

MASSACHUSETTS WATER RESOURCES AUTHORITY

Deer Island
33 Tafts Avenue
Boston, MA 02128



Frederick A. Laskey
Executive Director

Chair: R. Tepper

Vice-Chair: A. Pappastergion

Secretary: B. Peña

Board Members:

P. Flanagan

J. Foti

H. Vitale

J. Walsh

P. Walsh

M. White-Hammond

J. Wolowicz

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BOARD OF DIRECTORS' MEETING

Date: Wednesday, May 24, 2023

Time: 1:00pm

Location: Deer Island Reception/Training Building, 1st Floor
33 Tafts Avenue
Boston, MA 02128

A photo ID will be required for entry to the building.

The meeting will also be available via Webex. The Webex meeting link, event number and password to attend virtually are:

Webex Meeting Link (Registration Required):

<https://mwra.webex.com/weblink/register/r01fd1ba0ffc126ed3b2347cd470db5ce>

Event Number: 2343 926 0193

Password: 52423

AGENDA

I. APPROVAL OF MINUTES

II. REPORT OF THE CHAIR

III. REPORT OF THE EXECUTIVE DIRECTOR

IV. EXECUTIVE SESSION

i. Approval of April 12, 2023 Executive Session Minutes

A. Collective Bargaining

1. Collective Bargaining – All Bargaining Units (verbal)

V. ADMINISTRATION, FINANCE & AUDIT

A. Information

1. FY2023 Third Quarter Orange Notebook

2. Delegated Authority Report – May 2023

3. FY23 Financial Update and Summary as of April 2023

4. Update on Pension Funding Status

V. **ADMINISTRATION, FINANCE & AUDIT (Continued)**

B. **Approvals**

1. Bond Defeasance of Future Debt Service
2. MWRA FY24 Insurance Program Renewal

VI. **WATER POLICY & OVERSIGHT**

A. **Information**

1. Metropolitan Water Tunnel Program Update
2. Update on Annual Water Quality Update (CCR)

B. **Contract Awards**

1. Intermediate High Pipeline Improvements CP2 and Rehabilitation of Sections 24 and 25 Water Mains: Albanese D & S, Inc., Contract 6956
2. Intermediate High Intermediate High Pipeline Improvements CP2 Sections 24 and 25 Resident Engineer/Resident Inspection Services for Construction Contract 6956: CDM Smith, Contract 7680

VII. **WASTEWATER POLICY & OVERSIGHT**

A. **Contract Awards**

1. Grit and Screenings Hauling and Disposal: W.L. French, Contract S612
2. Sole Source Purchase of Extended Warranty, Parts and Maintenance Service Contract, ABB PICS system, Deer Island Treatment Plant: ABB Inc.

B. **Contract Amendments/Change Orders**

1. Hayes Pump Station Rehabilitation: Hazen and Sawyer, Contract 7162, Amendment 2 and Settlement of Claim, Contract No. 7497, Weston Aqueduct Sluice Gates Construction Project

VIII. **CORRESPONDENCE TO THE BOARD**

IX. **OTHER BUSINESS**

X. **ADJOURNMENT**

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Board of Directors

April 12, 2023

A meeting of the Massachusetts Water Resources Authority (“MWRA”) Board of Directors was held on April 12, 2023. The meeting was conducted via remote participation by the Board of Directors pursuant to Chapter 20 of the acts of 2021 and subsequent acts extending certain COVID-19 measures adopted during the state of emergency.

Vice Chair Pappastergion and Chair Tepper presided remotely from MWRA headquarters. Also present from the Board were Messrs. Flanagan (remote participation) Foti (remotely from MWRA headquarters), Peña (remotely from MWRA headquarters), Vitale (remote participation), Jack Walsh (remotely from MWRA headquarters) and Rev. White-Hammond (remote participation). Mr. Flanagan, Mr. Patrick Walsh and Ms. Wolowicz were absent.

MWRA Executive Director Frederick Laskey, General Counsel Carolyn Francisco Murphy, Chief Operating Officer David Coppes, Deputy Chief Operating Officer Carolyn Fiore, Director of Administration Michele Gillen, and Assistant Secretary Kristin MacDougall participated remotely from MWRA headquarters. Other MWRA staff in attendance remotely included Thomas Durkin, Finance Director; Kathy Murtagh, Director, Tunnel Redundancy; Patterson Riley, Special Assistant for Affirmative Action; Paula Weadick, Director, MIS; Wendy Chu, Human Resources Director; Sean Navin, Director of Intergovernmental Affairs; John Colbert, Chief Engineer; Marty McGowan, Director of Construction; Charles Ryan, Director of Wastewater Operations and Maintenance; Eben Nash, Director of Western Operations; Katie Ronan, Project Manager, Environmental Permitting; Matthew Horan, Deputy Finance Director/Treasurer; Stephen Estes-Smargiassi, Director of Planning and Sustainability; and, Ria Convery, Special Assistant to the Executive Director and Board Assistant Secretary. Vandana Rao, Executive Office of Environmental Affairs (EEA), and Joseph Favaloro and Matthew Romero, MWRA Advisory Board, participated remotely from MWRA headquarters. Lexi Dewey, Water Citizens Advisory Committee, attended via remote participation.

Vice Chair Pappastergion called the meeting to order at 1:05pm.

ROLL CALL

MWRA General Counsel Francisco Murphy took roll call of Board Members in attendance. The Vice Chair announced that except for Executive Session, the meeting was open to the public virtually, via a link posted on MWRA’s website. He added that the meeting would be recorded, and that the agenda and meeting materials were available on MWRA’s website. Vice Chair Pappastergion announced that the meeting would move into Executive Session after the arrival of Chair Tepper, and that the Open Session would resume after the adjournment of Executive Session. He also announced that individual roll call votes would be conducted after each motion was made and given an opportunity for discussion.

APPROVAL OF MARCH 15, 2023 MINUTES

A motion was duly made and seconded to approve the minutes of the Board of Directors’ meeting of

March 15, 2023.

Vice Chair Pappastergion asked if there was any discussion or questions from the Board. Hearing none, he requested a roll call vote in which the members were recorded as follows:

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Flanagan		
Foti		
Pappastergion		
Peña		
Vitale		
J. Walsh		

(ref. I)

REPORT OF THE EXECUTIVE DIRECTOR

MWRA Executive Director Frederick Laskey advised that a new Pellet Plant contract will be advertised in late April, 2023. He noted that MWRA's current contractor, NEFCo, had been purchased by Synergro, and that staff had received inquiries from other potential bidders. He then reported that an emergency coupling repair at the South Boston CSO pump station was completed at a cost of \$255,000, well under the \$450,000 estimate, and noted that the leaking coupling did not cause any overflows to the beaches. Next, he noted that MWRA would support the Boston Marathon by checking and sealing manholes and sending five large trucks. He then noted that Massachusetts Climate Chief Melissa Hoffer would address staff on May 16, 2023, as part of MWRA's Lunchtime Speaker Series to promote Environmental Justice and Diversity, Equity and Inclusion. He invited Board Members and meeting participants to attend. He briefly described agenda items planned for upcoming Board meetings.

Next, Mr. Laskey advised that Community Boating had expressed concerns about the language used on new, signage placed at all Combined Sewer Overflow (CSO) outfalls across Massachusetts per Department of Environmental Protection (DEP) requirement. He explained that in Community Boating's view, the signs near their facilities are too alarmist because CSO discharges only potentially impact the Charles River approximately twice a year. He shared an example of the sign with Board Members and advised that staff would discuss Community Boating's concerns with DEP. There was discussion about the signage requirements, and Community Boating's concerns about the signs' wording and placement. MWRA General Counsel Carolyn Francisco Murphy explained that MWRA's legal staff were looking at the matter. Board members offered general feedback on the signage. There was discussion about the infrequency of CSO discharges into the Charles River, the very low concentrations of wastewater present in the discharges, the rapid dispersion of the discharges, and the signs' wording. Deputy Chief Operating Officer Carolyn Fiore explained that the language used on the signs was prescribed by the DEP, and that local public health departments post additional notices on the signs after CSO discharges. There was general discussion about the signs' language and design. Mr. Laskey noted that MWRA and the Tufts Boathouse have developed a successful Sanitary Sewer Overflow (SSO) notification process. There was brief discussion about the number and locations of MWRA CSO outfalls. MWRA Special Assistant to the Executive Director Ria Convery advised that eight different versions of the signs were developed,

tailored to various types of outfall locations. Ms. Fiore then described MWRA's CSO and SSO public notification procedures, which include timely text and email alerts for constituents. Board Member Vitale added that the Boston Water and Sewer Commission is developing signs for its CSO outfalls as required.

Mr. Laskey then advised that legislation has been filed to impose a tax on water drawn from the Quabbin Reservoir for eastward distribution. Finally, he noted that after 38 years the April 12, 2023 Board Meeting would be the last one held at MWRA's Charlestown Navy Yard headquarters, because the Authority will vacate the Charlestown facility in May. There was brief discussion about MWRA's tenure at its Charlestown location. (ref. III)

PERSONNEL AND COMPENSATION

Approvals

PCR Amendments – March 2023

A motion was duly made and seconded to approve amendments to the Position Control Register (PCR) as presented and filed with the records of this meeting.

Wendy Chu, MWRA Human Resources Director, summarized the three proposed PCR Amendments, including a salary adjustment to one filled position in the Operations Division, Deer Island Thermal/Power Plant Department and title and grade changes to vacant positions in the Operations Division, Engineering and Construction Department and Environmental Quality Department.

Committee Member Foti asked if there was any discussion or questions from the Board.

Hearing none, Vice Chair Pappastergion requested a roll call vote in which the members were recorded as follows:

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Flanagan		
Foti		
Pappastergion		
Peña		
Vitale		
J. Walsh		

(ref. V A.1)

(Rev. White-Hammond joined the meeting after the Roll Call vote.)

WASTEWATER POLICY AND OVERSIGHT

Approvals

Approval of Alfredo Vargas to the Wastewater Advisory Committee

Mr. Laskey noted that Mr. Vargas was highly qualified to serve on the Wastewater Advisory Committee to the MWRA (WAC). Sean Navin, MWRA Director of Intergovernmental Affairs, then summarized Mr. Vargas' qualifications and work experience. He added that if approved, the appointment would bring the

total number of WAC members to 14.

Vice Chair Pappastergion asked if there was any discussion or questions from the Board. Hearing none, he requested a roll call vote in which the members were recorded as follows:

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Flanagan		
Foti		
Pappastergion		
Peña		
Vitale		
J. Walsh		
White-Hammond		

(ref. VI A.1)

(Chair Tepper joined the meeting after the Roll Call vote.)

EXECUTIVE SESSION

Chair Tepper requested that the Board move into Executive Session to discuss Real Estate and Collective Bargaining, since Open Session may have a detrimental effect on the negotiating and bargaining positions of the Authority. She announced that the planned topics of discussion in Executive Session were a Watershed Land Acquisition and Collective Bargaining – Units 1, 2, 3, 6 and 9. She announced that the Board would return to Open Session after the conclusion of Executive Session.

A motion was duly made and seconded to enter Executive Session for these purposes, and to resume Open Session after Executive Session adjournment.

General Counsel Francisco Murphy reminded Board members that under the Open Meeting Law members who were participating remotely in Executive Session must state that no other person is present or able to hear the discussion at their remote location. A response of “yes” to the Roll Call to enter Executive Session when their name was called would also be deemed their statement that no other person was present or able to hear the Executive Session discussion.

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

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Tepper		
Flanagan		
Foti		
Pappastergion		
Peña		

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Vitale		
J. Walsh		
White-Hammond		

Voted: to enter Executive Session, and to resume Open Session after Executive Session adjournment.

The Board moved to Executive Session to discuss Real Estate and Collective Bargaining since discussing such in Open Session could have a detrimental effect on the negotiating and bargaining positions of the Authority.

*** EXECUTIVE SESSION ***

The meeting entered Executive Session at 1:25pm and adjourned at 1:47pm.

*** CONTINUATION OF OPEN SESSION ***

ADMINISTRATION, FINANCE AND AUDIT

Information

2023 Change Order and Amendment Report

Staff presented an annual report on all amendments and change orders over a ten-year period, from March 2013 through March 2023. John Colbert, MWRA Chief Engineer, presented a summary of design contract amendments. He described common reasons why amendments for time and/or costs may occur, such as MWRA requests for modifications to address climate change, increase energy efficiency or improve Supervisory Control and Data Acquisition (SCADA) functions; added design for code compliance, permitting or hazardous materials found during design; added engineering for delays from construction issues, permit approvals or supply chain issues; and, redesign for unforeseen conditions during construction. Mr. Colbert then noted that there were no amendments for 71% of 62 contracts since March 2013. He reminded Board members that in accordance with the Management Policies of the Board of Directors as amended in 2022, staff only bring amendments valued at over \$1 million to the Board for approval. He noted that Chapter 149 amendment costs had decreased from 13.4% to 5.9% since January 2022, and added that the decrease is partly attributable to some projects' aging out of the 10-year range of analysis. Next, he highlighted five complex projects with the highest amendment cost percentages. Finally, Mr. Colbert noted that only four of 62 contracts had amendments valued at over \$1 million since March 2013.

Next, Marty McGowan, MWRA Director of Construction, presented an overview of change orders. He noted that 85 of 141 contracts required change orders during the 10-year period. He added that the change order percentage was 5.5% in 2023, down from 5.92% in 2022. He further noted that the percentage was 4.73% for Chapter 30 contracts and 6.14% for Chapter 149 contracts. He then presented 11 outlier projects in terms of change order totals vs. original contract value, and highlighted nine

projects with total change order amounts exceeding \$1 million. He advised that the Chelsea Creek Headworks Upgrade project had the highest change order costs, and noted that it is one of the most complex projects undertaken by MWRA in recent years. Finally, Mr. McGowan presented examples of projects with change orders due to unforeseen circumstances such as supply chain issues, fabrication delays and unstable pricing; added constraints by municipalities such as requests for night work, work hours adjustments and schedule changes; unforeseen site conditions; inaccurate records of existing utilities; and unexpected conflicts between new work and existing systems.

Secretary Tepper thanked staff for presenting a thorough and informative summary. Board Member Vitale requested a comparison of the annual quantities and costs of change orders submitted vs. accepted. Mr. Colbert advised that staff would provide this information at a later date. There was brief, general discussion about the amendment and change order review processes, and the data presented. Board Member Jack Walsh asked if MWRA benchmarked amendments and change orders with other water and sewer service providers. Mr. Colbert explained that there were not a lot of contracts that contributed to the total amendments/change orders. David Coppes, MWRA Chief Operating Officer, advised that staff would compile information about benchmarking and prepare a report. There was general discussion about the impact of outliers on the amendment and change order data.

Hearing no further discussion or questions from the Board, Committee Chair Foti moved to the next Information item. (ref. VII A.1)

Update on MWRA's Maintenance Program

Staff presented an update on MWRA's Maintenance Program. Charles Ryan, MWRA Director of Wastewater Operations and Maintenance, described the program's goals, including life cycle cost management, reliable plant operations, the preservation of ratepayer investments; the avoidance of budget spikes; and, adherence to industry best practices. He then presented an inventory of MWRA facilities including aqueducts, tunnels, treatment plants, piping, pump stations, headworks, CSO control facilities, office buildings and fleet vehicles.

Next, Ted Regan, MWRA Deputy Director of Maintenance, presented the MWRA Facilities Asset Program's key components and best practices. He noted that staff continuously seek ways to improve the program and increase productivity. Finally, Mr. Regan described the program's benefits, and presented an overview of MWRA's computerized maintenance management (MAXIMO) and condition monitoring systems.

Eben Nash, Director of Western Operations, then presented a summary of staffing for the Maintenance Program. He noted that 40% of all MWRA staff participate in maintenance activities, and that consultants perform some specialized services. Next, he presented Maintenance Program work order metrics and noted that preventative maintenance can increase equipment availability and reduce the need to perform corrective and emergency work. He then described MWRA's Maintenance budget and budgeting process. Finally, Mr. Nash presented positive results from the program, including high equipment reliability and availability; continued service during stressor events; compliance with

regulatory requirements, and award-winning performance.

Mr. Laskey noted that MWRA was created to manage the Boston Harbor Cleanup Project to remediate pollution caused by years of insufficient sewer system maintenance, and added that maintenance is a high priority at MWRA.

(Board Member Peña left and returned to the meeting during the presentation.)

Mr. Jack Walsh asked staff to describe the difference between preventative maintenance and predictive maintenance, and how maintenance data was entered into the MAXIMO system. Mr. Laskey explained that all data was entered into MAXIMO. Mr. Regan further explained that “preventive maintenance” is a calendar-based process, while “predictive maintenance” is technology-based. He added that staff evaluate and enter each asset individually based on industry best practices, and that MAXIMO technology assists in tracking the assets’ life cycles and prompting preventative maintenance frequencies. There was general discussion about the logistics and benefits of MAXIMO. Mr. Vitale requested more information about the organizations with whom MWRA benchmarks its Maintenance Program. Mr. Regan advised that staff would provide a list at a later date. Mr. Vitale asked if the Maintenance Program budget was evaluated by rating agencies, and if rating agencies made recommendations for Program budget allocations. Thomas Durkin, MWRA Director of Finance, explained that depreciation and reinvestment is discussed with, and evaluated by, rating agencies, but not prescribed. He noted that MWRA’s Resolution requires a consulting engineer’s report on the conditions of MWRA’s assets, and that the report is reviewed by rating agencies and bond holders. He added that MWRA’s Maintenance Program is well regarded by rating agencies and investors.

Hearing no further discussion or questions from the Board, Mr. Foti moved to the next Information item. (ref. VII A.2)

2022 Annual Update on New Connections to the MWRA System

Katie Ronan, MWRA Project Manager, Environmental Permitting, presented an annual update on new connections to the MWRA system. She explained that the report was prepared pursuant to the annual update requirements of the MWRA System Expansion Policy for any new connections. She then provided a brief overview of MWRA’s five System Expansion policies: OP.04 (sewer straddle), OP.05 (emergency water), OP.09 (water straddle), OP.10 (new water community), and OP.11 (new sewer community). She noted that admissions to MWRA systems are subject to Board of Directors’ approval. She then reminded Board Members of the temporary Entrance Fee Waiver for new water communities that was recommended by the MWRA Advisory Board and approved by the Board in September, 2022. She generally described the terms, requirements and benefits of the waiver.

Next, Ms. Ronan discussed new sewer connections since 2002, noting that 10 entities had been approved to discharge into the MWRA wastewater system during that time, most recently Crescent Ridge Dairy (2019, OP.11) and the Rivers School (2020, OP.04). She explained that all new sewer connections are governed by sewer connection agreements that include discharge limits and mitigation,

inflow removal requirements and entrance fees. She advised that the Rivers School had exceeded its discharge limit in 2022, and that staff are working with the school to determine the cause and next steps, including a potential amendment.

Ms. Ronan then presented a report on new water connections since 2002. She noted that two OP.09 entities and six new communities, including Burlington and Ashland (2020, OP.10), had joined during that time. She explained that all new water connections are governed by water supply agreements that include withdrawal limits, entrance fees and other requirements. She advised that Burlington exceeded its Phase One withdrawal limit in 2022. She noted that staff are reviewing the agreement, and would prepare an amendment for Phase Two. Ms. Ronan then explained that the partially-supplied water communities of Wilmington and Dedham/Westwood had received temporary exceedances in 2022 under emergency provisions.

Ms. Ronan then presented an update on MWRA's three System Expansion Studies, which began in 2020. She noted that studies for the Ipswich River Basin and the South Shore were completed in fall 2022, and that a MetroWest study was underway. She explained that the studies were at the conceptual and planning level, intended to determine the feasibility of supplying water to communities with water supply challenges. She further explained that the studies considered such factors as infrastructure requirements, construction time and costs. Finally, Ms. Ronan reported that a number of study area communities were considering joining, or increasing withdrawal limits from, the MWRA water system under OP.10, including Hopkinton, Lynnfield Center Water District, Walpole, Wayland, Wellesley and Weymouth.

Hearing no discussion or questions from the Board, Mr. Foti moved to the next agenda item. (ref. VII A.3)

Delegated Authority Report – March 2023

Michele Gillen, MWRA Director of Administration, reminded Board Members that the April 12, 2023 Delegated Authority Staff Summary includes updates on actions taken by staff under the new delegations of authority. She then invited questions from Board Members.

Mr. Vitale asked who at MWRA signs payroll checks, and checks processed through the Accounts Payable Department. Mr. Durkin explained that Matthew Horan, Deputy Finance Director/Treasurer, signs all of those checks automatically through a MICR printing system. Mr. Vitale asked if second signatures were required on checks over a certain amount. Mr. Durkin explained that second signatures are not required, but that MWRA's banks are required to review checks issued at or over established limits. Mr. Jack Walsh asked for more details on Item P-10, Emergency Leak Repair at the South Boston CSO Pump Station. Mr. Coppes explained that the item was to repair a leaking discharge coupling. He further explained that staff had issued an emergency purchase order for the work based on estimated costs, and that the actual cost was approximately half of the estimate.

Mr. Foti asked if there was further discussion or questions from the Board. Hearing none, he moved to

the next Information item. (ref. VII A.4)

FY23 Financial Update and Summary through March 2023

Mr. Durkin advised that financial patterns and trends reported during the first quarter of FY23 continued through the month of March. He explained that the progress of each budget year informs the development of the following year's budget. Finally, Mr. Durkin noted that staff were preparing to present MWRA's FY24 budget in May and June, 2023.

Mr. Vitale asked for clarification on the under-budget spending variance for senior debt as reported in the Capital Financing section of the April 12, 2023 Staff Summary. Mr. Durkin explained that the senior lien portion of the budget is comprised of fixed debt, and that variable rate debt is described on the subordinate. Mr. Horan added that the senior lien variance was driven by the timing of transactions. He explained that a planned issuance in October, 2022 was delayed until the end of April, 2023 because spending was lower than anticipated, and that year-end projections reported in the staff summary were based on the scheduled transactions.

Hearing no further discussion or questions from the Board, Chair Tepper moved to Correspondence to the Board. (ref. VII A.5)

CORRESPONDENCE TO THE BOARD

WSCAC Comments on March 15, 2023 MWRA Staff Summary Regarding Watershed Forestry Review

Chair Tepper announced that the Board of Directors had received correspondence from the Wastewater Citizens Advisory Committee to the MWRA (WSCAC) dated April 7, 2023 regarding the Watershed Review Staff Summary presented at the March 15, 2023 Board meeting. She opened the floor for discussion.

Mr. Laskey noted that watershed forestry has been a longtime topic of discussion at MWRA. Mr. Coppes explained that MWRA's March 15, 2023 forestry Staff Summary was intended to highlight the need for a long-term program to promote a resilient forest for water supply protection, and to avoid the need to build costly and energy-inefficient water filtration facilities. He advised that there may have been some miscommunication with WSCAC because their April 7 correspondence focused on a different topic: the value of Green Certification for the Watershed Forestry Program. Mr. Coppes noted that MWRA staff had briefed the Board in March and June, 2021 on the results of an evaluation on Green Certification. He explained that pursuit of Green Certification had been determined to be a difficult and time consuming endeavor due to the amount of documentation required.

Next, Stephen Estes-Smargiassi, MWRA Director of Planning and Sustainability, provided a brief overview of WSCAC's long-standing role as a valued advisory organization to MWRA and its predecessor agency (MDC) on such topics as water quality, source water protection, and demand and supply management. He noted that MWRA's relationship with WSCAC has historically been productive. Mr. Estes-Smargiassi advised that the purpose of the March 15 forestry Staff Summary was not to re-argue the issue of Green Certification but to promote the importance of a long term, measured, incremental

program of small interventions over many decades that will help protect the forest from natural or climate related disasters, and in turn, protect drinking water quality. Mr. Estes-Smargiassi acknowledged the good faith differences of opinion on policy, noting that he believed MWRA and WSCAC share common ground on the importance of a robust Watershed Forestry Program for water supply protection. Finally, Mr. Estes-Smargiassi suggested that Board Members tour DCR watershed forestry operations at a future Board meeting.

Mr. Laskey stressed the importance of maintaining the age and species diversity for watershed trees that can withstand disease, invasive species, droughts and other events. He noted that the current Watershed Forestry Program is not a money maker for the Authority; that it costs the Authority money and there is no profit motivation for the Authority. . Mr. Laskey then described some lessons learned from past watershed forestry practices and noted that the current program was designed with advice from a panel of experts to advance MWRA/DCR-specific goals.

Mr. Jack Walsh remarked on photos included with WSCAC's correspondence. He noted that he understood MWRA's position regarding Green Forestry certification, and asked if the photos, which were undated, depicted the results of a typical watershed tree-cutting operation. Mr. Estes-Smargiassi acknowledged that the immediate after-effects of major forestry operations can appear visually unappealing at first, but that over time the work results in important benefits such as improved soil health, seed germination and species diversity. He explained that much of the existing watershed forest was planted en masse nearly a century ago, and that forestry management was needed to ensure that the forests will be resilient to change. There was further, brief discussion about the photos included with the correspondence. Mr. Coppes noted that DCR was responsible for overseeing the forestry program contractors. He added that staff will ask DCR, which has managed the program diligently, to consider monitoring the tree contractors more closely.

Mr. Laskey explained that the environmental impacts of tree cutting is part an ongoing, wider conversation, and advised that staff strongly believe that responsible forestry management is key to maintaining MWRA's drinking water quality and public health.

Mr. Peña noted that he understood the importance of forestry management and asked if there were any limitations on forestry on watershed lands held under a Watershed Preservation Restriction (WPR). Mr. Coppes advised that staff would confirm and provide this information at a later date.

(Mr. Foti left and returned to the meeting during the discussion.) (ref. VIII A)

Other Business

Mr. Laskey reminded Board Members that Climate Chief Hoffer would be a featured speaker for an MWRA lunchtime talk in May, 2023. (ref. IX)

ADJOURNMENT

A motion was duly made and seconded to adjourn the meeting.

A roll call vote was taken in which the members were recorded as follows:

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Tepper		
Flanagan		
Foti		
Pappastergion		
Peña		
Vitale		
J. Walsh		
White-Hammond		

The meeting adjourned at 2:59pm.

Approved: May 24, 2023

Attest:

Brian Peña, Secretary

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
SUBJECT: FY2023 Third Quarter Orange Notebook



COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Stephen Estes-Smargiassi, Director, Planning & Sustainability
Michael D. O'Keefe, Senior Program Manager, Planning
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. This staff summary includes highlights from the third quarter of fiscal year 2023.

Staffing Levels

High levels of staff turnover continue, especially retirements, and hiring replacements continues to be difficult. Hiring has accelerated somewhat, with 173 hires or promotions during the past three quarters. Both the total and external hires compare favorably with the prior two years. Over the prior two full fiscal years, MWRA had 64 and 65 external hires, compared with 71 in the first three quarters of this fiscal year. Nonetheless, at the end of March, staffing stood at 1,045 FTEs (full time equivalents), about 106 below the budget of 1,151.4 FTEs, which is similar to the end of the prior two quarters (see page 43).

The percentage of external hires has been higher than the previous fiscal year, with 41 percent of total hires from outside the Authority, versus 32 percent in FY22. While hiring internally fills one vacancy and provides career paths for existing staff, it creates another vacancy, making it difficult to restore overall staffing levels (see page 43). In an effort to improve hiring rates, MWRA has implemented a new Employee Referral Fee Pilot Program to recruit qualified, talented, and diverse applicants to fill open and vacant positions.

Lower staffing levels continue to have impacts on operations: several water distribution and wastewater pipeline performance measures were under target due to necessary hours spent to support more critical capital improvement projects and in-house construction work. (See pages 7 and 8 for maintenance metrics.) Several laboratory services metrics missed goals for one or two months during the third quarter (see page 15). Lastly, staff continue to evaluate and prioritize

critical maintenance work, so that while the backlog is higher than preferable in both field operations and Deer Island, it is affecting areas that do not immediately impact critical operations or regulatory compliance (see pages 5 and 9 for backlog metrics).

Higher Than Average Precipitation

Higher than normal precipitation in the third quarter impacted both water supply and wastewater flows. The volume of the Quabbin Reservoir was at 94.8% as of March 31, 2023; a 6.8% increase for the quarter, which represents a gain of more than 28 billion gallons of storage and an increase in elevation of 3.66 feet (see page 26).

Additionally, total plant flow at Deer Island for the third quarter was 8.5% above the four-year average plant flow (388.0 MGD actual versus 357.5 mgd expected) as precipitation was 11.5% above average this quarter (10.88 inches actual versus 9.76 inches expected) (see page 1).

Reduction in Water Quality Customer Complaints

Customer communities reported 29 complaints during the third quarter, compared to 81 complaints from the third quarter of FY22. Of these complaints, 22 were for discolored water, four were for taste and odor, and three were for other reasons. Twenty complaints were local community issues, one was a shared local community and MWRA related issue, and eight were unknown in origin (see page 23).

MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

Third Quarter FY2023

Q1	Q2	Q3	Q4



Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
May 24, 2023

Board of Directors Report on Key Indicators of MWRA Performance

3rd Quarter - FY23

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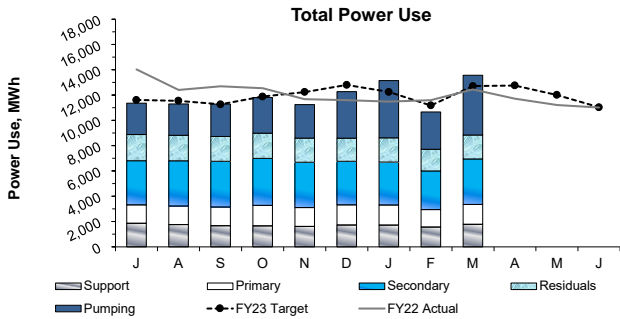
This quarterly report is prepared by MWRA staff to track a variety of MWRA performance measures for routine review by MWRA's board of directors. The content and format of this report is expected to develop as time passes. Information is reported on a preliminary basis as appropriate and available for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

Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
May 24, 2023

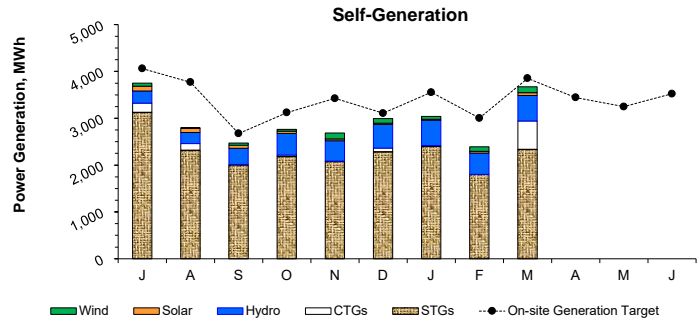
OPERATIONS AND MAINTENANCE

Deer Island Operations

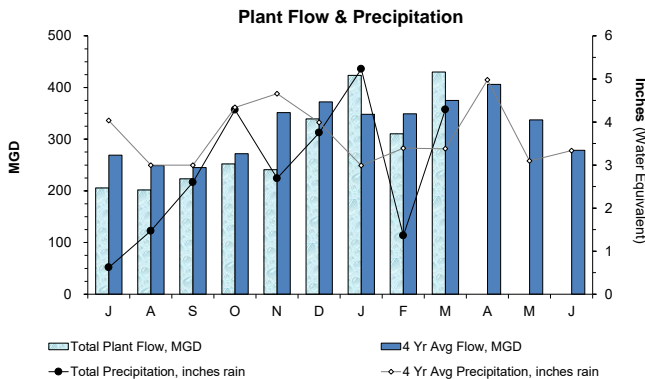
3rd Quarter - FY23



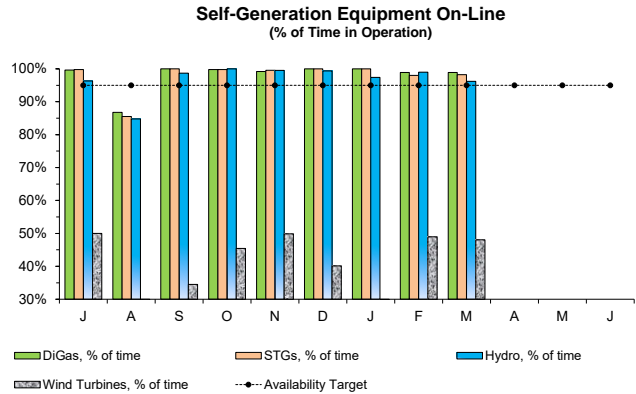
Total power usage in the 3rd Quarter was 3.4% above target as plant flow for this period was 8.5% above target with historical (4 year average) data used to generate the electricity model. As a result, power usage in nearly all areas and treatment processes was similar to or were slightly above target, with power used for raw wastewater pumping 11.1% above target as a result of the higher plant flows.



