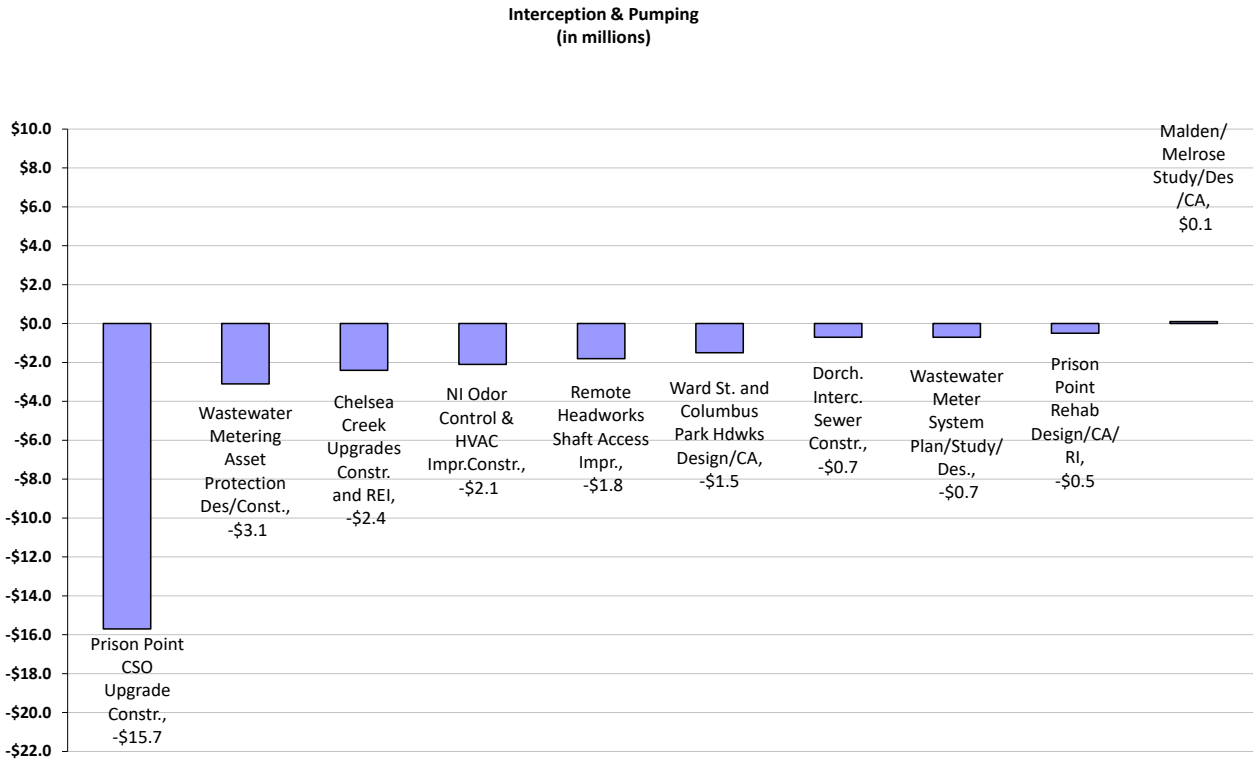
FY21 Spending Variances ($000s)

Program	Budgeted Spending	Actual Spending	Variance to Budget		% Actual Spending to Total Spending
			$	%	
Total Wastewater System	**$153,470**	**$98,560**	**($54,910)**	**-35.8%**	**66%**
Interception & Pumping	$74,228	$45,870	($28,359)	-38.2%	31%
Treatment	$38,487	$17,626	($20,861)	-54.2%	12%
Residuals	$3,711	$1,446	($2,265)	-61.0%	1%
Combined Sewer Overflow	$5,035	$2,341	($2,694)	-53.5%	2%
Other Wastewater Programs	$32,008	$31,277	($731)	-2.3%	21%
Total Waterworks System	**$90,301**	**$45,592**	**($44,709)**	**-49.5%**	**31%**
Drinking Water Quality Improvements	$2,818	$1,602	($1,217)	-43.2%	1%
Transmission	$25,069	$17,486	($7,583)	-30.2%	12%
Distribution and Pumping	$24,561	$10,708	($13,853)	-56.4%	7%
Other Waterworks Programs	$37,853	$15,796	($22,057)	-58.3%	11%
Business & Operations Support	**$22,003**	**$4,211**	**($17,792)**	**-80.9%**	**3%**
Total MWRA	**$265,774**	**$148,362**	**($117,412)**	**-44.2%**	**100%**

FY21 Variances for Major Projects

Please see Attachment B for the full FY21 CIP variance explanations by project.

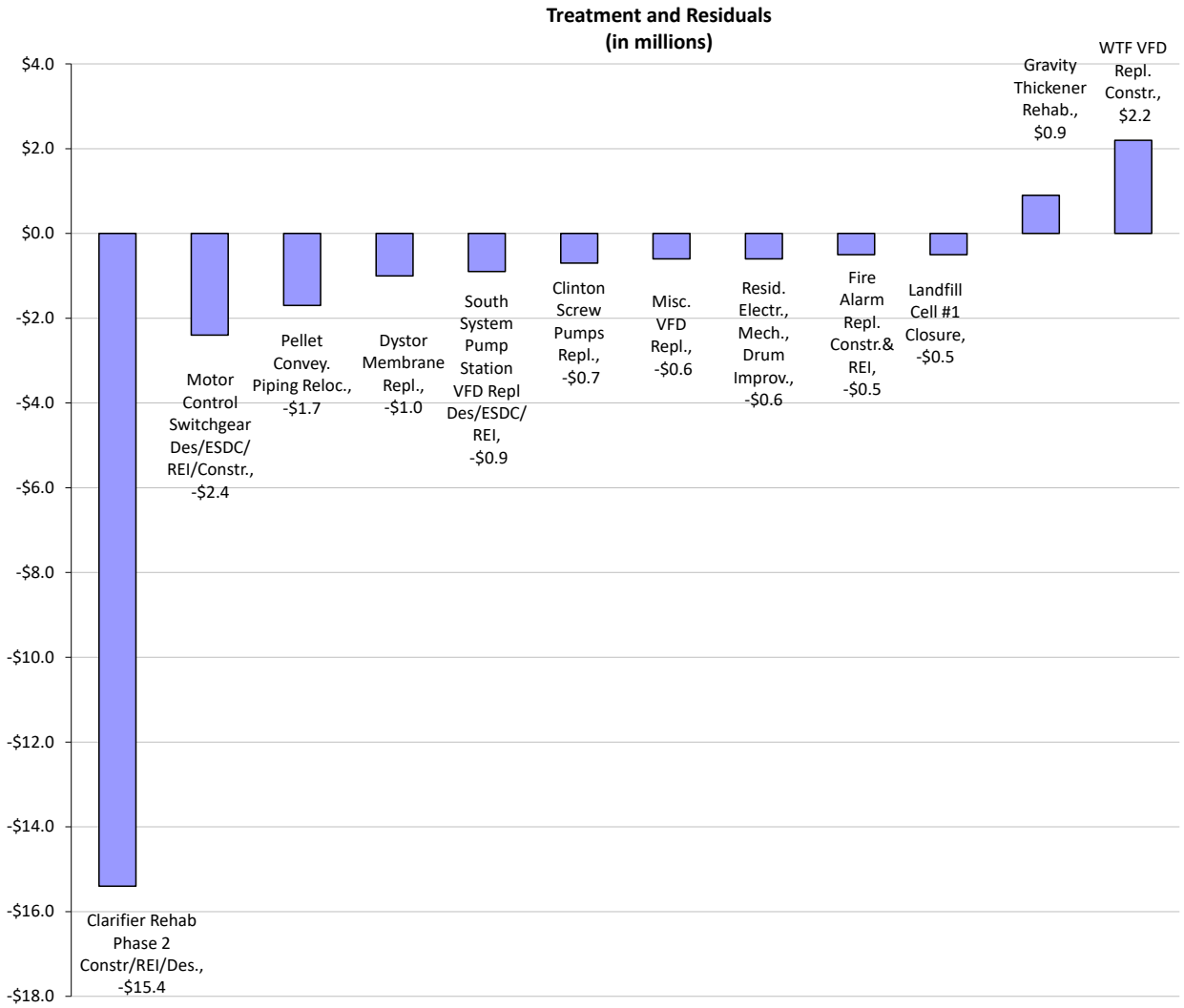
Wastewater - Interception & Pumping



- Total FY21 Budget: $74.2 million
- Total FY21 Expended: $45.9 million
- $28.4 million less than budgeted spending
  - Underspending in Interception & Pumping Facility Asset Protection totaling $22.6 million, including
    - $16.2 million for Prison Point CSO Rehabilitation and ESDC, delay in construction award.
    - $3.1 million for Wastewater Metering System Equipment Replacement due to delay in award and software training and $0.7 million for Planning/Study Design due to time extension through the construction installation and warranty period.
    - $2.4 million for Chelsea Creek Upgrades Construction and REI due to work delays and time extension.
    - $2.1 million for Nut Island Odor Control & HVAC Improvements Phase 2 Construction due to delays in equipment delivery and Covid-19 shutdown.
    - $1.8 million for Remote Headworks Shaft Access Improvements Construction due to updated schedule.

- $1.5 million for Ward Street and Columbus Park Headworks Upgrades Design/CA due to contract awarded later than anticipated.
- $0.7 million for the Dorchester Interceptor Sewer Construction due to delayed notice-to-proceed as well as winter moratorium.
- This underspending was partially offset by overspending of $0.1 million for Malden/Melrose Study/Design/CA due to consultant progress.

Wastewater – Treatment and Residuals



Deer Island Treatment Plant Asset Protection:

- Total FY21 Budget: $36.4 million
- Total FY21 Expended: $17.5 million
- $18.8 million less than budgeted spending

- Underspending on various projects, including
  - $15.4 million for Clarifier Rehabilitation Phase 2 Construction, Design and REI due to updated construction and REI schedules.
  - $2.4 million for DI Motor Control Center Switchgear Replacement Design/Construction and REI due to updated construction schedule.
  - $1.0 million for Dystor Membrane Replacement and $0.9 million for South System Pump Station VFD Replacement Design/ESDC/REI due to updated schedules.
  - $0.6 million for Miscellaneous VFD Replacements due to timing of work.
  - $0.5 million for Fire Alarm Replacement Construction and REI due to updated schedules.
  - Offset by overspending of $2.2 million for Winthrop Terminal Facility VFD Replacements and $0.9 million for Gravity Thickener Rehabilitation due to contractor progress.

Clinton Wastewater Treatment Plant:

- Total FY21 Budget: $2.1 million
- Total FY21 Expended: $0.1 million
- Less than budgeted spending primarily due to $0.7 million for Clinton Screw Pump Replacements due to updated schedule and $0.5 million for Landfill Cell #1 Closure due to updated schedule as a result of regulatory requirements. Also, $0.4 million for Digester Cover Replacement due to updated schedule and $0.2 million for Valve and Pipe Replacement due to Covid-19 labor shortage negatively affecting valve manufacturing.

Residuals Asset Protection:

- Total FY21 Budget: $3.7 million
- Total FY21 Expended: $1.4 million
- Less than budgeted spending primarily of $1.7 million for Pellet Conveyance Relocation and $0.6 million for Electrical, Mechanical, and Dryer Drum Improvements due to work anticipated in FY21 that was completed in FY20.

Wastewater - Combined Sewer Overflows (CSO's)

- Total FY21 Budget: $5.0 million
- Total FY21 Expended: $2.3 million
- $2.8 million for Dorchester Inflow Removal Construction due to updated final cost for work performed.

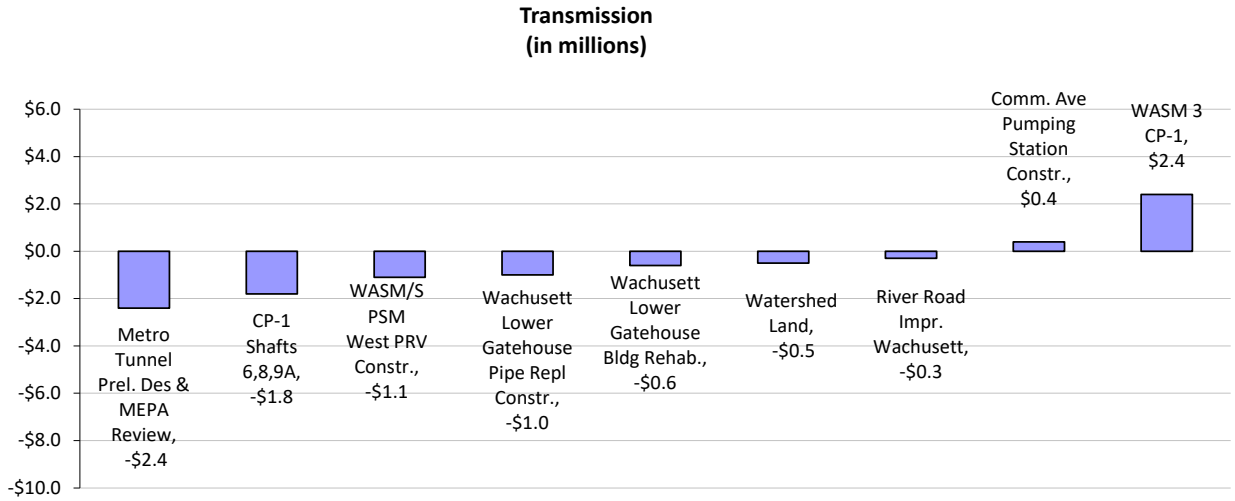
Wastewater - Other

- $0.7 million less than budgeted spending for I/I Local Financial Assistance resulting from $1.0 million in greater than budgeted grant distributions and

$4.4 million in greater than budgeted no-interest loans and $6.1 million for repayments for previous loan distributions.

Waterworks - Drinking Water Quality Improvements

- Total FY21 Budget: $2.8 million
- Total FY21 Expended: $1.6 million
- $1.2 million less than budgeted spending
  - Underspending primarily due to $0.8 for CP-7 Existing Facilities Construction, $0.2 million for CWTP Parapet Wall Repairs, and $0.2 million for Soda Ash & Ammonia Equipment Replacement work due to updated schedules.