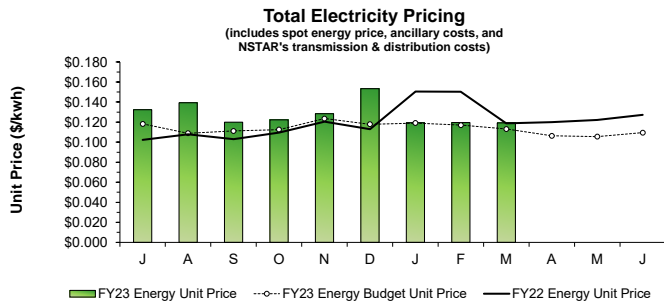
Power generated on-site during the 3rd Quarter was 12.5% below the target. A single CTG was operated for nearly 41 continuous hours in mid-March as potential backup power during a lengthy significant rain and high wind event with very elevated plant flows. The CTGs were also operated for annual compliance testing, as well as for routine maintenance. STGs generation was 10.4% below target as the main STG was out of service for several days in February due to an electrical issue following a brief under-voltage incident which caused the Thermal Power Plant to trip. Hydro Turbine generation was 3.1% above target due to higher plant flows. Wind Turbine generation was 55.8% below target as Turbine #1 has been out of service pending repairs to the failed main shaft bearing. Solar Panel generation was 23.6% below target partially due to overcast conditions during the quarter. Additionally, there was an A/C contactor issue with the Maintenance-Warehouse Building solar array, beginning on March 21, and the Residuals Odor Control Facility solar array remains offline pending the return of a repaired grid inverter.



Total Plant Flow for the 3rd Quarter was 8.5% above target with the budgeted 4 year average plant flow (388.0 MGD actual vs 357.5 MGD expected) as precipitation was 11.5% above target this quarter (10.88 inches actual vs. 9.76 inches expected).

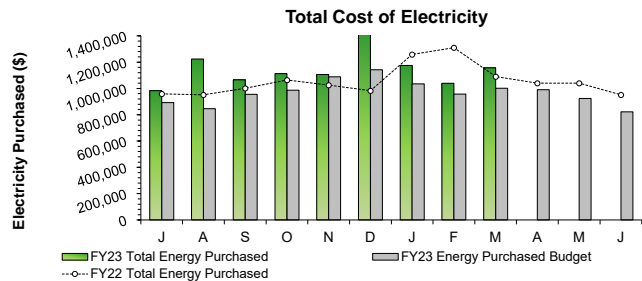


The DiGas System, STGs, and Hydro Turbines availability exceeded the 95% availability in the 3rd Quarter. The combined Wind Turbine availability was only 42.2% due to a main shaft bearing failure on Turbine #1. Wind Turbine #2 was available 84.5% of the time during the quarter as it was out of service for 13 days at the start of 2023 due to a faulty gear oil motor.



Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual Total Energy Unit Prices for FY23 are not yet available as the complete invoices have not been received. Therefore, the estimated pricing information is provided. The estimated Total Energy Unit Price during the 3rd Quarter was 2.6% above target with budgetary estimates. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges. The invoices with the fixed block and spot energy prices have been pending receipt since March 2022.

Note: Only estimated energy prices are reported for March FY22 to current time as the invoices for the fixed block and spot energy prices have been pending receipt for this period of time.

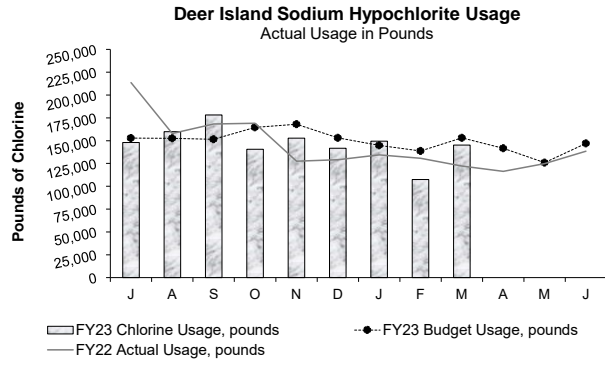
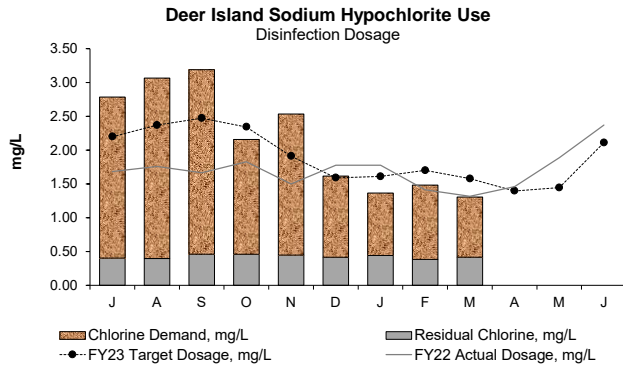


The actual Electricity cost data for Electricity Purchased during FY23 are not yet available as the complete invoices have not been received. Therefore, the estimated Total Cost of Electricity is provided. Fiscal Year-to-date Total estimated Cost of Electricity is \$1,390,912 (15.6%) higher than budgeted through March as the estimated Total Energy Unit Price was 10.6% higher than target and the estimated Total Electricity Purchased was 4.5% above target. The invoices with the fixed block and spot energy prices have been pending receipt since March 2022.

Note: Only estimated Total Cost of Electricity data are reported for March FY22 to current time as the invoices for the fixed block and spot energy prices have been pending receipt for this period of time.

Deer Island Operations

3rd Quarter - FY23



The disinfection dosing rate in the 3rd Quarter was 15.0% below target with budgetary estimates. As a result, actual sodium hypochlorite usage in pounds of chlorine was similarly 7.9% lower-than-expected as chlorine demand remained low this quarter in comparison to earlier in the fiscal year. DITP maintained an average disinfection chlorine residual of 0.41 mg/L this quarter with an average dosing rate of 1.38 mg/L (as chlorine demand was 0.97 mg/L).

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

Secondary Blending Events

Month	Count of Blending Events	Count of Blending Events Due to Rain	Count of Blending Events Due to Non-Rain-Related Events	Secondary, as a Percent of Total Plant Flow	Total Hours Blended During Month
July	0	0	0	100.0%	0.00
August	0	0	0	100.0%	0.00
September	0	0	0	100.0%	0.00
October	1	1	0	99.8%	2.43
November	1	1	0	99.9%	2.12
December	4	4	0	99.5%	17.95
January	3	3	0	98.7%	28.99
February	0	0	0	100.0%	0.00
March	2	2	0	96.8%	48.02
April					
May					
June					
Total	11	11	0	99.2%	99.51

98.4% of all flows were treated at full secondary during the 3rd Quarter. There were five (5) secondary blending events due to high plant flows from heavy precipitation and snowmelt. These blending events resulted in 77.01 hours of blending and a total of 592.61 MGal of primary-only treated effluent blended with secondary effluent. The Maximum Secondary Capacity during the entire quarter was 700 MGD.

Secondary permit limits were met at all times during the 3rd Quarter.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

The plant achieved an instantaneous peak flow rate of 1,240.2 MGD during the mid-day of March 14. This peak flow occurred during a multi-day storm event that brought 2.54 inches of precipitation to the metropolitan Boston area combined with snowmelt. The Total Plant Flow in Quarter 3 was 8.5% above the 4 year average plant flow target for the quarter.

The backflow preventers that serve the North Main Pump Station water feed to the seal water for the raw wastewater pumps were replaced by DITP staff on March 30. The existing backflow preventers were 30 years old and the isolation valves were no longer providing adequate isolation. Prior to the replacement of the backflow preventers, a 45 minute test was successfully conducted on March 29 to ensure the fire hydrant and temporary hose connection (using a back flow preventer) that was put in place for use during the replacement work, would be able to supply the seal water to the raw wastewater pumps without issue for the duration of the work which was expected to take approximately four (4) to six (6) hours.

Residuals Treatment:

In January, DITP staff began the process of transitioning digester operation from Module #1 to Module #3. This is a lengthy process to complete, as each digester is slowly filled one-at-a-time using the digested sludge overflows from the online digesters, then allowing the digester to slowly acclimate before it can begin taking normal sludge feed. As each digester in Module #3 is placed into service, a digester in Module #1 can then be taken out of service to be eventually drained of sludge. This transition from Module #1 to Module #3 operation was completed in early February. The draining of the sludge in the Module #1 digesters began one (1) digester at a time after the Module #1 to #3 transition was completed.

Odor Control Treatment:

Carbon adsorber (CAD) unit #4 in the North Pumping Odor Control (NPOC) Facility, units #1 and #2 in the East Odor Control (EOC) Facility, and unit #4 in the Residuals Odor Control (OC) Facility were emptied and refilled with new regenerated activated carbon media this month as part of routine maintenance to replace spent activated carbon.

Deer Island Operations

3rd Quarter - FY23

Deer Island Operations & Maintenance Report (continued)

Energy and Thermal Power Plant:

Overall, total power generated on-site accounted for 24.4% of Deer Island's total power use for the 3rd Quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 22.7% of Deer Island's total electrical power use for the quarter.

Wind Turbine #2 was out of service from December 30 to January 13 due to a faulty gear oil motor.

Hydro Turbine #1 was out of service for general routine maintenance from January 30 through February 3. This maintenance outage did not impact hydro turbine generation as Turbine #2 remained in operation while Turbine #1 was out of service for maintenance.

On Friday February 3, DITP experienced an under voltage situation causing the boiler at the Thermal Power Plant to trip at 10:32 p.m. Digester gas was diverted to the waste gas flares however, only one (1) of the three (3) flares started. The other flares were frozen due to extreme temperature conditions and could not be operated. Regional recording setting low temperature conditions existed during this evening with temperatures registering at -5 degrees Fahrenheit around the time of the event and a low of -9.6 degrees Fahrenheit by 2:32 a.m. on February 4. The excess digester gas that could not be burned by the single operating flare was intermittently released to the atmosphere through pressure relief valves at the top of the digesters for several hours until the boiler was restarted and could begin to utilize the digester gas. The under voltage also caused instrumentation issues that complicated and delayed the restart of the boiler. Multiple staff were called on-site to assist with the varied issues caused by the under voltage event.

Later in the evening of February 4, a digester gas compressor in the Thermal Power Plant tripped causing the boiler to again trip. The digester gas was diverted to the flares. By this time, two (2) flares were operable as one of the previously frozen flares had thawed sufficiently to operate. However, the Module 1 flare was still frozen and could not be operated, and was later found to be damaged, a result of the extreme freezing cold. A small amount of excess digester gas that could not be burned by the two (2) operating flares was released to the atmosphere from the Digester complex for less than an hour this time before the boiler was returned to operation. Overall, the majority of the produced digester gas was either contained within the system or used by the boiler, and only a small fraction was released to the atmosphere. No odor complaints were received as a result of these events and the regulators were provided notification per requirements of Deer Island's Air Operating Permit. Staff repaired the failed Module 1 flare during the week, and additional measures have been implemented to prevent the waste gas flares from freezing in the future when severe cold and freezing conditions are expected.

On February 2, the fuel oil flow meter was removed from CTG 2B and sent off-site for certified calibration as required every five (5) years per emissions regulations. The removal of the fuel oil flow meter does not impact the operation of the CTG. However, for emissions reporting considerations, this CTG would be operated only in the event of an emergency as CTG 1A was available for operation and CTG 2B would then be available as a backup. CTG 2B was successfully test operated on March 16 following the return and reinstallation of the calibrated flow meter.

Opacity testing for each CTG unit was successfully completed on March 29 as part of the annual regulatory requirements for emissions reporting on the CTGs and the results of this test demonstrated the units were in compliance. The test requires each CTG to be operated (one at a time) at full load for one (1) hour. During this time a certified "smoke reader" visually observes the condition of the stack exhaust and records the results.

Clinton Operations & Maintenance Report

Dewatering Building

Maintenance staff replaced a six (6) inch valve on the #3 Moyno pump suction piping side. Staff also checked the other valves in the lower Dewatering Building for proper operating condition. Staff rebuilt the dry polymer loading dock door and the hinge assembly for the belt filter press system. A leaking 2-1/2 OS&Y and check valves on the Dewatering Building heat loop were also replaced. Staff also removed a large non-functioning water heater storage tank in preparation for a new water heater installation. Maintenance staff participated in a tool audit performed by the inventory control specialist from the Chelsea Facility. A contractor completed the replacement of the leaking four (4) inch cast iron pump in the lower Dewatering Building.

Chemical Building

Maintenance staff and the Facilities Specialist jet cleared the Soda Ash (A) line. Staff also rebuilt both the #1 and #2 Penn Valley Pumps, including replacing diaphragms and gaskets on both pumps, and the trunnions clacker valve on the #1 pump. Maintenance staff completed monthly preventative maintenance (PM) for the eyewash stations and air handler units. A contractor and the mechanics installed a new two (2) inch waste activated sludge flow meter. A contractor installed and wired a new damper actuator motor for the exhaust fans. A contractor also replaced several oxygen sensors in the Hypochlorite & Ferric Chloride containment areas. Plant staff tried unsuccessfully to drain the chlorine mix tank completely to inspect the diffuser piping.

Aeration Basins

Operations staff cleaned the pH and D.O. probes. Maintenance staff completed all PM's on all five (5) blowers. Deer Island staff replaced 10 battery back-up systems in the VFD Building.

Phosphorus Reduction Facility (PRF)

Maintenance staff acid washed all three (3) disk filters, cleaned the troughs, and inspected all nozzles. Operations staff cleaned both CL17 chlorine analyzers. The PRF Building and the chemical feed system were placed into operation. Plant staff dismantled and inspected the Wipps PRF sluice gate valve and determined a replacement is warranted.

Headworks Building

Maintenance staff cleaned the influent & mechanical bar rack and greased the upper and lower pin racks. Staff also assisted Xylem Pump with influent pump maintenance. Staff set up the new pump that replaced the old hydraulic pump in the influent wet well. Maintenance staff removed an old leaking water valve from the Headworks Building boiler room. They also replaced a leaking seal on the Weismann boiler condensate pump.

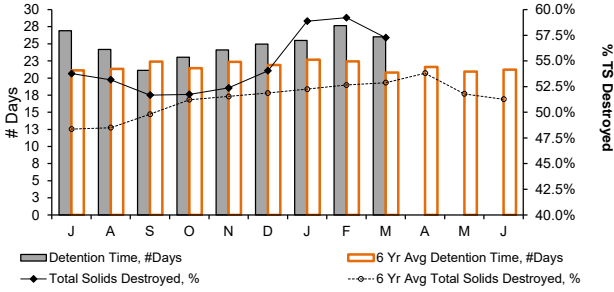
Digester Building

Maintenance staff checked all equipment for proper operation. They also greased the Ovivo mixer on the digester floating cover. Staff completed staging safety rails and platforms on the digester mixer access platform.

Deer Island Operations and Residuals

3rd Quarter - FY23

Sludge Detention Time in Digesters and Total Solids Destruction



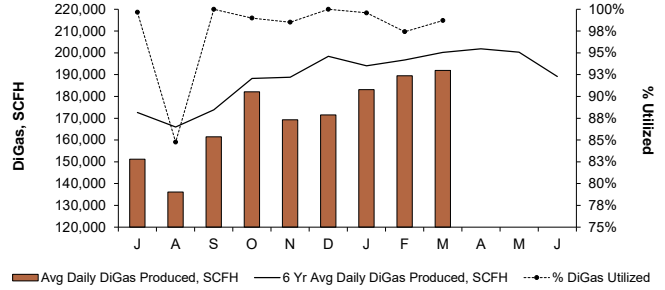
Total solids (TS) destruction following anaerobic sludge digestion averaged 58.5% during the 3rd Quarter, 11.1% above target with the 6 year average of 52.6%. Sludge detention time in the digesters was 26.4 days, 20.1% above the 22 days detention time target. 7.9 digesters were in operation, on target with projections. The higher sludge detention time is attributed to the filling of four (4) digesters during the quarter using the digested sludge overflows from the other on-line digesters as Module #3 was in the process of being placed into service, while the Module #1 digesters were being rotated out of service for maintenance.

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.

Residuals Pellet Plant

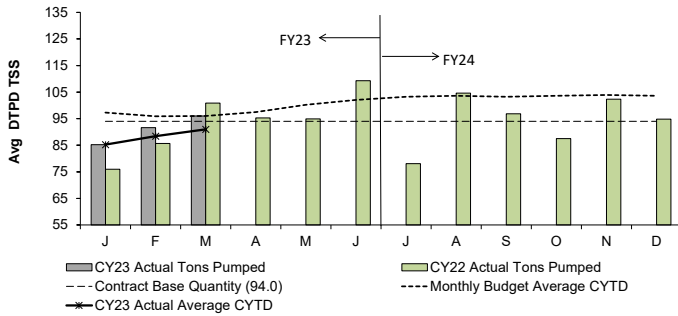
New England Fertilizer Company (NEFCO) operates the MWRA Biosolids Processing Facility (BPF) in Quincy under contract. MWRA pays a fixed monthly amount for the calendar year to process up to 94.0 DTPD/TSS as an annual average (for the extended contract period of January 1, 2021 through December 31, 2023). 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 (FY23's budget is 103.3 DTPD/TSS and the preliminary FY24's budget is 103.2 DTPD/TSS).

Digester Gas Production and % Utilized



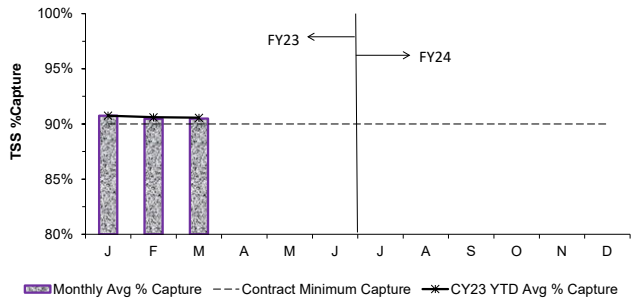
The Avg Daily DiGas Production in the 3rd Quarter was 4.5% below the 6 Year Avg Daily DiGas Production due to 6.0% lower-than-expected primary sludge production, and a 17.2% reduction in sludge feed to the digesters. 98.6% of the DiGas produced was utilized at the Thermal Power Plant.

Sludge Pumped From Deer Island



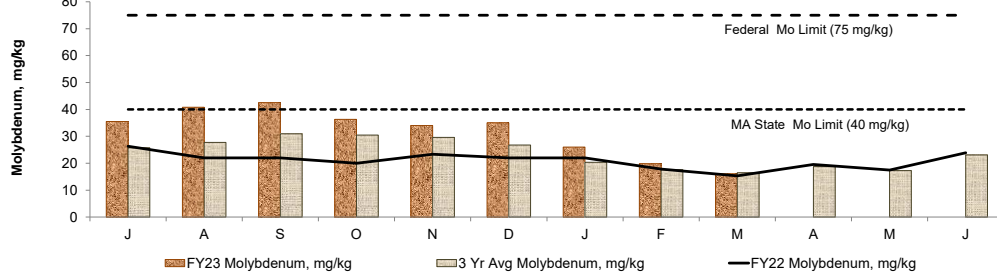
The average quantity of sludge pumped to the Biosolids Processing Facility (BPF) in the 3rd Quarter was 91.0 TSS Dry Tons Per Day (DTPD), 5.3% below target with the FY23 budget of 96.1 TSS DTPD for the same period. The lower amount of sludge sent to the BPF is mainly a result of digested sludge being diverted to fill the four (4) Module #3 digesters rather than being sent to the DSL holding tanks, and thus to the BPF, due the transitioning from Module #1 to Module #3 digester operation.

Monthly Average % Capture of Processed Sludge



The contract requires NEFCO to capture at least 90.0% of the solids delivered to the Biosolids Processing Facility. The average capture for the 3rd Quarter was 90.57%.

Molybdenum in Sludge Fertilizer Pellets



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. The Massachusetts Type 1 biosolids standard for molybdenum was changed from 25 mg/kg to 40 mg/kg in 2016, allowing 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.

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 3rd Quarter averaged 20.6 mg/kg, 14% above the 3 year average, 48% below target with the MA State Limit, and 73% below the Federal Limit.

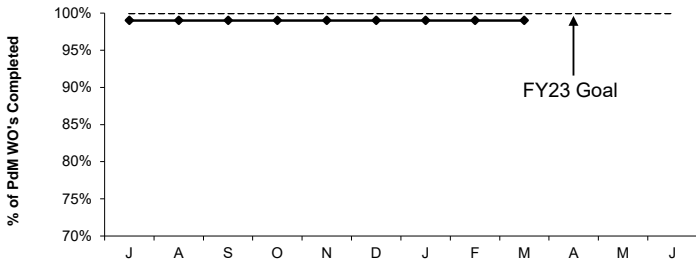
Deer Island Maintenance

3rd Quarter - FY23

Productivity Initiatives

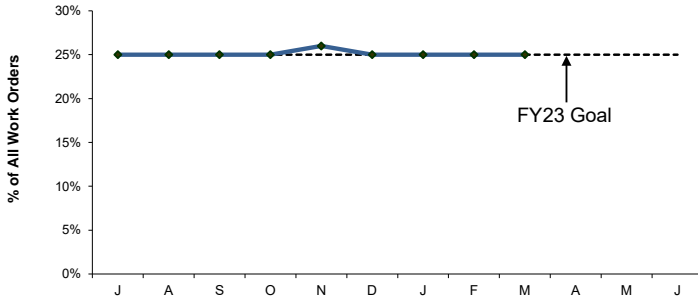
Productivity initiatives include increasing predictive maintenance compliance and increasing PdM work orders. Accomplishing these initiatives should result in a decrease in overall maintenance backlog.

Predictive Maintenance Compliance



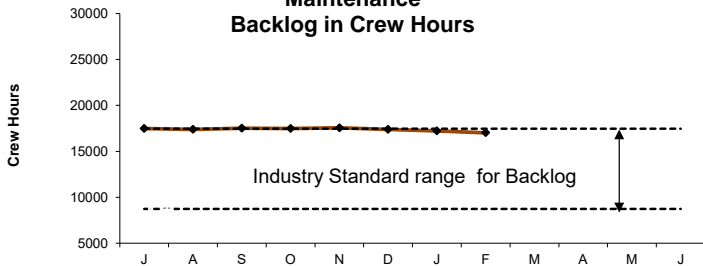
Deer Island's FY23 predictive maintenance goal is 100%. DITP completed 99% of all PdM work orders this quarter.

Predictive Maintenance



Deer Island's increased FY23 predictive maintenance goal is 25% of all work orders to be predictive. 25% of all work orders were predictive maintenance this quarter. The industry is moving toward increasing predictive maintenance work to reduce downtime and better predict when repairs are needed.

Maintenance Backlog in Crew Hours

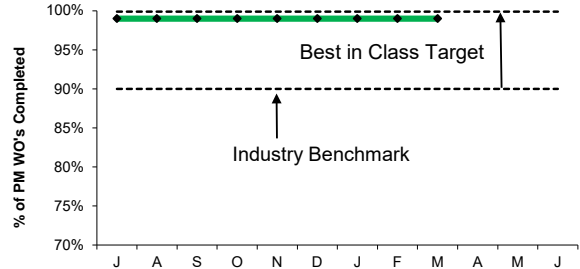


DITP's maintenance backlog at Deer Island is 17,010 hours this quarter. DITP is slightly above the industry average for backlog. The industry Standard for maintenance backlog with 97 staff (currently planned staffing levels) is between 8,730 hours and 17,460 hours. Backlog is affected by (5) vacancies; (2) Electricians, (1) O&M Specialist, (1) HVAC Technician and (1) I&C Tech. Management continues to monitor backlog and to ensure all critical systems and equipment are available.

Proactive Initiatives

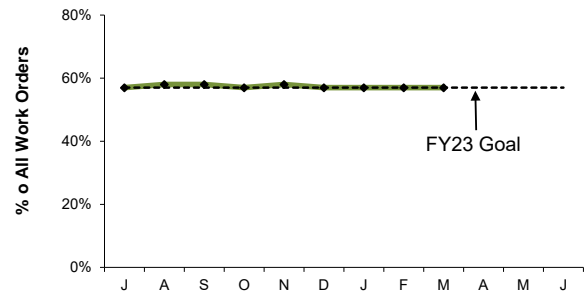
Proactive initiatives include completing 100% of all preventative maintenance tasks and increasing preventative maintenance kitting. These tasks should result in lower maintenance costs.

Preventive Maintenance Compliance



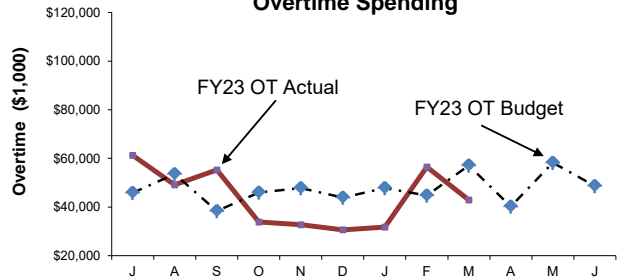
Deer Island's FY23 preventative maintenance goal is 100% completion of all work orders from Operations and Maintenance. DITP completed 99% of all PM work orders this quarter.

Maintenance Kitting



Deer Island's increased FY23 maintenance kitting goal is 57% of all work orders to be kitted. 57% of all work orders were kitted this quarter. Kitting is staging of parts or material necessary to complete maintenance work. This has resulted in more wrench time and increased productivity.

Overtime Spending



Maintenance overtime was over under by 18K this quarter and \$31k under for the year. Management continues to monitor backlog and to ensure all critical equipment and systems are available. This quarter's overtime was predominately used for Storm Coverage/High Flows, Grinder/Pump Clogging Issues, Mod #1 WGB Flare Repair, Replacement of AA:H1S.HEX-3 Heat Exchanger, Functional Testing and Startup of MOD 3, Centrifuge #2 Liner Repair/Installation, Fabrication of New Strainer for Thermal, and Miscellaneous Clarifier Work.

Water Distribution System Valves

3rd Quarter - FY23

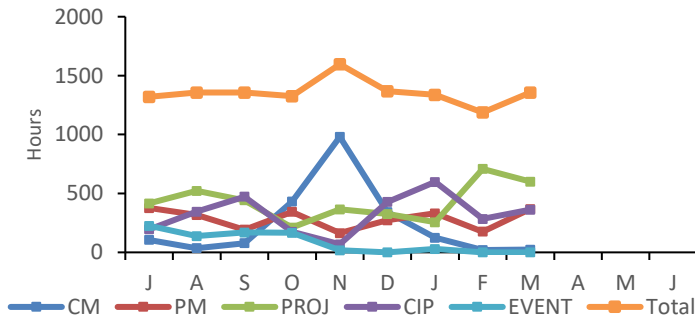
Background

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	
		FY23 to Date	FY23 Targets
Main Line Valves	2,159	97.0%	95%
Blow-Off Valves	1,682	98.8%	95%
Air Release Valves	1,519	96.3%	95%
Control Valves	49	100.0%	95%

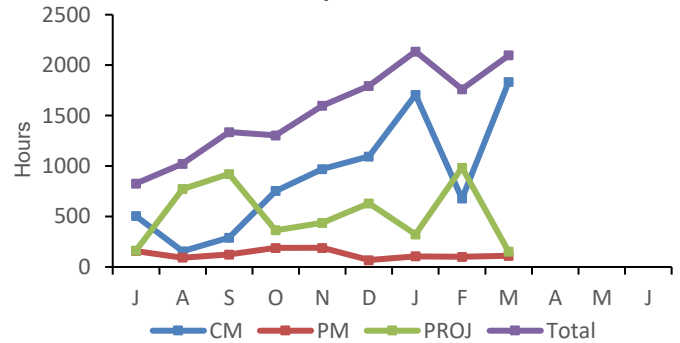


Water Valve Labor Hours



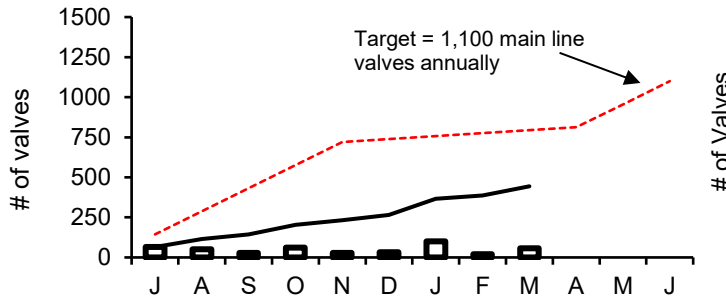
During Q3 of FY23 there was a total of 3880 hours worked. Percentage breakdown; Corrective Maintenance 4%, Preventative Maintenance 23%, Project 40%, Capital Improvement Project 32%, Event - Wtr Fountain 0%

Water Pipeline Labor Hours



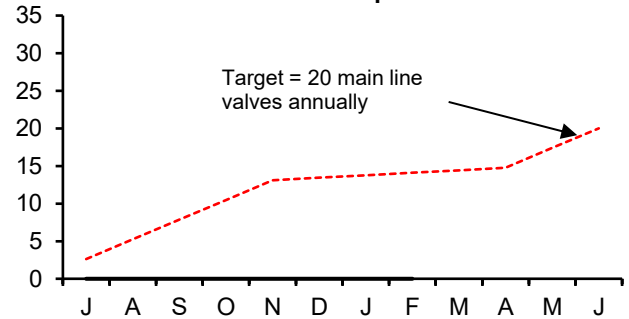
During Q3 of FY23 there was a total of 5996 hours worked. Percentage breakdown; Corrective Maintenance 71%, Preventative Maintenance 5%, Project 24%

Main Line Valves Exercised



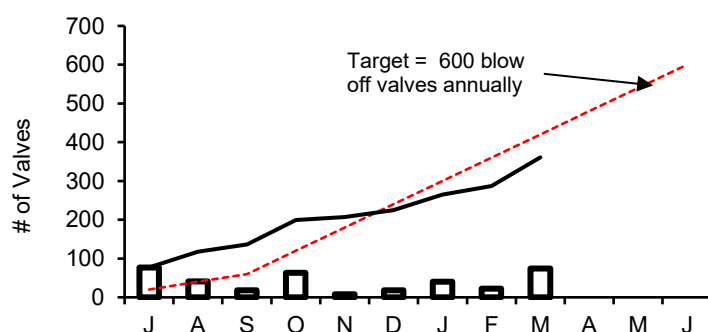
During Q3 of FY23, 179 main line valves were exercised. The total exercised for the fiscal year to date is 444. Below target due to necessary hours spent to support Capital Improvement Projects and in-house construction work.

Main Line Valves Replaced



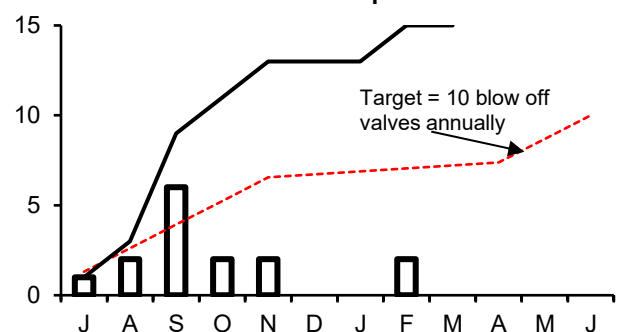
During Q3 of FY23, there were no main line valves replaced. The total replaced for the fiscal year to date is 0. Below target due to staff vacancies.