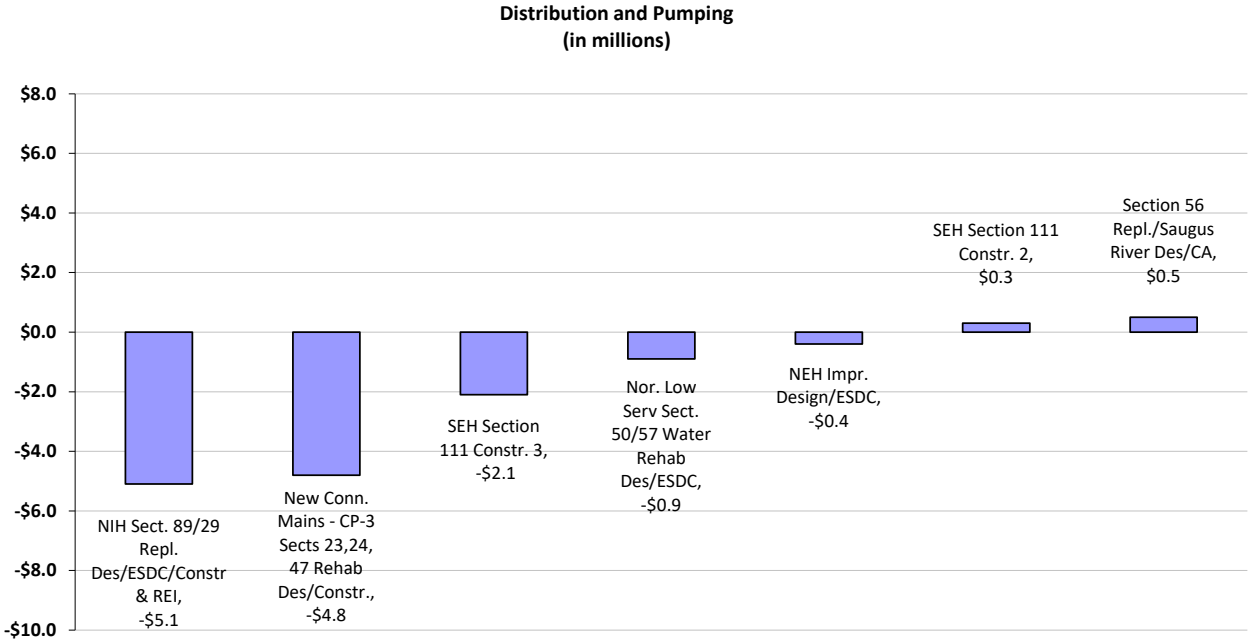


Waterworks – Transmission

- Total FY21 Budget: $25.1 million
- Total FY21 Expended: $17.5 million
- $7.6 million less than budgeted spending
  - Underspending on various projects, including
    - $2.4 million for Metropolitan Tunnel Redundancy Preliminary Design & MEPA Review due to timing of consultant work.
    - $1.8 million for CP-1 Shafts 6, 8, and 9A due to contract award later than originally anticipated and repair clamps issue.
    - $1.1 million for Weston Aqueduct Supply Mains/Spot Pond Supply Mains West Pressure Reducing Valves Construction, $1.0 million for Wachusett Lower Gatehouse Pipe Replacement Construction, and $0.3 million River Road Improvements - Wachusett due to updated schedules.
    - $0.6 million for Wachusett Lower Gatehouse Building Rehabilitation – Construction due to updated schedule as a result of contract being repackaged into multiple contracts.
    - $0.5 million for Watershed Land due to timing of land purchases.

- This underspending was partially offset by overspending of $2.4 million for WASM 3 CP-1, and $0.4 million for Commonwealth Ave Pumping Station Design due to consultant progress.

Waterworks - Distribution and Pumping



- Total FY21 Budget: $24.6 million
- Total FY21 Expended: $10.7 million
- $13.9 million less than budgeted spending
  - Underspending on various projects, including
    - $5.1 million for NIH Section 89/29 Replacement Construction/REI and Design/ESDC and $4.8 million for CP-3 Section 23, 24, and 47 Rehabilitation and Design CA/REI due to updated schedules.
    - $2.1 million for Southern Extra High Service Section 111 Phase 3 due to timing of final work and balancing credit change order.
    - $0.9 million for Sections 50, 57 Water and Sections 21, 20, 19 Sewer due to reduced scope and consultants scheduled tasks being less than anticipated.
    - $0.4 million for Northern Extra High Improvements Design/ESDC due to contract awarded later than originally anticipated and updated schedule.
    - This underspending was partially offset by overspending of $0.5 million for Section 56 Replacement/Saugus River Design CA due to consultant progress and $0.3 million for Southern Extra High Section 111 Construction 2 due to contractor progress.

Waterworks - Other

- Total FY21 Budget: $37.9 million
- Total FY21 Expended: $15.8 million
- $22.1 million less than budgeted spending
  - $18.3 million for the Local Water System Assistance Program due to timing of community loan requests due to less than anticipated communities deferring their loan repayments.
  - $3.3 million for Carroll Water Treatment Plant SCADA Upgrades Design and Construction due to updated schedule for SCADA construction
  - $0.2 million for Water System Hydraulic Model and $0.3 million for Masonry/Structural Repairs Bellevue 1/Arlington Heights Design/ESDC due to updated schedules.
  - This underspending was partially offset by overspending of $0.3 million for Cosgrove Intake Roof Replacement, $0.2 million for Bellevue 2/Turkey Hill Water Tank Painting, and $0.1 million for Gillis Pumping Station/Cottage Farm CSO Roof Replacement due to FY20 planned work completed in FY21.

Business & Operations Support

- Total FY21 Budget: $22.0 million
- Total FY21 Expended: $4.2 million
- $17.8 million less than budgeted spending
  - $2.6 million for MSSP/SIEM, $2.0 million for Lawson Upgrade, $2.0 million for Cabling, $1.0 million for SANS Storage, $1.2 million for MAXIMO Interface Enhancements and Upgrades, $0.8 million for Enterprise Content Management, $0.7 million for Edge Switches, $0.5 million for Core Switches, $1.0 million for Disaster Recovery due to timing and scheduling of MIS work.
  - $3.1 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work.
  - $0.8 million for Vehicle Purchases due to timing.
  - $0.7 million for Security Equipment & Installation due to timing of security initiatives.

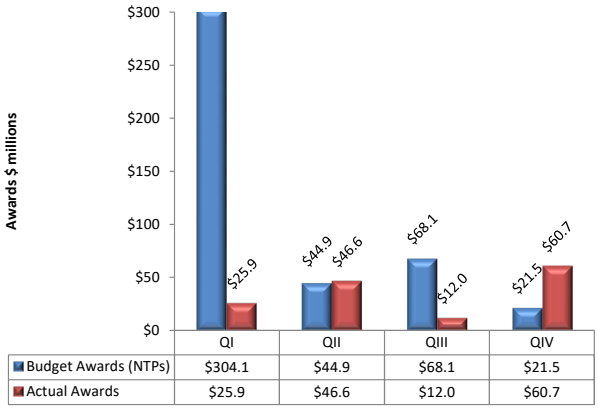
FY21 CIP Contract Awards

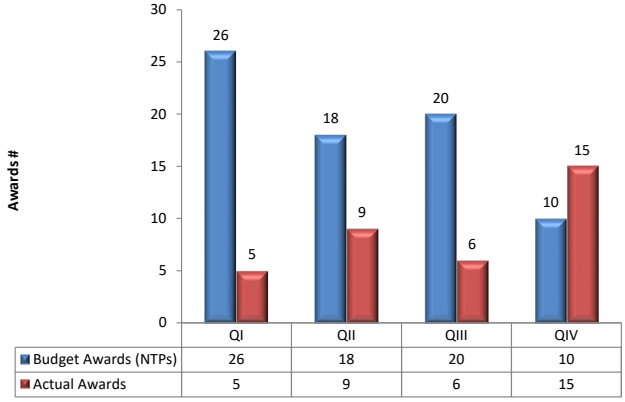
The FY21 CIP planned the award of 74 contracts with a value of $439.1 million. During FY21, the MWRA awarded 35 contracts valued at $145.2 million, representing 47% of contracts and 33% of contract funding. Of the 74 planned awards, 22 contracts were awarded, 40 are expected to be awarded in FY22, 6 have been rescheduled beyond FY22, and 6 are being done in-house, were deleted, renamed, or scope moved to another contract. Of the 40 contracts that moved to FY22: 1 was due to permitting issues, 4 due to project to holds in FY21, 8 due to scope changes, 13 due to changes in priorities, and 14 due to bidder issues/outside consultant/contractor delays/additional specification review. In addition to FY21 budgeted awards, 13 contracts were

awarded: 7 projects slipped from FY20 and 6 contracts were broken out from existing contracts bringing the total number of contracts awarded in FY21 to 35.

A comparison of the FY21 budgeted contracts and the FY21 actual contract awards are detailed below:

FY21 Contracts ($ in Millions)				
Program	**Budget**		**Actual**	
	#	**$**	**#**	**$**
Total MWRA	**74**	**439.1**	**35**	**145.2**
Wastewater	29	297.7	5	42.3
Waterworks	34	125.1	19	91.2
Business Operations & Support	11	16.3	11	11.7





Please refer to Attachment C for a full listing of contracts planned to be awarded in FY21 and actual awards.

Change Orders Review

Management of change orders remains a top priority. Total change orders for MWRA-managed active capital projects were 7.6% of award value through June 2021. This percentage is within the target of 10% for change orders as a percentage of awards.

Master Plan and the FY21 CIP Process

To arrive at the FY21 Final CIP, the Authority identified the needs of the programs taking into account the recommendations of the Master Plan. The long-term strategy for capital work is identified in the Authority's Master Plan which was published in 2006 and updated in 2013 and

2019. The Master Plan serves as a road map for inclusion of projects in the CIP in every budget cycle. In FY21, six new projects were added from the Master Plan.

The updated Master Plans focused on capital needs over the next 40-years and are intended to be the principal framework for annual capital planning. The Plans focus on projects that require capital spending during the next two 5-year CIP cap cycles: FY19-23 and FY24-28. Potential capital needs during the next 10-year (FY29-38) and 20-year (FY39-53) planning periods will also be identified.

FY19-23 Spending Cap

MWRA spending during the FY19-23 timeframe is planned to be $809.8 million, with additional net spending of $158.4 million for the community I/I (Infiltration and Inflow) loan and grant program and $55.1 million for the community water pipeline loan program. Annual cash flows for the Cap period are shown below in millions:

		FY19	FY20	FY21	FY22	FY23	Total FY19-23
FY22 Final	Projected Expenditures	$142.9	$159.0	$172.9	$207.8	$303.9	$986.5
	I/I Program	(39.6)	(35.2)	(34.8)	(25.1)	(23.6)	(158.4)
	Water Loan Program	(13.8)	(11.4)	(16.4)	(17.9)	4.4	(55.1)
	MWRA Spending	**$89.4**	**$112.3**	**$121.7**	**$164.7**	**$284.8**	**$773.0**
	Contingency	0.0	0.0	0.0	9.7	18.7	28.5
	Inflation on Unawarded Construction	0.0	0.0	0.0	1.2	7.2	8.4
	Chicopee Valley Aqueduct Projects	0.0	0.0	0.0	0.0	0.0	0.0
	FY22 Final FY19-23 Spending	**$89.4**	**$112.3**	**$121.7**	**$175.7**	**$310.7**	**$809.8**

The format of the Cap table has changed from prior cap periods to account separately for MWRA spending, which excludes the local I/I grant and loan program and the local water pipeline loan spending which are both outside of MWRA's control. As in past Caps, contingency for each fiscal year is incorporated into the CIP to fund the uncertainties inherent to construction. The contingency budget is calculated as a percentage of budgeted expenditure outlays. Specifically, contingency is 7% for non-tunnel projects and 15% for tunnel projects. Inflation is added for unawarded construction contracts. Finally, the Cap excludes Chicopee Valley Aqueduct system projects.

FY22 Outlook Based on FY22 CIP

Looking ahead to FY22, the projected capital spending is $217.5 million including contingency of $9.7 million. Projects with the largest budgeted spending in FY22 include Deer Island Treatment Plant Asset Protection of $25.8 million, Infiltration/Inflow Local Financial Assistance of $25.1 million, Corrosion and Odor Control of $24.8 million, Facility Asset Protection of $20.8 million, Local Water System Assistance Program of $17.9 million, and Metropolitan Redundancy Interim Improvements of $13.5 million.

In FY22, 80 contracts or phases of projects with a total budget of $420.0 million are expected to be awarded. Staff will be completing the design and progressing to the bid and award stage on several major projects such as Deer Island Treatment Plant (DITP) Clarifier Rehabilitation Phase 2 Construction, Prison Point CSO Rehabilitation Construction, DITP Fire Alarm System Construction, New Connecting Mains Shaft 7 to WASM 3 CP3 Sections 23,24,47 Rehabilitation, DI Motor Control Center & Switchgear Replacement Construction, Waltham Water Pipeline Construction, and Braintree-Weymouth Improvements Construction.

Please see Attachment E for FY22 Planned Contract Awards.

ATTACHMENT B
FY21 CIP Year-end Variance Report ($000's)

	FY21 Budget YTD June	FY21 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Wastewater					
Interception & Pumping (I&P)	$74,228	$45,870	($28,359)	-38.2%	Underspending Prison Point Rehabilitation - Construction; $15.7M, and Remote Headworks Shaft Access Improvements - Construction: $1.8M (updated schedules) Chelsea Creek Headworks Upgrades - Construction and REI: $2.4M (delay in work, and time extension) Wastewater Meter System Equipment Replacement: $3.1M (delay in award and software training) Nut Island Odor Control & HVAC Improvements Phase 2 - Construction: $2.1M (delays in equipment delivery and Covid-19 shutdown) Interceptor Renewal No. 3, Dorchester Interceptor Sewer - Construction and CA/RI: $881k (delayed notice-to-proceed as well as winter moratorium) Ward Street & Columbus Park Headworks - Design/CA: $1.5M (awarded later than anticipated) Wastewater Meter System Planning/Study/Design: $674k (due to time extension through construction installation and warranty period) Prison Point Rehabilitation - Design/CA/RI: $509k (delay in construction award) Hayes Pump Station Rehab - Design: $231k (award less than budgeted) Offset Overspending Interceptor Renewal 7, Malden & Melrose - Study/Design/CA: $141k (consultant progress)

ATTACHMENT B
FY21 CIP Year-end Variance Report ($000's)