Blow-Off Valves Exercised



During Q3 of FY23, 136 blow off valves were exercised. The total exercised for the fiscal year to date is 361.

Blow-Off Valves Replaced



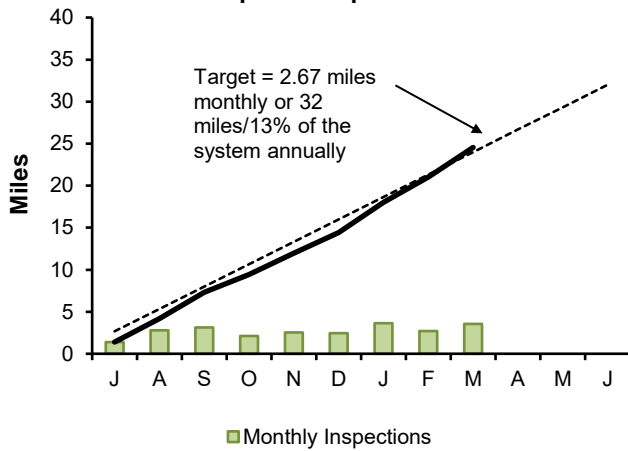
During Q3 of FY23, there were 2 blow off valves replaced. The total replaced for the fiscal year to date is 15.

Wastewater Pipeline and Structure Inspections and Maintenance

3rd Quarter - FY23

Inspections

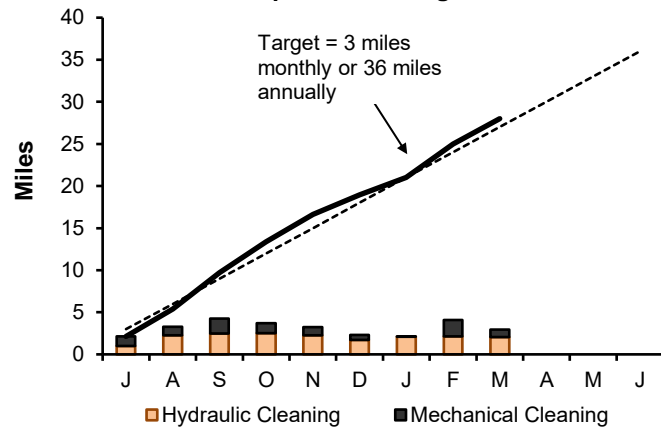
Pipeline Inspections



Staff internally inspected 10.0 miles of MWRA sewer pipe during this quarter. The year to date total is 25.55 miles. No Community Assistance was provided.

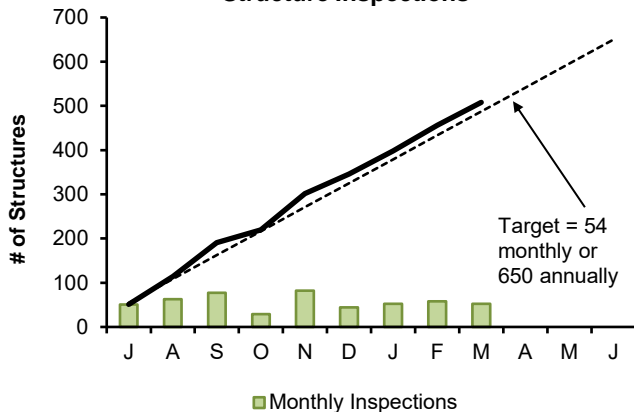
Maintenance

Pipeline Cleaning



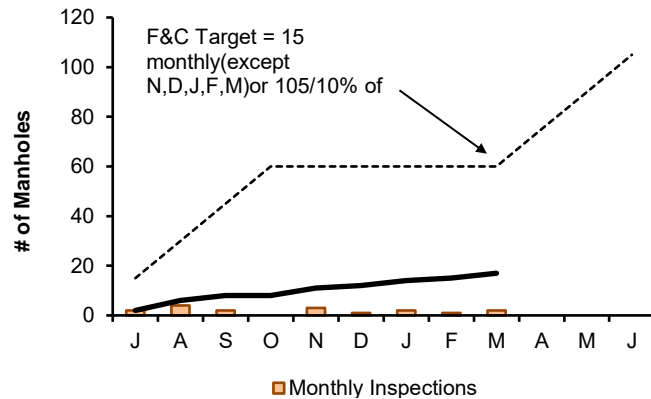
Staff cleaned 9.00 miles of MWRA sewer pipe, and removed 27 yards of grit. The year to date total is 28.00 miles. No Community Assistance was provided.

Structure Inspections



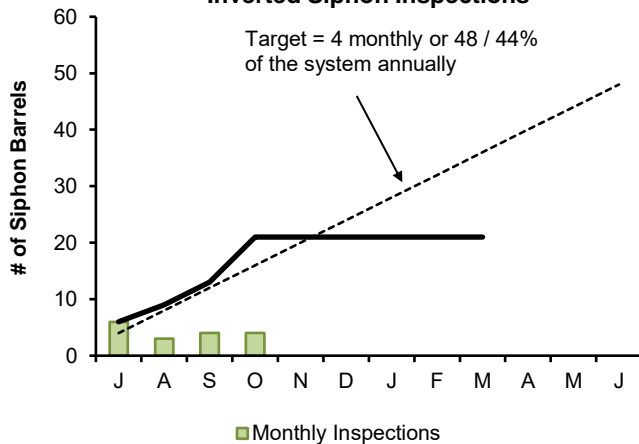
Staff inspected the 36 CSO structures and performed 126 other additional manhole/structure inspections during this quarter. The year to date total is 508 inspections.

Manhole Rehabilitation



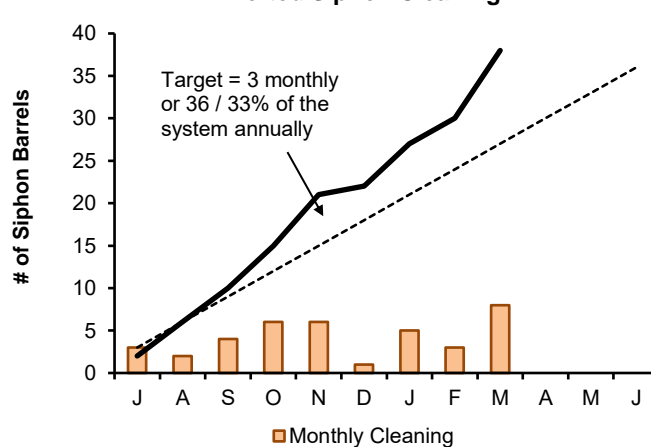
Staff replaced 5 frame and cover replacements this quarter. The year to date total is 17.

Inverted Siphon Inspections



Staff inspected 6 siphon barrels this quarter. The year total is 36 inspections.

Inverted Siphon Cleaning

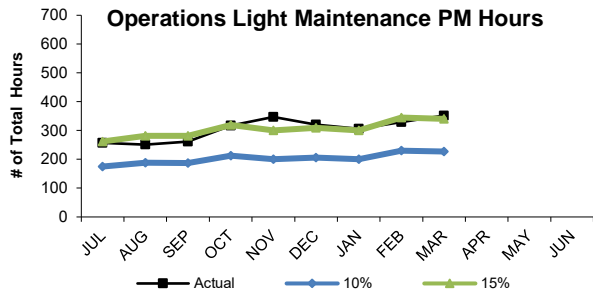


Staff cleaned 16 siphon barrels this quarter.

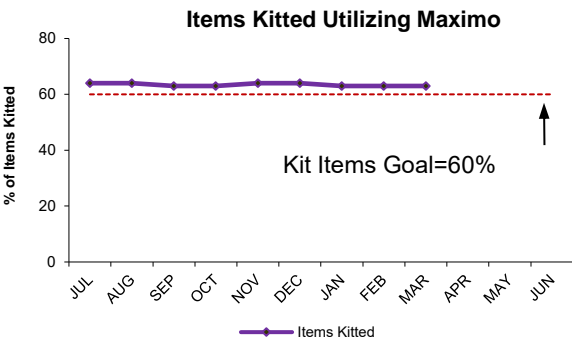
Field Operations' Metropolitan Equipment & Facility Maintenance

3rd Quarter - FY23

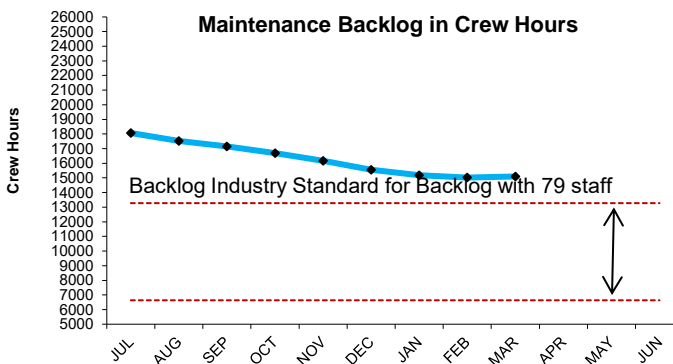
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion is 100%. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog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



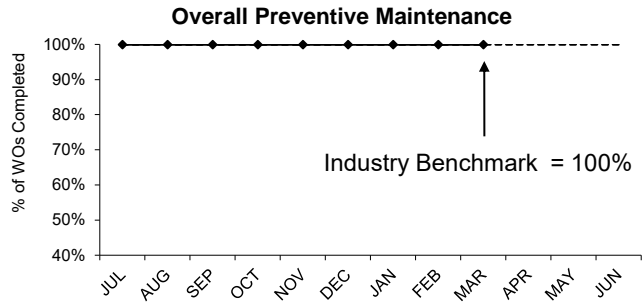
Operations staff averaged 329 hours per month of preventive maintenance during the 3rd Quarter of FY23, an average of 15% of the total PM hours for the 3rd Quarter, which is within the industry benchmark of 10% to 15%.



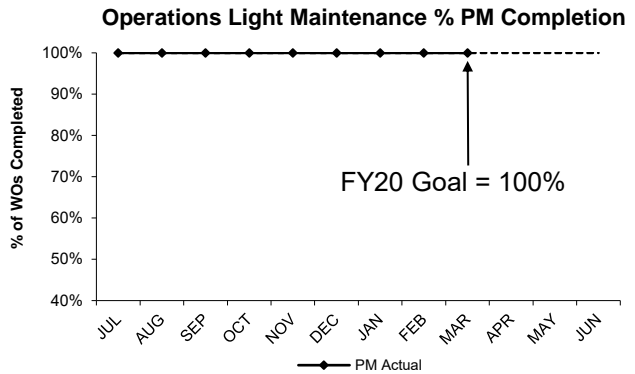
Operations' FY23 maintenance kitting goal has been set at 60% of all work orders to be kitted. Kitting is the staging of parts or material necessary to complete maintenance work. In the 3rd Quarter of FY23, 63% of all applicable work orders were kitted. This resulted in more wrench time and increased productivity.



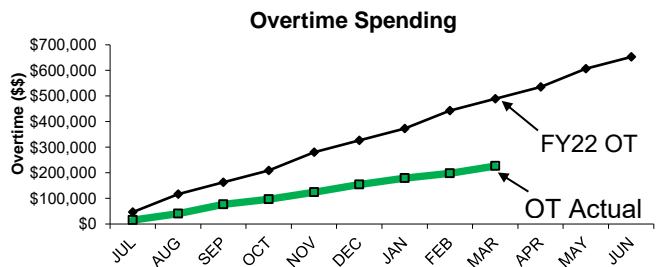
The 3rd Quarter of FY23 backlog average is 15,101 hours. Management's goal is to continue to control overtime and try to get back within the industry benchmark of 6,636 to 13,275 hours. The increase is due to vacancies and several large maintenance projects.



The Field Operations Department (FOD) preventive maintenance goal for FY23 is 100% of all PM work orders. Staff completed 100% of all PM work orders in the 3rd Quarter of FY23.



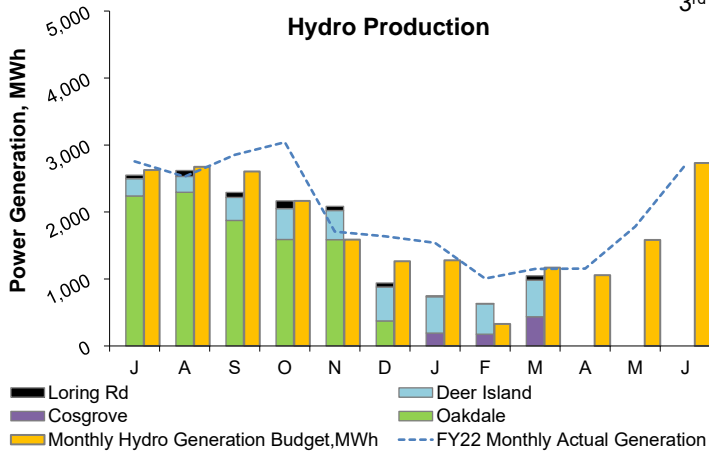
Wastewater Operations complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY23 PM goal is completion of 100% of all PM work orders assigned. Operations completed 100% of PM work orders in the 3rd Quarter of FY23.



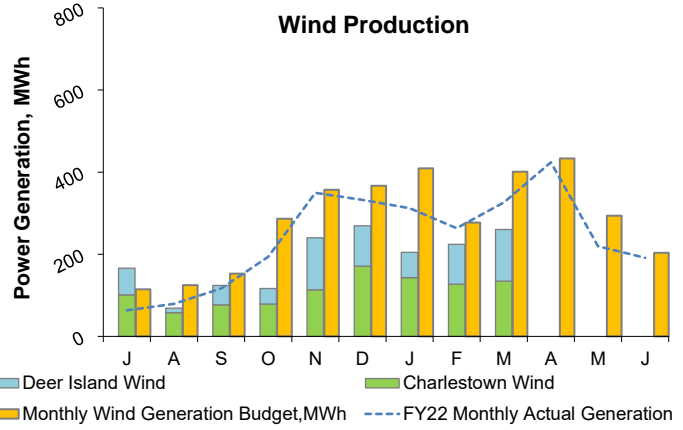
Maintenance overtime was \$30,432 under budget on average, per month, for the 3rd Quarter of FY23. Overtime is used for critical maintenance repairs and wet weather events. The overtime budget through the 3rd Quarter of FY23 is \$489,414. Overtime spending was \$226,301 which is \$263,113 under budget for the fiscal year.

Renewable Electricity Generation: Savings and Revenue

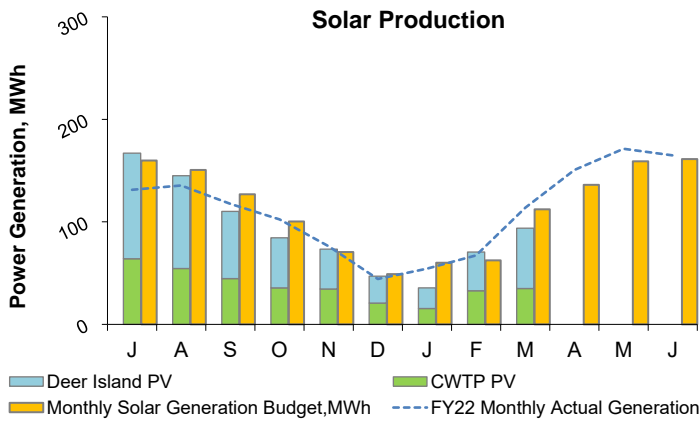
3rd Quarter - FY23



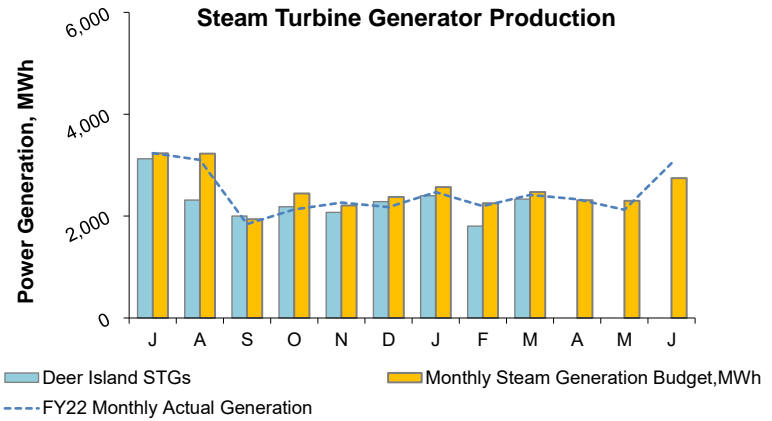
In Quarter 3, the renewable energy produced from all hydro turbines totaled 2531 MWh; 9% below budget³. Savings and revenue invoices have not yet been received for this FY23 reporting period.



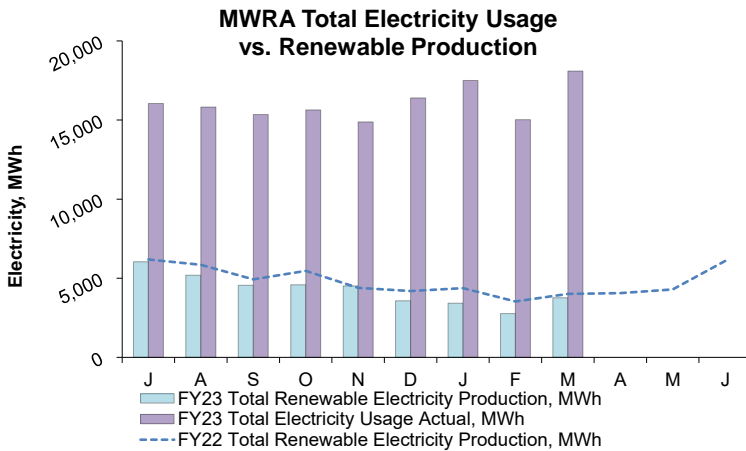
In Quarter 3, the renewable energy produced from all wind turbines totaled 689 MWh; 37% below budget³. Savings and revenue invoices have not yet been received for this FY23 reporting period.



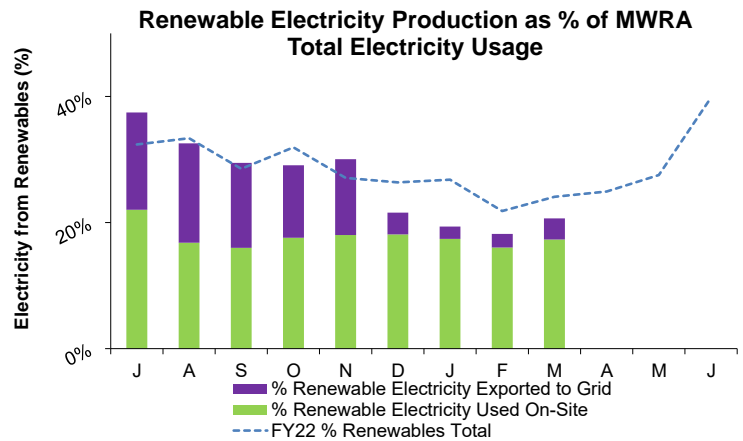
In Quarter 3, the renewable energy produced from all solar PV systems totaled 200 MWh; 15% below budget³. Savings and revenue invoices have not yet been received for this FY23 reporting period.



In Quarter 3, the renewable energy produced from all steam turbine generators totaled 6,538 MWh; 10% below budget³. Savings and revenue invoices have not yet been received for this FY23 reporting period.



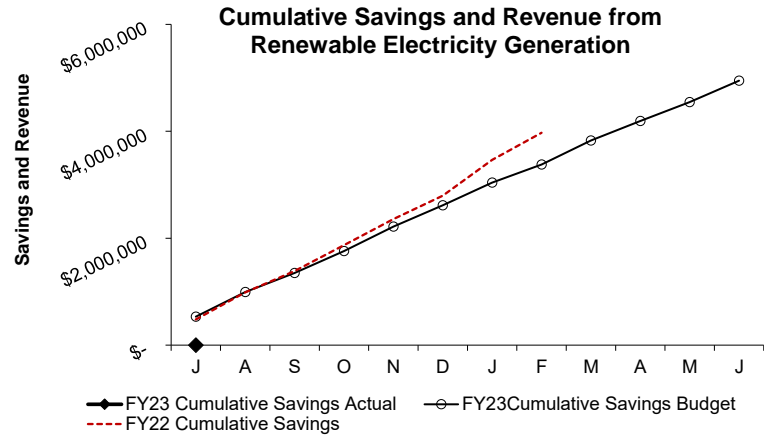
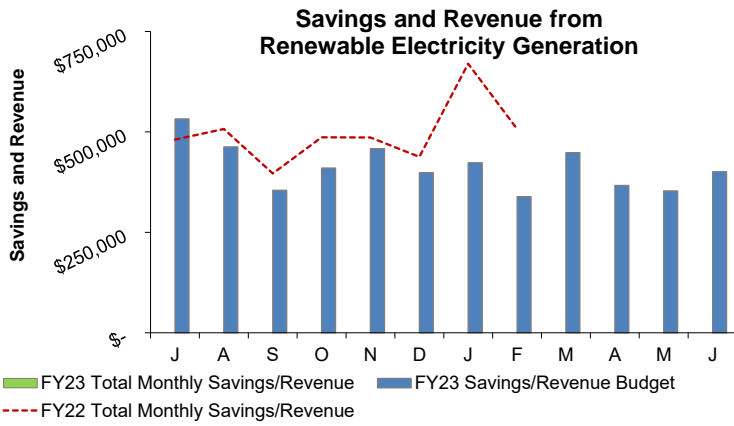
In Quarter 3 MWRA's electricity generation by renewable resources totaled 9,959 MWh, 13% below budget. MWRA's total electricity usage was approximately 50,617 MWh. Renewable resources were 19.7% of total usage. The MWRA total electricity usage is the sum of all electricity purchased for Deer Island and 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

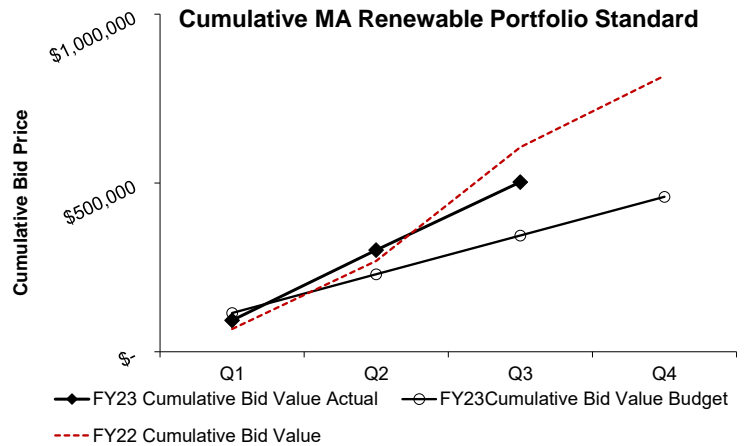
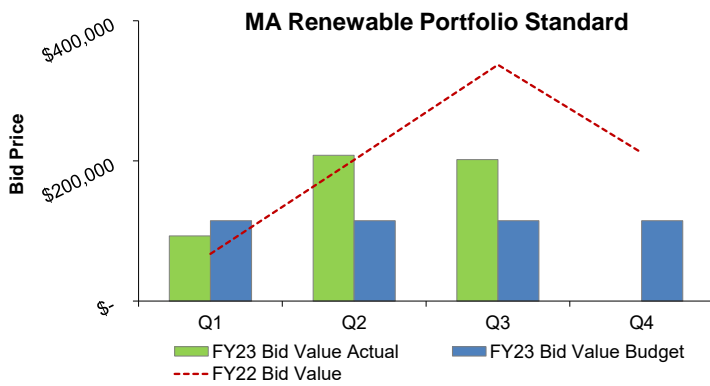
3rd Quarter - FY23



Savings and revenue invoices have not yet been received for this FY23 reporting period.

Savings and revenue² from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS RECs).

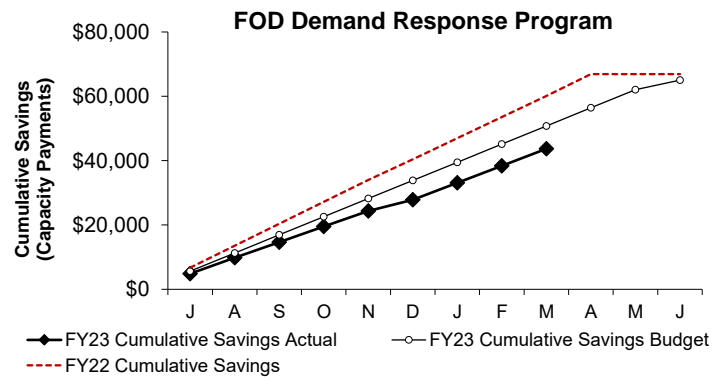
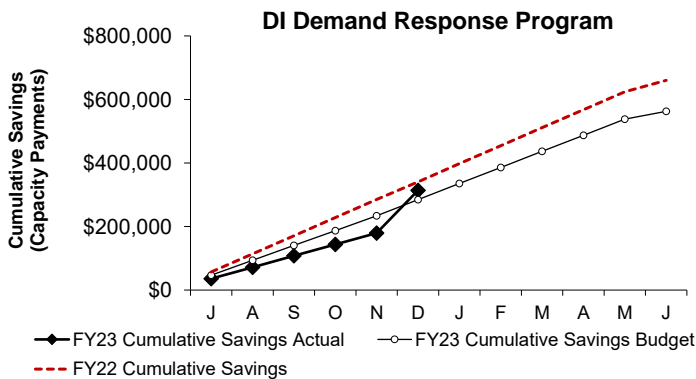
The use of DITP digester gas as a fuel source provides the benefit of both electricity generation from the steam turbine generators, and provides thermal value for heating the plant, equivalent to approximately 5 million gallons of fuel oil per year (not included in charts above).



Bids were awarded during the 3rd Quarter¹ from MWRA's renewable energy assets; 1,425 Q3 CY2022 Class 1 Renewable Energy Certificates (RECs); and 5,110 Q3 CY2022 Class 2 RECs were sold for a total value of \$201,832 RPS revenue; which is 76% above budget³ for the Quarter.

REC values reflect the bid value on the date that bids are accepted. Cumulative bid values reflects the total value of bids received to date.

*MWRA's SRECs have transitioned to the Class 1 REC category starting in FY23.

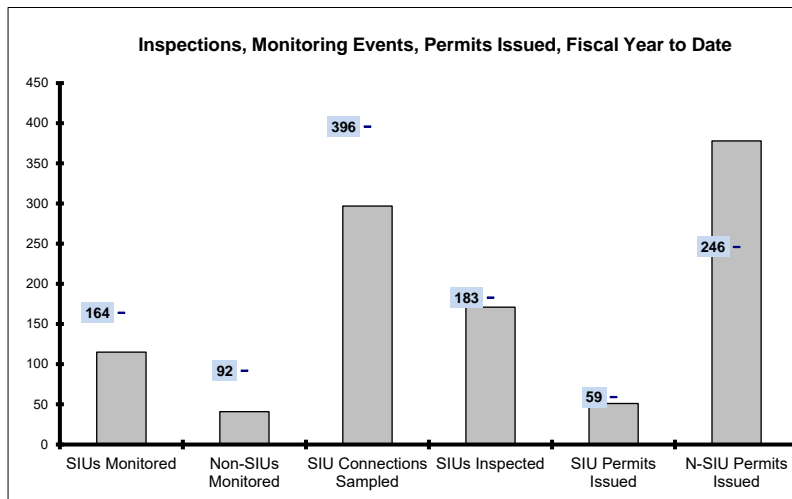


Currently Deer Island, JCWTP, Loring Rd, and Brutsch participate in the ISO-New England Demand Response Programs⁴. By agreeing to reduce demand and operate the facility generators to help reduce the ISO New England grid demand during periods of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates the generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. FY23 Cumulative savings (Capacity Payments only) through December¹ total \$313,903 for DI and payments for FOD total \$43,689 through March¹.

- Notes:
1. Only the actual energy prices are being reported. Therefore, some of the data lags up to 3 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

3rd Quarter - FY23



EPA Required SIU Monitoring Events
for FY23: 164
YTD : **115**

Required Non-SIU Monitoring Events
for FY23: 92
YTD : **41**

SIU Connections to be Sampled
For FY23: 396
YTD: **297**

EPA Required SIU Inspections
for FY23: 183
YTD: **171**

SIU Permits due to Expire
In FY23: 59
YTD: **51**

Non-SIU Permits due to Expire
for FY23: 246
YTD: **378**

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.

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.

	Number of Days to Issue a Permit						Permits Issued	
	0 to 120		121 to 180		181 or more		SIU	Non-SIU
	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU		
Jul	0	9	0	3	1	8	1	20
Aug	1	38	1	8	1	18	3	64
Sep	5	14	0	5	0	25	5	44
Oct	5	12	0	3	0	12	5	27
Nov	2	31	0	13	0	16	2	60
Dec	3	31	1	7	2	31	6	69
Jan	18	25	1	5	0	10	19	40
Feb	0	2	0	0	0	14	0	16
Mar	10	30	0	4	0	4	10	38
Apr							-	-
May							-	-
Jun							-	-
% YTD	86%	51%	6%	13%	8%	37%	51	378

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.

This is the end of the third quarter of the MWRA fiscal year, FY23.

In the 3rd quarter, of the 123 permits issued, there were 29 SIUs. All but 1 of the SIUs were issued within the 120-day timeframe with 1 issued beyond the 120-day timeline.

Fiscal year to date through March, 429 permits have been issued, 51 were SIUs.

86% of the SIU permits were issued within the 120-day timeframe, with 8% issued beyond 180 days; falling short of the EPA requirement.

There were 378 non-SIU permits issued, of which 186 were issued beyond the 120-day timeline.

Reasons for late issuances continue to include:

- staffing due to turnover and vacancies
- waiting for critical data needed for permit processing
- delays relating to new start-up operations and
- the late payment of the relevant permit charges.

There are new Industrial Coordinators on board which cause some slow-down in processing while they get acquainted with their roles and there is still a backlog of permits/amendments waiting to be processed.

So far, in FY23, there were 193 completely new permits issued: 2 SIUs and 191 N-SIUs among which were 68 Low Flow Permits, 92-Dental, 1-Food Processing, 1-Septage and 10-Construction dewatering.

For the Clinton Sewer Service area, there were no SIU permits issued during the first nine months of the FY23 fiscal year.

Field Operations Highlights

3rd Quarter – FY23

Western Water Operations and Maintenance

- Carroll Water Treatment Plant – Staff provided overall site familiarization to Marlboro Fire Department personnel; completed half plant operations and returned to full plant operations while supporting construction projects for chemical feed and SCADA controls upgrades.
- Brutsch Water Treatment Facility – Staff worked with Engineering to develop plans and specs for replacement of Sodium Hypochlorite dosing system. Staff replaced the actuator on one of the primary flow control valves and will install the second actuator after testing is complete.
- Cosgrove Hydroturbine Generator – Staff replaced a vacuum relief line on the scroll case of Turbine #1. This required lowering the stilling basin and hydraulic grade line of the Cosgrove Tunnel while maintenance staff installed a stop log and drained the Turbine scroll case.
- Wachusett Dam Bastion Building – The construction group and their contractors completed the rebuilding/repairs of the Bastion building walls and ceiling. Final punch list items remain but we were able to inspect the facility and test operation of the spillway crest gate.
- Reservoir Operations, Misc. – Reservoirs Spill Response Training for HazWoper held for watershed personnel on 03.08.23. Staff participated in the Interagency Salt Working Group sponsored by MA DEP on March 14th.

Metro Water Operations and Maintenance

- Water Pipeline Program: Staff completed a Blow-Off replacement in Malden (Sections 84). Additional work during the quarter included leak repairs on the Section 69 (20-inch main) in Revere and Section 84 (48-inch main) in Malden. Leak detection was performed on over 49 miles of MWRA water main and assistance was provided to eight customer communities.

Operations Engineering

- Staff continued to provide technical support for Design and Construction Contracts including; Low System PRV Upgrades, Columbus Park and Ward St Headworks Upgrades, Nut Island Odor Control Improvements, Hayes Pump Station Upgrades, NEH improvements, WASM3 CP1 and CP2, Section 101, Storage Tank Improvements, Section 23, 24 and 47 Rehabilitation, Walnut Street Bridge (section 4), IHS

Improvement, Hydraulic Model upgrades, BWRPS Upgrades and Section 89 Replacement.

- Staff continued to monitor the wet scrubber system at the Nut Island Headworks and continued supporting the development of the facility manual and training.
- Hydraulic Model Upgrades: Staff continued to provide an in-depth review of the draft model and review of calibrations.
- Ward St and Columbus Park Headworks: Staff provided PDR review comments.
- Staff continued to support Pipeline and Valve Programs with some of the following activities: Operation Shutdown Plans, Exercise Schedule Packages and Disinfection Plans and Permitting;
- Staff continued community assistance, including support for system expansion studies; support to Newton for their covered storage project and Malden for the installation of a new meter.
- Staff coordinated the disinfection and reactivation of Section 84 after the leak was repaired. Staff coordinated the work for a leak to be repaired on Section 44 and potential leak at meter 134.
- 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.

SCADA

- Continued technical support for the Carroll Water Treatment Plant PLC replacement project; configured and hardened SCADA Operating system upgrades; continued work on network management improvements at the CWTP; modified the flow measurement system at Nut Island.

TRAC

- TRAC issued 1 Administrative Order, 24 NON/Orders, 73 Notices of Violation, 1 PAN, 4 Return to Permit Letters, and 1 Extension Letter
- Dental Permit Fees: TRAC issued annual fee invoices to permitted dental facilities. The total amount of dental fee invoices was \$164,724.
- PAN: TRAC issued a PAN and Administrative Order to Tradebe Treatment and Recycling of Stoughton for discharging excessive levels of Phenol, Cyanide (total), and Formaldehyde into the MWRA sewer system. The amount of the Civil Administrative Penalty is \$60,000.

Field Operations Highlights

3rd Quarter – FY23

Inspections and Permitting

- TRAC issued a total of 111 8(m) Permits allowing companies to work within an MWRA easement or other property interest, including 64 water and 47 wastewater permits. Permits were issued in an average of 115 days.
- TRAC monitored the septage receiving sites a total of 27 times. Staff conducted inspection at 49 new construction gasoline/oil separators and 261 existing gasoline/oil separators.
- 122 MWRA Sewer Use Discharge Permits (Permits) were issued or renewed to sewer users. One permit was issued or renewed in the Clinton Service Area.

Environmental Quality-Water

Algae: DCR staff continued to collect algae samples at Wachusett Reservoir and Quabbin Reservoir. All nuisance algae were below levels of concern and there were no algae related taste and odor complaints from any community.

Community & In-House Support

- Sampling & Analysis: Throughout the quarter staff conducted sampling at the CWTP Tank A overflow weir, Norumbega Covered Storage Tank Cell 2, Bellevue Storage Tank #1, Sudbury Aqueduct, and at several new or rehabilitated pipelines including Section 63, 84, and 89, Suffolk Downs, and Beacon Street in Brookline. On several occasions during February and March, staff assisted DCR with potability sampling at the new Quabbin Administration well and pipeline.
- On February 16, staff assisted Somerville with a repeat coliform sample collection due to an *E.coli* positive at one routine Total Coliform Rule site. Water quality managers also assisted Somerville with planning for a Boil Water Order. All repeat samples were negative, and thus no boil water order occurred.
- The CWTP **lead pipe-rig** study sampling continued throughout the quarter on a biweekly basis. Staff are working with CWTP and Operations Engineering staff to plan a small-scale fluoride tracer travel time study and are evaluating the use and reliability of a portable fluoride meter.

Contaminant Monitoring System (CMS):

- Staff responded to three CMS alarms this quarter, following routine response. Staff performed sampling at

all CMS sites in March. Monitoring stations will be offset to grab values once data are validated by the testing laboratory.

- Staff replaced a chlorine analyzer at one of MWRA's monitoring facilities. In addition, MWRA received new contaminant monitoring equipment and will begin replacing current versions over the next six months.

Data Management:

- Staff completed data review for MWRA and fully and partially supplied communities for the annual Consumer Confidence Report (CCR), and assisted with reviews of draft CCR letters.
- Chemical Supply Contracts: Staff are closely monitoring bulk chemical inventories and adherence to delivery schedules. Annual NPDES Pollution prevention meeting held on January 20 and annual NPDES certification letters were submitted on January 15. Prepared Sodium Hypochlorite chemical supply contract for advertisement and bidding.

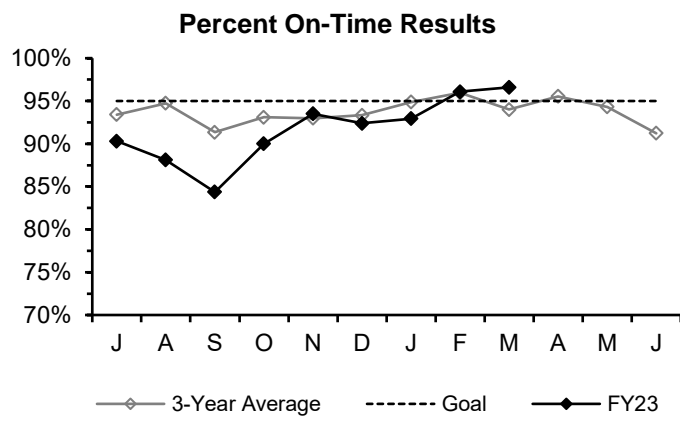
Environmental Quality-Wastewater

- Ambient Monitoring: The 2023 field season began with the February and March water column surveys. Laboratory analysis and review/synthesis of 2022 data continues. Staff presented results of 2021 monitoring and the Bays Eutrophication Model to the Outfall Monitoring Science Advisory Panel (OMSAP), and discussed recent Contingency Plan threshold exceedances and MWRA's PFAS monitoring efforts.
- Harbor/CSO Receiving Water Monitoring: Biweekly harbor monitoring continues, and CSO receiving water sampling began in March. Worked with DLS to prepare for the 2023 field season.
- Permitting and Compliance Reporting: Submitted as-needed notifications of CSOs and blending, and submitted the Final Public Notification Plan for sewage discharges. Prepared for new Clinton permit with start date of April 1, 2023.
- Cooperation with other agencies: Continued follow up communication with metro Boston CSO permittees about the new sewage notification regulation; completed development of signage for public access areas. Staff attended meetings of the Stellwagen Bank Sanctuary Advisory Council, the MWRA Wastewater Advisory Committee, and the Massachusetts Bays Partnership (MBP).

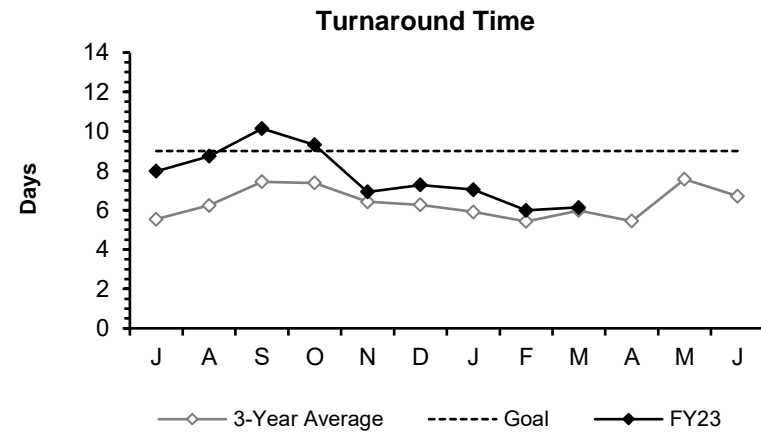
Laboratory Services

3rd Quarter - FY23

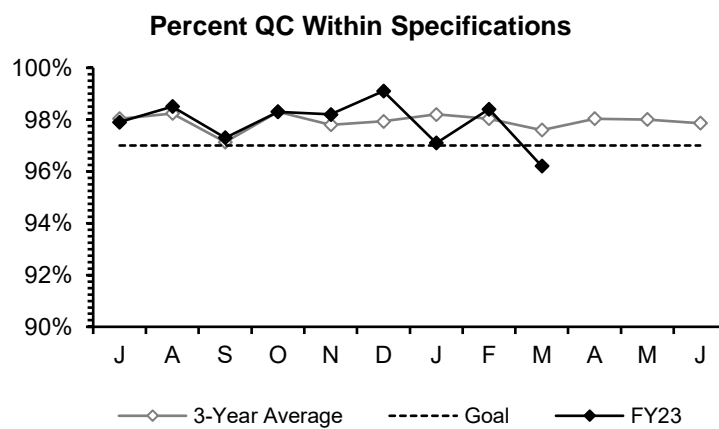
Laboratory Services supports the laboratory sampling, testing, and consulting needs of various client groups primarily in the Operations Division. This includes drinking water transmission and treatment, wastewater collection and treatment, wastewater residuals management, industrial-pretreatment monitoring, and environmental quality.



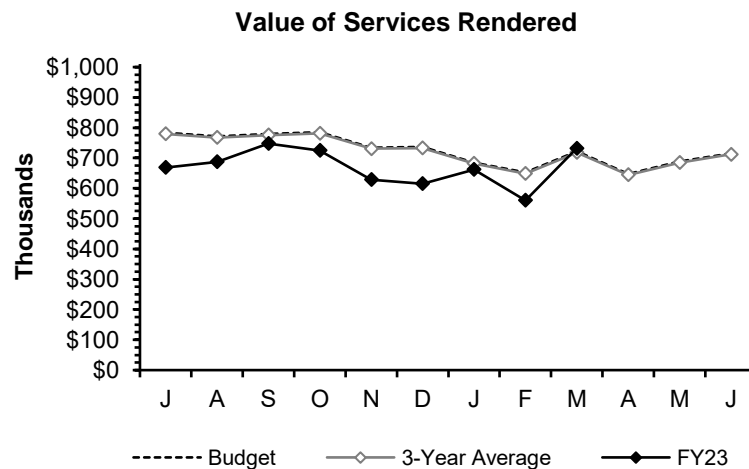
The Percent On-Time measurement assesses performance against internal client due dates. These due dates are shorter than the compliance reporting requirements to allow for internal review of the data.



Turnaround Time measures the average time from sample receipt to sample completion.



Percent QC Within Specifications measures the fraction of Quality Control tests that meet required limits during the month (see discussion in Performance Summary below).



Value of Services Rendered models the true cost of the lab work performed, including fringe benefits that are not a part of the Laboratory Services budget.

Performance Summary: Every measure missed its goal for one or two months during the 3rd quarter. This was largely due to continued staffing vacancies. The March Percent QC within Specification failed to meet the goal, largely due to a single failure affected a large number of QC results. The failure was immediately corrected before it could impact any client test results. All other goals were met for March.

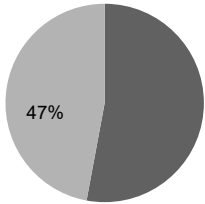
School Lead Program: During the 3rd quarter of FY23, MWRA's lab completed 4 tests from 1 childcare facility in 1 community. Since 2016, MWRA's Laboratory has conducted over 40,000 tests from 560 schools and daycares in 44 communities. We have also completed over 830 home lead tests under the DPH sampling program since 2017.

CONSTRUCTION PROGRAMS

Projects In Construction

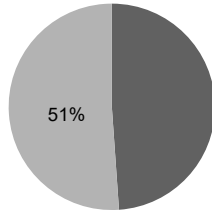
3rd Quarter – FY23

Cost



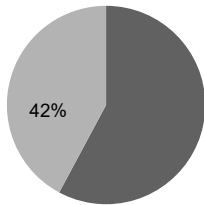
■ Amount Remaining
■ Billed to Date

Time



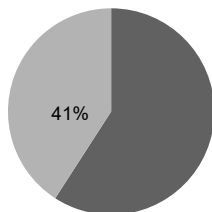
■ Time Remaining
■ Time Expended

Cost



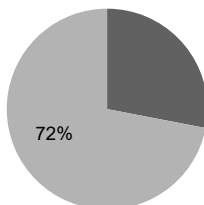
■ Amount Remaining
■ Billed to Date

Time



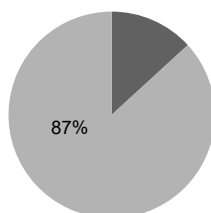
■ Time Remaining
■ Time Expended

Cost



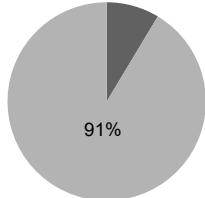
■ Amount Remaining
■ Billed to Date

Time



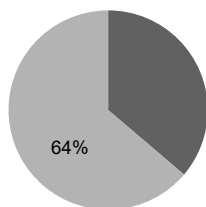
■ Time Remaining
■ Time Expended

Cost



■ Amount Remaining
■ Billed to Date

Time



■ Time Remaining
■ Time Expended

Carroll Water Treatment Plant SCADA Improvements

Project Summary: The current SCADA control equipment has reached the end of its useful life, and future vendor support for the installed PLC base is no longer guaranteed. This contract 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. In addition, a new server room equipped with HVAC and fire suppression is being constructed to house redundant computer hardware supporting active and backup SCADA systems.

Contract Amount: \$13,068,612.84

Contract Duration: 1,127 Days

Notice to Proceed: 1-Sep-21

Contract Completion: 2-Oct-24

Section 89 Replacement Pipeline

Project Summary: This project will include replacement of a 10,500-foot portion of PCCP with class IV reinforcing wire, line valves and appurtenances, and abandonment of the 118-year-old, 24-inch diameter cast iron Section 29 pipeline.

Contract Amount: \$32,619,000

Contract Duration: 1,475 Days

Notice to Proceed: 5-Aug-21

Contract Completion: 19-Aug-25

Low Service PRV Improvements

Project Summary: This project will demolish the existing Nonantum Road and Mystic Valley Parkway PRV vault structures, including four 24-inch PRVs and appurtenances, and construct new, larger cast-in-place vaults. At Mystic Valley Parkway, two 42-inch PRVs and at Nonantum Road two 30-inch PRVs, isolation valves, piping, and other appurtenances will be installed. Additionally, a new master meter will be constructed at the Mystic Valley Parkway pressure reducing valves and the existing master meter located near the Nonantum Road pressure reducing valves will be upgraded to accommodate the increased flow.

Contract Amount: \$11,580,859.21

Contract Duration: 720 Days

Notice to Proceed: 14-Jul-21

Contract Completion: 4-Jul-23

Rehabilitation of WASM 3

Project Summary: This construction contract includes rehabilitation of approximately 13,800 feet of 56-inch and 60-inch diameter water main in Arlington, Somerville and Medford. The rehabilitation consists of cleaning and internal cement mortar lining the pipe and adding valves for better operational flexibility. In addition, two old 36-inch valves are being removed to eliminate reduced sections of pipe.

Contract Amount: \$19,764,209.73

Contract Duration: 1,383 Days

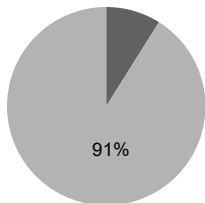
Notice to Proceed: 28-Oct-20

Contract Completion: 11-Aug-24

Projects In Construction

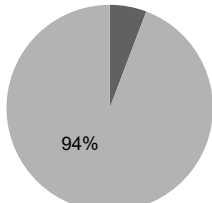
3rd Quarter – FY23

Cost



■ Amount Remaining
■ Billed to Date

Time



■ Time Remaining
■ Time 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. 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 will also provide 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.

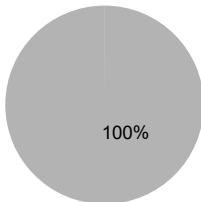
Contract Amount: \$59,919,644.62

Contract Duration: 1,084 Days

Notice to Proceed: 12-Feb-20

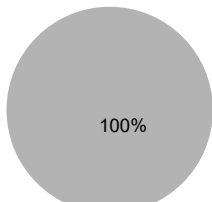
Contract Completion: 10-Jun-23

Cost



■ Amount Remaining
■ Billed to Date

Time



■ Time Remaining
■ Time 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.

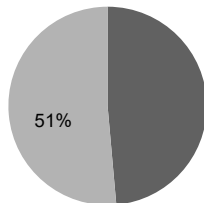
Contract Amount: \$8,794,899

Contract Duration: 850 Days

Notice to Proceed: 13-Aug-19

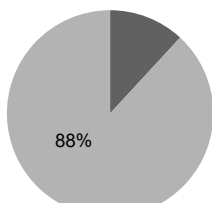
Contract Completion: 10-Dec-21

Cost



■ Amount Remaining
■ Billed to Date

Time



■ Time Remaining
■ Time Expended

DITP Odor Control Damper Replacement

Project Summary: This project includes replacing three existing 30-inch diameter steel dampers with stainless steel dampers, surface preparation and coatings application on the existing 30-inch diameter ductile iron pipe. The damper and piping are part of the odor control system that serves the sludge wet wells in the centrifuge building at the Deer Island Treatment Plant.

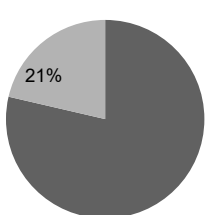
Contract Amount: \$538,000

Contract Duration: 455 Days

Notice to Proceed: 3-Feb-22

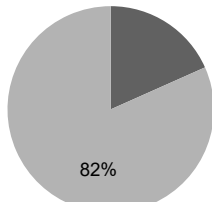
Contract Completion: 4-May-23

Cost



■ Amount Remaining
■ Billed to Date

Time



■ Time Remaining
■ Time Expended

Clinton Screw Pump Replacement

Project Summary: This project involves demolishing and replacing the three screw pumps and motors, replacing three existing 72-inch by 60-inch pump isolation slide gates and associated electrical and controls; providing a temporary bypass pumping system to ensure the plant's pumping capacity is maintained during the construction phase; and providing concrete remediation in the pump channels.

Contract Amount: \$3,452,985

Contract Duration: 540 Days

Notice to Proceed: 14-Jan-22

Contract Completion: 8-Jul-23

CSO CONTROL PROGRAM

3rd Quarter – FY23

Overview

In compliance with milestones in the Federal District Court Order, all 35 projects in the CSO Long-Term Control Plan (LTCP) were complete as of December 2015. Subsequently, MWRA completed a multi-year CSO post-construction monitoring program and performance assessment, filing the Final CSO Post Construction Monitoring Program and Performance Assessment Report with the Court and submitted copies to EPA and DEP in December 2021. The report shows that there has been an 87% reduction in CSOs in a typical year, from 3.3 billion gallons to 414 million gallons, with 70 of 86 outfalls meeting the LTCP goals for CSO activation frequency and volume. MWRA and its member CSO communities are moving forward with plans to bring 10 of the 16 CSOs in line with the LTCP goals. With respect to the remaining 6 challenging CSO outfalls, MWRA and its CSO Consultant (AECOM) continue to investigate alternative to move closer to LTCP goals.

MWRA CSO Performance Assessment

- In November 2017, MWRA signed a contract for CSO Post-Construction Monitoring and Performance Assessment with AECOM Technical Services, Inc. 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 MassDEP in December 2021 verifying whether the LTCP goals are attained.
- AECOM continues to support efforts to advance project identified to meet performance goals at 10 of the 16 CSOs that didn't meet LTCP goals, evaluate alternatives for the remaining 6 challenging sites, and predict and report on annual CSO discharges. Two of those 16 outfalls are now meeting LTCP goals (BOS014 and BOS003).

Court Ordered Levels of CSO Control

Progress on the work to comply with the court ordered levels of CSO control is discussed with the EPA/MassDEP at progress meetings held quarterly. Most recent quarterly meeting was on **3/23/23** and the next meeting is scheduled for **6/22/23**

Ongoing Projects as of December 31, 2022

- *East Boston CSO Control*: As part of the East Boston CSO a FAA/MOU was executed in June 2021 for \$2.1M, BWSC designed and is constructing additional sewer separation in East Boston, including modifications to the BOS003 system regulators and modification to the BOS014 system. Work at BOS014, BOS003 is complete and are now meeting LTCP goals. Sewer separations is expected to be completed in Summer 2023. Plans for Phase 4 sewer separation with five new contracts starting in 2023 (through 2028) will result in most of East Boston being separated.
- *CHE008 Pipe Replacement – Enlarging the CHE008 regulator connection is designed and now in construction. The \$1.57M construction project is expected to be completed June 2023.*
- *Somerville Marginal New Pipe Connection* came out of the variance optimization study that recommended adding a new pipe from the facility's CSO influent conduit to the interceptor with an added

control gate. The \$1.2M (est.) construction project is expected to be completed by December 2024.

- *Fort Point Channel and Mystic Confluence* - BOS062, BOS065, BOS070 DBC and BOS017: FAA/MOU established for \$10M to design and construct improvement at these 4 CSOs. Currently in design with substantial completion of construction by December 2024.

CSO variances

As part of MWRA's CSO Control Program, MassDEP has issued a series of multi-year CSO variances that allow MWRA, Cambridge, and Somerville to continue to have limited CSO discharges to Alewife Brook and the Upper Mystic River, as well as the Charles River lower basin. The most recent variances, issued in 2019, require the development of Updated LTCPs for the CSO outfalls that each entity owns and operates that may discharge to the corresponding waterbody. The Updated LTCPs must include a description of the existing level of CSO control, an evaluation of the costs and the performance and water quality improvements achieved by additional CSO control alternatives, a public participation plan, and an affordability analysis.

- o MassDEP and EPA conditionally approved MWRA's Updated CSO Control Plan Scope of Work on **5/11/2022**. The Authority is currently working closely with the CSO communities of Cambridge and Somerville to develop these plans over the upcoming years.
- o Schedule Extension Request for Deliverables Associated with Updated CSO Control Plan was submitted 9/22/22. EPA/MassDEP acknowledge that the extension request is officially under consideration. EPA/MassDEP are briefing the new Commissioner and other new staff before a determination will be been made.
- o As identified in the variance the progress is reported at monthly meetings with EPA/MassDEP. The last meeting was on **3/8/23** and the next meeting is scheduled for **4/12/23**. Key elements of the Updated CSO Control Plan are discussed including the development of an Updated Typical year which includes climate change and the development of a Unified Hydraulic Model.
- o The 2nd of 8 planned meetings was held on 12/15/22. **The next Public Meeting is scheduled for the spring.**
- o Development and Submittal of Studies as required under variance included the following:
 - o Alewife PS Optimization Evaluation was submitted on 4/27/2021
 - o Somerville Marginal CSO Reduction, Study and Preliminary Design was submitted on 12/27/2021
 - o Alewife Brook and Charles River System Optimization Evaluation was submitted on 12/28/2022
 - o MWRA CSO Variances Additional System Optimization Measures Report was submitted on 1/31/2023.

CIP Expenditures

3rd Quarter – FY23

FY23 Capital Improvement Program Expenditure Variances through March by Program - (\$ in thousands)				
Program	FY23 Budget Through March	FY23 Actual Through March	Variance Amount	Variance Percent
Wastewater	\$65,473	\$27,396	(\$38,077)	-58%
Waterworks	\$98,779	\$64,319	(\$34,460)	-34%
Business and Operations Support	\$23,981	\$12,791	(\$11,191)	-46%
Total	\$188,234	\$104,505	(\$83,728)	-44%

Wastewater:

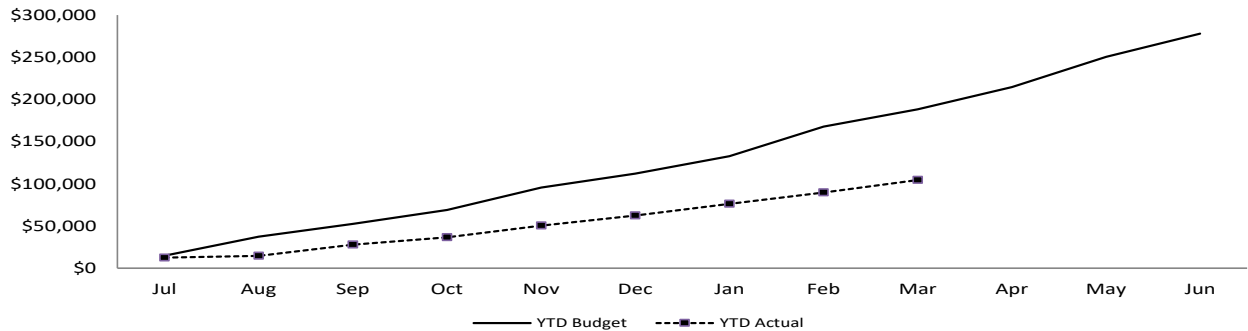
- Underspending due to timing of grant and loan distributions for the I/I Local Financial Assistance program
- Updated schedules for Primary & Secondary Clarifier Rehab Phase 2 Construction and DITP Roof Replacement contracts
- Contractor behind schedule for the Nut Island Odor Control and HVAC Improvements
- Completion of some design and inspection tasks were later than anticipated for Ward Street and Columbus Park Headworks Upgrades Design/Construction Administration

Water:

- Underspending in Waterworks was due to timing of community distributions for the Water Loan program
- Long lead time for piping materials for Waltham Water Pipeline Construction
- Timing of work and long lead time for materials for Carroll Water Treatment Plant SCADA Improvements
- Updated schedules for CP-2 Shaft 5 Construction, and Quabbin Maintenance Garage/Wash Bay/Storage Building - Construction
- This underspending was partially offset by contractor progress for NIH Section 89 & 29 Replacement and CP-1 NEH Improvements, and timing of consultant work for Metropolitan Tunnel Redundancy Preliminary Design & Massachusetts Environmental Policy Act Review and Section 53 and 99 Improvements - Design/Construction Administration

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

Total FY23 CIP Budget of \$278,053



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 3/25/23	\$130.8 million
Unused capacity under the debt cap:	\$2.1 billion
Estimated date for exhausting construction fund without new borrowing:	JUN-23
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper/Revolving loan outstanding:	\$140 million
Commercial paper capacity / Revolving Loan	\$110 million
Budgeted FY23 Cash Flow Expectancy*:	\$248 million

* Cash based spending is discounted for construction retainage.

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results and UV Absorbance

3rd Quarter – FY23

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 coliforms, 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.

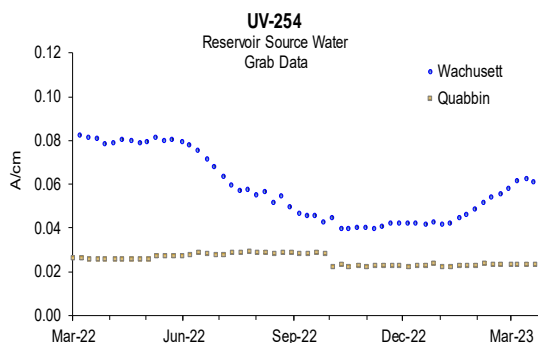
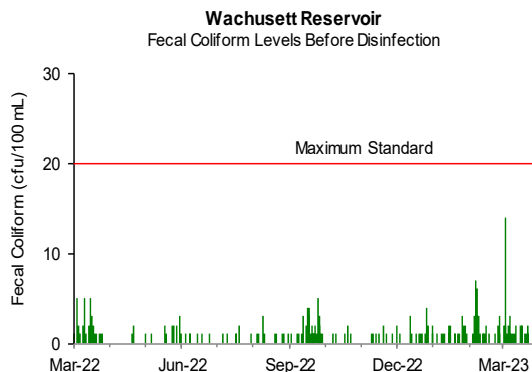
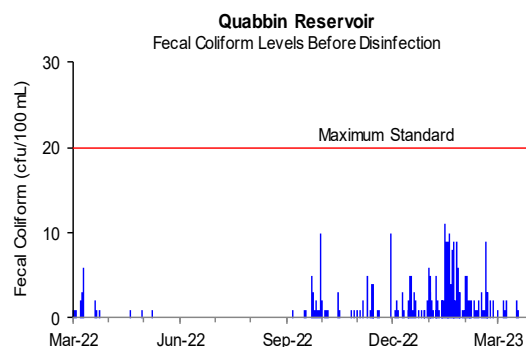
All samples collected during the 3rd Quarter were below 20 cfu/100mL. **For the current six-month period, 0.0% of the samples exceeded a count of 20 cfu/100mL.**

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 0.052 A/cm for the quarter.

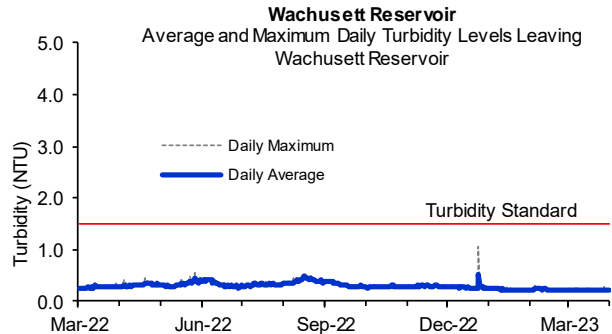
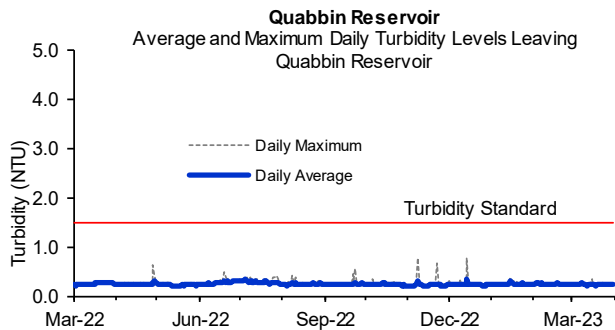


Source Water – Turbidity 3rd Quarter – FY23

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.

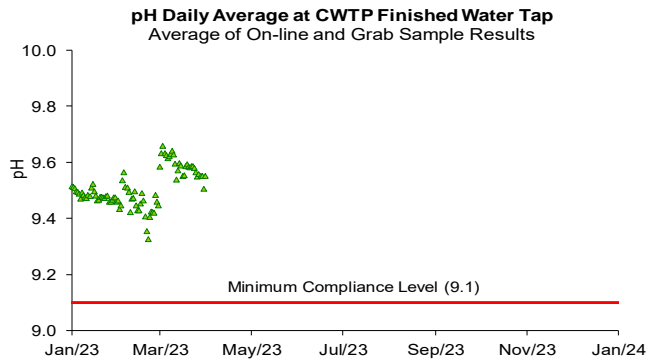
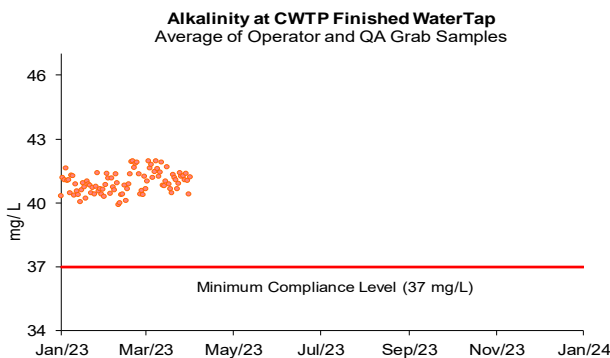


Treated Water – pH and Alkalinity Compliance

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 March. Distribution system sample pH ranged from 9.5 to 9.7 and alkalinity ranged from 40 to 42 mg/L. No sample results were below DEP limits for this quarter.



Treated Water – Disinfection Effectiveness

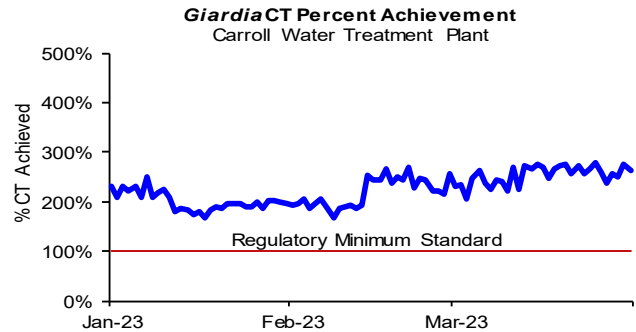
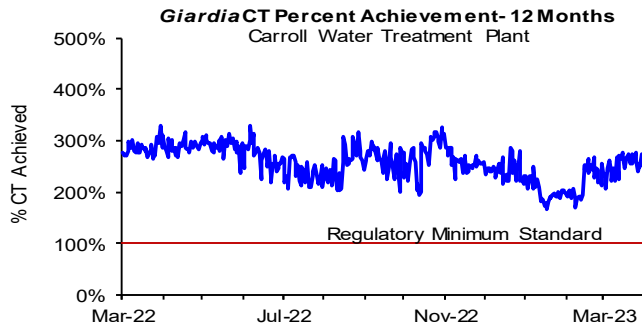
3rd Quarter – FY23

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.