	FY21 Budget YTD June	FY21 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Treatment	$38,487	$17,626	($20,861)	-54.2%	Underspending Clarifier Rehabilitation Phase 2 - Construction: $14.5M, REI: $675k, and Design: $248k, DI Dystor Membrane Replacements: $1.0M, South System Pump Station (SSPS) VFD Replacement - Design/ESDC/REI: $940k, Screw Pump Replacement: $720k, Landfill Cell No. 1 Closure: $500k, Fire System Replacement - Constr & REI: $484k, Digester Cover Replacement: $360k, HVAC Design/ESDC: $300k, DITP Roofing Replacement: $333k, Clinton Fire Alarm Replacement: $142k, and Equipment Storage Building: $100k (updated schedules) Motor Control Center and Switchgear Replacement - Design/ESDC/REI and Construction: $2.4M (updated construction schedule) As-Needed Design: $1.1M (less than anticipated task order work) Miscellaneous VFD Replacements FY19-FY23: $600k (timing of work) Clinton Valves and Pipe Replacement: $207k (Covid-19 labor shortage negatively impacting valve manufacturing) Offset Overspending Winthrop Terminal Facility (WTF) VFD Replacement - Construction: $2.2M, Gravity Thickener Rehabilitation: $935k, and Gas Protection System Replacement - Phase 1: $261k (contractor progress) CHP Alternatives Study: $429k (timing of work) Radio Repeater System Upgrade - Phase 1: $138k (work anticipated in FY20 completed in FY21)
Residuals	$3,711	$1,446	($2,265)	-61.0%	Underspending Pellet Conveyance Relocation: $1.7M, and Residuals Mechanical/Electrical/Dryer Drum Replacements: $568k (work anticipated in FY21 completed in FY20)
CSO	$5,035	$2,341	($2,694)	-53.5%	Underspending Dorchester Inflow Removal Construction: $2.8M (updated cost) Offset Overspending CSO Performance Assessment: $129k (consultant progress)
Other Wastewater	$32,008	$31,277	($731)	-2.3%	Underspending I/I Local Financial Assistance: $731k (timing of community repayments due to less than anticipated communities deferring loan repayments but is somewhat offset by more than anticipated distributions of grants and loans)
Total Wastewater	**$153,470**	**$98,560**	**($54,910)**	**-35.8%**	

ATTACHMENT B
FY21 CIP Year-end Variance Report ($000's)

	FY21 Budget YTD June	FY21 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Waterworks					
Drinking Water Quality Improvements	$2,818	$1,602	($1,217)	-43.2%	Underspending CP-7 Existing Facilities Modifications: $675k, CWTP Parapet Wall Repairs: $237k, and Soda Ash & Ammonia Equipment Replacement: $200k (updated schedules)
Transmission	$25,069	$17,486	($7,583)	-30.2%	Underspending Metropolitan Tunnel Redundancy Preliminary Design & MEPA Review: $2.4M, and Program Support Services: $191k (timing of consultant work) CP-1 Shafts 6, 8, and 9A: $1.8M (contract award later than originally anticipated and repair clamps issue) River Road Improvements-Wachusett: $296k, and Maintenance Garage/Wash Bay/Storage Building - Design/CA/RI: $270k (contract awards later than originally anticipated) WASM/SPSM West PRV - Construction: $1.1M and REI: $199, Wachusett Lower Gatehouse Pipe Replacement - Construction: $1.0M, Sudbury/Foss Dam Improvements - Construction: $320k, Wachusett Lower Gatehouse Building Rehabilitation - Construction: $550k, Winsor Station Pipeline Shaft 2 - Construction: $183, and Oakdale High Line Replacement - Construction: $165k (updated schedules) Watershed Land: $483k (timing of purchases) Offset Overspending WASM 3 Rehabilitation, CP-1: $2.4M, and Commonwealth Ave Pump Station Improvements - Construction: $373k (contractor progress)

ATTACHMENT B
FY21 CIP Year-end Variance Report ($000's)

	FY21 Budget YTD June	FY21 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Distribution & Pumping	$24,561	$10,708	($13,853)	-56.4%	Underspending CP3-Sections 23, 24, 47 Rehabilitation and CA/RI: $4.8M, Section 89/29 Replacement - Construction, ESDC and RE/RI Services: $5.1M, and Cathodic Protection Metro System - Design/CA: $308k (updated schedules) SEH Redundancy Pipeline Section 111 - Construction Phase 3: $2.1M (timing of final work and balancing credit change order) Sections 50 & 57 Water Rehabilitation - Design/ESDC; $929k (contract scope reduction) Section 89/29 Redundancy -Design/CA/RI: $334k, and SEH Redundancy Pipeline Phase 1 - Design/CA/RI: $245k (Construction Administration and Resident Inspection services less than anticipated budgeted spending) NEH Improvements Design & ESDC: $357k (contract awarded later than originally anticipated and updated schedule) Sections 53 and 99 Connections - Design/CA: $245k (project was off to a slow start as a result of COVID furloughs with consultant last spring) Offset Overspending Section 56 Replacement/Saugus River - Design/CA: $470K (consultant progress) SEH Redundancy Pipeline Section 111 - Construction Phase 2: $312k (contractor progress)
Other Waterworks	$37,853	$15,796	($22,057)	-58.3%	Underspending Local Water Pipeline Financial Assistance Program: $18.3M (timing of community repayments due to less than anticipated communities deferring their loan repayments) CWTP SCADA Upgrades - Design Programming RE: $847k and Construction: $2.5M (updated schedule for SCADA Construction) Steel Tank Improvements - Design/CA: $342k (contract awarded later than originally anticipated) Water System Hydraulic Model: $231k, and Masonry/Structural Repairs Bellevue 1/Arlington Heights - Design/ESDC: $294k (updated schedules) Offset Overspending Cosgrove Intake Roof Replacement: $266k, Bellevue 2/Turkey Hill Tanks Painting: $177k, and Gillis Pump Station/Cottage Farm CSO Roof Replacements: $141k (FY20 planned work completed in FY21)
Total Waterworks	**$90,301**	**$45,592**	**($44,709)**	**-49.5%**	

ATTACHMENT B
FY21 CIP Year-end Variance Report ($000's)

	FY21 Budget YTD June	FY21 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Business & Operations Support					
Total Business & Operations Support	**$22,003**	**$4,211**	**($17,792)**	**-80.9%**	Underspending As-Needed Technical Assistance and CS/REI Services: $3.1M (lower than projected task order work) MSSP/SIEM: $2.6M, Lawson Upgrade: $2.0M, Cabling: $2.0M, SANS Storage: $1.0M, MAXIMO Interface Enhancements and Upgrades: $1.2M, Enterprise Content Management: $812k, Edge Switches: $700k, Core Switches: $500k, Disaster Recovery: $955k, ITSM Access Management: $325k, and Instrumentation & Controls IT: $310k (schedule changes) Security Equipment & Installation: $702k (timing of physical security initiatives) FY19-23 Vehicle Purchases: $791k (due to timing)
Total MWRA	**$265,774**	**$148,362**	**($117,411)**	**-44.2%**	

ATTACHMENT C
FY21 Planned Contract Awards

Project	Contract No.	Subphase	Notice to Proceed	Revised Notice to Proceed	Total Contract Amount ($ in millions)	Award Amount ($ in millions)	Vendor	Schedule Change Reason Code *	*Secondary Codes
NIH Redundancy & Storage	**7117**	**Section 89 & 29 Repl - Construction**	**Jul-20**	**Jun-21**	**$21.3**	**$32.6**	**P. Gioioso & Sons, Inc.**	1	
Clinton Wastewater Treatment Plant	7704	Screw Pump Replacement	Jul-20	Sep-21	$2.0			3	2
Applicat Improv Program	7286	Lawson Upgrade	Jul-20	Oct-21	$5.0			3	5
IT Infrastructure Program	7662	Edge Switches	Jul-20	Mar-22	$0.7			3	6
Application Improvement Program	**7649**	**MAXIMO Interface Enhancements**	**Jul-20**	**Jun-21**	**$0.7**	**$1.2**	**Starboard Consulting, LLC.**	1	
Facility Asset Protection	**7429**	**Ward St & Colum Pk Headworks Des/CA**	**Jul-20**	**Jan-21**	**$22.0**	**$28.9**	**CDM Smith, Inc.**	1	
Metro Redundacy Interim Improvements	**6544**	**WASM 3 CP-1**	**Jul-20**	**Oct-20**	**$13.0**	**$19.5**	**Albanese D&S**	1	
Waterworks Facility Asset	**6832**	**Steel Tank Impr Design/CA**	**Jul-20**	**Jan-21**	**$3.6**	**$2.8**	**Hazen & Sawyer**	1	
Capital Maintenance Planning	**7691**	**As-Needed Design Contract 18**	**Jul-20**	**Dec-20**	**$2.1**	**$2.5**	**Hazen & Sawyer**	1	
Capital Maintenance Planning	**7692**	**As-Needed Design Contract 19**	**Jul-20**	**Nov-20**	**$2.1**	**$2.5**	**CDM Smith**	1	
NIH Redundancy & Storage	**7633**	**Sect 89 & 29 Repl RE/RI Svcs**	**Jul-20**	**Jun-21**	**$2.0**	**$1.7**	**Stantec Consulting Services**	1	
IT Infrastructure Program	7661	Core Switches	Jul-20	Mar-23	$0.5			6	
Wastewater Meter Sys-Equip	**7191**	**WW Metering Asset Protect/Equip Purchase**	**Aug-20**	**Dec-20**	**$3.6**	**$3.3**	**ADS, LLC.**	1	
DI Treatment Plant Asset Protection	7395	Clarifier Rehab Phase 2 - Construction	Sep-20	Mar-22	$137.2			3	7
Facility Asset Protection	7462	Prison Point Rehab - Construction	Sep-20	Jul-21	$41.8			3	7 & 4
DI Treatment Plant Asset Protection	7420	Motor Control Center & Switchgear Replace Const	Sep-20	Aug-21	$11.2			3	7
DI Treatment Plant Asset Protection	7397	Clarifier Rehab Phase 2 - REI	Sep-20	Mar-22	$3.0			3	7
DI Treatment Plant Asset Protection	7110	HVAC Design/ESDC	Sep-20	Jul-22	$2.1			6	
Watershed Division Capital Improvements	**7701**	**River Rd Improvements-Wachusett**	**Sep-20**	**Feb-21**	**$3.0**	**$2.2**	**E.T. & L.**	1	
Facility Asset Protection	**7162**	**Hayes Pump Station Rehab Design**	**Sep-20**	**Nov-20**	**$2.5**	**$2.1**	**Hazen and Sawyer**	1	
Sudbury/Weston Aqueduct Repair	**7369**	**Weston Aqueduct Sluice Gates - Const**	**Sep-20**	**Nov-20**	**$1.9**	**$2.3**	**WES Construction**	1	
DI Treatment Plant Asset Protection	**7126**	**SSPS VFD Replace Des/ESDC/REI**	**Sep-20**	**Jun-21**	**$4.5**	**$7.5**	**Hazen and Sawyer**	1	
Metro Redundancy Interim Improvements	**7599**	**Shafts 5 Impr Des/CA**	**Sep-20**	**May-21**	**$0.8**	**$1.2**	**Kleinfelder Northeast**	1	
New Connecting Mains-Shaft 7 to WASM 3	6392	CP3-Sect 23,24,47, Rehab	Sep-20	Feb-22	$14.7			3	7
Facility Asset Protection	7550	Rem HW Shaft Acc Improv-Constr	Sep-20	Jan-22	$2.5			3	5
Application Improvement Program	7652	Hyperion	Sep-20	Sep-21	$0.4			3	6
Clinton Wastewater Treatment Plant	7648	Digester Cover Replacement	Oct-20	Dec-21	$0.6			3	6
Waterworks Facility Asset Protection	7711	Masonry/Struct Rep Des/ESDC	Oct-20	Sep-21	$1.6			3	6
Distribut Systems Facility Mapping	**7613**	**Water System Hydraulic Model**	**Oct-20**	**May-21**	**$0.5**	**$0.8**	**CDM Smith, Inc.**	1	
DI Treatment Plant Asset Protection	7125	Misc. VFD Replacements FY19-FY23	Oct-20	Oct-20	$4.5			3	6
Dam Projects	7615	Sudbury/Foss Dam Const	Oct-20	Apr-22	$1.6			3	6
Watershed Division Capital Improvements	7569	QAB Concept Des Report	Oct-20	Sep-21	$0.3			3	6
Metro Redundancy Interim Improvements	**7563**	**WASM/SPSM West PRV Constr**	**Nov-20**	**Jun-21**	**$7.1**	**$11.3**	**RJV Construction Corp.**	1	
DI Treatment Plant Asset Protection	7135	DI Dystor Membrane Replacements	Nov-20	Dec-21	$4.0			3	7
Metro Redundancy Interim Improvements	**7674**	**WASM/SPSM REI**	**Nov-20**	**Jun-21**	**$1.0**	**$0.7**	**CDM Smith, Inc.**	1	
Northern Extra High Service New Pipeline	**7404**	**NEH Improvements Design ESDC**	**Nov-20**	**Feb-21**	**$6.8**	**$6.7**	**Black & Veatch**	1	
Central Monitoring System	7582	CWTP SCADA Upgrade Construction	Dec-20	Sep-21	$13.0			3	7
Clinton Wastewater Treatment Plant	7693	Equip Storage Bldg	Dec-20	Jun-23	$0.3			2	
Carroll Water Treatment Plant Asset Protection	7755	CWTP Parapet Wall Repairs	Dec-20	Nov-21	$0.4			3	6
Clinton Wastewater Treatment Plant	7754	Landfill Cell #1 Closure	Dec-20	Dec-21	$1.0			3	4
Waterworks Facility Asset Protection	7542	Wat Met/VLt Mhole Des/CA Ph1	Dec-20	Dec-22	$1.0			2	
Application Improvement Program	7650	MAXIMO Upgrade	Dec-20	Dec-22	$0.6			6	
Facility Asset Protection	7360	System Relief & Contingency Planning	Dec-20	Jul-22	$0.5			6	
Facility Asset Protection	7781	Rem HW Sh Acc Imp ESDC/REI	Dec-20	Jan-22	$0.3			3	6
DI Treatment Plant Asset Protection	7051	Fire Alarm System Replacement - Construction	Jan-21	Oct-21	$28.8			3	7
DI Treatment Plant Asset Protection	7426	Fire System Replacement - REI	Jan-21	Dec-21	$2.1			3	7
DI Treatment Plant Asset Protection	7734	DITP Roofing Replacement	Jan-21	Jun-22	$2.0			3	5
Carroll Water Treatment Plant	**7713**	**Technical Assistance 11**	**Jan-21**	**Jan-21**	**$0.8**	**$1.0**	**Hazen & Sawyer**	1	
Carroll Water Treatment Plant	**7714**	**Technical Assistance 12**	**Jan-21**	**Jan-21**	**$0.8**	**$1.0**	**Stantec Consulting Services**	1	
Quabbin Transmission System	7380	Wach LGH Pipe Replacement Constr	Jan-21	Oct-21	$4.1			3	5
Cathodic Protection Of Distribution Mains	7611	Cath Prot Metro System Des/CA	Jan-21	Dec-21	$9.2			3	5
Metro Redundancy Interim Improvements	7547	Waltham Water Pipeline CA	Jan-21	Feb-22	$3.0			2	
IT Infrastructure Program	7663	Disaster Recovery	Jan-21	Jul-23	$1.0			6	
Clinton Wastewater Treat Plant	7735	Clinton Fire Alarm Replacement	Jan-21	Dec-21	$0.9			3	6
Quabbin Transmission System	7717	Wach LGH Pipe Repl REI	Jan-21	Oct-21	$0.3			3	5
Watershed Division Capital Improvements	7752	Quabbin Water Supply Des/CA/RI	Jan-21	Jun-22	$0.3			2	
Winsor Station Pipeline	**7198**	**Shaft 2 Construction**	**Feb-21**	**Apr-21**	**$1.1**	**$0.8**	**Unified Contracting, Inc.**	1	
Quabbin Transmission System	**7780**	**Wach Dam Bridge Crane Removal**	**Feb-21**	**Mar-21**	**$0.4**	**$0.3**	**Costello Dismantling Co.**	1	
DI Treatment Plant Asset Protection	7088	Odor Control Rehab - Design/ESDC	Mar-21	Sep-21	$4.5			3	6
DI Treatment Plant Asset Protection	7139	Cryogenics Plant Equipment Replace-Design	Mar-21	Dec-21	$3.3			3	6
Carroll Water Treatment Plant Asset Protection	7598	Soda Ash & Ammonia Equip Repl	Mar-21	Apr-22	$2.7			3	7
Clinton Wastewater Treat Plant	7698	Wach LGH Bld Boiler & Lead Rehab Constr.	Mar-21	Apr-22	$2.2			3	5
Carroll Water Treatment Plant Asset Protection	7737	Corr Control Pipe Loop Study	Mar-21	Nov-21	$0.5			3	7
Quabbin Transmission System	6940	Oakdale High Line Repl. Constr	Mar-21	Mar-23	$0.5			6	
DI Treatment Plant Asset Protection	7169	Gas Protect System Replac Ph 2	Apr-21	Sep-21	$2.5			3	2
Info Security Program ISP	7658	MSSP/SIEM	Apr-21	Dec-21	$2.6			3	7
DI Treatment Plant Asset Protection	7134	Radio Rptr Syst Upgr 2	May-21	Dec-21	$2.5			3	2
Facility Asset Protection	7555	Fuel Oil Tank Repl Constr Ph 2	May-21	Oct-21	$2.3			3	7
Residuals Asset Protection	7145	Residuals Facility Upgrades - Design	May-21	May-22	$1.2			3	7
Waterworks Facility Asset Protection	7708	Water Meter/Vault Mhle PH2 Design	May-21	May-23	$1.0			2	
MWRA Facilities Management	6983	Design/Engineering Services (DI Old Admin Building Demolition)	May-21	May-22	$0.7			3	2