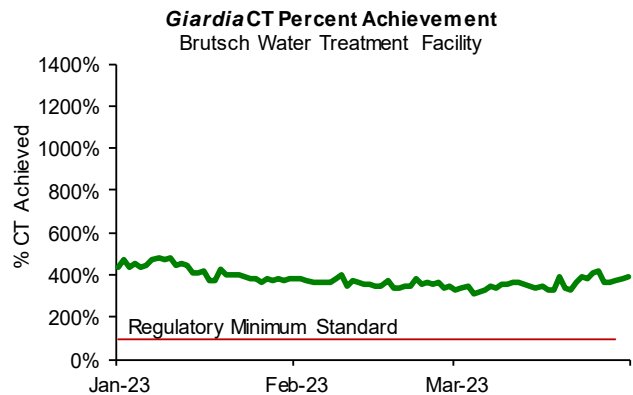
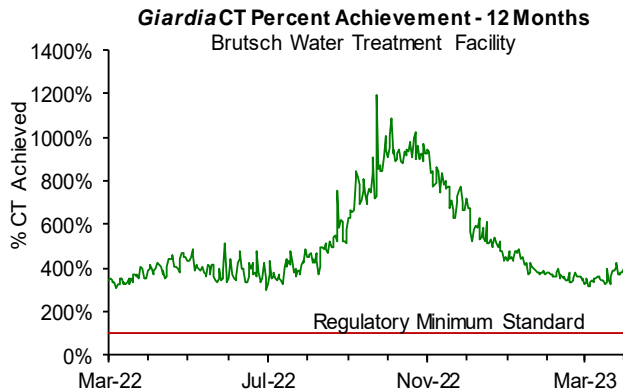
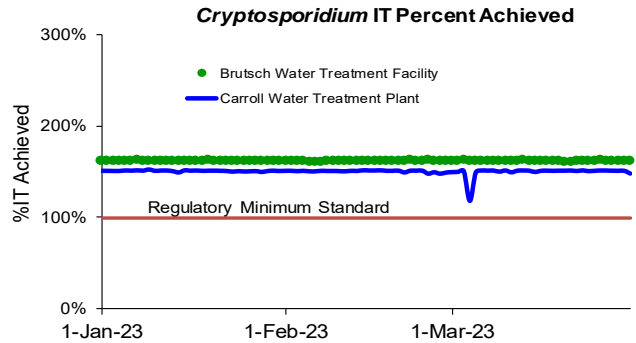
Wachusett Reservoir – MetroWest/Metro Boston Supply:

- The chlorine dose at the CWTP varied between 2.85 and 3.35 mg/L for the quarter.
- Ozone dose at the CWTP varied between 1.25 to 2.23 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%.



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 1.25 to 1.38 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%.

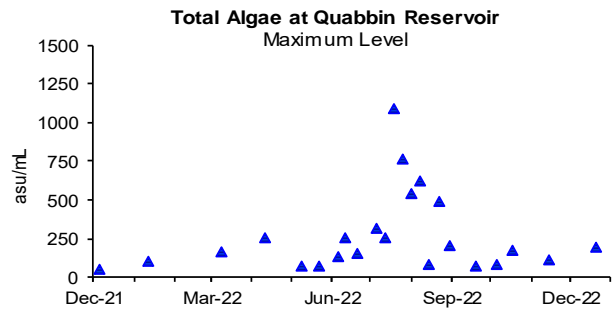
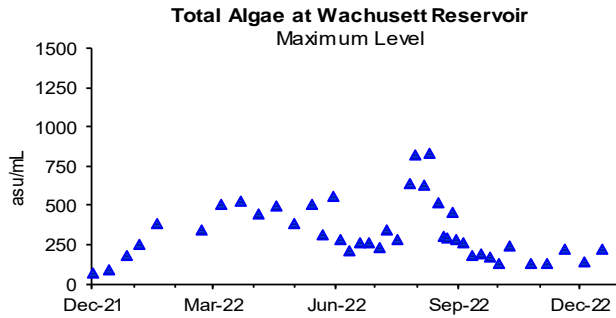


Source Water - Algae 3rd Quarter – FY23

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 3rd quarter, there were no complaints which may be related to algae reported from the local water departments.

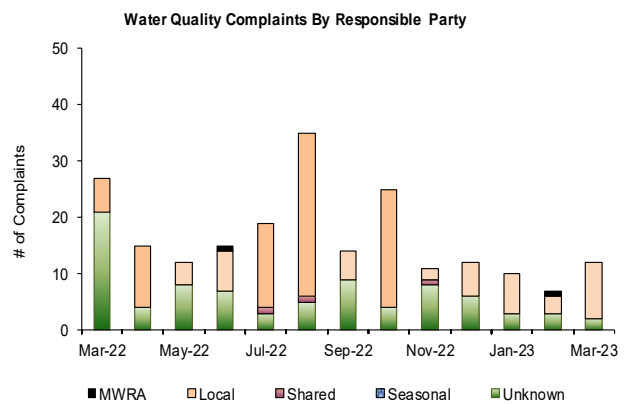
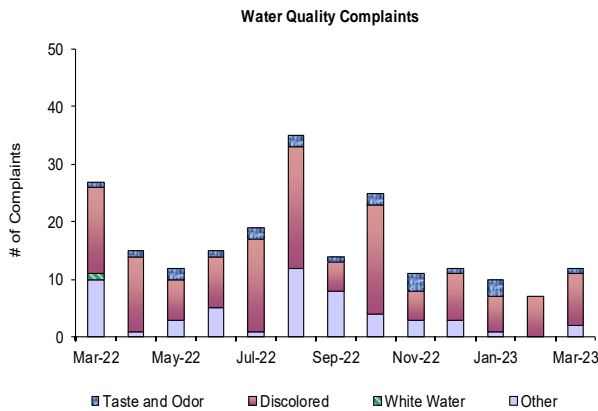


Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

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 29 complaints during the quarter compared to 81 complaints from 3rd Quarter of FY22. Of these complaints, 22 were for "discolored water", 4 were for "taste and odor", and 3 were for "other". Of these complaints, 20 were local community issues, 1 was a shared local community and MWRA related issue, and 8 were unknown in origin.



Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program 3rd Quarter – FY23

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 144 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.

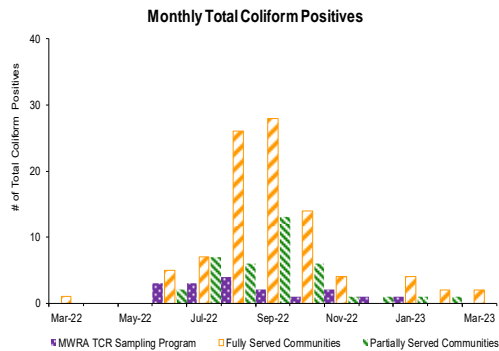
A disinfectant residual is intended to maintain the sanitary integrity of the water; MWRA considers a residual of 0.2 mg/L a minimum target level at all points in the distribution system.

Highlights

In the 3rd Quarter, ten of the 6,285 samples (0.16% system-wide) submitted to MWRA labs for analysis tested positive. Two of the 1865 MWRA locations or Community/MWRA Shared samples (0.11%) tested positive for total coliform. None of the 393 CVA/MWRA community samples tested positive for total coliform. No communities were required to perform a Level Assessment. One sample, collected on 2/15, in Somerville tested positive for *E.coli*. Repeat samples did not confirm for total coliform or *E.coli*, thus, no Level Assessment or Boil Water Order was required. Only 0.1% of the Fully Served community samples had chlorine residuals lower than 0.2 mg/L for the quarter.

NOTES:

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



		Total Coliform		<i>E.coli</i> Positive	# Assessment Required
		# Samples (b)	# (%) Positive		
MWRA	a	MWRA Locations	364	0 (0%)	0
	Shared Community/MWRA sites	1501	2 (0.13%)	0	
		Total: MWRA	1865	2 (0.11%)	0
Fully Served		ARLINGTON	169	0 (0%)	0
		BELMONT	104	0 (0%)	0
		BOSTON	783	0 (0%)	0
		BROOKLINE	225	1 (0.13%)	0
		CHELSEA	169	0 (0%)	0
		DEER ISLAND	52	0 (0%)	0
		EVERETT	169	0 (0%)	0
		FRAMINGHAM	237	0 (0%)	0
		LEXINGTON	120	0 (0%)	0
		LYNNFIELD	18	0 (0%)	0
		MALDEN	237	1 (0.42%)	0
		MARBLEHEAD	72	0 (0%)	0
		MARLBOROUGH	126	0 (0%)	0
		MEDFORD	208	0 (0%)	0
		MELROSE	117	0 (0%)	0
		MILTON	102	0 (0%)	0
		NAHANT	30	0 (0%)	0
		NEWTON	277	0 (0%)	0
		NORTHBOROUGH	51	1 (1.96%)	0
		NORWOOD	99	0 (0%)	0
		QUINCY	351	0 (0%)	0
		READING	130	0 (0%)	0
		REVERE	186	2 (1.08%)	0
		SAUGUS	104	0 (0%)	0
		SOMERVILLE	255	1 (0.39%)	1
		SOUTHBOROUGH	30	0 (0%)	0
		STONEHAM	91	0 (0%)	0
		SWAMPSCOTT	51	0 (0%)	0
		WALTHAM	216	0 (0%)	0
		WATERTOWN	143	0 (0%)	0
		WESTON	45	0 (0%)	0
		WINTHROP	72	2 (2.78%)	0
	Total: Fully Served	5039	8 (0.16%)		
Partially Served		BEDFORD	57	1 (1.75%)	0
		BURLINGTON	129	0 (0%)	0
		CANTON	89	0 (0%)	0
		NEEDHAM	123	0 (0%)	0
		PEABODY	208	0 (0%)	0
		WAKEFIELD	134	0 (0%)	0
		WELLESLEY	114	0 (0%)	0
		WILMINGTON	87	0 (0%)	0
		WINCHESTER	94	0 (0%)	0
		WOBURN	211	1 (0.47%)	0
	Total: Partially Served	1246	2 (0.16%)		
	Total: Community Samples No CVA	6285	10 (0.16%)		
CVA		MWRA CVA Locations	103	0 (0%)	0
		CHICOPEE	185	0 (0%)	0
		SOUTH HADLEY FDI	60	0 (0%)	0
		WILBRAHAM	45	0 (0%)	0
	Total: CVA	393	0 (0%)		

Chlorine Residuals in Fully Served Communities

	2022											2023		
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
% ≥ 0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
% ≥ 0.2	0.0	0.0	0.1	0.0	0.1	0.3	0.4	0.5	0.8	0.2	0.1	0.1	0.1	
% ≥ 0.5	0.5	0.6	0.5	0.5	1.4	1.6	1.8	2.1	2.4	1.5	1.2	0.7	0.5	
% ≥ 1.0	2.3	2.3	2.1	2.6	4.0	5.7	6.5	5.8	5.7	3.9	2.4	1.8	1.3	
% ≥ 1.0	97.7	97.7	97.9	97.4	96.0	94.3	93.5	94.2	94.4	96.2	97.7	98.2	98.7	

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

3rd Quarter – FY23

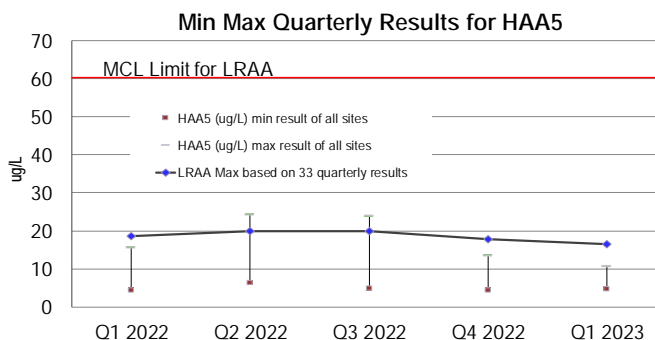
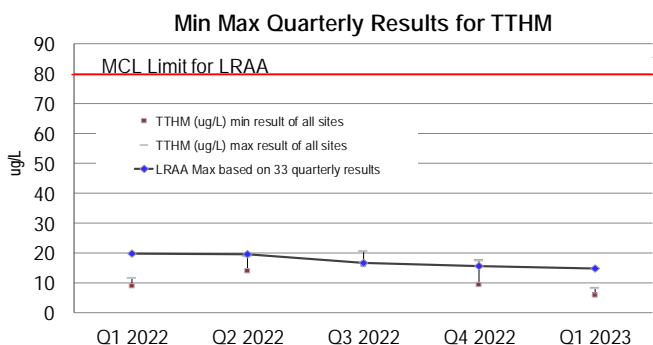
Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine. They are of concern due to their potential adverse health effects at high levels. EPA’s locational running annual average (LRAA) standard, using the most recent four quarterly results, is 80 µg/L for TTHMs and 60 µg/L for HAA5s. The locational running annual average at each individual sampling location must be below the standard.

Bromate is tested monthly as required for water systems, like CWTP, that treat with ozone. EPA’s RAA Maximum Contaminant Level (MCL) standard for bromate is 10 µg/L. The current RAA for Bromate at the CWTP finished water tap is 0.0 µg/L.

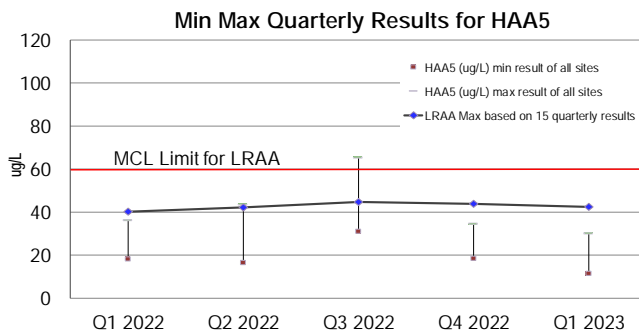
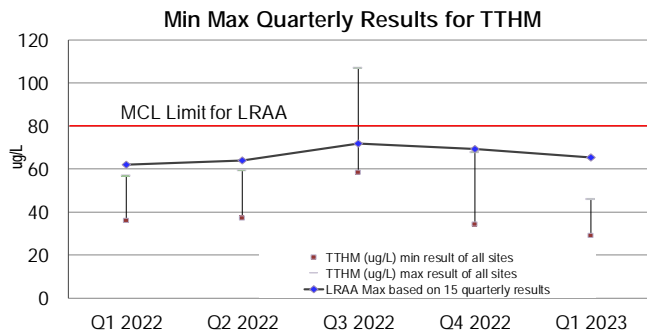
MWRA’s TTHM and HAA5 sampling program includes sampling at 33 MetroWest and Metro Boston communities sites. Partially served and CVA communities are responsible for their own compliance monitoring and are regulated individually.

The LRAA for TTHMs and HAA5s for MWRA’s Compliance Program (represented as the line in the top two graphs below) remains below current standards. The Max LRAA in the quarter for TTHMs = 14.8 µg/L; HAA5s = 16.6 µg/L. No LRAA exceedances or violations occurred this quarter for MetroBoston and for any of the CVA communities.

MetroBoston Disinfection By-Products



CVA Disinfection By-Products (Combined Results Chicopee, Wilbraham, & South Hadley FD1)



Water Supply and Source Water Management

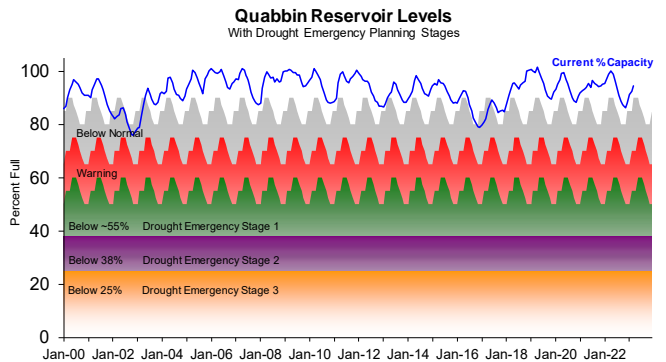
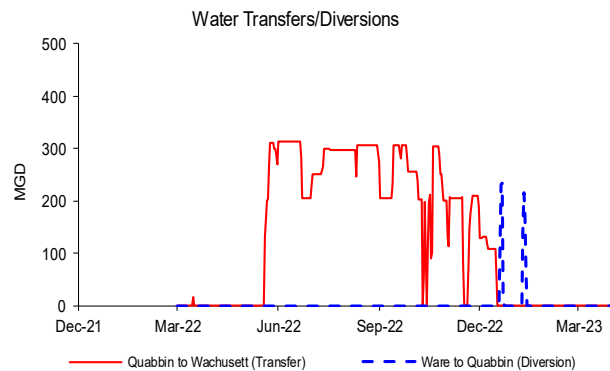
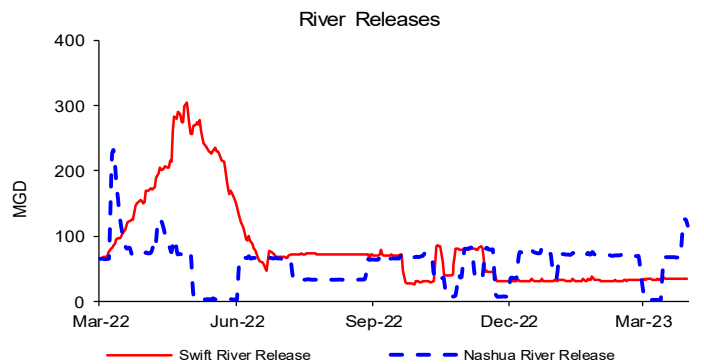
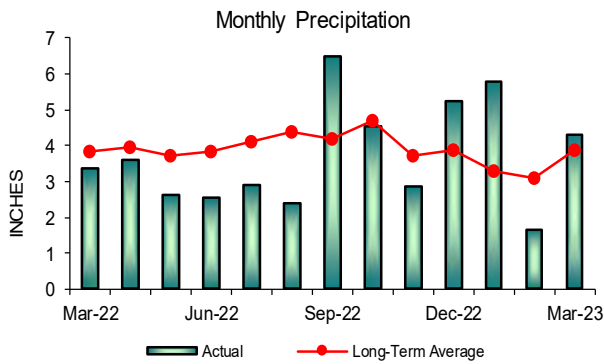
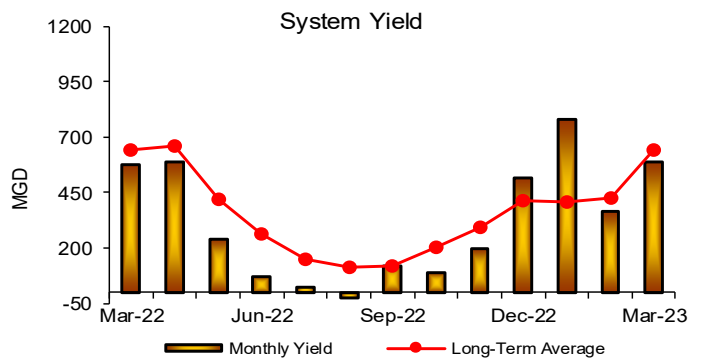
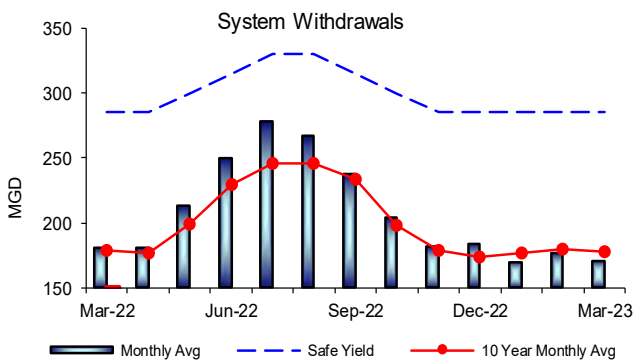
3rd Quarter – FY23

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 94.8% as of March 31, 2023; a 6.8% increase for the quarter, which represents a gain of more than 28 billion gallons of storage and an increase in elevation of 3.66'. System withdrawal was below its long term quarterly average. Precipitation and Yield were above their long term quarterly average. Quabbin is in Normal Operating Range for this time of year.



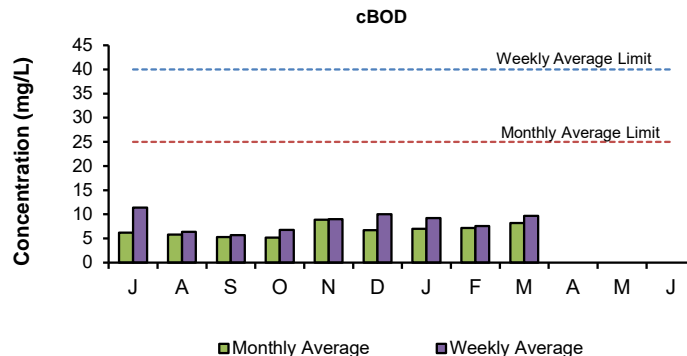
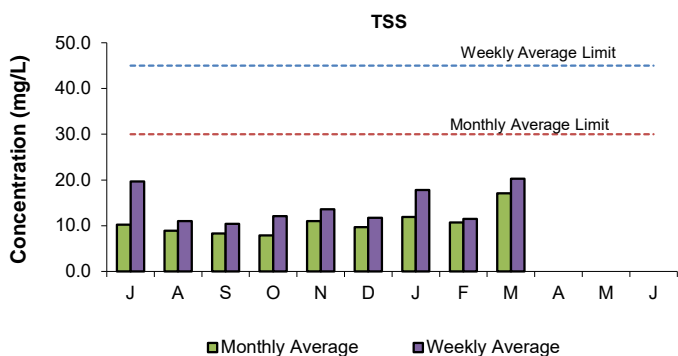
WASTEWATER QUALITY

NPDES Permit Compliance: Deer Island Treatment Plant 3rd Quarter - FY23

NPDES Permit Limits

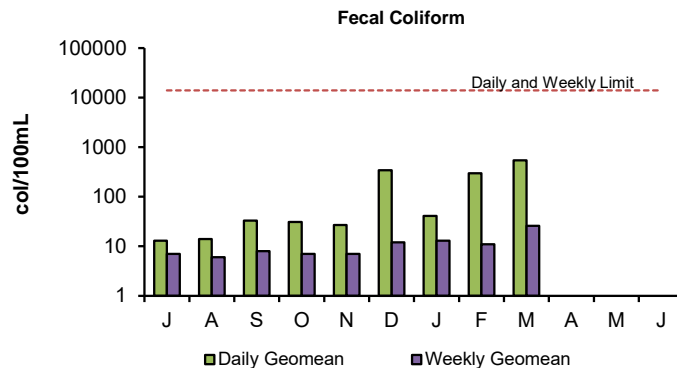
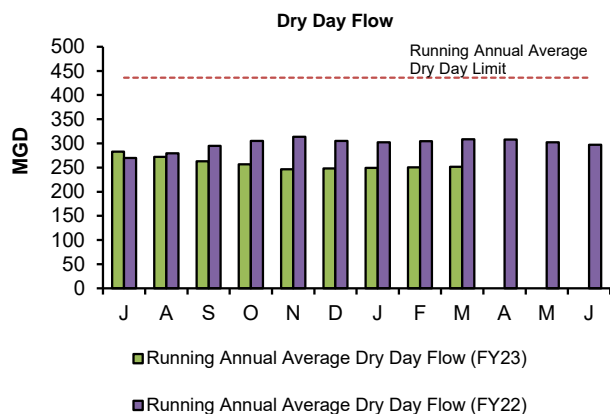
Effluent Characteristics	Units	Limits	January	February	March	3rd Quarter Violations	FY23 YTD Violations	
Dry Day Flow (365 Day Average):	mgd	436	249.4	250.4	251.3	0	0	
cBOD:	Monthly Average	mg/L	7.0	7.2	8.2	0	0	
	Weekly Average	mg/L	9.2	7.6	9.7	0	0	
TSS:	Monthly Average	mg/L	11.9	10.7	17.1	0	0	
	Weekly Average	mg/L	45	17.8	20.3	0	0	
TCR:	Monthly Average	ug/L	456	0.0	0.0	0	0	
	Daily Maximum	ug/L	631	0.0	0.0	0	0	
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	41	296	540	0	0
	Weekly Geometric Mean	col/100mL	14000	13	11	26	0	0
	% of Samples >14000	%	10	0	0	1	0	0
	Consecutive Samples >14000	#	3	0	0	1	0	0
pH:	SU	6.0-9.0	6.5-7	6.6-6.9	6.5-7	0	0	
PCB, Aroclors:	Monthly Average	ug/L	0.000045	UNDETECTED		0	0	
Acute Toxicity:	Inland Silverside	%	≥50	>100	>100	>100	0	0
	Mysid Shrimp	%	≥50	>100	>100	>100	0	0
Chronic Toxicity:	Inland Silverside	%	≥1.5	50	50	100	0	0
	Sea Urchin	%	≥1.5	50	100	100	0	0

There have been no permit violations in FY23 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 3rd 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 3rd 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 3rd 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 3rd Quarter, all permit conditions for fecal coliform were met.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant
3rd Quarter - FY23

NPDES Permit Limits

Effluent Characteristics		Units	Limits	January	February	March	3rd Quarter Violations	FY23 YTD Violations
Flow:	12-month Rolling Average:	mgd	3.01	2.46	2.38	2.38	0	1
BOD:	Monthly Average:	mg/L	20	1.3	2.3	1.3	0	0
	Weekly Average:	mg/L	20	1.9	2.3	3.5	0	0
TSS:	Monthly Average:	mg/L	20	2.4	2.6	2.5	0	0
	Weekly Average:	mg/L	20	3.1	2.8	3.4	0	0
pH:		SU	6.5-8.3	7-7.7	7.4-7.7	7.3-7.8	0	0
Dissolved Oxygen:	Daily Average Minimum:	mg/L	6	10.7	10.6	10.6	0	0
E. Coli:	Monthly Geometric Mean:	cfu/100mL	126	5	5	5	0	0
	Daily Geometric Mean:	cfu/100mL	409	5	9	11	0	0
TCR:	Monthly Average:	ug/L	17.6	0.00	0.29	0.00	0	0
	Daily Maximum:	ug/L	30.4	0.00	4.00	0.00	0	0
Copper:	Monthly Average:	ug/L	11.6	8.00	6.17	7.32	0	2
	Daily Maximum:	ug/L	14.0	8.00	6.17	7.94	0	0
Total Ammonia Nitrogen:	Monthly Average:	mg/L	10.0	0.00	0.00	0.08	0	0
November 1st - March 31st	Daily Maximum:	mg/L	35.2	0.00	0.00	0.15	0	0
Total Phosphorus:	Monthly Average:	ug/L	1000	99.0	203.3	128.3	0	0
November 1st - March 31st	Daily Maximum:	ug/L	RPT	117.0	323.0	262.0	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

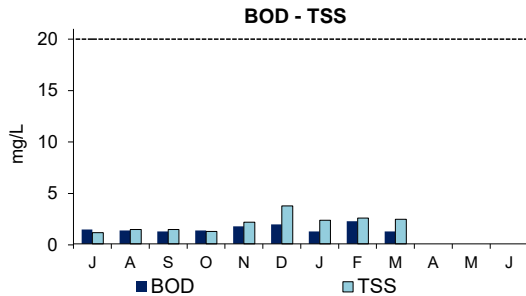
There have been four permit violations in FY23 at the Clinton Treatment Plant.

1st Quarter: There were four permit violations in the first quarter. In July, plant flows exceeded the 12-month rolling average. July and August copper monthly averages exceeded the permit limit of 11.6 ug/L. The quarterly chronic toxicity result of 12.5% was below the minimum permit limit of 62.5%.

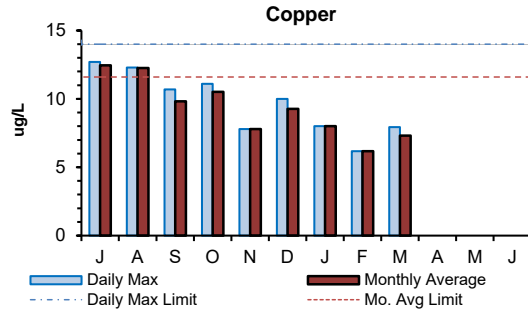
2nd Quarter: There were no permit violations in the second quarter.

3rd Quarter: There were no permit violations in the third quarter.

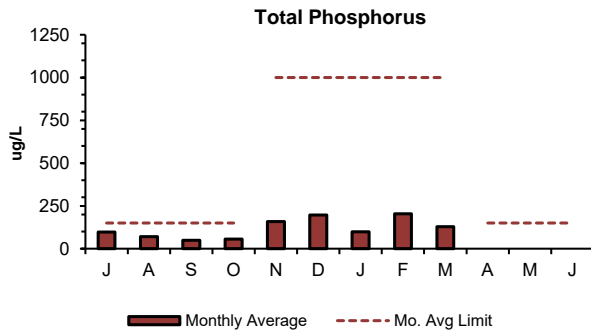
+ Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



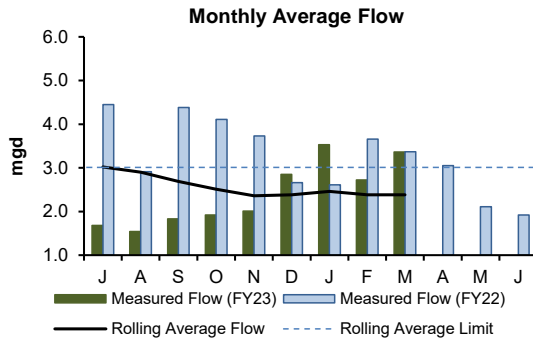
The 3rd Quarter's monthly average and daily maximum concentrations of ammonia were below the permit limits. The monthly average and daily maximum limits for the 3rd Quarter are variable. The permit limits are most stringent from June to October when warm weather conditions are most conducive to potential eutrophication.



Daily maximum and monthly average concentrations of copper were below permit limits in the 3rd Quarter. Permit daily and monthly limits are 14.0 ug/L and 11.6 ug/L respectively.



Total phosphorus limits are most stringent during the growing season from April to October. The 3rd Quarter's monthly average concentrations for total phosphorus were below permit limits.

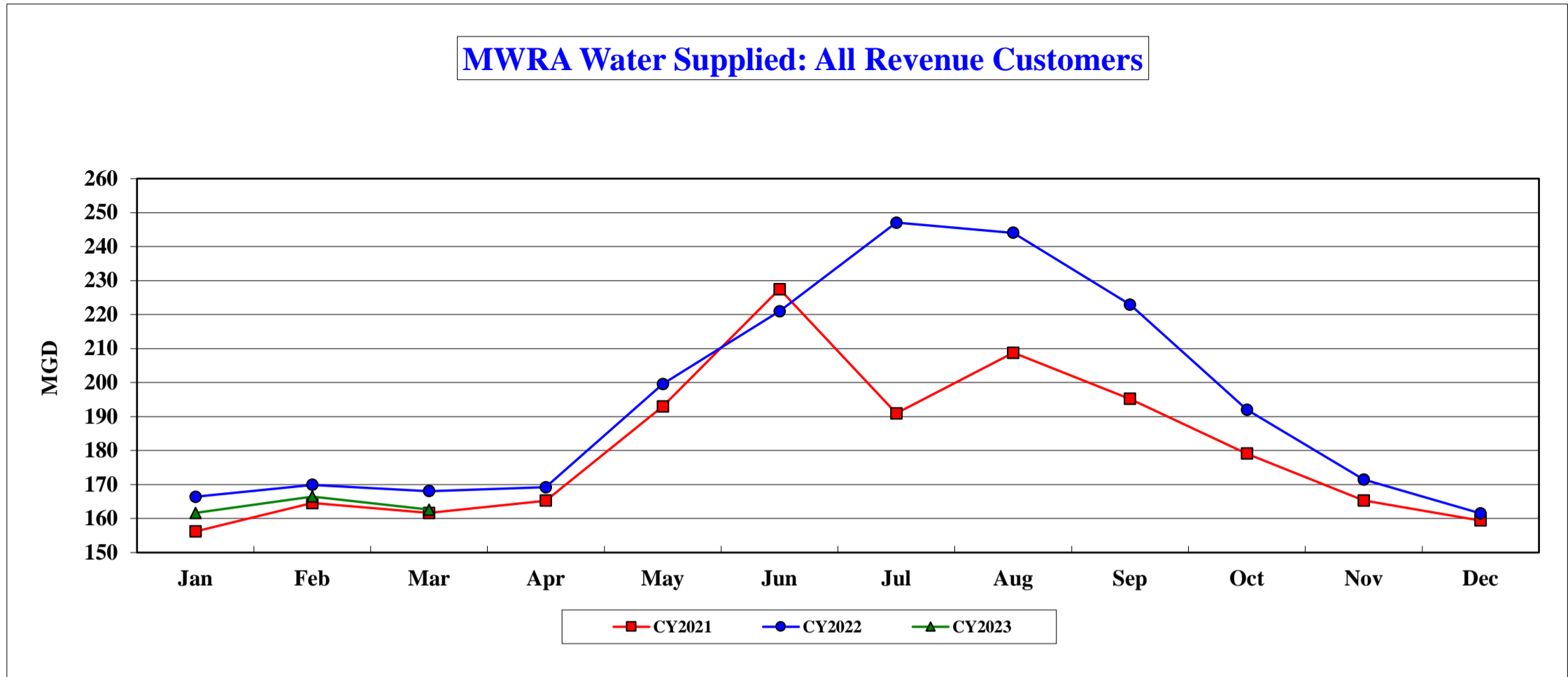


The graph depicts the rolling annual average monthly flow, measured in million gallons per day, exiting the plant. The 12-month rolling average flows during the 3rd Quarter were below the permit limit.

COMMUNITY FLOWS AND PROGRAMS

Customer Water Use

3rd Quarter - FY23



Water Use (million gallons per day)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2021	156.213	164.567	161.697	165.284	192.998	227.522	190.945	208.810	195.229	179.116	165.302	159.442	160.701	180.641
CY2022	166.445	169.923	168.101	169.253	199.626	221.002	247.075	244.069	222.906	192.000	171.454	161.527	168.097	194.631
CY2023	161.670	166.463	162.662	-	-	-	-	-	-	-	-	-	163.503	163.503

The March 2023 Community Water Use Report was recently distributed to communities and customers served by the MWRA's 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 2023 water use will be used to allocate the FY2025 water utility rate revenue requirement.

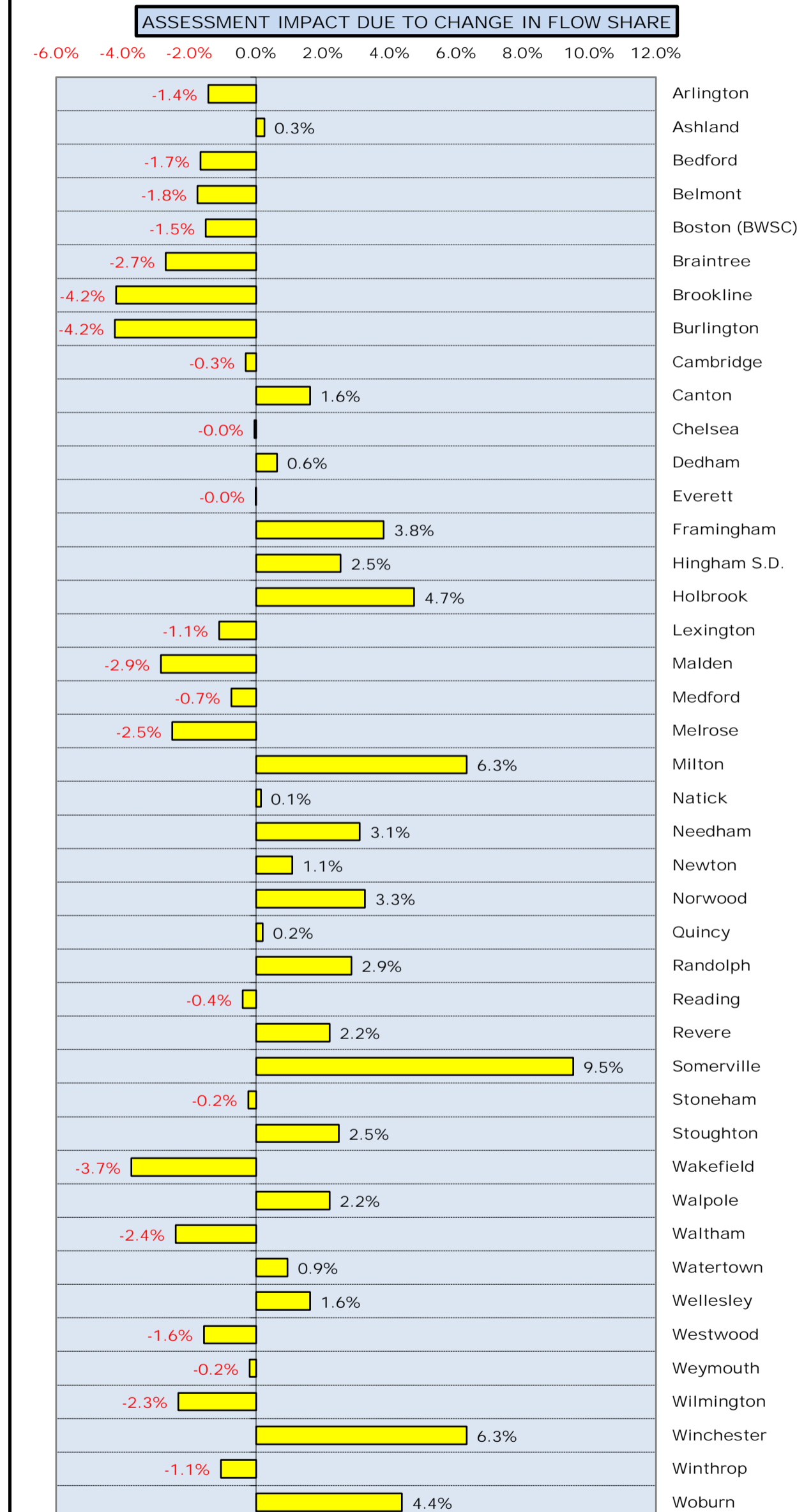
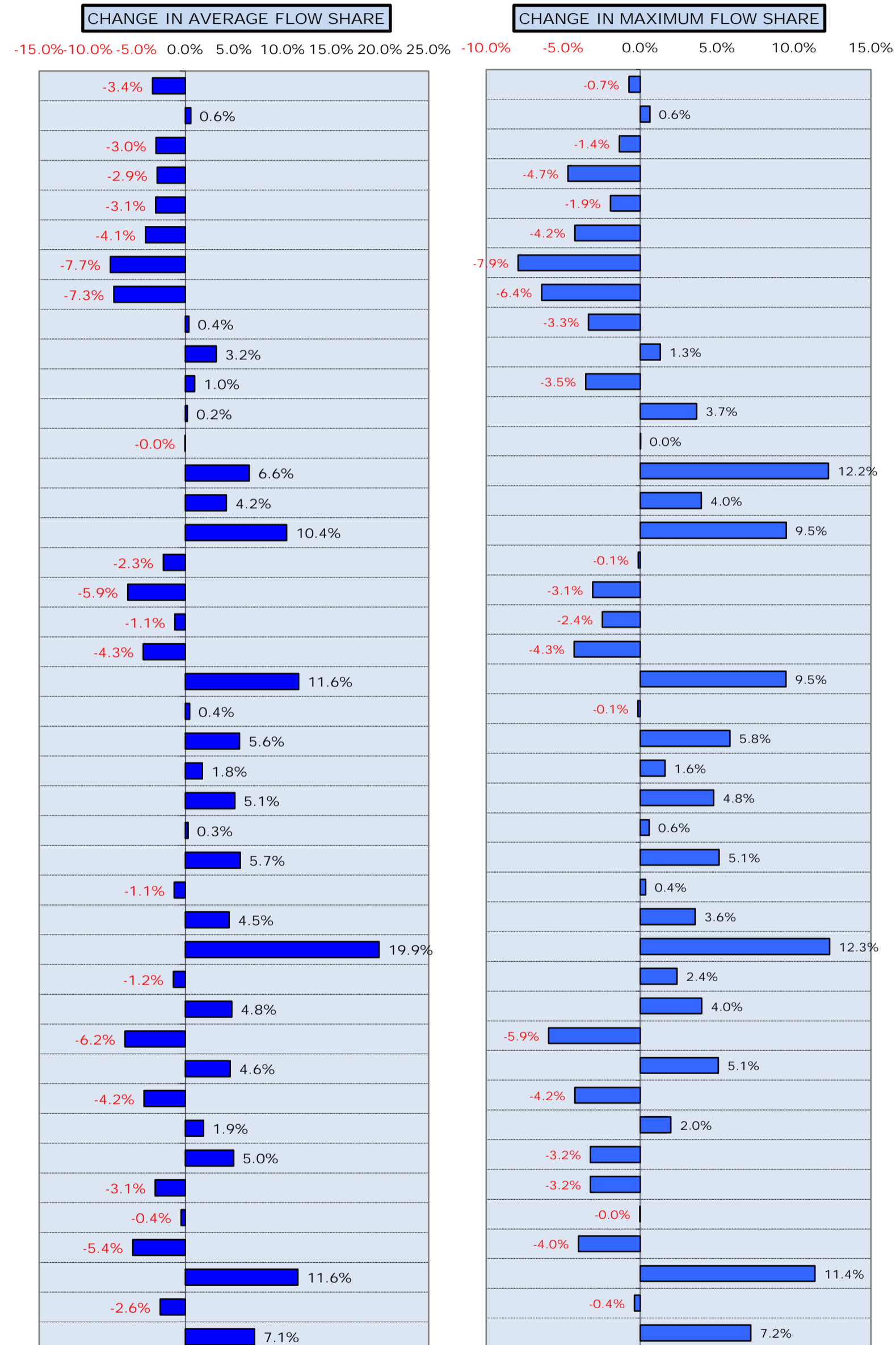
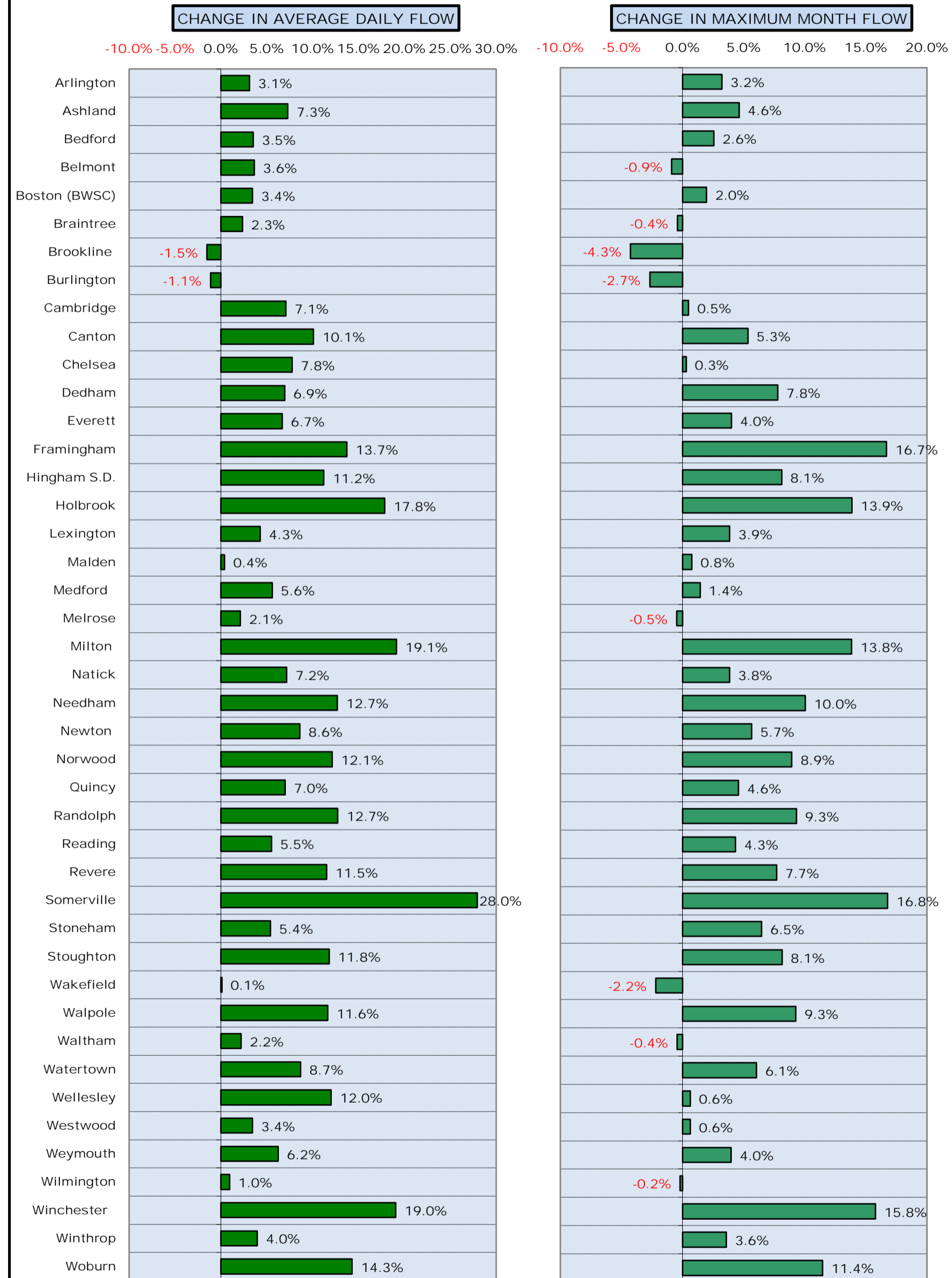
MWRA customers used an average of 163.5 mgd in the 3rd quarter (Jan-Mar 2023) of FY2023. This is a decrease of 4.6 mgd or 2.7% compared to the 3rd quarter of FY2022.

How CY2021-23 Community Wastewater Flows Could Effect FY2025 Sewer Assessments ^{1,2,3}

The flow components of FY2025 sewer assessments will be calculated using a 3-year average of CY2021 to CY2023 wastewater flows compared to FY2024 assessments that will use a 3-year average of CY2020 to CY2022 wastewater flows.

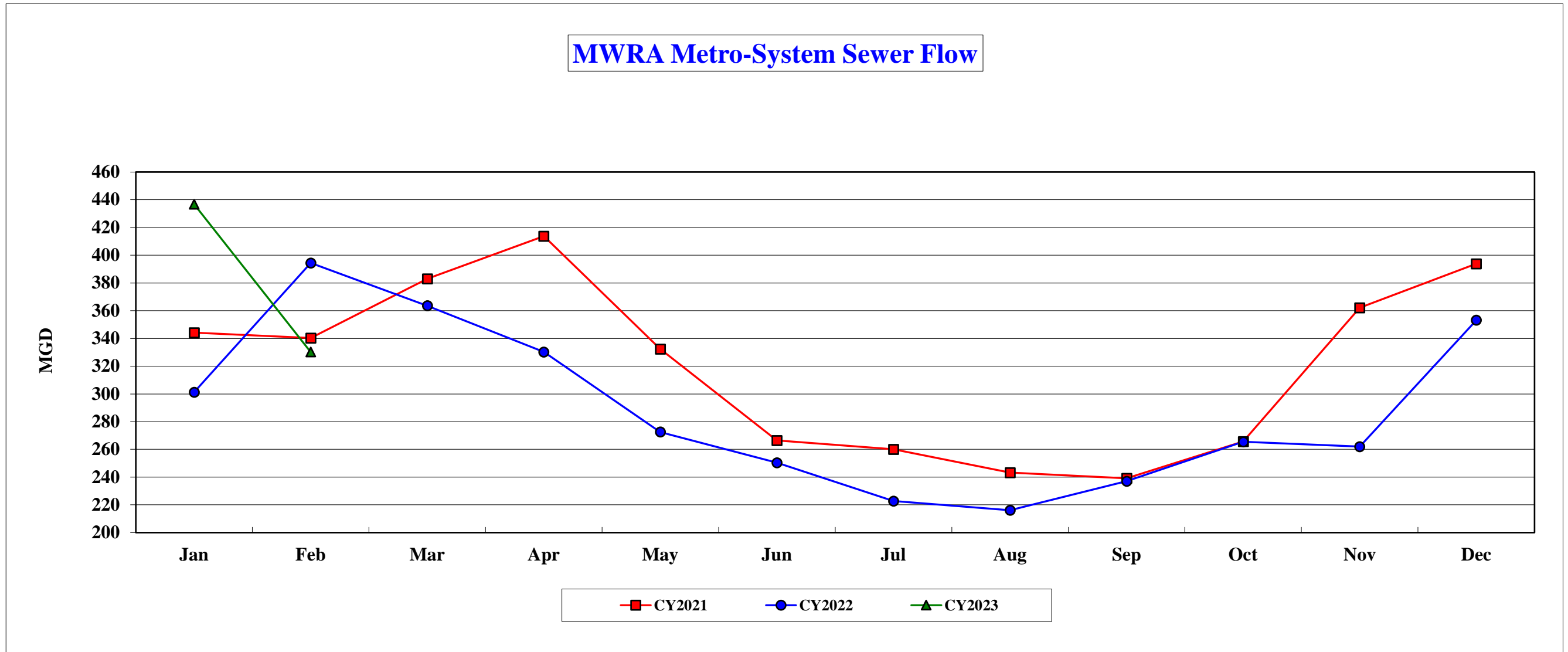
But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the RELATIVE change in CY2021 to CY2023 flow share compared to CY2020 to CY2022 flow share, compared to all other communities in the system.

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 2022 and 2023 (through February), and January to March, and June to December 2020. April & May 2020 based on the average of 3 prior years, adjusted for 2020 water use. January to December 2021 estimated based on the average of the 3 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.

Community Sewer Flow YTD - FY23



Sewer Flow (million gallons per day)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2021	344.203	340.320	383.107	413.769	332.385	266.443	260.030	243.310	239.147	265.670	362.143	393.833	342.360	320.199
CY2022	301.220	394.440	363.600	330.280	272.550	250.410	222.840	216.120	237.000	265.440	261.960	353.160	345.460	288.429
CY2023	436.780	330.210	-	-	-	-	-	-	-	-	-	-	386.204	307.828

The 2023 2-Month Community Sewer Flow Report was recently distributed to the 43 communities served by the MWRA's Metropolitan sewer system. Each community's share of sewer flow relative to the system as a whole is used to allocate the annual sewer rate revenue requirement to MWRA sewer communities. The average of calendar year 2021-2023 sewer flow will be used to allocate the FY2025 sewer utility rate revenue requirement.

MWRA customer sewer flow averaged 386.204 mgd in the first two months of CY2023. This is an increase of 40.744 mgd or 11.8% compared to the first two months of CY2022.

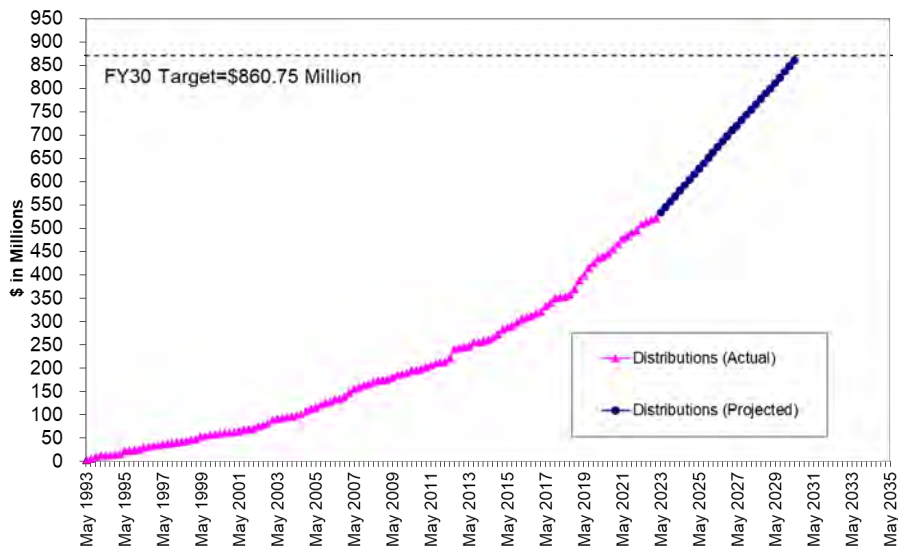
Community Support Programs

3rd Quarter – FY23

Infiltration/Inflow Local Financial Assistance Program

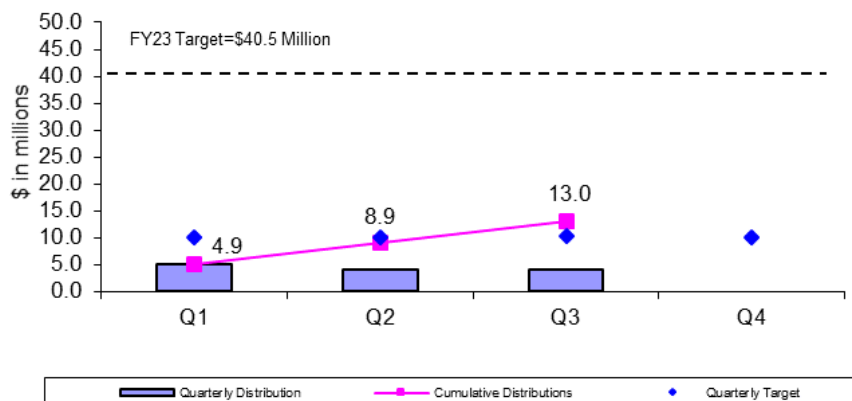
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides \$860.75 million in grants and interest-free loans (average of about \$22 million per year from FY93 through FY30) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned 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. Phase 14 funds (total \$100 million) are distributed as 75% grants and 25% loans with interest-free loans repaid to MWRA over a ten-year period.

I/I Local Financial Assistance Program Distribution FY93-FY30



During the 3rd Quarter of FY23, \$4.1 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Arlington, Braintree, Stoughton, Walpole and Weymouth. Total grant/loan distribution to date for FY23 is \$13 million. From FY93 through 3rd Quarter of FY23, all 43 member sewer communities have participated in the program and \$523 million has been distributed to fund 659 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.

FY23 Quarterly Distributions of Sewer Grant/Loans



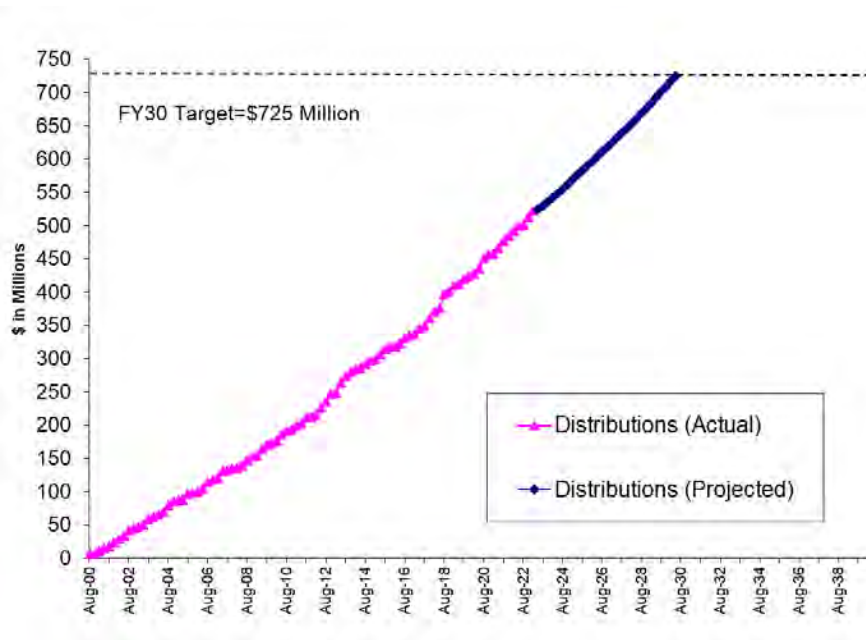
Community Support Programs

3rd Quarter – FY23

Local Water System Assistance Program

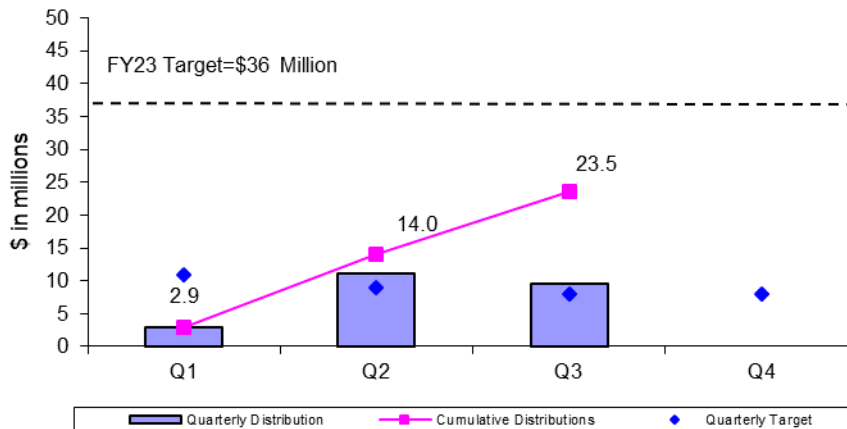
MWRA's Local Water System Assistance Programs (LWSAP) provides \$725 million in interest-free loans (an average of about \$24 million per year from FY01 through FY30) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. There have been three (3) funding 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 FY25. The Phase 3 Water Loan Program is authorized for distributions from FY18 through FY30.

Local Water System Assistance Program Distribution FY01-FY30



During the 3rd Quarter of FY23, \$9.5 million in interest-free loans was distributed to fund local water projects in Brookline, Chicopee, Reading, and Wakefield. Total loan distribution to date for FY23 is \$23.5 million. From FY01 through the 3rd Quarter of FY23, \$522 million has been distributed to fund 514 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.

FY23 Quarterly Distributions of Water Loans



Community Support Programs

3rd Quarter – FY23

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. To date, \$35.5 million dollars have been distributed to 14 communities.

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.

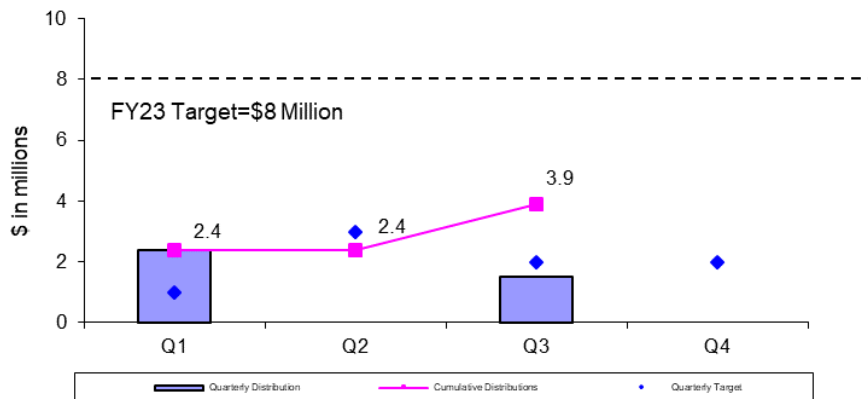
FY22 is the sixth year of the Lead Loan Program - MWRA made six Lead Loans.

FY23 is the seventh year in the Lead Loan Program - MWRA has made six Lead Loans in the first three quarters.

Summary of Lead Loans:

Chelsea in FY23	\$0.5 Million	Everett in FY20	\$1.0 Million
Watertown in FY23	\$0.3 Million	Somerville in FY20	\$0.9 Million
Winthrop in FY23	\$0.7 Million	Chelsea in FY20	\$0.3 Million
Reading in FY23	\$1.5 Million	Marlborough in FY19	\$1.0 Million
Watertown in FY23	\$0.3 Million	Winthrop in FY19	\$0.5 Million
Winchester in FY23	\$0.6 Million	Chelsea in FY19	\$0.1 Million
Everett in FY22	\$1.5 Million	Everett in FY19	\$1.0 Million
Boston in FY22	\$0.9 Million	Needham in FY18	\$1.0 Million
Winthrop in FY22	\$0.8 Million	Winchester in FY18	\$0.5 Million
Somerville in FY22	\$1.6 Million	Revere in FY18	\$0.2 Million
Revere in FY22	\$1.3 Million	Winthrop in FY18	\$0.3 Million
Chelsea in FY22	\$0.3 Million	Marlborough in FY18	\$1.0 Million
Watertown in FY21	\$0.6 Million	Newton in FY17	\$4.0 Million
Marlborough in FY21	\$2.0 Million	Quincy in FY17	\$1.5 Million
Everett in FY21	\$1.5 Million	<u>Winchester in FY17</u>	<u>\$0.5 Million</u>
Boston in FY21	\$2.6 Million	TOTAL	\$35.5 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		

FY23 Quarterly Distributions of Lead Service Line Replacement Loans

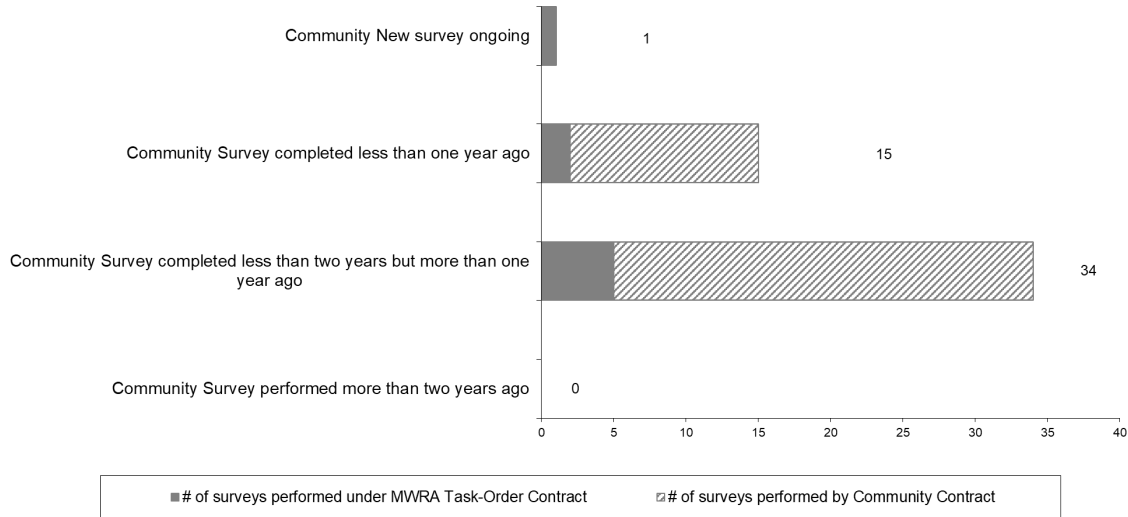


Community Support Programs

3rd Quarter – FY23

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 3rd Quarter of FY23, 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, and toilet leak detection dye tabs), 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	17,985	418	15,302		33,705
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	2,302	62	464		2,828
Toilet Leak Detection Dye Tablets	_____	3,151	28	3,257		6,436

BUSINESS SERVICES

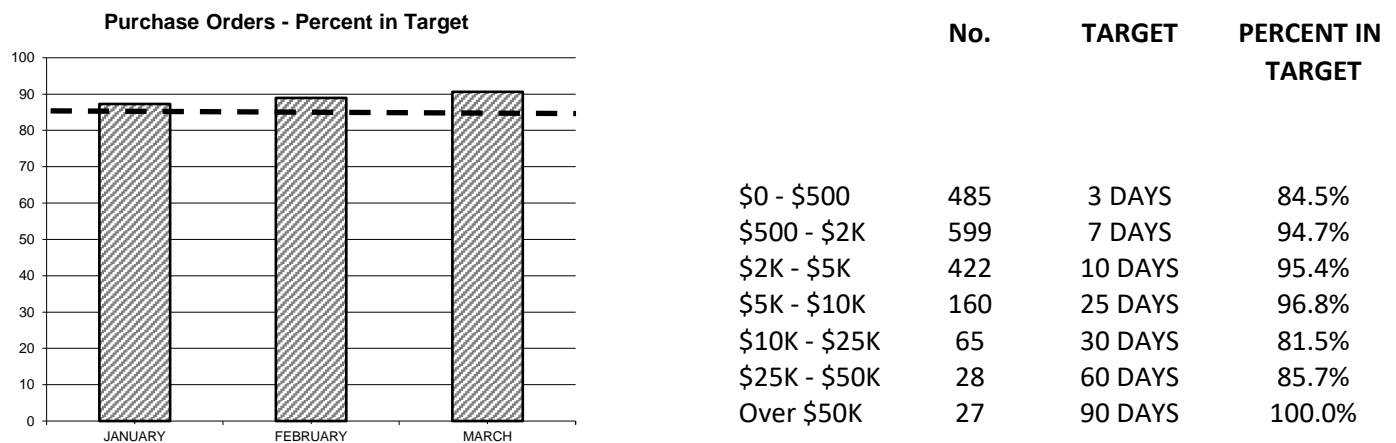
Procurement: Purchasing and Contracts

3rd Quarter - FY23

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

Outcome: Processed 92% of purchase orders within target; Average Processing Time was 4.82 days vs. 4.51 days in Qtr 3 of FY22. Processed 64% (9 of 14) of contracts within target timeframes; Average Processing Time was 185 days vs. 203 days in Qtr 3 of FY22.