ATTACHMENT C
FY21 Planned Contract Awards

Project	Contract No.	Subphase	Notice to Proceed	Revised Notice to Proceed	Total Contract Amount ($ in millions)	Award Amount ($ in millions)	Vendor	Schedule Change Reason Code *	*Secondary Codes
DI Treatment Plant Asset Protection	7052	Digester & Storage Tank Rehab Design/ESDC	Jun-21	Sep-21	$4.1			3	5
Watershed Division Capital Improvements	7577	Maint Gar/Wash Bay/Stor Bldg Constr	Jun-21	Nov-22	$3.9			2	
Waterworks Facility Asset Protection	7729	Beacon St Line Des/ESDC	Jun-21	Dec-21	$0.9			3	6
FY21 74 Anticipated Contract Awards 22 Planned Contracts Awards in FY21					$439.1	$132.8			
Unplanned Awards									
Clinton Wastewater Treatment Plant	**7372**	**Valves and Pipe Replacement**	**May-20**	**Sep-20**	**$0.5**	**$0.5**	**Harding & Smith**	1	
Carroll Water Treatment Plant	**7085H**	**CWTP Hypochlorite System Modifications**	**Sep-20**	**Oct-20**	**$0.9**	**$1.4**	**Harding & Smith**	1	
Metro Redundancy Interim Improvements	**7561**	**Tops of Shafts Rehab Shafts 7,8,9A**	**Apr-20**	**Oct-20**	**$4.2**	**$2.4**	**National Water Main Cleaning**	1	
Watershed Division Capital Improvements	**7677**	**Maintenance Garage/WB/SB Design CA/RI**	**Jun-20**	**May-21**	**$1.0**	**$1.3**	**The Robinson Green Beretta Corp.**	1	
Applications Improvements Program	**7438**	**Enterprise Content Management**	**May-20**	**Apr-21**	**$3.0**	**$2.3**	**Cadence Solutions Inc.**	1	
IT Infrastructure Program	**7660**	**Telephone System Upgrade**	**Jun-20**	**Apr-21**	**$0.4**	**$1.1**	**ePlus Technologies, Inc.**	1	
Carroll Water Treatment Plant	**6650C**	**Cosgrove Boat Storage**	**Jul-20**	**Apr-21**	**$1.8**	**$1.3**	**Poulin Construction**	1	
Application Improvement Program	**7653**	**Harbor Outfall Monitoring and Loading System Upgrade (HOML)**	**Jun-20**	**Apr-21**	**$0.2**	**$0.2**	**Guild System, Inc.**	1	
Equipment	**6760Z**	**Security Equipment & Installation**				**$0.6**	**RAD Corp.**	1	
Technical Assistance	**609TA**	**Hazardous Materials**				**$0.6**	**Hydro-Environmental Technologies**	1	
Technical Assistance	**610TA**	**Hazardous Materials**				**$0.6**	**Green Seal Environmental**	1	
Technical Assistance	**607TA**	**Appraisals**				**$0.1**	**Foster Appraisals**	1	
Technical Assistance	**608TA**	**Appraisals**				**$0.1**	**Collier International Valuation and Advisory Services**	1	
13 Unplanned Award in FY1					**$11.9**	**$12.4**			
35 Total Awards in FY21						**$145.2**			

*** Reason Codes:**

1. NTP issued in FY21
2. Project/Phase eliminated or being performed in-house; combined with another project, or phase completed but on hold.
3. NTP expected in FY22.
4. Schedule change due to permitting.
5. Scope changes.
6. Changes in priorities.
7. Bidder Issue/Outside Design Delay/Contractor issue/Additional specifications review

ATTACHMENT D

Linear Footage of Rehabilitated or New Pipelines

FY21 (July 2020 - June 2021)

	Contract #	Type	Linear Feet
WASTEWATER PROJECTS			
Dorchester Interceptor Sewer	7279	Rehab	6,935
WATERWORKS PROJECTS			
WASM 3 CP-1	7067	Rehab	3,638
Commonwealth Avenue Pumping Station	7524	New	68
SEH Section 111 CP-3	7505	New	306
CWTP Sodium Hypochlorite Piping & Pumps	7085H	New	313

TOTAL PIPELINE REHABILITATED OR CONSTRUCTED IN FY21

	Linear Feet	Miles
Wastewater Projects	6,935	1.3
Water Projects	4,325	0.8
Total	**11,260**	**2.1**

ATTACHMENT E
FY22 CIP Planned Awards

Project	Contract No.	Subphase	Notice to Proceed	FY22 Budget ($ in millions)
IT Infrastructure Program	7802	Future Workplace	Jul-21	$0.5
Facility Asset Protection	7462	Prison Point Rehab - Construction	Jul-21	$42.5
Waterworks Facility Asset Protection	7626	New Roofs at Water Pumping Stations Construction	Jul-21	$0.5
Waterworks Facility Asset Protection	7628	New Roofs at Water Pumping Stations Resident Engineering Inspection	Jul-21	$0.3
Quabbin Transmission Syst.	7788	Wach LGH Windows & Doors	Jul-21	$0.3
Facility Asset Protection	7785	Chelsea Creek Headworks Radio Equipment	Aug-21	$0.1
DI Treatment Plant Asset Protection	7420	Motor Control Center & Switchgear Replace Construction	Aug-21	$11.2
DI Treatment Plant Asset Protection	7913	Replacement of Odor Control Dampers	Aug-21	$0.5
Quabbin Transmission Syst.	7697	Wachusett Bastion Rehab Construction	Aug-21	$2.0
Applications Improvements Program	7652	Hyperion	Sep-21	$0.4
IT Infrastructure Program	7664	Instrumentation & Controls IT	Sep-21	$0.3
Braintree-Weymouth Relief Facilities	7366	Braintree/Weymouth Improvements - Construction	Sep-21	$8.8
Braintree-Weymouth Relief Facilities	7683	B/W Improvements - REI	Sep-21	$0.7
Facility Asset Protection	7689	Somerville-Marginal CSO Facility Rehab Design/Construction Administration	Sep-21	$2.4
DI Treatment Plant Asset Protection	7052	Digester & Storage Tank Rehab Design/Engineering Services During Construction	Sep-21	$4.1
DI Treatment Plant Asset Protection	7088	Odor Control Rehab - Design/Engineering Services During Construction	Sep-21	$5.3
DI Treatment Plant Asset Protection	7169	Gas Protection System Replacement Ph 2	Sep-21	$3.5
Clinton Wastewater Treatment Plant	7704	Screw Pump Replacement	Sep-21	$3.5
Cathodic Protection Of Distribution Mains	7610	Cathodic Protection Shafts N&W	Sep-21	$2.5
Spot Pond Supply Mains Rehab	7483	Walnut St Bridge Truss-Construction	Sep-21	$0.2
Central Monitoring System	7582	CWTP SCADA Upgrade Construction	Sep-21	$14.0
Waterworks Facility Asset Protection	7711	Masonry/Struct Rep Design/Engineering Services During Construction	Sep-21	$1.3
Watershed Division Capital Improvements	7569	Quabbin Administration Building Concept Design Report	Sep-21	$0.3
MWRA Facilities Management	7980	Office Space Modifications	Sep-21	$2.0
Applications Improveemnt Program	7286	Lawson Upgrade	Oct-21	$7.6
Information Security Program ISP	7440	Inform Security Plan Implementation	Oct-21	$0.4
Facility Asset Protection	7555	Fuel Oil Tank Replacement Construction Ph 2	Oct-21	$1.5
DI Treatment Plant Asset Protection	7051	Fire Alarm System Replacement - Construction	Oct-21	$28.8
Section 80 Rehabilitation	6892	Section 80 Rehab Design/Construction Administration	Oct-21	$2.5
Quabbin Transmission Syst.	7380	Wachusett Lower Gatehouse Pipe Replacement Construction	Oct-21	$4.1
Quabbin Transmission Syst.	7717	Wachusett Lower Gatehouse Pipe Repl Resident Engineering Inspection	Oct-21	$0.5
Carroll Water Treatment Plant Asset Protection	7737	Corr Control Pipe Loop Study	Nov-21	$0.5
Carroll Water Treatment Plant Asset Protection	7755	CWTP Parapet Wall Repairs	Nov-21	$0.5

ATTACHMENT E
FY22 CIP Planned Awards

Project	Contract No.	Subphase	Notice to Proceed	FY22 Budget ($ in millions)
Information Security Program ISP	7657	ITSM Access Management	Dec-21	$0.3
Information Security Program ISP	7658	MSSP/SIEM	Dec-21	$5.2
Facility Asset Protection	7508	Cottage Farm Chemical Building Impr.-Design	Dec-21	$1.0
DI Treatment Plant Asset Protection	7134	Radio Repeater System Upgrade 2	Dec-21	$2.5
DI Treatment Plant Asset Protection	7135	DI Dystor Membrane Replacements	Dec-21	$4.0
DI Treatment Plant Asset Protection	7139	Cryogenics Plant Equipment Replace-Design	Dec-21	$5.3
DI Treatment Plant Asset Protection	7426	Fire System Replacement - Resident Engineering Inspection	Dec-21	$2.1
Clinton Wastewater Treatment Plant	7371	Clinton Rehab Design/Engineering Services During Construction/Resident Engineering Inspection	Dec-21	$1.5
Clinton Wastewater Treatment Plant	7648	Digester Cover Replacement	Dec-21	$0.8
Clinton Wastewater Treatment Plant	7735	Clinton Fire Alarm Replacement	Dec-21	$0.9
Clinton Wastewater Treatment Plant	7754	Landfill Cell #1 Closure	Dec-21	$1.0
Waterworks Facility Asset Protection	7729	Beacon St Line Des/ESDC	Dec-21	$0.9
Quabbin Transmission Syst.	7716	Wachusett Bastion Rehab Resident Engineering Inspection	Dec-21	$0.4
Application Improvement Program	7666	PI (OSI)	Jan-22	$0.3
Facility Asset Protection	7550	Remote Headworks Shaft Access Improv-Construction	Jan-22	$2.8
Facility Asset Protection	7781	Remote Headworks Shaft Access Impr. Engineering Services During Construction/Resident Engineering Inspection	Jan-22	$0.3
Residuals Asset Protection	7143	Residuals Facility Plan/EIR	Jan-22	$1.0
Quabbin Transmission Syst.	7726	Wachusett Lower Gatehouse Building Rehab Resident Engineering Inspection	Jan-22	$0.3
Metropolitan Redundancy Interim Improvements	7562	Chestnut Hill Emergency Pumping Station Improvements Construction	Jan-22	$3.0
Metropolitan Redundancy Interim Improvements	7669	CHEPS Improvements Resident Engineering Inspection	Jan-22	$0.6
Metropolitan Redundancy Interim Improvements	7671	CP2 Shafts 5, 9	Jan-22	$2.5
Metropolitan Redundancy Interim Improvements	7702	CP2 Tops of Shafts Resident Engineering Inspection	Jan-22	$0.3
Chelsea Trunk Sewer	7915	Chelsea 008 Conn. Relief	Feb-22	$0.6
New Connect Mains-Shaft 7 to WASM 3	6392	CP3-Sect 23,24,47, Rehab	Feb-22	$14.7
Quabbin Transmission Syst.	7789	Wachuset Lowere Gatehouse Roof & Repointing	Feb-22	$0.4
Metropolitan Redundancy Interim Improvements	7672	Waltham Water Pipeline REI	Feb-22	$1.0
Metropolitan Redundancy Interim Improvements	7457	Waltham Water Pipeline Construction	Feb-22	$13.8
Metropolitan Redundancy Interim Improvements	7547	Waltham Water Pipeline Construction Administration	Feb-22	$1.5
IT Infrastructure Program	7662	Edge Switches	Mar-22	$1.4
DI Treatment Plant Asset Protection	7395	Clarifier Rehab Phase 2 - Construction	Mar-22	$149.0
DI Treatment Plant Asset Protection	7397	Clarifier Rehab Phase 2 - REI	Mar-22	$3.0
Cathodic Protection Of Distibution Mains	7950	Cathodic Protection Metro South DES/CA	Mar-22	$4.6
Facility Asset Protection	7827	Hingham Pump Station Rehab Des	Apr-22	$0.9
Northern Extra High Service New Pipelines	6522	CP-1 NEH Improvements	Apr-22	$4.4

ATTACHMENT E
FY22 CIP Planned Awards

Project	Contract No.	Subphase	Notice to Proceed	FY22 Budget ($ in millions)
Northern Extra High Service New Pipelines	7724	NEH Improvements REI	Apr-22	$2.6
Carroll Water Treatment Plant Asset Protection	7598	Soda Ash & Ammonia Equip Repl	Apr-22	$3.0
Quabbin Transmission Syst.	7698	Wach LGH Bld Boiler & Lead Reh	Apr-22	$0.7
Dam Projects	7615	Sudbury/Foss Dam Construction	Apr-22	$1.8
Metropolitan Redundancy Interim Improvements	7670	CP3 Shafts 7, 7B, 7C, 7D	Apr-22	$2.5
Metropolitan Redundancy Interim Improvements	7703	CP3 Tops of Shafts Resident Engineeering Inspection	Apr-22	$0.3
MWRA Facilities Management	6983	Design/Engineering Services Demolition of DI Old Admin Building	May-22	$0.7
Siphon Structure Rehabilitation	6225	Construction	May-22	$8.3
Residuals Asset Protection	7145	Residuals Facility Upgrades - Design	May-22	$2.0
Rehab of Other Pumping Stations	7526	Pumping Station Rehab-Design/Construction Administration	May-22	$3.9
DI Treatment Plant Asset Protection	6730	Combined Heat Power Design/ESDC/REI	Jun-22	$5.6
DI Treatment Plant Asset Protection	7734	DITP Roofing Replacement	Jun-22	$3.0
Watershed Division Capital Improvements	7752	Quabbin Water Supply Design/CA/RI	Jun-22	$0.3
80 Total Planned Contracts				**$420.0**

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Bond Defeasance of Future Debt Service

COMMITTEE: Administration, Finance & Audit

X VOTE
INFORMATION

Matthew R. Horan, Deputy Director, Finance/Treasurer
Preparer/Title

Thomas J. Durkin
Director of Finance

Consistent with MWRA's multi-year rates management strategy, MWRA staff are recommending the execution of an approximately $12.7 million defeasance to reduce future year rate increases. The $12.7 million in available funds is derived from the FY21 surplus after $25.6 million was utilized to execute a defeasance in June 2021. These funds will be used to prepay debt service coming due in FY23 through FY26 ($11.4 million in principal and $1.8 million in interest). The defeasance of debt, coupled with diligent management of operational expenses, has been a key to MWRA's ability to keep assessment increases sustainable and predictable.

RECOMMENDATION:

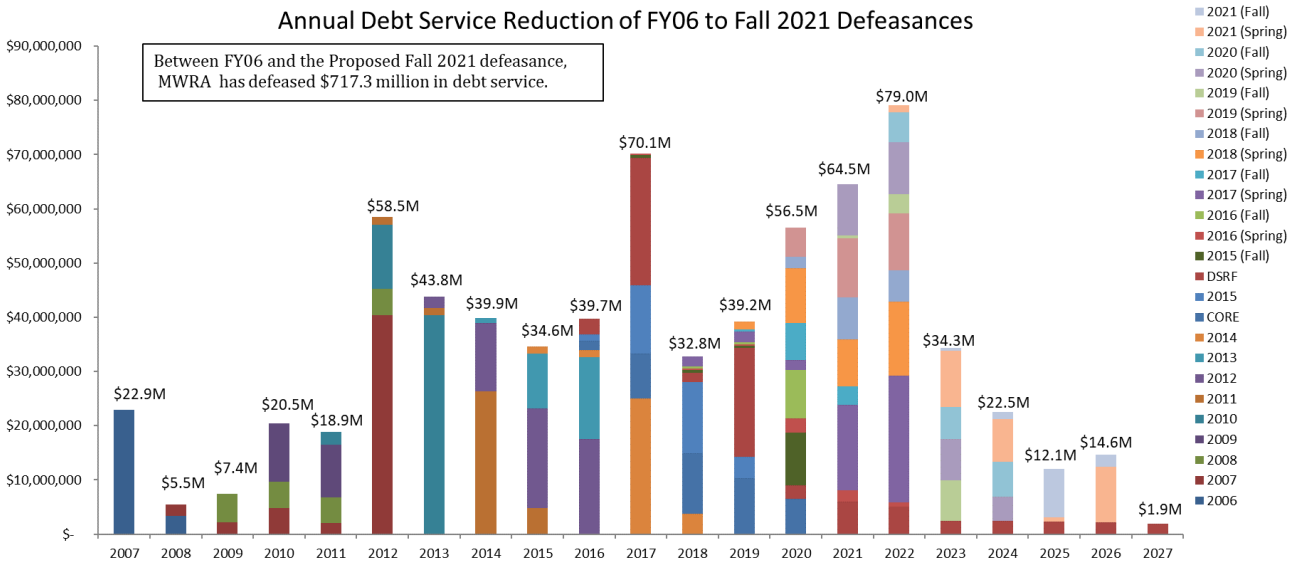
To authorize the Executive Director or his designee, on behalf of the Authority, to enter into, execute and deliver all necessary agreements and other instruments and to take such other actions necessary to effectuate the redemption and defeasance of an aggregate principal amount of $11,375,000 of outstanding MWRA senior bonds including to cause the escrow of cash and/or securities in an amount necessary to fund such redemption and defeasance, in order to reduce the debt service requirement by $13,151,250 in the FY23 through FY26 timeframe.

DISCUSSION:

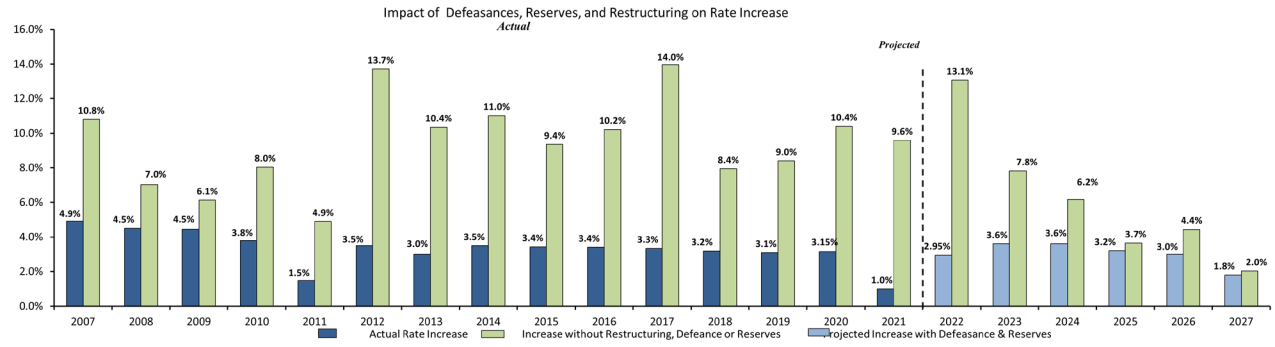
As described in more detail in the FY21 Year-end Financial Update and Summary also being presented at this meeting, MWRA has approximately $12.7 million available from the FY21 budget to execute a defeasance of outstanding debt. These funds are available after the use of approximately $3.9 million from the budgeted FY21 Debt Prepayment and approximately $25.6 million from the FY21 surplus to defease $26.0 million in outstanding principal executed in June 2021.

MWRA's ongoing use of defeasances has had a significant impact in lowering future debt service payments and limiting annual rate revenue increases. From 2006 through this proposed transaction,

MWRA has defeased $717.3 million in debt service to reduce future year rate revenue requirements. The following chart details the multi-year impact of those defeasances.



The application of these defeasances has had a significant impact on rate increases. The chart below shows the estimated rate increase without the application of the defeasances.



Staff reviewed all bonds available to be defeased, and have identified the maturities of the bonds in the following table as the most advantageous defeasance candidates.

Series	Maturity	Call Date	Principal	Defeasance Cost[1]
2014F	August 1, 2025	August 1, 2024	$ 7,725,000	$ 8,497,500
2014F	August 1, 2026	August 1, 2024	$ 1,150,000	$ 1,265,000
2019B	August 1, 2024	August 1, 2024	$ 750,000	$ 825,000
2019B	August 1, 2025	August 1, 2025	$ 750,000	$ 862,500
2019B	August 1, 2026	August 1, 2026	$ 1,000,000	$ 1,200,000
		Total	**$ 11,375,000**	**$ 12,650,000**

(1) Defeasance costs is only anticipated funds from surplus and does not included current year deposits. Assumes no interest earned on escrow

The following table details the annual budget savings by fiscal year for the proposed FY22 fall defeasance.

Budget Reduction by Fiscal Year				Total CEB
2023	2024	2025	2026	Savings
$ 568,750	$ 1,318,750	$ 9,006,250	$ 2,257,500	$ 13,151,250

The funds will be utilized to purchase governmental securities in an amount sufficient to make all future interest and principal payments on the bonds to be defeased, offset by the interest earned on the securities.

The governmental securities purchased will be deposited with an escrow agent (bond trustee). Once established, an escrow is irrevocable, replacing any future debt service payments due for the bonds being escrowed, and therefore reducing the rate revenue requirement. Establishing an escrow reduces debt service requirements for each fiscal year from the time it is executed until the defeased bonds mature.

Establishing an escrow to defease debt requires that MWRA's bond counsel draft an agreement to this effect and an independent verification agent must certify that the funds in the escrow are sufficient to pay the remaining debt service. Bonds that are escrowed to maturity are not included in the MWRA's debt cap or debt service coverage calculations. Staff will continue to monitor market conditions and the maturities available to be defeased to ensure that the bonds selected provide MWRA with the highest available debt service savings.

BUDGET/FISCAL IMPACT:

The defeasance of these bonds will decrease the FY23 through FY26 debt service requirement by $13.2 million. The cost associated with bond counsel and financial advisory services will be paid out of the Treasury Department's professional services budget.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Delegation of Board's Authority to Make Determinations on Ethics Disclosures by the Executive Director

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COMMITTEE: Administration, Finance & Audit

____ INFORMATION
_X_ VOTE

Carolyn Francisco Murphy
General Counsel

From time to time the ethics disclosures made by Executive Director require a determination by his appointing authority, the Board of Directors, under the state ethics law. Pursuant to 930 CMR §5.04(a), the Board of Directors may vote to delegate to the Chair the authority to make any necessary determination in response to ethics disclosures, on behalf of the Board. This is consistent with the Authority's practice where ethics disclosures by the Executive Director are provided to the Chair of the Board, who thereafter makes any required determinations. Pursuant to 930 CMR §5.04(a), and consistent with and to memorialize and ratify the Authority's practice, staff recommend such a vote by the Board.

RECOMMENDATION:

To delegate to the Chair of the Board, the Board of Directors' authority to make determinations in response to ethics disclosures, made by the Executive Director, on behalf of the Board in accordance with 930 CMR Section 5.04(a) and to ratify past practice, with a copy of such determinations by the Chair provided to the Board of Directors in accordance with said regulation.

DISCUSSION:

Certain ethics disclosures made by Executive Director require a determination under the state ethics law (c. 268A and its regulations) by his appointing authority, the Board of Directors. For example, a public employee whose duties require them to participate in a particular matter in which they (or an immediate family member or certain others) have a financial interest must make a disclosure to their appointing authority of the financial interest and nature and circumstances of the particular matter. The appointing authority then makes a determination: (i) to assign the matter to another employee; or (ii) to assume the responsibility for the particular matter; or (iii) that the interest is not so substantial as to be deemed likely to affect the integrity of the services expected from the employee, in which case the employee may participate in the matter.

Pursuant to 930 CMR §5.04(a), the Board of Directors may, by a valid vote, delegate to the Chair of the Board the authority to make any necessary determination in response to ethics disclosures on behalf of the Board, with a copy of such determinations to the full body. Indeed, it has been the Authority's practice to provide ethics disclosures by the Executive Director to the Chair on behalf of the Board of Directors, with the Chair thereafter making any required determinations. It is oftentimes necessary to take prompt action on ethics disclosures so that a particular matter may be acted on in a timely and expeditious manner. Pursuant to 930 CMR §5.04(a), and consistent with and to memorialize and ratify the Authority's practice, staff recommend that the Board of Directors delegate to the Chair the authority to make determinations, on behalf of the Board, in response to ethics disclosures made by the Executive Director, with a copy of such determinations provided to the Board.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Supply and Delivery of Ferric Chloride to Deer Island
Kemira Water Solutions, Inc.
Bid WRA-4995

COMMITTEE: Wastewater Policy & Oversight

_____ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

David F. Duest, Director, Deer Island Treatment Plant
Douglas J. Rice, Director of Procurement
Preparer/Title

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

RECOMMENDATION:

To approve the award of Purchase Order Contract WRA-4995 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 $2,320,000 for a period of one year, from December 1, 2021 through November 30, 2022.

DISCUSSION:

The operational performance of the Deer Island Treatment Plant's digesters has been hampered in the past by the buildup of struvite in the overflow piping, which results in constricted flow (as shown in the picture to the right). Struvite, a by-product of anaerobic sludge digestion, is a crystalized compound that coats the interior surfaces of pipelines and valves if dissolved concentrations of its component parts are not properly controlled.

To address this problem, staff have implemented an aggressive prevention program using iron salts, ferric chloride or ferrous chloride to control dissolved phosphorus concentrations in the sludge digestate (this contract) and a mitigation program using on-going specialized cleaning services to remove struvite if it does form. Staff investigated alternate chemicals and methods of treatment for use in the struvite prevention program, but have found no other viable alternatives that work either as effectively or as reliably. Staff have been

using either ferrous chloride or ferric chloride (both a form of iron) to prevent struvite formation in the digested sludge since 1998, and have competitively bid contracts for both chemicals. Staff have determined either chemical works equally as well in the prevention and treatment of struvite.

Currently, between four and eight truckloads of ferrous chloride per week are used at the Deer Island Treatment Plant as part of the struvite prevention program. Staff estimate that approximately 2,000,000 pounds of iron product will be needed during the one-year contract period.

Procurement Process

Bid WRA-4995 was advertised in the following publications: the Boston Herald, Central Register, Goods & Services Bulletin, El Mundo, and Banner Publications. In addition, bids were made available for public downloading on MWRA's e-procurement system (Event 4725) and four potential bidders were solicited through the e-Portal.

On July 27, 2021, Event 4725 closed with the following results:

Kemira Water Solutions, Inc.	Estimated dry pounds of iron	Chemical	Unit Price per dry pound of iron	Extended Bid Price
	2,000,000	**Ferric Chloride**	**$1.16**	**$2,320,000.00**
	2,000,000	Ferrous Chloride	$1.29	$2,580,000.00

Bid WRA-4995 was structured as a one-year contract similar to the existing contract, also with Kemira Water Solutions, Inc., which expires on November 30, 2021. Under the current contract, MWRA is paying a fixed unit price of $0.987 per dry pound of iron for ferric chloride for an annual cost of $1,974,000. Compared to the existing contract, the cost has increased by $0.173 per dry pound of iron, a 17.5% increase. This is in comparison to the 5.2% increase incurred in the 2020-2021 contract.

This year's price increase was driven by high demand for this product, current market limitations of key raw materials for the manufacture of ferric chloride, and issues with trucking logistics, all impacts resulting from the pandemic. Additionally, the cost of moving the raw materials and finished goods using rail transportation continues to escalate.