Purchasing



The Purchasing Unit processed 1786 purchase orders, 49 more than the 1737 processed in Qtr 3 of FY22 for a total value of \$11,341,237 versus a dollar value of \$12,639,174 in Qtr 3 of FY22.

The purchase order processing target was not met for the 0\$ - \$500 category due to vendor delays providing quotes and price confirmations and the \$10K - \$25K category due to delays in vendor bid responses and end user approvals.

Contracts, Change Orders and Amendments

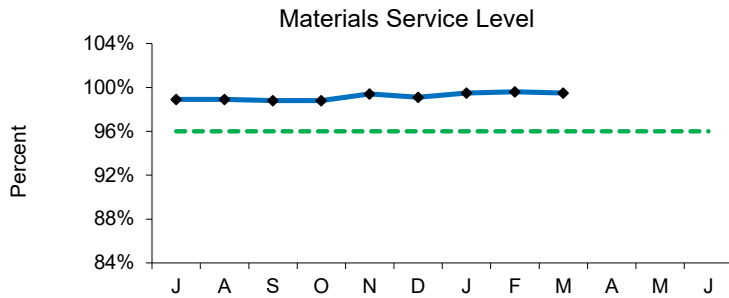
Procurement executed fourteen contracts with a value of \$298,740,601 and two amendments with a value of \$0. Twenty four change orders were executed during the period. The dollar value of all non-credit change orders during Q3 FY23 was \$1,562,904 and the value of credit change orders was (\$204,878).

Five contracts were not executed within the target timeframe. One contract was delayed due to specification revisions which took longer than anticipated. Another contract was delayed due to staffing changes in addition to delays associated with the receipt of insurance certificates and bonds precipitated by a company merger involving the awarded vendor. A third contract was delayed due to contractor delays returning signed contract documents and the revised certificate of insurance. A fourth contract was delayed due to changes to the original scope of services in addition to delays by the consultant returning signed documents. The final contract was delayed due to a request to hold the notice to proceed until the construction contractor mobilized on-site.

Staff reviewed 35 proposed change orders and 27 draft change orders.

Materials Management

3rd Quarter - FY23



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 7,531 (99.5%) of the 7,568 items requested in Q3 from the inventory locations for a total dollar value of \$2,179,702.

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 FY23 goal is to reduce consumable inventory from the July '22 base level (\$8.3 million) by 2.0% (approximately \$167,437), to \$8.2 million by June 30, 2023.

Items added to inventory this quarter include:

- Deer Island – circuit boards, optical assemblies, contactors and transfer switches for Electrical; valves and expansion fittings for Maintenance; reagents, sample cells and blowers for Thermal.
- Chelsea – full body harnesses and leg pads for harnesses for Safety; cement lined pipe and butt straps for Pipeline, heater for Metering; Motors and couplings for Field Operations; filters for Fleet Services and power supplies for SCADA.
- Southboro – full body harnesses, leg pads for harnesses, tripod and winches for Safety.

Property Pass Program:

- Eleven audits were conducted during Q3.
- Scrap revenue received for Q3 amounted to \$7,656. Year to date revenue received amounted to \$27,402.
- Revenue received from online auctions held during Q3 amounted to \$7,638. Year to date revenue received amounted to \$185,268.

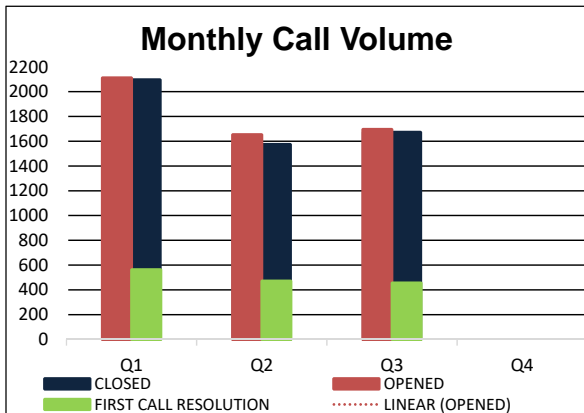
Items	Base Value July-22	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	8,371,867	8,419,690	47,823
Spare Parts	9,447,310	9,824,567	377,257
Total	17,819,177	18,244,257	425,080

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.

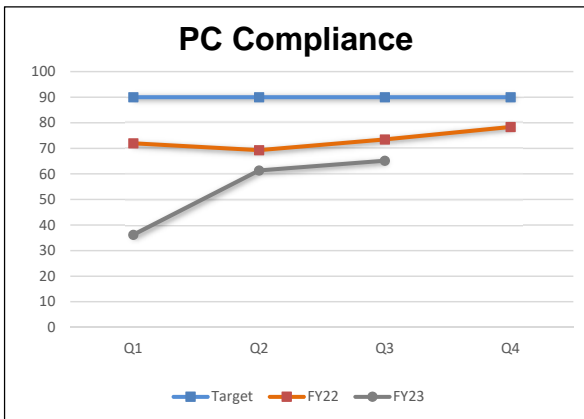
MIS Program

3rd Quarter – FY23

Numbers & Statistics



Summary of calls managed by the Helpline.



Percentage of user endpoints that are in compliance with system updates. These numbers are a direct reflection of accessibility to these systems. Daytime patching began in January for mobile devices.

Project Updates

Infrastructure & Security

Office Space Planning: Chelsea and Deer Island phase 1 users have moved into their new spaces. Phase 2 of construction is in progress. Preparation for users in the Navy Yard to move are in process.

Technology Updates: Staff continue to migrate users to FortiClient for remote access and the implementation of email archiving.

Managed Security Services Contract: Device logging completed. Design review and validation activities are under review. Awaiting completion of SD-WAN infrastructure before deploying additional devices.

Network Upgrades/Improvements: MIS continued to work with Comcast on site surveys and wiring diagrams to provide Internet connectivity to all purchased sites. Completion targeted for the end of Q1 of FY24. Implemented network segmentation for printers in Chelsea and Deer Island to improve security. Hardware refresh of Edge Switches completed in all remote locations.

VMWare Workspace ONE: This solution will replace Citrix Workspace and XenMobile used for remote access and mobile device management, Absolute used for device tracking, and Ivanti used for software deployment and asset management. This solution is currently being tested and MIS. Users will begin being move to new solution next month.

Library, Record Center, & Training

Library: Undertook 21 research requests, supplied 16 books for circulation, provided 14 new books and 20 new standards (aside from subscription). The MWRA Library Portal supported 602 end user searches, including: environmental justice events, North Dorchester Bay CSO, Cordaville Pipeline, Shaft 12 Screen, Stearn's Reservoir Gatehouse #1 sluice gate, and Alewife CSO design.

Record Center (RC): The Record Center added 457 new boxes (1,052 YTD), handled 512 total boxes, and shredded 24, 65 gallon bins and 3, 96 gallon bins of confidential documentation this quarter. The scanning initiative continues and has resulted in the scanning of over 300 boxes of physical records since starting in Q1. The RC performed database and physical box searches for various departments on topics such as administrative information, Staff Summaries, Law Research, and Project related information for various engineering groups.

MIS Training: In Q3, 50 online IT lessons were taken (82 YTD), by 61 employees (89 YTD). 1 Standard class lesson was taken by 41 employees.

Other Software & Custom Applications

ECM/Electronic Document Management: Went live with the first phase of the ECM project, which included Records Management and Physical Records Management. Successfully migrated over 500,000 physical object records into the system. Retired the InfoStar platform. Began planning for the next phase of the project, which includes a large migration of electronic CAD drawings into a newly built Master Repository.

MWRA Website Refresh: Procurement process completed. Vendor was selected and presented at the March Board Meeting. Hope for a Notice to Proceed to be complete by the end of April.

Telog Infrastructure Upgrade: The production MS SQL database was upgraded to new version and additional CPUs were added to enhance performance. New development and pre-production environments have been setup and tested for future go-live activities.

Infor Upgrade: Selection committee has met and reviewed the drafts of the Statement of Work (SOW) and Request for Quote/ Proposal. Bid event is planned to start mid- April.

InspectNTrack Upgrade: Went live on March 1st. Deer Island-Ops and Waste Water-Ops groups have started using the system. New test environments have been setup for remaining groups to complete User Acceptance testing before they can be implemented. Waste Water metering report is also being upgraded with expectation to release report in April.

Cumulus Canto: This application is used to catalog images. User training sessions were completed in March. MIS staff worked with the vendor (Canto) to configure Single-Sign On (OKTA) integration. User sign-off of the solution is scheduled for the first week of April.

Discoverer to Business Objects Enterprise (BOE) Migration: Current Discoverer application that is used to create reports is being discontinued and therefore being replaced with BOE. Reports currently available in Crystal Reports are being migrated to new reports application. 80% of the workbooks and 50% of the worksheets have been completed.

Legal Matters
3rd Quarter - FY23

PROJECT ASSISTANCE

Real Estate, Contract, Energy, Environmental and Other Support:

- **8(m) Permits, License Agreements, and Other Permits:** Reviewed ninety-five (95) 8(m) permits, including any related MEPA Section 61 findings. Reviewed and finalized two (2) wastewater direct connection permits.
- **Real Property:** Reviewed two (2) watershed real property acquisition projects by the Department of Conservation and Recreation. Prepared license agreement for temporary use of land at various locations to support MWRA's Siphon Juncture Rehabilitation Project. Finalized a ground lease for an MWRA support building location. Provided review of property rights for parcels of interest for Tunnel Redundancy Program.
- **Energy:** Favorably resolved a billing dispute with a local gas distribution company regarding an MWRA facility account. Reviewed grant applications and agreements regarding renewable and energy efficiency incentives for MWRA facilities.
- **Environmental/NPDES:** Provided ongoing counsel and support to ENQUAL and other MWRA divisions regarding NPDES and other environmental related issues.
- **Miscellaneous:** Reviewed various pieces of proposed legislation for potential impacts to MWRA.
- **Public Records Requests:** MWRA received and responded to one hundred and fifty-nine (159) public records requests. Provided counsel and support to various MWRA divisions and records access officers regarding the Public Records Law and Massachusetts Statewide Records Retention Schedule.

New Matters

- An employee filed a charge of discrimination against MWRA at the Massachusetts Commission Against Discrimination, based upon age, sexual orientation, race and color.
- A union filed a request for arbitration alleging MWRA violated the collective bargaining agreement when it disciplined 2 employees for violations of the COVID-19 Vaccination Mandate and exemption procedures.
- A union filed a request for arbitration alleging MWRA violated the collective bargaining agreement when it disciplined an employee for violations of the MWRA's Code of Conduct, Non-Discrimination Policy and Harassment Prevention Policy.
- A union filed an arbitration demand alleging MWRA violated the collective bargaining agreement when it denied certain employees overtime to finish spill cleanup.

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of March 2023
Construction/Contract/Bid Protest	0
Tort/Labor/Employment	3
Environmental/Regulatory/Other	3
Eminent Domain/Real Estate	0
TOTAL	6
Other Litigation matters (restraining orders, etc.) Class Action suit	1
TOTAL – all pending lawsuits	7
Claims not in suit	2
Bankruptcy	3
Wage Garnishment	2
TRAC/Adjudicatory Appeals	1
Subpoenas	0
TOTAL – ALL LITIGATION MATTERS	15

TRAC/MISC.

Pending Appeals: There is one pending Administrative Appeal.

1058 Beacon Street; MWRA Docket No. 22-10

**Settlement by
Agreement of
Parties**

There were no Settlements by Agreement of Parties in 3rd Quarter FY 2023.

**Stipulation of
Dismissal**

There were no Stipulations of Dismissal in 3rd Quarter FY 2023.

**Notice of
Dismissal
Fine paid in full**

No were no Notices of Dismissal, Fines Paid in Full in 3rd Quarter FY 2023.

Tentative

No Tentative Decisions were issued in 3rd Quarter FY 2023.

**Final
Decisions**

No Final Decisions were issued in 3rd Quarter FY 2023.

INTERNAL AUDIT AND CONTRACT AUDIT ACTIVITIES
3rd Quarter - FY23

Highlights

During the 3rd quarter FY23, Internal Audit (IA) completed and issued the Compliance Status of Employees' Mandatory Confined Space Entry Training audit report. IA provided recommendations to enhance procedures related to tracking, recording and reporting training compliance. In addition, IA completed and issued the Water and Wastewater Licenses and Certifications audit report. IA provided recommendations to enhance procedures related to identifying, tracking, recording and reporting required licenses and enhancing escalation procedures related to failure to obtain a required license or failure to renew a required license. A fleet physical inventory of all plated vehicles and equipment in coordination with management is nearing completion. An internal review of MIS assets is progressing.

Internal Audit completed 2 labor burden reviews and 2 incurred cost audits. There are 2 labor burden review and 2 incurred cost audits in process. IA also issued 27 indirect cost rate letters to consultants following a review of their consultant disclosure statements.

Status of Recommendations

During FY23, 5 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
Fleet Services Non-Plated Equipment Inspections (3/30/20)	1	14	15
Compliance Status of Employees' Mandatory Confined Space Entry Training (2/24/23)	1	3	4
Water and Wastewater Licenses and Certifications (3/31/23)	2	1	3
Total Recommendations	4	18	22

Cost Savings

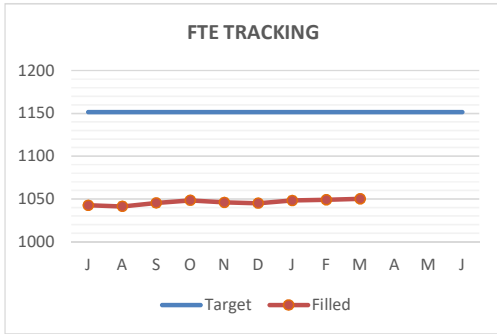
IA's target is to achieve at least \$1,000,000 in cost savings each year. Cost savings vary each year based upon many factors. In some cases, cost savings for one year may be the result of prior years' audits.

Cost Savings	FY19	FY20	FY21	FY22	FY23 Q3	TOTALS
Consultants	\$262,384	\$643,845	\$563,525	\$39,938	\$218,599	\$1,728,291
Contractors & Vendors	\$3,152,884	\$2,097,729	\$1,547,223	\$1,714,614	\$1,695,352	\$10,207,802
Internal Audits	\$210,063	\$212,517	\$214,458	\$222,554	\$167,129	\$1,026,721
Total	\$3,625,331	\$2,954,091	\$2,325,206	\$1,977,106	\$2,081,080	\$12,962,815

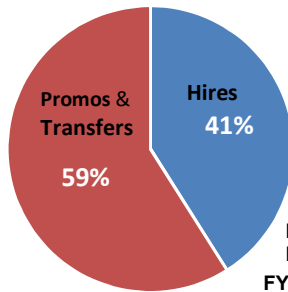
OTHER MANAGEMENT

Workforce Management

3rd Quarter - FY23



Position Filled by Hires/Promos & Transfer for YTD



	Pr/Trns	Hires	Total
FY21	81 (56%)	64 (44%)	145
FY22	138 (68%)	65 (32%)	203
FY23 YTD	102 (59%)	71 (41%)	173

FY23 Budget for FTEs = 1151.4

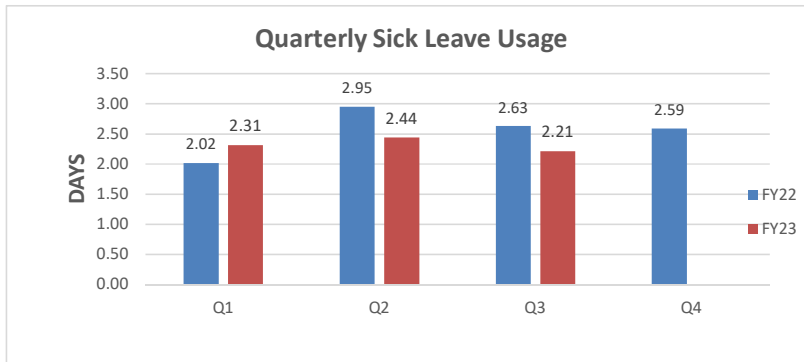
FTEs as of March 2023 = 1045

Tunnel Redundancy as of March 2023 = 10

POSITION CHANGE by FY

FY	HIRES	PROMOS	TRANSFER	RETIRE	RESIGN	DISMISS	DECEASED
FY19	76	87	25	40	32	9	4
FY20	58	70	14	38	23	2	1
FY21	64	66	15	58	15	2	2
FY22	65	108	30	82	45	2	3
FY23*	71	89	13	42	21	3	3

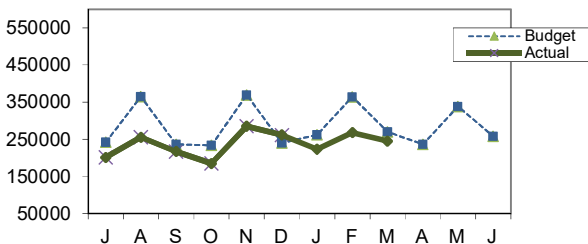
* as of 3/31/2023



Average quarterly sick days for the 3rd Quarter of FY23 has decreased as compared to the 3rd Quarter of FY22 (2.21 from 2.63).

Field Operations

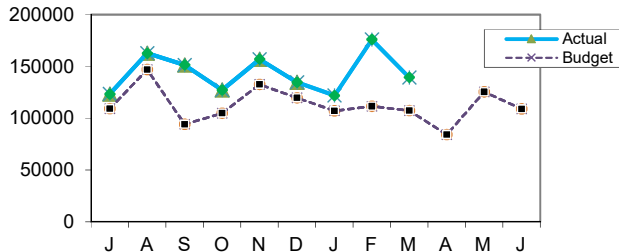
Third Quarter FY23 Overtime \$



Total Overtime for Field Operations for third quarter was \$727K, which is \$169K or 18.9% under budget. Emergency overtime was \$281K, which is \$159K under budget or 36%, primarily due to fewer winter inclement weather events. Coverage overtime totaling \$222K which is \$65K over budget or 41%, primarily due to vacant shifts going unfilled. Planned overtime was \$223K or \$19K under budget with a combination spending of \$70K for scheduled maintenance; and \$200K for various coverage shifts.

Deer Island Treatment Plant

Third Quarter FY23 Overtime \$

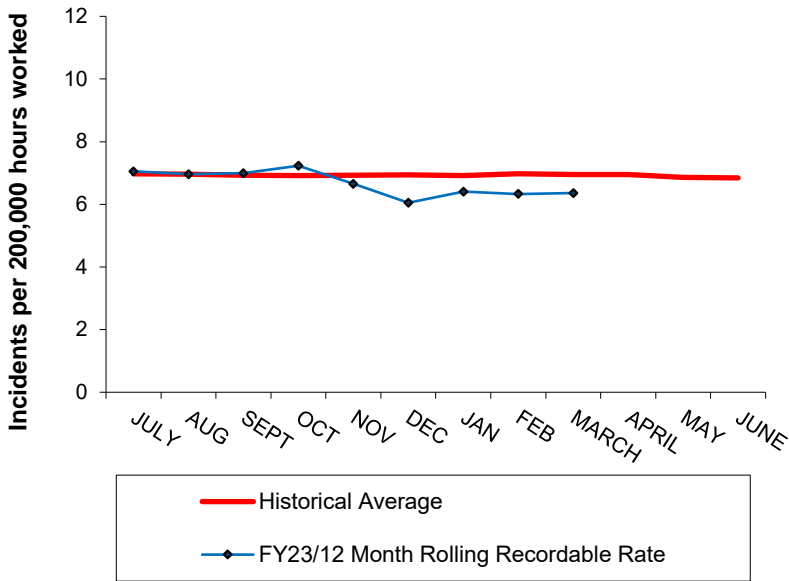


Deer Island's total overtime expenditure third quarter was \$437K, which is \$111K or 34.1% over budget due to higher than anticipated shift coverage of \$153K and planned/unplanned overtime of \$7K. This is offset by lower spending for storm coverage of (\$49K). YTD Deer Island's overtime spending is \$1.3 M, which is \$260K or 25.2% over budget due to higher than anticipated shift coverage of \$379K. This is offset by lower than anticipated storm coverage of (\$117K) and planned/unplanned overtime of (\$1K).

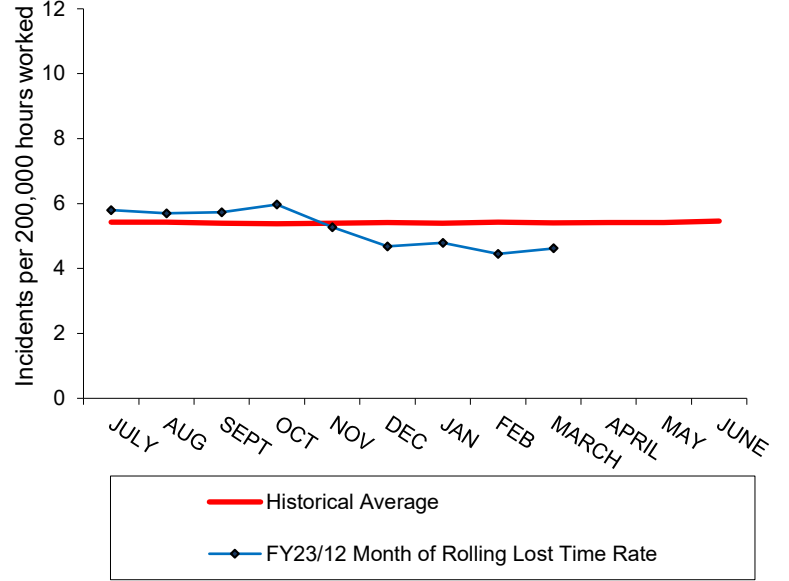
Workplace Safety

3rd Quarter - FY23

Recordable Injury & Illness Rates



Lost Time Injury & Illness Rates

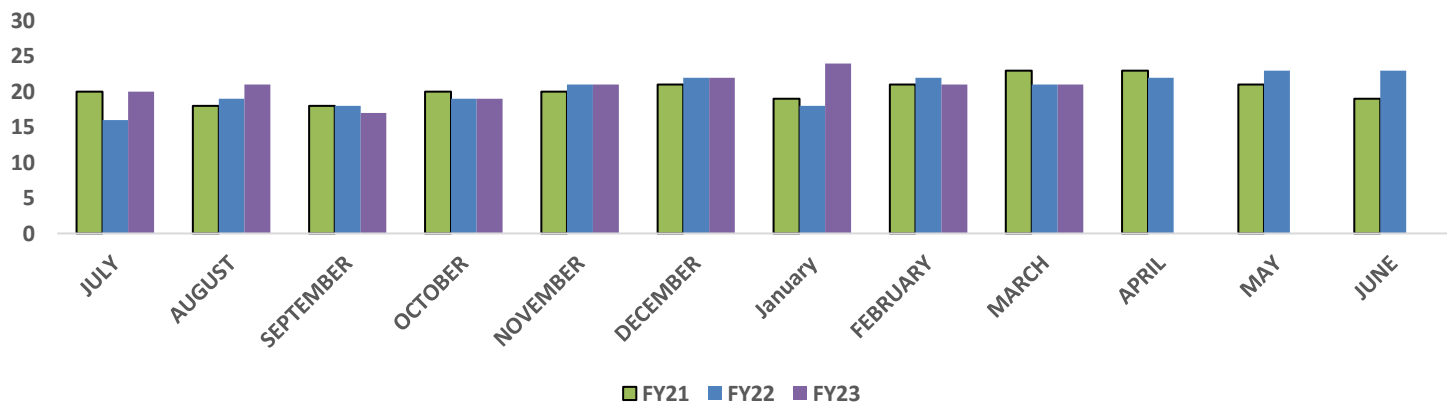


- 1 "Recordable" incidents are all work-related injuries and illnesses which result in death, loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid. Each month this rate is calculated using the previous 12 months of injury data.
- 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 FY22.

WORKERS COMPENSATION HIGHLIGHTS

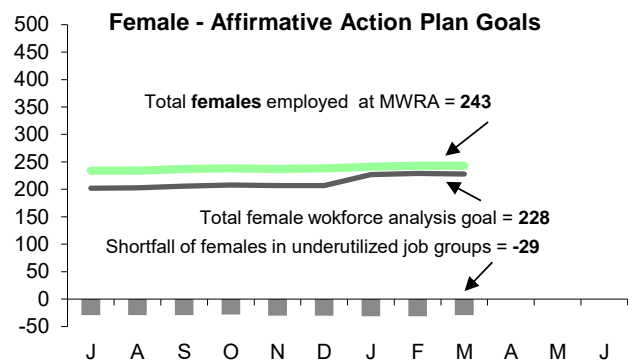
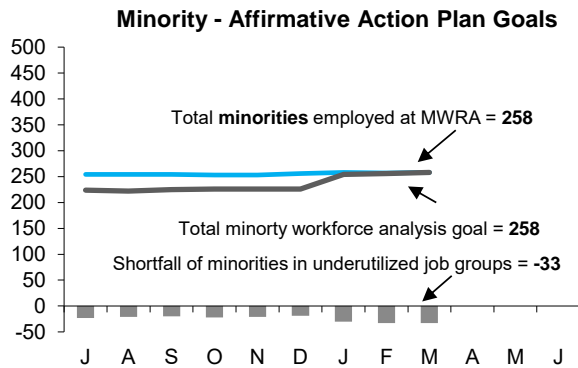
	3rd Quarter Information		Open Claims
	New	Closed	
Lost Time	2	5	49
Medical Only	2	7	110
Report Only	6	6	
	QYTD		FYTD
Regular Duty Returns	4		17
Light Duty Returns	1		1
Indemnity payments as of March 2023 included in open claims listed			22

Worker Compensation Settlements by FY



MWRA Job Group Representation

3rd Quarter - FY23



Highlights:

At the end of Q3 FY23, 6 job groups or a total of 33 positions are underutilized by minorities as compared to 6 job groups for a total of 24 positions at the end of Q3 FY22; for females 7 job groups or a total of 29 positions are underutilized by females as compared to 8 job groups or a total of 30 positions at the end of Q3 FY22. During Q3, 5 minorities and 10 females were hired. During this same period 3 minorities and 4 females were terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 3/31/2023	Minorities as of 3/31/2023	Achievement Level	Minority Over or Underutilized	Females As of 3/31/2023	Achievement Level	Female Over or Underutilized
Administrator A	26	5	2	3	12	6	6
Administrator B	24	1	5	-4	6	7	-1
Clerical A	23	7	5	2	18	17	1
Clerical B	24	7	6	1	3	12	-9
Engineer A	82	19	21	-2	23	21	2
Engineer B	56	18	16	2	14	14	0
Craft A	110	16	25	-9	0	6	-6
Craft B	123	26	26	0	1	5	-4
Laborer	55	14	16	-2	3	2	1
Management A	88	19	22	-3	32	25	7
Management B	38	11	10	1	6	9	-3
Operator A	65	4	17	-13	3	7	-4
Operator B	58	18	9	9	3	2	1
Professional A	29	8	8	0	16	13	3
Professional B	154	47	45	2	70	49	21
Para Professional	49	18	11	7	25	23	2
Technical A	53	17	12	5	7	9	-2
Technical B	7	3	2	1	1	1	0
Total	1064	258	258	33/-33	243	228	44/-29

AACU Candidate Referrals for Underutilized Positions

Job Group	Job Title	# of Vacancies	Requisition Internal/ External	Promotions/ Transfers	AACU Referral External	Position Status New Hire/Promotion
Administrative B	Associate General Counsel	2	Int./Ext.	1	0	PROMO =WF NH=WF
Engineer A	Mechanical Designer	1	Ext.	0	0	NH = WF
Engineer A	Sr. Program Manager	4	Int./Ext.	4	0	PROMO = 2WM, 2WF
Engineer A	Laboratory Manager	1	Int.	1	0	PROMO = WF
Engineer A	Project Engineer	1	Int.	1	0	PROMO = WF
Craft A	Sr. Med Volt Elect Specialist	1	Int.	1	0	PROMO = WM
Craft B	Construction Pipelayer	1	Int./Ext.	1	0	PROMO = WM
Craft B	Specialty Valve Installer	1	Int.	1	0	PROMO = BM
Craft B	Master Welder I	1	Ext.	0	0	NH= WM
Craft B	Plumber/Pipefitter	1	Ext.	0	0	NH=WM
Craft B	Electrician	1	Ext.	0	0	NH=BM
Laborers	OMC Laborer	4	Ext.	0	0	NH = 3WM, 1HM
Management A	Manager, Energy	1	Ext.	0	0	NH = WF
Management A	Manager, Policy & Planning	1	Ext.	0	0	NH = WF
Management A	Manager, Emergency Planning	1	Ext.	0	0	NH=WM
Management A	Construction Coordinator	1	Int./Ext.	1	0	PROMO=HM
Management B	Area Manager	1	Int.	1	0	PROMO = WM
Operator A	Transmission & Treatment Operator	1	Int.	1	0	PROMO = WM
Operator A	Area Supervisor	1	Ext.	0	0	NH = WM
Technical A	Business Systems Analyst III	1	Int./Ext.	0	0	NH = WF
Technical A	Communication & Control Tech.	45 3	Int./Ext.	3	0	PROMO = 3WM

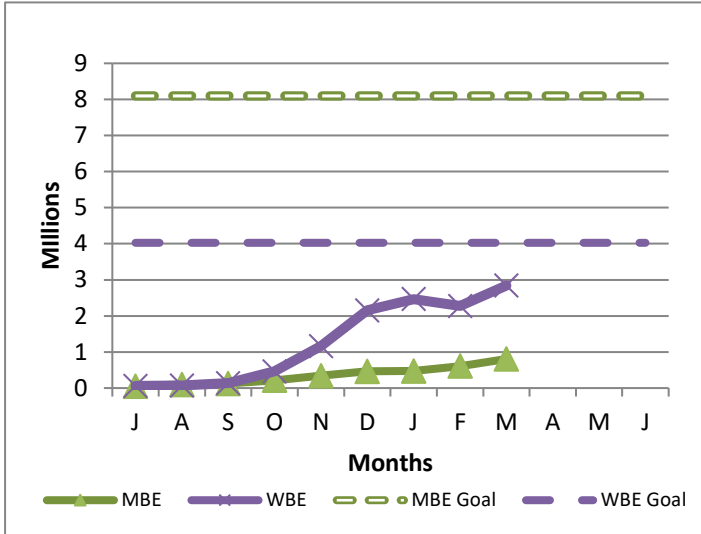
MBE/WBE Expenditures

3rd Quarter - FY23

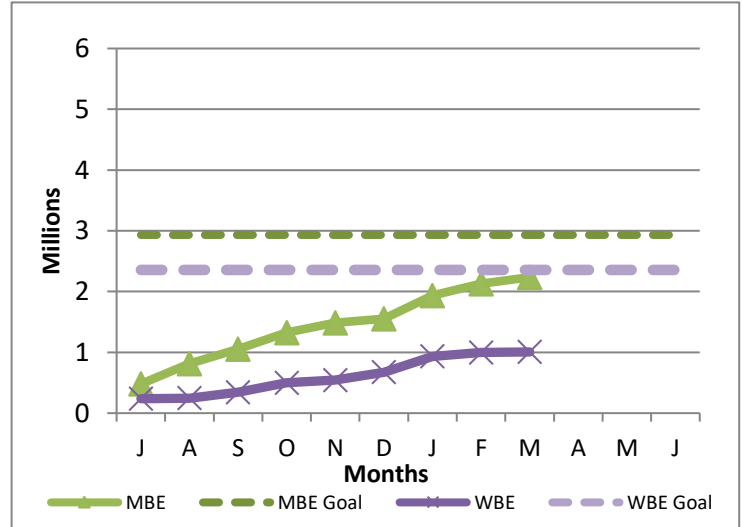
MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. The spending goals for FY23 are based on 85% of the total construction and 75% of the total professional projected spending for the year. Certain projects that do not meet the established monetary thresholds and/or have limited opportunities for subcontracting have been excluded from the goals as they have no MBE/WBE spending goals. The spending goals for FY23 for Goods and Services are based on the average spending of MBE/WBE dollars for the previous 5 years.