Staff contacted PVS Technologies, Inc., who had provided a bid last year, but the company could not do so this year due to a lack of trucking availability to deliver the volume of ferric chloride requested. There is a national trucking and driver shortage. Regionally, trucking has been an issue with some Massachusetts wastewater plants experiencing difficulties receiving scheduled deliveries due to driver shortages. MWRA staff have heard similar reports from other vendors; however, all scheduled deliveries have been made as required by the contract terms.

Staff reviewed Kemira Water Solutions' bid and determined it meets all of the requirements of the bid specifications. Therefore, staff recommend the award of this one-year purchase order contract to Kemira Water Solutions, Inc. as the lowest responsive bidder.

BUDGET/FISCAL IMPACT:

There are sufficient funds available for the first portion of this contract in the FY22 Current Expense Budget. Appropriate funding will be included in the Proposed FY23 Current Expense Budget request for the remaining term of the contract**.**

MBE/WBE PARTICIPATION:

Kemira Water Solutions, Inc. is not a certified Minority-owned or Women-owned business.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Supply and Delivery of Sodium Hypochlorite to Deer Island
Borden & Remington Corporation
Bid WRA-4996

COMMITTEE: Wastewater Policy & Oversight

_____ INFORMATION
__X__ VOTE

Michele S. Gillen
Director of Administration

David Duest, Director, Deer Island Treatment Plant
Douglas J. Rice, Director of Procurement
Preparer/Title

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

RECOMMENDATION:

To approve the award of Purchase Order Contract WRA-4996 for the supply and delivery of sodium hypochlorite to the Deer Island Treatment Plant to the lowest responsive bidder, Borden & Remington Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $1,849,260.26 for a period of one year from November 17, 2021 through November 16, 2022.

DISCUSSION:

MWRA uses sodium hypochlorite, which is a combination of chlorine and caustic soda, at the Deer Island Treatment Plant primarily for NPDES permit compliance for pathogen control to disinfect the plant's effluent. It is also used for air permit compliance for emissions control in the plant's odor control systems to treat for hydrogen sulfide.

Sodium hypochlorite is stored in three above ground tanks, each 30 feet high and 40 feet in diameter (shown at right), with a capacity to hold 250,000 gallons per tank.

Sodium hypochlorite is generally manufactured in different strengths: 15%, 19%, and 20% solution. The differing strengths do not affect the treatment processes in any way; the only differences among them are unit cost, availability and the amount of material delivered. The most common and widely available strength is the 15% strength solution, but this requires the largest delivered volume. Under previous contracts, MWRA has purchased both 15% and 19% solution. Under the existing contract, also with Borden & Remington, MWRA is purchasing solely a 19%

strength solution. Although the unit price for 19% is slightly higher, the total cost is less because less volume is delivered to the treatment plant. Upon delivery and regardless of the delivered strength, staff dilute the delivered product to an end use strength of 10-12%. When comparing actual total chlorine purchased, the 19% has proven to be more cost effective and results in 22% fewer trucks being driven to Deer Island as compared to the 15% strength product.

Procurement Process

Bid WRA-4996 was advertised in the following publications: the Boston Herald, the Goods and Services Bulletin, El Mundo, and Banner Publications. In addition, bids were made available for public downloading on MWRA's e-procurement system (Event 4726), and four potential bidders were solicited through the e-Portal.

On July 28, 2021, Event 4726 closed with the following results:

Borden & Remington Corporation	Estimated Gallons	Chemical Strength	Unit Price Per Gallon	Extended Bid Price
	2,200,000	15% Solution	$0.85110	$1,872,420.00
	1,750,199	**19% Solution**	**$1.05660**	**$1,849,260.26**
	1,650,000	20% Solution	No Bid	No Bid
Kuehne Chemical Corporation	Estimated Gallons	Percentage Solution	Unit Price Per Gallon	Extended Bid Price
	2,200,000	15% Solution	$1.65	$3,630,000.00
	1,750,199	19% Solution	$2.05	$3,587,907.95
	1,650,000	20% Solution	$2.15	$3,547,500.00

Vendors were given the option to provide a unit bid price for any number of the three available strengths of sodium hypochlorite. Under the current contract with Borden & Remington, which expires on November 16, 2021, MWRA is paying a fixed price of $0.95630 per gallon for 19% solution for an annual cost of $1,673,715.30. Compared to the existing contract, the cost per gallon price has increased by $0.1003 per gallon, an increase of 10.5%. The not-to- exceed amount of the contract is not a firm commitment of cost or a guarantee of purchase to the vendor; MWRA will pay only for product delivered and received.

This year's price increase was driven by several factors, including a national chlorine shortage, which began last August when a fire sparked by Hurricane Laura destroyed a Louisiana chemical plant that manufactures most of the country's chlorine tablets. Also, the pandemic-fueled increase in chlorine usage for residential pools has exacerbated the situation by spiking the demand. Additionally, the national trucking and driver shortage resulting from the pandemic contributed to the increased cost, too. Regionally, trucking has been an issue with some Massachusetts wastewater plants experiencing difficulties receiving scheduled deliveries due to driver shortages. Further, MWRA staff have heard similar reports from vendors; however, all scheduled deliveries have been made as required by contract.

The large discrepancy in bid prices between the vendors can be attributed to a more aggressive bidding approach taken by Borden & Remington compared to that by Kuehne Chemical. Shipping costs also were a factor in the price discrepancy; Borden & Remington has lower shipping costs

as it originates deliveries from Fall River, Massachusetts whereas Kuehne ships from New Jersey and would incur higher shipping costs.

Staff also contacted Univar Solutions USA, Inc., which currently provides the sodium hypochlorite to the John J. Carroll Water Treatment Plant. A representative from Univar stated that due to a lack of capacity to support the Carroll Plant and Deer Island at the same time, and because the firm does not produce sodium hypochlorite at a strength higher than 15%, a decision was made not to respond. It should be noted that under the existing contract with Univar at the Carroll Water Treatment Plant, MWRA is paying $.852 per gallon for a 15% solution, which translates to $1,874,400 if applied to this contract (or 1.4% higher than this award).

Staff reviewed Borden & Remington's bid and determined that it meets all of the requirements of the bid specifications. Therefore, staff recommend the award of this one-year purchase order contract to Borden & Remington Corporation, as the lowest responsive bidder.

BUDGET/FISCAL IMPACT:

There are sufficient funds available for the first portion of this contract in the approved FY22 Current Expense Budget. Appropriate funding will be included in the Proposed FY23 Current Expense Budget request for the remaining term of the contract.

MBE/WBE/PARTICIPATION:

Borden & Remington Corporation is not a certified Minority-owned or Women-owned business.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Supply, Delivery, and Disposal of Regenerated Activated Carbon for the Deer Island Treatment Plant
Carbon Activated Corporation
Bid WRA-5002

COMMITTEE: Wastewater Policy & Oversight

_____ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

David F. Duest, Director, Deer Island Treatment Plant
Douglas J. Rice, Director of Procurement
Preparer/Title

David W. Coppes, P.E
Chief Operating Officer

RECOMMENDATION:

To approve the award of Purchase Order Contract WRA-5002, a three-year contract for the supply, delivery and disposal of regenerated activated carbon for the Deer Island Treatment Plant, to the lowest responsive bidder, Carbon Activated Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $1,222,125 for a period of three years, from December 11, 2021 through December 10, 2024.

DISCUSSION:

The Deer Island Treatment Plant's Title V air permit requires that any air contaminated during wastewater treatment must be treated to remove odor-causing compounds prior to release to the atmosphere. Therefore, gases from the areas above the primary clarifiers, secondary reactors and gravity thickeners, as well as air from grit removal, centrifuge operations, and pump station wet wells must be drawn off and treated prior to release to the environment. The permit sets a maximum emission limit for hydrogen sulfide at one ppm and various limits for volatile organic compounds. To reduce these compounds as required, Deer Island can operate most of its odor control facilities with either single-stage or dual-stage odor control systems, using wet scrubbers and/or carbon adsorbers.

Wet scrubbers are the most effective means of removing high levels of hydrogen sulfide; carbon adsorption drums are effective at removing low levels of hydrogen sulfide and volatile organic compounds. During the hot weather months from July to September, hydrogen sulfide levels in the off-gases can exceed 400 ppm. Wet scrubbers must be used in tandem with carbon adsorbers to reduce hydrogen sulfide to acceptable levels.

East Odor Control Carbon Room

Residuals Carbon Unit #4

To minimize operating costs while continuing to meet air permit limits, staff evaluated different configurations for using the air scrubber units in the various odor control areas. Staff determined that carbon adsorption alone can lower contaminants to within the specified limits for most of the year and reduced the use of wet scrubbers in some process areas accordingly. This, in turn, reduces chemical, water, electricity and maintenance costs. However, these revisions in process result in a corresponding increase in the frequency of carbon change-outs. Despite this increase, staff have determined that it is still more cost effective to operate on activated carbon adsorbers alone than operating both air scrubber systems year-round for some process areas.

There are 29 carbon adsorption drums throughout the plant of varying capacities, containing between 12,000 to 31,000 pounds of activated carbon. All odor control areas contain more carbon drums than needed to allow for maintenance and change-out as needed without impacting the operation or performance against the air permit. A drum is removed from service for carbon replacement when the air samples from the outermost layer of the carbon bed indicate that the carbon is no longer effectively removing the target compounds.

Deer Island Odor Control Emission Stacks

Staff estimate that approximately 400,000 pounds of regenerated carbon will be required each year under this contract. The scope of work also includes the removal and disposal of spent carbon, which is often shipped to a reprocessing plant where it is sorted by granular size and "regenerated." If the carbon is not considered reusable, the vendor is responsible for disposal.

Procurement Process

Bid WRA-5002 was advertised in the following publications: the Boston Herald, the Goods and Services Bulletin, El Mundo, and Banner Publications. In addition, bids were made available for public downloading on MWRA's e-procurement system (Event 4742), and four potential bidders were solicited through the e-Portal.

On July 27, 2021, Event 4742 closed with the following result:

VENDOR	1,200,000 lbs of removed and disposed carbon	1,200,000 lbs of newly delivered and installed carbon	NYLON SCREEN 11,250 sq. feet	TOTAL BID
Carbon Activated Corporation	$0.12/lb. = $144,000	$0.89/lb. = $1,068,000	$0.90/s.f. = $10,125.00	$1,222,125.00

Procurement staff contacted those vendors that did not bid. A representative of Nichem Co. stated that it had no reactivated carbon in stock. A representative of Calgon Carbon said its staff did not believe it would be able to supply a competitive price. Carbon Filtration did not respond.

Bidders were instructed to submit bids on a price-per-pound basis that would include all costs for removal and disposal of spent carbon and a separate line item for the installation of newly delivered carbon. Bidders were also asked to submit a bid price for nylon screen material that is placed on top of the activated carbon to maintain an evenly distributed bed of carbon in each drum, as air up-draft could otherwise disrupt the carbon bed.

Under the current contract with Carbon Activated Corporation which expires on December 10, 2021, MWRA is paying a price of $0.20 per pound for the removal, $0.72 per pound for the delivery and installation, and $0.60 per square foot for the nylon screen for a total contract cost of $1,110,750. The new contract will result in an increase of roughly 10% from the existing contract.

Staff have reviewed the bid submitted by Carbon Activated Corporation and determined it meets all of the requirements of the specifications. Staff have been satisfied with the product and service provided by Carbon Activated Corporation under the current contract. The company has been responsive to requests and has performed in accordance with the terms of the current contract. Carbon Activated Corporation has performed all the carbon replacements at Deer Island since 2007. Staff believe that this ongoing relationship at Deer Island has provided Carbon Activated Corporation with a strong understanding of the contract, resulting in efficiencies that keep its contract price competitive. Carbon Activated Corporation obtains its raw activated carbon from China and regenerates all carbon within the United States. Recent increases in import costs has resulted in an increase in material costs for this contract.

Therefore, staff recommend the award of this purchase order contract to Carbon Activated Corporation as the lowest responsive bidder.

BUDGET/FISCAL IMPACT:

The FY22 Current Expense Budget contains sufficient funding for activated carbon. The Proposed FY23 and FY24 CEBs will also include sufficient funds for the remaining two years of this contract.

MBE/WBE PARTICIPATION:

Carbon Activated Corporation is not a certified Minority- or Woman-owned business.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Deer Island Treatment Plant South System Pump Station Improvements – Preliminary Design, Final Design, Bidding, Engineering Services During Construction, and Resident Engineering/Inspection Services
AECOM
Contract 7126

COMMITTEE: Wastewater Policy and Oversight

_____ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

Dave Duest, Director, Deer Island WWTP
Richard Adams, Manager, Engineering Services
John Riccio, Project Manager, Mechanical
Preparer/Title

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

Contract 7126 was presented at the April 15, 2021 Board of Directors' meeting for award to Hazen & Sawyer, P.C. Subsequently, Hazen and Sawyer notified MWRA of its discovery of mathematical errors in its proposal that would result in an underrun of $1,259,220 for the level of effort proposed. Although Hazen and Sawyer indicated that it would perform the required work for its proposed cost and proposed hours, staff determined that moving forward with Hazen and Sawyer with the knowledge of such a large underrun would not be responsible and, thus, rejected Hazen and Sawyer's proposal. Based upon this new information, staff are now recommending that the Contract be awarded to AECOM, the second ranked proposer.

RECOMMENDATION:

To rescind the approval granted on April 15, 2021, authorizing the award of Contract 7126 to Hazen and Sawyer, P.C. and the execution of said contract with Hazen and Sawyer, P.C. by the Executive Director.

Further, to approve the recommendation of the Consultant Selection Committee to award Contract 7126, Deer Island Treatment Plant South System Pump Station Improvements – Preliminary Design, Final Design, Bidding, Engineering Services During Construction, and Resident Engineering/Inspection Services, to AECOM, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed $8,297,068.70, for a contract term of 80 months from the Notice to Proceed.

DISCUSSION:


South System Pump Station

Deer Island was built in several phases between 1988 and 2000 and provides wastewater treatment services for 43 greater-Boston communities. The plant is designed to treat an average of 361 million gallons per day with peak flows of 1.3 billion gallons per day.

Flows from 20 southern MWRA communities are conveyed to the South System Pump Station at Deer Island and account for roughly one-third of the total plant flow. Flow arrives at the South System Pump Station from the 11.5-foot diameter Inter-Island Tunnel originating at the Nut Island Headworks Facility in Quincy.

The South System Pump Station and associated Inter-Island Tunnel were placed into service in 1998. The Inter-Island Tunnel connects to two wet wells within the South System Pump Station. Each wet well has four vertical, non-clog, centrifugal pumps (pictured at right) for a total of eight pumps within the station. Each pump is rated for 66.7 mgd. A 60-inch suction piping system interfaces with the wet-well. Wastewater is lifted into two 90-inch force main lines that discharge into the North System Grit Facility Effluent Channel, via an effluent distribution chamber. The maximum design flow for the South System Pump Station is 400 mgd. Two pumps typically operate at design average flow, while six pumps are required to handle peak flows from the southern communities. Much of the South System Pump Station equipment is original and is nearing the end of its useful life or has become obsolete.


SSPS Pump Variable Frequency Drive

Contract 7126 includes a preliminary design report, final design, engineering services during construction (ESDC) and resident engineering/inspection services (RE/RI) for the improvements of Deer Island's South System Pump Station. Preliminary studies include 3D laser scanning of the pump station and development of a Building Information Model, influent flow evaluation, pump performance evaluation and condition assessment from the Original Equipment Manufacturer, a variable frequency drive (VFD) and motor evaluation, influent wet-well condition assessment, pump station condition assessment and Building Code Compliance evaluations. The contract includes evaluation of alternatives for check valve replacement, lubrication systems, pump isolation, and influent sampling. The preliminary design report will summarize all recommendations and include discussions on cost, schedule, permitting and access.

Final design will include preparation of construction contract plans, specifications, cost estimates and bidding assistance, as well as preparation of draft and final permit applications, and individual information as required by permitting agencies. The anticipated construction

work includes: replacement of eight raw wastewater pumps, shafts, motors, and VFDs, raw wastewater piping, dewatering system, influent sampling system, influent slide and roller gates at the facility, effluent slide and roller gates at the Grit Facility and various valves; HVAC upgrades; cathodic protection replacement; and wet well improvements, including concrete repair and corrosion prevention measures.

Procurement Process

On November 9, 2020, MWRA issued a one-step Request for Qualifications Statements/Proposals (RFQ/P). On December 7, 2020, MWRA received proposals from AECOM, Hazen and Sawyer, and Brown and Caldwell and on January 14, 2021, the Selection Committee proceeded to evaluate the proposals received. The following table represents the cost, level of effort proposed and ranking.

Proposer	Proposed Cost	Proposed Hours	Rank
Brown and Caldwell	$4,924,513.99	29,923	3
Hazen and Sawyer, P.C.	$7,535,701.14*	44,325	1
AECOM	$8,297,068.70	49,869	2
Engineer's Estimate	*$5,129,418.66*	*29,887*	

*This proposed cost does not include Hazen and Sawyer's $1,259,220 mathematical error.

Given the range in values between the proposals, staff submitted written questions to each of the proposers to clarify cost assumptions, experience and level of effort for specific subtasks to help explain the variance between the three firms and the Engineer's Estimate. As discussed in the previous award staff summary, after receipt of the proposals, it became evident that the Engineer's Estimate significantly underestimated the level of effort required for development of the construction drawings and did not include the required 3D modeling that was included in the proposed costs. Given these factors, the Selection Committee concluded the Engineer's Estimate for the design contract did not accurately reflect the required level of effort to successfully complete the project.

The Selection Committee initially recommended that this contract be awarded to the highest ranked firm, Hazen and Sawyer, P.C. and the Board approved the award on April 15, 2021. Subsequently, based upon an unsurmountable mathematical error in Hazen and Sawyer's cost proposal (underrun of $1,259,220), staff recommended that Contract 7126 not be executed with Hazen and Sawyer. The Director of Procurement rejected Hazen and Sawyer's proposal on August 12, 2021. The Selection Committee now recommends the selection of the second ranked firm, AECOM.

AECOM's cost proposal was approximately $760,000 above Hazen and Sawyer's original cost proposal but also included 49,869 hours, approximately 5,544 more hours more than Hazen and Sawyer's proposed hours. However, if one were to assume that Hazen and Sawyer would have included the entire underrun to its original proposed cost, its proposed cost would have been $8,794,920, approximately $500,000 more than AECOM's proposed cost.

AECOM's proposal included very qualified and experienced individuals as part of its Project Team. Several of the proposed individuals were involved in the design of the original Deer

Island Treatment Plant under the Boston Harbor Project, which included the design of the South System Pump Station. AECOM has also been involved in a number of design projects for the Deer Island Treatment Plant including the replacement of the main 3,500 horsepower motors and variable frequency drive and isolation valves in the North Main Pump Station. AECOM received very positive reviews for the work that it has performed on Deer Island over the last 25 years and on external projects. AECOM demonstrated a full understanding of the project requirements as identified in its technical approach. AECOM also assigned a number of senior staff with significant expertise in mechanical pumping systems, instrument and control, and electrical distribution systems. The proposal was well presented and AECOM has the capacity to successfully complete the project.

AECOM displayed a thorough knowledge of the South System Pump Station and the required scope of work. Its proposal included significantly more hours for the Preliminary Design Phase than Hazen's & Sawyer's proposal, but included less hours in the final design level of effort. In addition, AECOM carried 8,500 hours for the level of effort associated with the Engineering Services During Construction task. This task is not a fixed price but rather based upon hours utilized during construction. Staff will be heavily involved in the review of shop drawings, submittal, and requests for information and expect that the hours utilized by AECOM will be less than what it has proposed.

The third ranked proposal from Brown and Caldwell included a significantly lower level of effort than the other proposers. After reviewing their proposed number of design drawings, the level of effort per drawing and proposed hours for ESDC, the Selection Committee determined that Brown and Caldwell's proposal did not include sufficient hours to successfully complete the project.

Based on the foregoing, staff now recommend the award of Contract 7126 to AECOM in the amount not to exceed $8,297,068.70.

BUDGET/FISCAL IMPACTS:

The FY22 Capital Improvement Program includes a budget of $7,535,701 for Contract 7126; the recommended contract amount is $8,297,068.70 or $761,367.70 over budget. This amount will be covered within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The minimum MBE and WBE participation requirements for this project established at 7.18% and 5.77%, respectively. AECOM has committed 7.30% MBE and 5.94% WBE participation.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Prison Point CSO Facility Improvements
Barletta Heavy Division, Inc.
Contract 7462

COMMITTEE: Wastewater Policy & Oversight

____ INFORMATION
__X__ VOTE

Michele S. Gillen
Director of Administration

John P. Colbert, P.E., Chief Engineer
Andrea K. Adams, P.E., Project Manager
Preparer/Title

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

RECOMMENDATION:

To approve the award of Contract 7462, Prison Point CSO Facility Improvements, to the lowest responsible and eligible bidder, Barletta Heavy Division, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $39,479,000, for a contract term of 730 calendar days from the Notice to Proceed.

DISCUSSION:

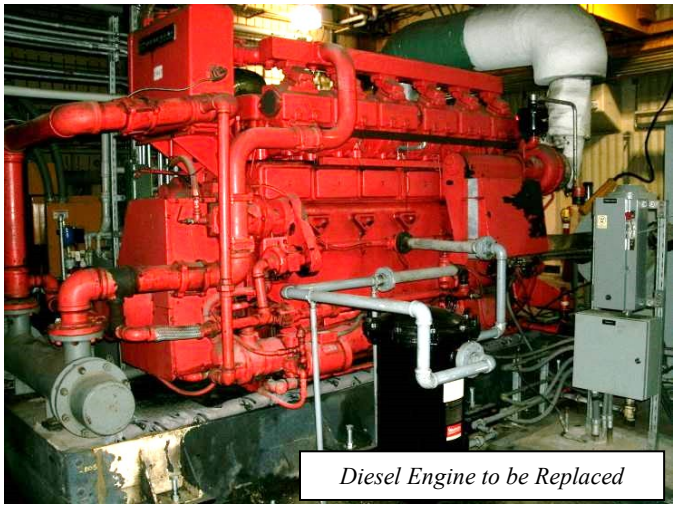
The Prison Point CSO Facility in Cambridge was placed into operation in 1981. Under dry weather conditions, it provides screening and pumping of between 2.5 to 5 million gallons per day (mgd) from portions of Cambridge and Boston. During significant wet weather events (approximately 17 per year), the facility provides screening, chlorination, detention and dechlorination of combined sewer flows from Cambridge, Boston and Somerville. The wet weather system provides treatment for flows up to 323 mgd, prior to discharge at the MWRA-permitted CSO outfall just downstream of the Charles River Locks into the Inner Harbor (MWR203).

Prison Point CSO Facility – Main Building

Construction Contract 7462 will provide improvements to the Prison Point CSO Facility including process and mechanical upgrades as well as security, structural, architectural, electrical and instrumentation improvements. Most of the major process and mechanical equipment operating in

the facility will be replaced due to age and condition, including the dry and wet weather mechanical bar screens, screenings conveyor systems, grinders, influent and effluent sluice gates, dry weather pumps, chemical feed and sampling pumps and diesel engines driving the wet weather pumps.

Chemical Tank to be Replaced



Diesel Engine to be Replaced

Additionally, five chemical tanks and two chemical waste tanks will be replaced in the Chemical Building and new chemical induction mixers as well as additional sample lines will be installed in the Main Building. Other major improvements include coating the interior of the wet weather pump discharge header, replacement of the underground fuel storage tanks, replacement of the facility's instrumentation and control systems (SCADA), as well as replacement of the electrical switchgear, motor control centers, and backup generator. HVAC improvements and security updates will also be performed.

The Prison Point Facility provides critical management of CSO flows from the upstream combined system serving Boston, Cambridge, and Somerville. The replacement of major facility equipment has been sequenced and constrained within the design to minimize the duration the facility will be at a reduced capacity, while maintaining critical facility CSO pumping and treatment capabilities. The aggressive construction duration includes working two shifts while the facility is at a reduced capacity of approximately 67% for ten months and an overall construction schedule of two years.

Procurement Process

Contract 7462, designed by Arcadis U.S., Inc. was advertised and bid in accordance with Chapter 149 of the Massachusetts General Laws. General bids were received and opened on June 18, 2021. Three contractors bid and the results are presented below.

Bidders	Bid Amount
Barletta Heavy Division, Inc.	$39,479,000
Walsh Construction Company II, LLC	$40,014,312 *
Engineer's Estimate	*$42,434,705*
Daniel O'Connell's Sons, Inc.	$42,650,000

*Indicates bid price after mathematical error was discovered in the Form for General Bid and corrected. The price change did not affect the bid order.

The two lowest bids differ by 1.36% and the three bids received are within 8.03% of each other. The Engineer's Estimate is 7.49% higher than the low bid and 4.23% higher than the average of all bids.

Based on initial and follow-up meetings with Barletta's project management team and owner, staff believe that Barletta understands the full nature and scope of this project. Staff specifically addressed experiences and lessons learned from Barletta's ongoing work on the Chelsea Creek Headworks rehabilitation project, which is similar in scope and complexity to this project. Barletta confirmed a full understanding of the sequencing of work, criticality of completing the construction on schedule due to reduced facility capacity and the importance of timely resolution of issues. References were checked and found to be favorable. Barletta recently completed construction at MWRA's Alewife Brook Pumping Station and Wachusett Aqueduct Pump Station.

Staff determined Barletta is qualified to perform the work under this contract. Further, staff determined the bid price is reasonable, complete, and includes the payment of prevailing wages, as required. Therefore, staff recommend the award of this contract to Barletta Heavy Division, Inc. as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The FY22 CIP includes a budget of $42,459,967 for Contract 7462. The contract award amount is $39,479,000 or $2,980,967 under the budgeted amount.

MBE/WBE PARTICIPATION:

Contract 7462 will receive CWSRF funding from the Massachusetts Clean Water Trust. The D/MBE and D/WBE participation requirements for this project were established by DEP at 4.2% and 4.5%, respectively. Barletta has indicated that it will meet the D/MBE and D/WBE participation requirements set forth by DEP. The Affirmative Action and Compliance Unit has reviewed the bid and has determined that it meets these requirements.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Chelsea Creek Headworks Upgrade – Resident Engineering/Resident Inspection Services
CDM Smith Inc.
Contract 6802, Amendment 2

COMMITTEE: Wastewater Policy & Oversight

____ INFORMATION
__X__ VOTE

John P. Colbert, P.E., Chief Engineer
Margery J. Johnson, Program Manager
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract 6802, Chelsea Creek Headworks Upgrade – Resident Engineering/Resident Inspection Services, with CDM Smith Inc., to extend the contract term by six months, from August 5, 2021 to February 4, 2022, with no increase in the contract amount.

DISCUSSION:

Contract 6802 was awarded to CDM Smith Inc. on June 29, 2016 to provide resident engineering and resident inspection services for construction Contract 7161 – Chelsea Creek Headworks Upgrade. Construction is being performed by BHD/BEC JV 2015, A Joint Venture, and engineering services during construction are being provided by Arcadis U.S., Inc. under design Contract 7206 – Remote Headworks Upgrade.

The construction contract, Contract 7161, includes replacement and automation of all solids handling equipment including screens, grit collector systems and solids conveyance systems; new influent and effluent sluice gates with electric actuators; and carbon adsorbers for odor control and replacement of HVAC systems.

Ancillary systems replaced include the emergency generator, compressed air system, fuel oil system, and the facility's electrical transformer. Instrumentation and control systems have been upgraded, and a new communications tower and radio equipment shelter have been constructed. Remediation of hazardous building materials including asbestos, lead and polychlorinated biphenyls (PCBs) have been completed; documentation and confirmatory sampling required for closeout of the Environmental Protection Agency permit for PCB remediation is ongoing. Work on the elevator is nearing completion, and the Contractor is working on punch list items.

Contract 6802 provides a resident engineer, two resident inspectors (one specializing in electrical work and the other specializing in mechanical work) and a part-time administration person who provides daily onsite observation and documentation of the progress and quality of the construction work.

The Executive Director previously approved Amendment 1 under delegated authority to extend the contract at no additional cost from February 4, 2021 to August 4, 2021 to coincide with the time extension given to the construction contractor.

This Amendment

At this time, the construction contract is nearing completion, but has not yet reached Substantial Completion. Staff anticipate that resident engineering services will be required for an additional six months. These services are needed to continue daily site coverage, project reporting, punch list management, finalizing as-built drawings, warranty management, and archiving project files.

Due to an oversight by staff, this no-cost time extension was not presented at the July 21, 2021 Board of Directors' meeting to ensure continued and uninterrupted services. To correct this oversight, this amendment would retroactively extend this contract from August 5, 2021 to February 4, 2022, with no additional costs.

While there are sufficient funds remaining in the contract to complete the project, this amendment also includes a transfer of funds in the amount of $7,288.34 from Resident Engineer and Resident Inspection to Administration and Management Services to cover the additional months of administrative services for the longer than anticipated construction duration.

CONTRACT SUMMARY:

	AMOUNT	TIME	DATED
Original Contract:	$3,446,883.50	1,554 Days	11/10/16
AMENDMENTS			
Amendment 1*:	$0	182 Days	01/21/21
Proposed Amendment 2:	$0	183 Days	Pending
Total Amendments:	$0	365 Days	
Adjusted Contract:	$3,446,833.50	1,919 Days	

*Approved under delegated authority

BUDGET/FISCAL IMPACT:

There is no budget/fiscal impact from this amendment.

MBE/WBE PARTICIPATION:

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

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Nut Island Headworks Odor Control and HVAC Improvements
Walsh Construction Company II, LLC
Contract 7548, Change Order 6

COMMITTEE: Wastewater Policy & Oversight

_____ INFORMATION
_X_ 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 6 to Contract 7548, Nut Island Headworks Odor Control and HVAC Improvements, with Walsh Construction Company II, LLC, for a not-to-exceed amount of $222,179.61, increasing the contract amount from $58,319,282.01, to $58,541,461.62, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7548 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:

Contract 7548 provides upgrades to the odor control system, heating, ventilation and air conditioning system and other equipment. Most of the equipment is at or near the end of its useful life and replacement is required to ensure the continued reliability of this critical facility. This contract also provides reconfiguration of ductwork serving the odor control system to expand the system's operational flexibility, and will improve surface access into the below-grade odor control room, the need for which was made evident during the January 2016 fire.

Improvements to the odor control system include replacement of the carbon adsorbers, fans, ductwork dampers, and the odor control SCADA system, including the programmable logic controller and instrumentation; installation of ductwork to allow bypassing of the wet scrubbers; rehabilitation of the wet scrubbers system, including replacement of chemical tanks, pumps, piping, media and mist eliminators; and installation of roof hatches and a new stairway to improve access into the odor control room.

Improvements to the HVAC system include replacement of the air handling units and unit heaters; replacement of the boilers; replacement of the energy management system; and installation of equipment to provide ventilation setbacks and recirculation to improve energy efficiency, as allowed by code.

Improvements to other equipment include replacement of the underground fuel oil storage tanks serving the standby generator and boilers; replacement of the dewatering system pumps serving the bottom level; and replacement of the emergency spillway isolation sluice gates and stop logs.

This Change Order

Change Order 6 consists of the following three items:

Odor Control Fan and Recirculation Pump Equipment Pads $120,000

The Contractor is required to furnish and install four new 350-horsepower odor control fans and four new 40-horsepower recirculation pumps for the wet scrubber system. The contract documents indicate the existing cast-in-place reinforced concrete equipment pads for odor control fans 1, 2 and 3 will be reused for the new fans. After commencement of the contract, the Contractor noted that each of the existing fan pads have evidence of structural cracking and concrete deterioration. Further investigation of the existing equipment pads concluded that they were not suitable for reuse and must be replaced. It is critical for long-term performance and reliability that these new fans be constructed on a solid foundation.

Odor Control Fan 4 Equipment Pad

Cracks in Existing Fan Equipment Pads

Odor control fan 4 will be moved from its original location to account for the new duct configuration and will be installed at a higher elevation so the fan inlet duct will clear the containment walls for the new sodium hypochlorite storage tanks. After bid, it was noted that the contract documents did not include demolition of the existing fan 4 equipment pad or construction of a larger equipment pad in its new location and at its new height. Finally, it was also discovered that the four existing equipment pads for the recirculation pumps are not sized or set at the proper elevation to accommodate the new specified pumps and associated piping. There were no requirements in the contract documents to replace the existing equipment pads. Since the existing pads cannot be reused, the Contractor must demolish and construct new pump equipment pads sized for the new recirculation pump and piping system. To correct these omissions, the Contractor will demolish the existing fan and pump equipment pads and construct new equipment pads for the four odor control fans and four recirculation pumps.

This item was identified by MWRA staff as a design omission. MWRA staff, the Consultant and the Contractor have agreed to an amount not to exceed $120,000 for this work. The Contractor proceeded with this work at its own risk in order to complete the remainder of the contract work.

Air Handling Unit VFD Bypass Circuits $54,463.89

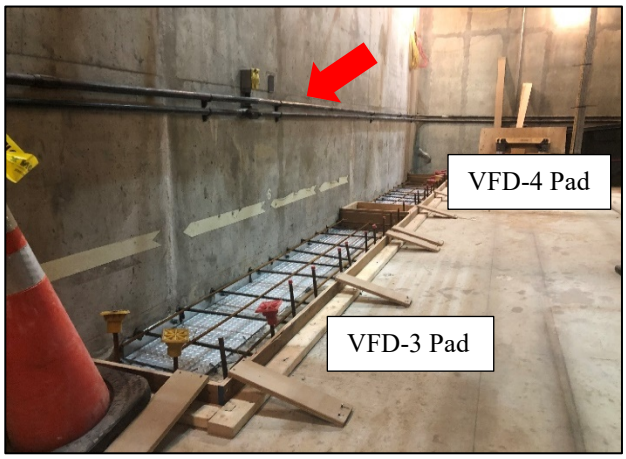
The Contractor is required to furnish and install fifteen air handling units (AHUs) to supply fresh air to the process and non-process spaces at the Nut Island Headworks. These new AHUs will replace the existing units that are beyond their useful lives. The existing AHUs are equipped with single speed motors and are not energy efficient. The new AHUs will be provided with variable frequency drives (VFDs) to vary the fan motor speed to provide operational flexibility and improve energy efficiency. Given the critical need to provide fresh air to ventilate the facility, MWRA instructed the Design Engineer to include bypass circuits for all VFDs. In the event that there is an issue with the VFD, staff can switch over to the bypass circuit and the AHU will operate at full speed and continue to provide ventilation while the issue with the VFD is addressed. After commencement of the contract, it was noted that the HVAC subcontractor's contract documents did not include the requirement for bypass circuits. As a result, this feature was not included in its bid. To correct this omission, the HVAC subcontractor will furnish and install bypass circuits for variable frequency drives serving air handling units.

This item was identified by MWRA staff as a design omission. MWRA staff, the Consultant and the Contractor have agreed to a lump sum amount of $54,463.89 for this work. The Contractor proceeded with this work at its own risk in order to complete the remainder of the contract work.

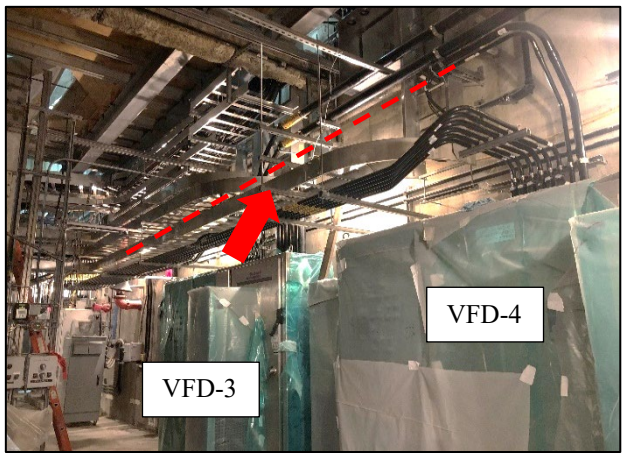
Odor Control Fan VFD Conflicts, Drip Pans and Leak Detection $47,715.72

The Contractor is required to furnish and install four new 350-horsepower odor control fans. Each fan will be controlled by a variable frequency drive to allow the fan to operate over a wide range of speeds and ensure required air flowrates are achieved in multiple operating conditions. The four new VFDs are located in the odor control room along the eastern wall. After commencement of the contract, it was noted that existing electrical conduits for receptacles and the page party intercom system were located along the eastern wall in direct conflict with two of the VFDs. These electrical conduits were not shown on the contract drawings and must be relocated prior to installing the new VFDs.

Additionally, three of the new VFDs are located below existing water pipes. There are hot water supply and return pipes running over one VFD and a roof drain that that runs over two other VFDs. Massachusetts Electrical Code prohibits electrical equipment installed below piping or ducts without protection from leaks and condensation. Due to space constraints, the VFDs could not be relocated to avoid these overhead water lines and it is not practical or cost effective to reroute the piping systems. After bid, the electrical inspector reviewed the proposed installation and is requiring the Contractor to provide drip pans over these three VFDs. In addition, the inspector is also requiring that a leak detection system be provided in the drip pan below the pressurized hot water pipes. The leak detection system will report to SCADA to alert the Operations staff of a leak. To correct these errors, the Contractor will relocate the existing electrical conduits in conflict with two odor control fan VFDs; furnish and install drip pans over three odor control fan VFDs and provide a leak detection system in one drip pan to comply with electrical code.



OC Fan VFD Conduit Conflicts



Roof Drain (dashed line) Over New VFDs

This item was identified by MWRA staff as a design error. MWRA staff, the Consultant and the Contractor have agreed to a lump sum amount $47,715.72 for this work. The Contractor proceeded with this work at its own risk in order to complete the remainder of the contract work.

CONTRACT SUMMARY:

	Amount	**Time**	**Dated**
Original Contract:	$57,565,399.00	1,034 Days	02/12/20
CHANGE ORDERS			
Change Order 1*	$24,995.58	0 Days	12/08/20
Change Order 2*	$126,224.03	0 Days	01/08/21
Change Order 3	$376,355.91	0 Days	03/10/21
Change Order 4*	$22,320.58	0 Days	03/10/21
Change Order 5*	$203,986.91	0 Days	Pending
Change Order 6	$222,179.61	0 Days	Pending
Total Change Orders	$976,062.62	0 Days	
Adjusted Contract:	$58,541,461.62	1,034 Days	

*Approved under delegated authority

If Change Order 6 is approved, the cumulative value of all change orders will be $976,062.62, or 1.7% of the original contract. Work on this contract is 42% complete.

BUDGET/FISCAL IMPACT:

The FY22 Capital Improvement Program includes a budget of $58,873,295 for Contract 7548. Including this change order for $222,179.61, the adjusted sub-phase total will be $58,541,461.62 or $331,833.38 under budget.

MBE/WBE PARTICIPATION:

The MBE/WBE participation requirements for this project were established at 1.1% and 1.2%, respectively. The Contractor has been notified that they are still expected to meet these requirements.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 15, 2021
SUBJECT: Wastewater Monitoring for COVID-19
Biobot Analytics, Inc.
OP-420, Amendment 1

COMMITTEE: Wastewater Policy & Oversight

____ INFORMATION
__X__ VOTE

Steven F. Rhode, Director of Laboratory Services
Carolyn M. Fiore, Deputy Chief Operating Officer
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 OP-420, Wastewater Monitoring for COVID-19, with Biobot Analytics, Inc., increasing the contract amount by an amount not to exceed $170,000, from $206,200 to $376,200, and extending the contract term 189 calendar days, from December 24, 2021 to July 1, 2022.

DISCUSSION:

Analysis of wastewater for the genetic signal (viral RNA) of the SARS-CoV-2 virus that causes COVID-19 continues to be a cost effective approach to providing population-level screening for outbreaks of COVID-19. Biobot released the first demonstration of this approach in the United States using data from courtesy samples provided by MWRA in early March 2020. Subsequent studies from numerous locations around the world have demonstrated the efficacy of wastewater analyses to provide an early warning of COVID-19 outbreaks by up to seven days in advance of confirmed cases showing up in the public health data. MWRA has been sharing our wastewater COVID-19 data on MWRA.com since June 2020. MWRA was among the first utilities to provide this data, and these postings are closely watched by local and national media as well as the general public. The Boston Globe and Boston Herald both reference our data regularly as a key indicator of the current local situation. There are now dozens of cities performing this analysis on their wastewater to support the clinical data collected by public health officials.

MWRA conducted an Early Warning Pilot for the Resurgence of COVID-19 under a sole source contract approved by the Board of Directors at its June 24, 2020 meeting. The pilot program served as an early warning system to MWRA and other state health agencies of outbreaks of COVID-19 within the area served by the MWRA sewer system. The program analyzed wastewater samples from the north and south influents to the Deer Island Treatment Plant with rapid analysis for the genetic signal (viral RNA) of the SARS-CoV-2 virus.

MWRA conducted a competitive procurement and entered into this contract with Biobot to test for the viral RNA of the SARS-CoV-2 virus in December 2020 for one year at a total cost of $206,200 with a substantial reduction in the per sample price over the pilot program. The contract anticipated that sampling would occur three days a week, with increased frequency during times of higher transmission of COVID-19. As the pandemic continued to play out, the Commonwealth's COVID-19 Command Center requested that MWRA continue daily sampling for the entire duration of the contract so far. Further, it is very likely that continued high frequency monitoring will be needed for the upcoming winter and spring. In April 2021, Biobot developed the capacity to detect the Alpha variant of SARS-CoV-2. MWRA and Biobot executed a Task Order under OP-420, the existing contract, to perform variant detection services on the samples from two MWRA sampling sites. Biobot subsequently suspended the variant detection program in June 2021 as more variants rapidly developed.

Based on an assumed increased frequency of wastewater testing and a desire to continue this testing through the end of the fiscal year, staff are proposing an amendment to OP-420 that would extend the term of the contract to continue the sampling and monitoring program for the remainder of FY22, and provide sufficient funding to continue daily sampling for the extended term if required. The contract extension with Biobot is proposed because it is staff's opinion that it would be imprudent to bring on a different contractor at this time. In addition, MWRA has provided samples to a variety of other entities who continue to research methods for analyzing wastewater for SARS-CoV-2. The results of several of these projects indicate that there is still a great deal of variability from lab to lab in these analyses. Also, because sample results and reports are shared with the state COVID-19 Command Center, the Massachusetts Department of Health and Human Services and the public through MWRA's website, changing vendors, reporting and work methods during the winter or spring months could lead to unnecessary confusion in the reporting to those agencies, the media and the general public. Biobot is still the leader in this innovative industry. Further, given that Biobot's lab is located locally, its ability to provide rapid turnaround times enhances the public benefit of the data as independent confirmation of the prevalence of viral cases.

This Amendment

Contract OP-420 currently expires on December 24, 2021. Amendment 1 will extend the contract term to July 1, 2022, and increase the contract by an amount not to exceed $170,000 to provide funding for the remaining life of the contract. This amount includes an allowance for approximately 27 weeks of extra samples at the current contract price, and expedited turnaround or variant testing during that period. MWRA will pay only for extra samples, expedited turnaround, or variant testing if such are needed.

CONTRACT SUMMARY:

	Amount	**Time**	**Dated**
Original Contract:	$206,200	365 Days	12/24/20
Amendments:			
Amendment 1	$170,000	189 Days	(Pending)
Total of Amendments:	$170,000	189 Days	
Adjusted Contract:	$376,200	554 Days	

BUDGET/FISCAL IMPACT:

The FY22 Current Expense Budget includes sufficient funds to cover Amendment 1 for Biobot Analytics. The Massachusetts Executive Office for Administration and Finance has agreed to reimburse MWRA $442,665 for Biobot expenses. This amount represents all Biobot costs through June 30, 2021, including the earlier pilot program. Staff will continue to seek reimbursement from the Commonwealth for the FY22 costs.

MBE/WBE PARTICIPATION:

Biobot Analytics, Inc. is not a certified Minority-owned or Women-owned business.