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 March.

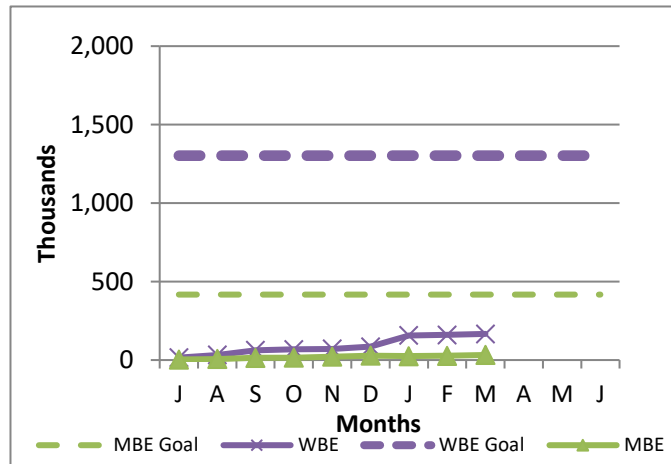
Construction



Professional Services



Goods/Services



FY23 spending and percentage of goals achieved, as well as FY22 performance are as follows:

MBE				WBE				
FY23 YTD		FY22		FY23 YTD		FY22		
Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	
805,754	10.0%	3,102,188	56.2%	2,841,454	70.6%	1,276,049	46.5%	
2,235,871	76.3%	3,156,867	147.1%	1,007,097	42.7%	1,737,850	100.8%	
32,169	7.7%	387,120	102.7%	166,669	12.8%	365,393	27.6%	
3,073,794	26.9%	6,646,175	82.6%	4,015,220	52.3%	3,379,292	58.3%	
				Totals				

FY23 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

MWRA FY23 CEB Expenses through 3rd Quarter 2023

As of March 2023, total expenses are \$586.5 million, \$8.8 million or 1.5% lower than budget, and total revenue is \$645.3 million, \$14.9 million or 2.4% over the estimate, for a net variance of \$23.7 million.

Expenses –

Direct Expenses are \$192.2 million, \$6.8 million or 3.4% under budget.

- **Wages & Salaries** are \$9.0 million under budget or 10.5%. Regular pay is \$9.2 million under budget, due to lower head count, and timing of backfilling positions. YTD through March, the average Full Time Equivalent (FTE) positions was 1,056, 111 below the 1,167 FTE's budgeted.
- **Chemicals** are \$2.0 million over budget or 18.0% due to higher spending for Sodium Hypochlorite, \$1.1 million over budget due to greater usage at DITP due to lower flows and greater need for odor control and higher contract price at the Carroll Water Treatment Plant. Spending for Ferric Chloride and Hydrogen Peroxide were over budget by \$646k and \$173k, respectively. Similarly, Carbon Dioxide was \$159k above budget.
- **Utilities** expenses are over budget by \$1.8 million or 7.7%. This reflects higher spending on Electricity of \$1.8 million, 10.4% over budget. Spending at Deer Island Treatment Plant (DITP) was \$1.4 million above budget due to higher real time pricing as well as higher usage, and peak demand charges. Higher usage reflects a 13.1% drop in on-site generation which drove a 4.1% rise in purchased power. This offset lower power requirements due to flows being 7.2% under budget. Similarly, Electricity in Field Operations was greater than budget by \$446k due to T&D and Generation costs being greater than budget.
- **Ongoing Maintenance** is \$1.5 million over budget or 5.9%. The variance reflects the actual timing of projects and the Norumbega Tank Cleaning contract award being greater than budget.
- **Other Services** expenses are \$1.1 million under budget or 5.1%, due to lower lower than anticipated Telecommunication costs of \$549k, lower Space/Lease Rentals of \$211k due to Rock Shed Lease timing, and lower Grit Screening Removal of \$108k due to lower quantities.

Indirect Expenses are \$44.3 million, \$2.0 million or 4.4% under budget due primarily to lower Watershed Reimbursement of \$2.3 million.

Capital Finance Expenses totaled \$350.0 million, matching budget after transfer of \$8.1 million to defeasance account. Defeasance savings due primarily to lower than budgeted variable interest expense which was \$2.9 million under budget and lower Senior Debt spending of \$3.7 million as a result of timing for the new money transaction, and lower SRF spending of \$1.5 million due to timing.

Revenue and Income –

Total Revenue and Income is \$645.3 million or \$14.9 million over the estimate or 2.4%. The surplus was driven by Other User Charges which were \$4.7 million over the estimate reflecting water purchases from the City of Cambridge during facility maintenance, Investment income \$9.1 million over the estimate due to higher than budget interest rates, and Other Revenue of \$1.2 million primarily due to timing for Miscellaneous Revenue of \$361k and Energy Revenue of \$342k, Permit Fees of \$319k, and an unplanned COVID operating grant from FEMA of \$168k.

	Mar 2023 Year-to-Date				
	Period 9 YTD Budget	Period 9 YTD Actual	Period 9 YTD Variance	%	FY23 Approved
EXPENSES					
WAGES AND SALARIES	\$ 85,629,444	\$ 76,629,478	\$ (8,999,966)	-10.5%	\$ 118,980,689
OVERTIME	4,047,244	3,767,717	(279,527)	-6.9%	5,337,896
FRINGE BENEFITS	17,654,591	16,950,995	(703,596)	-4.0%	23,961,641
WORKERS' COMPENSATION	1,889,813	1,386,517	(503,296)	-26.6%	2,519,751
CHEMICALS	11,060,927	13,053,003	1,992,076	18.0%	14,994,036
ENERGY AND UTILITIES	23,157,081	24,938,595	1,781,514	7.7%	30,896,365
MAINTENANCE	24,501,632	25,955,957	1,454,325	5.9%	33,241,023
TRAINING AND MEETINGS	375,373	179,518	(195,855)	-52.2%	492,197
PROFESSIONAL SERVICES	5,935,651	5,666,956	(268,695)	-4.5%	8,197,575
OTHER MATERIALS	3,674,598	3,659,155	(15,443)	-0.4%	6,728,862
OTHER SERVICES	21,096,812	20,012,782	(1,084,030)	-5.1%	28,372,237
TOTAL DIRECT EXPENSES	\$ 199,023,166	\$ 192,200,673	\$ (6,822,493)	-3.4%	\$ 273,722,272
INDIRECT EXPENSES					
INSURANCE	\$ 2,937,002	\$ 2,945,563	\$ 8,561	0.3%	\$ 3,916,002
WATERSHED/PILOT	23,056,591	20,757,074	(2,299,517)	-10.0%	28,890,762
HEEC PAYMENT	4,695,810	4,958,573	262,763	5.6%	6,225,566
MITIGATION	1,301,771	1,301,771	-	0.0%	1,735,694
ADDITIONS TO RESERVES	1,813,840	1,813,840	-	0.0%	2,418,453
RETIREMENT FUND	12,555,203	12,555,203	-	0.0%	12,555,203
POST EMPLOYEE BENEFITS	-	-	-	---	4,754,061
TOTAL INDIRECT EXPENSES	\$ 46,360,217	\$ 44,332,024	\$ (2,028,193)	-4.4%	\$ 60,495,741
CAPITAL FINANCE EXPENSES					
STATE REVOLVING FUND	\$ 67,749,415	\$ 66,206,913	\$ (1,542,502)	-2.3%	\$ 96,342,495
SENIOR DEBT	224,473,289	220,806,619	(3,666,670)	-1.6%	302,169,940
DEBT SERVICE ASSISTANCE	(1,182,494)	(1,182,494)	-	0.0%	(1,182,494)
CURRENT REVENUE/CAPITAL	-	-	-	---	18,200,000
SUBORDINATE MWRA DEBT	56,504,181	56,504,181	-	0.0%	75,491,975
LOCAL WATER PIPELINE CP	-	-	-	---	6,233,882
CAPITAL LEASE	2,412,795	2,412,795	-	0.0%	3,217,060
VARIABLE DEBT	-	(2,924,368)	(2,924,368)	---	-
DEFEASANCE ACCOUNT	-	8,133,540	8,133,540	---	-
DEBT PREPAYMENT	-	-	-	---	5,500,000
TOTAL CAPITAL FINANCE EXPENSE	\$ 349,957,185	\$ 349,957,185	\$ -	0.0%	\$ 505,972,858
TOTAL EXPENSES	\$ 595,340,568	\$ 586,489,881	\$ (8,850,687)	-1.5%	\$ 840,190,871
REVENUE & INCOME					
RATE REVENUE	\$ 610,986,000	\$ 610,986,000	\$ -	0.0%	\$ 814,648,000
OTHER USER CHARGES	7,246,717	11,903,415	4,656,698	64.3%	9,836,507
OTHER REVENUE	5,219,486	6,405,630	1,186,144	22.7%	6,139,104
RATE STABILIZATION	735,000	735,000	-	0.0%	980,000
INVESTMENT INCOME	6,187,270	15,266,847	9,079,577	146.7%	8,587,260
TOTAL REVENUE & INCOME	\$ 630,374,473	\$ 645,296,892	\$ 14,922,418	2.4%	\$ 840,190,871

Cost of Debt 3rd Quarter – FY23

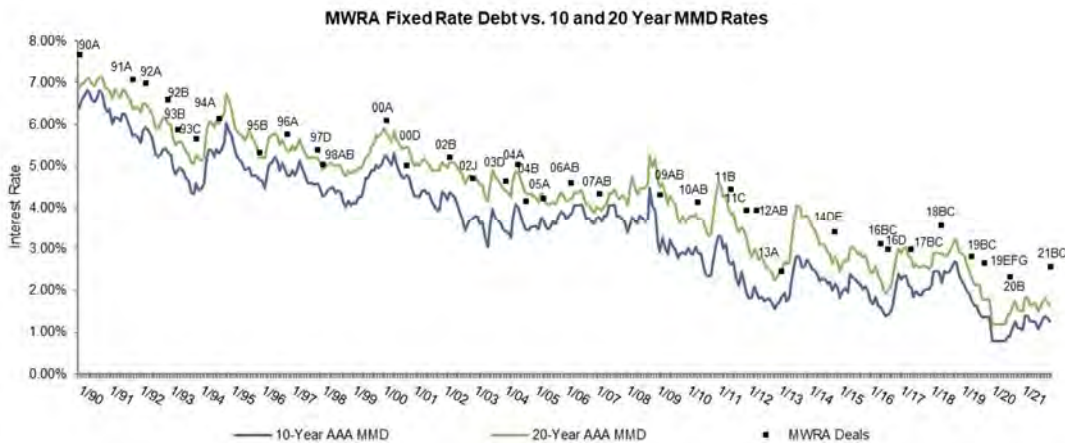
MWRA borrowing costs are a function of the fixed and variable tax exempt interest rate environment, the level of MWRA's variable interest rate exposure and the perceived creditworthiness of MWRA. Each of these factors has contributed to decreased MWRA borrowing costs since 1990.

Average Cost of MWRA Debt FYTD

Fixed Debt (\$3.20 billion)	3.28%
Variable Debt (\$269.01million)	2.76%
SRF Debt (\$758.6 million)	1.67%
Weighted Average Debt Cost (\$4.22 billion)	2.99%

Most Recent Senior Fixed Debt Issue December 2021

2021 Series B and C (\$748.0 million) 2.56%

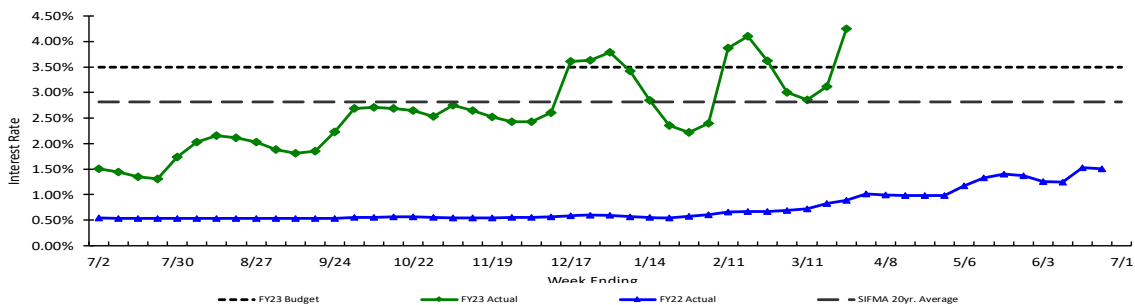


Bond Deal	1996A	1997D	1998AB	2000A	2000D	2002B	2002J	2003D	2004A	2004B	2005A	2006AB	2007AB	2009AB
Rate	5.78%	5.40%	5.04%	6.11%	5.03%	5.23%	4.71%	4.64%	5.05%	4.17%	4.22%	4.61%	4.34%	4.32%
Avg Life	19.5 yrs	21.6 yrs	24.4 yrs	26.3 yrs	9.8 yrs	19.9 yrs	19.6 yrs	18.4 yrs	19.6 yrs	13.5 yrs	18.4 yrs	25.9 yrs	24.4 yrs	15.4 yrs

Bond Deal	2010AB	2011B	2011C	2012AB	2013A	2014D-F	2016BC	2016D	2017BC	2018BC	2019BC	2019EFG	2020B	2021BC
Rate	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%	2.56%
Avg Life	16.4 yrs	18.8 yrs	16.5 yrs	17.9 yrs	9.9 yrs	15.1 yrs	17.4 yrs	18.8 yrs	11.2 yrs	11.7 yrs	11.9 yrs	9.73 yrs.	15.6 yrs	12.2 yrs

Weekly Average Variable Interest Rates vs. Budget

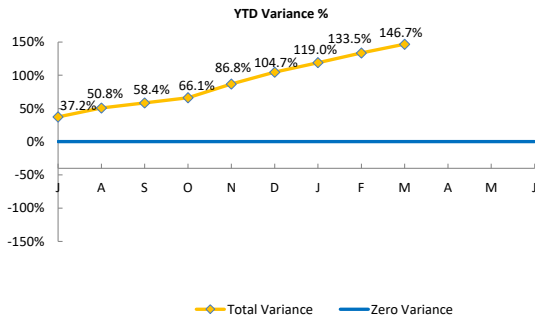
MWRA currently has eight variable rate debt issues with \$443.9 million outstanding, excluding commercial paper. Of the eight outstanding series, three have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In March, the SIFMA rate ranged from a high of 4.35% to a low of 2.21% 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

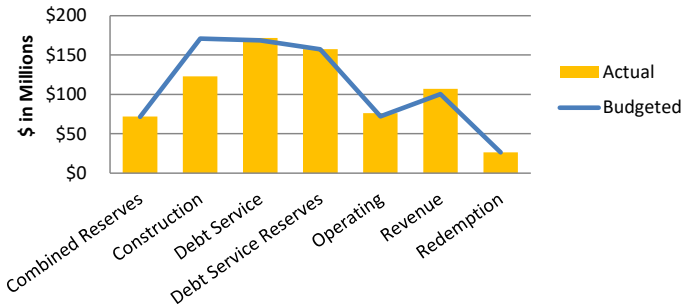
3rd Quarter – FY23

Year To Date

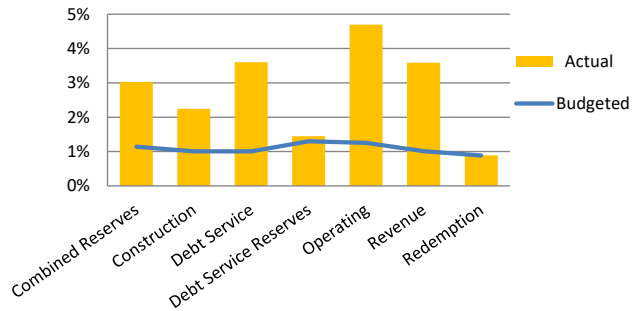


	YTD BUDGET VARIANCE			
	(\$'000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	\$3	\$996	\$999	166.5%
Construction	-\$473	\$1,625	\$1,152	91.6%
Debt Service	\$22	\$3,284	\$3,306	266.2%
Debt Service Reserves	\$0	\$171	\$171	11.3%
Operating	\$41	\$1,329	\$1,370	206.7%
Revenue	\$50	\$2,031	\$2,081	278.9%
Redemption	\$0	\$0	\$0	0.0%
Total Variance	-\$356	\$9,436	\$9,080	146.7%

YTD Average Balances Budgeted vs. Actual

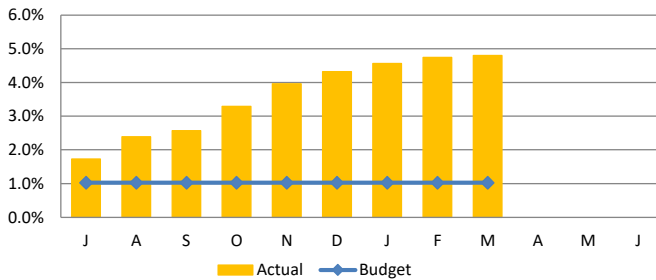


YTD Average Interest Rate Budgeted vs. Actual

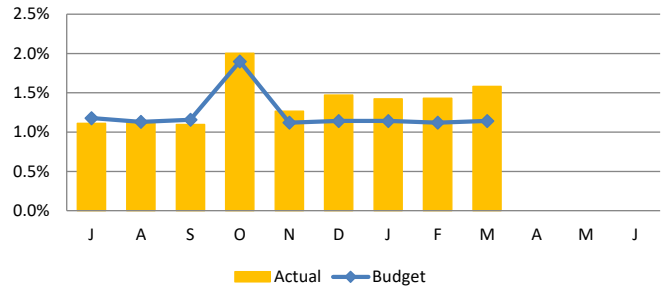


Monthly

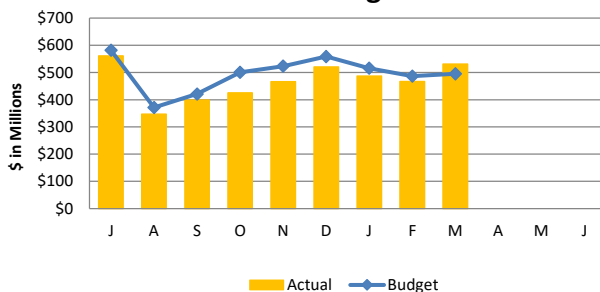
Short -Term Interest Rates



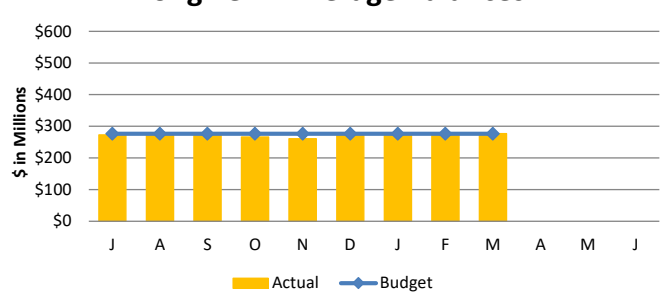
Long -Term Interest Rates



Short-Term Average Balances



Long-Term Average Balances




STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
SUBJECT: Delegated Authority Report – April 2023

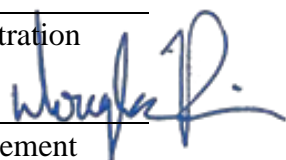


COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE


Michele S. Gillen
Director, Administration

Betty Hill, Acting Admin. Systems Coordinator
Barbara Aylward, Administrator A & F
Preparer/Title


Douglas J. Rice
Director of Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period April 1 – 30, 2023.

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 16, 2022, delegate authority to the Executive Director to approve the following:

Construction Contract Awards:

Up to \$3.5 million if the award is to the lowest bidder.

Change Orders:

Up to 25% of the original contract amount or \$1,000,000.00, 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 \$1,000,000 and three years with a firm; or up to \$200,000 and two years with an individual.

Non-Professional Service Contract Awards:

Up to \$1,000,000 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 \$3.5 million if the award is to the lowest bidder.

Amendments:

Up to 25% of the original contract amount or \$500,000, 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 APRIL 1 - 30, 2023


NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	04/03/23	DEER ISLAND DEMAND RESPONSE SERVICES AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR THE DEER ISLAND DEMAND RESPONSE SERVICES FOR A THREE YEAR TERM FROM JUNE 1, 2027 THROUGH MAY 31, 2030.	5611	AWARD	ENERWISE GLOBAL TECHNOLOGIES, LLC d/b/a CPOWER	\$93,312.00
C-2.	04/06/23	REHABILITATION OF WASM 3 SECTIONS W11/W12/W16/51 (MEDFORD, SOMERVILLE AND ARLINGTON) REPLACE THE METER 80 VALVES. PIPING. BENDS. TEES. REDUCERS AND RESTRAIN ALL PIPING; REVISE SUPPORT OF EXCAVATION AND RELOCATE WATER MAIN.	6544	7	ALBANESE D&S, INC.	\$339,347.71
C-3.	04/12/23	FUEL STORAGE TANK MAINTENANCE SERVICE INCREASE ALLOWANCE FOR REPLACEMENT PARTS.	OP-417	1	MASS TANK INSPECTION SERVICES, LLC	\$50,000.00
C-4.	04/12/23	NORTHERN EXTRA HIGH PRESSURE ZONE IMPROVEMENTS SECTION 63 (LEXINGTON) INSTALL DUCT IRON PIPE, GATE VALVES, MANHOLES STRUCTURES AND SURFACE RESTORATION; INCREASE COMMODITY ALLOWANCE.	6522	4	ALBANESE D&S, INC.	\$385,265.24
C-5.	04/25/23	MONITORING AND MAINTENANCE OF INTRUSION ALARM SYSTEMS AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE SUPERVISED MONITORING OF INTRUSION ALARM SYSTEMS, NON-EMERGENCY AND EMERGENCY REPAIR SERVICES AND REPLACEMENT PARTS FOR A TERM OF 1,096 CALENDAR DAYS.	EXE-046	AWARD	FUTURE TECHNOLOGIES GROUP d/b/a NEW ERA TECHNOLOGY, NE	\$141,015.00
C-6.	04/28/23	HYDRAULIC EQUIPMENT SERVICE FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS: REPLACEMENT PARTS AND RENTAL EQUIPMENT: EMERGENCY ON-CALL	OP-416	2	R. ZOPPO CORP.	(\$38,719.77)

PURCHASING DELEGATED AUTHORITY ITEMS APRIL 1 - 30, 2023

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	COMPANY	
P-1	04/06/23	ANALYSIS OF OIL, GREASE LUBRICANTS, FUEL OIL AND RELATED TRAINING SERVICES AWARD OF A THREE-YEAR PURCHASE ORDER CONTRACT TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE ANALYSIS OF OIL, GREASE LUBRICANTS, FUEL OIL AND RELATED TRAINING SERVICES FOR THE DEER ISLAND TREATMENT PLANT.	WRA-5257	TRIBOLOGIK CORPORATION	\$109,684.50
P-2	04/10/23	MAINTENANCE AND SUPPORT OF CITRIX SHAREFILE SUBSCRIPTION LICENSES AWARD OF A THREE-YEAR PURCHASE ORDER UNDER MASS STATE CONTRACT ITC73 TO THE LOWEST RESPONSIVE BIDDER FOR MAINTENANCE AND SUPPORT OF 400 CITRIX SHAREFILE SUBSCRIPTION LICENSES FOR THE PERIOD APRIL 7, 2023 TO APRIL 6, 2026.	WRA-5266-Q	INTRASYSTEMS, INC.	\$143,250.00
P-3	04/10/23	ORACLE PROCESSOR LICENSES MAINTENANCE AND SUPPORT AWARD OF A ONE-YEAR PURCHASE ORDER UNDER MASS STATE CONTRACT ITS64 FOR ORACLE PROCESSOR LICENSES MAINTENANCE FOR THE PERIOD OF JULY 1, 2023 THROUGH JUNE 30, 2024		ORACLE AMERICA INC.	\$217,943.65
P-4	04/13/23	PURCHASE OF 16 WIRELESS ROUTERS AND INSTALLATION SERVICES FOR DATA COMMUNICATION AWARD OF A SOLE SOURCE PURCHASE ORDER FOR SIXTEEN WIRELESS ROUTERS AND INSTALLATION SERVICES UNDER MASS STATE BLANKET AGREEMENT ITT72.		VERIZON BUSINESS NETWORK SERVICES, INC.	\$34,006.88
P-5	04/11/23	PURCHASE OF ONE AIR-COLLED CHILLER AWARD OF A PURCHASE ORDER FOR ONE AIR-COOLED CHILLER FOR THE RESIDUALS DIGESTER GAS COOLING SYSTEM AT THE DEER ISLAND TREATMENT PLANT.	WRA-5246	HTS ENGINEERING, INC.	\$75,626.00
P-6	04/12/23	PURCHASE OF ONE REACTOR BATTERY 100 HORSEPOWER GEAR BOX AWARD OF A SOLE SOURCE PURCHASE ORDER FOR ONE REACTOR BATTERY 100 HORSEPOWER GEAR BOX FOR THE DEER ISLAND TREATMENT PLANT. REACTOR AERATORS ARE SIMILAR TO LARGE MIXERS THAT TRANSFER PURE GASEOUS OXYGEN AS PART OF THE CRYOGENIC OXYGEN GENERATION PROCESS.		SPX FLOW US, LLC	\$245,750.00
P-7	04/12/23	PRINTING AND MAILING OF THE MWRA COSUMER CONFIDENCE REPORT ADMENDMENT 2 TO PURCHASE ORDER CONTRACT FOR THE PRINTING AND MAILING OF THE MWRA COSUMER CONFIDENCE REPORT. THIS AMENDMENT EXECUTES YEAR OPTION TO THE EXISTING CONTRACT.	WRA-5071	HANNAFORD & DUMAS COMMERCIAL PRINTERS	\$297,105.13
P-8	04/12/23	MAINTENANCE AND SUPPORT OF THE INTEGRATED FINANCIAL, PROCURMENT AND HUMAN RESOURCES/PAYROLL MANAGEMENT SYSTEM AWARD OF A SOLE SOURCE PURCHASE ORDER CONTRACT FOR ONE YEAR OF MAINTENANCE AND SUPPORT OF THE INTEGRATED FINANCIAL PROCURMENT AND HUMAN RESOURCES/PAYROLL MANAGEMENT SYSTEM (LAWSON) FOR THE PERIOD JUNE 1, 2023 THROUGH MAY 31, 2024.		INFOR INC.	\$571,640.25
P-9	04/21/23	MAINTENANCE AND SUPPORT FOR NEXPOSE LICENSES AWARD OF A SOLE SOURCE PURCHASE ORDER FOR ONE YEAR OF MAINTENANCE AND SUPPORT OF NEXPOSE LICENSES FOR THE PERIOD JUNE 29, THROUGH JUNE 28, 2024. NEXPOSE ASSISTS MIS IN PROTECTING MWRA SOFTWARE AND COMPUTER ASSETS FRIM INTERNAL AND EXTERNAL INTRUDERS.		RAPID7, LLC	\$26,092.00
P-10	04/20/23	QUALITY CONTROL DIVER CONTRACTOR SERVICES AWARD OF A PURCHASE ORDER CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR QUALITY CONTROL DIVER CONTRACTOR SERVICES FOR AQUATIC INVASVE PLANT CONTROL EFFORTS FOR WACHUSETT, SUDBURY AND WESTON RESERVOIRS.	WRA-5272	FATHOM RESOURCES, LLC	\$61,922.25
P-11	04/24/23	REPLACEMENT PARTS FOR FLOWROX PUMPS AWARD OF A PURCHASE ORDER FOR REPLACEMENT PARTS FOR FLOWROX PUMPS FOR THE DEER ISLAND TREATMENT PLANT. FLOWROX PUMPS PUMP THICKENED PRIMARY SLUDGE FROM THE GRAVITY THICKENERS TO THE DIGESTER COMPLEX.	WRA-5246	VALMET FLOW CONTROL, INC.	\$26,950.96
P-12	04/24/23	SUPPLY AND DELIVERY OF SUB BASE GRAVEL BORROW AWARD OF A ONE-YEAR PURCHASE ORDER CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR SUPPLY AND DELIVERY OF SUB BASE GRAVEL BORROW FOR THE CHELSEA FACILITY ON AS-NEEDED BASIS.	WRA-5282Q	MARIO SUSI & SON, INC.	\$30,675.00
P-13	04/24/23	GROUNSKEEPING SERVICES AWARD OF A ONE-YEAR PURCHASE ORDER CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR LAWN CARE SERVICES AT THE CLINTON WASTEWATER TREATMENT PLANT.	WRA-5284Q	KILBOURN CORPORATION	\$36,000.00
P-14	04/24/23	DIVER ASSISTED SUCTION HARVESTING AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR DIVER ASSISTED SUCTION HARVESTING OF INVASIVE AQUATIC PLANTS FOR THE SUDBURY AND WESTON RESERVOIRS.	WRA-5279Q	AE COMMERCIAL DIVING SERVICES, INC.	\$42,000.00
P-15	04/24/23	INVASIVE PLANT CONTROL AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE INVASIVE PLANT CONTROL AT THE WARE RIVER SHAFT 8 INTAKE POOL.	WRA-5278Q	DAVEY RESOURCE GROUP, INC.	\$49,485.00
P-16	04/25/23	SYSTEM AUDITS OF THE CONTINUOUS EMISSIONS MONITORING SYSTEM AWARD OF A THREE-YEAR PURCHASE ORDER CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR SYSTEM AUDITS OF THE CONTINUOUS EMISSIONS MONITORING SYSTEM FOR DEER ISLAND TREATMENT PLANT.	WRA-5283Q	AIR TOX ENVIROMENTAL COMPANY, INC.	\$32,100.00
P-17	04/25/23	DATA REPORTING ANALYST (REPORT WRITER) CONSULTANT AWARD OF A PURCHASE ORDER UNDER STATE ONTRACT ITS77 TO THE LOWEST RESPONSIVE BIDDER FOR A DATA REPORTING ANALYST (REPORT WRITER) CONSULTANT FOR 1,950 BILLABLE HOURS (52 WEEKS) @ \$86.23/HR.	WRA-5281Q	MINDLANC INC.	\$168,148.50

P-18	04/26/23	45 CISCO CORE SWITCHES AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITT50 FOR 45 CISCO CORE SWITCHES AND A FIVE YEAR MAINTENANCE SERVICE AGREEMENT.	WRA-5265Q	PRESIDIO NETWORKED SOLUTION, LLC	\$440,654.40
P-19	04/28/23	CRYPTOSPORIDIUM AND GIARDIA TESTING AWARD OF A TWO-YEAR PURCHASE ORDER CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR CRYPTOSPORIDIUM AND GIARDIA TESTING.	WRA-5276	EMSL ANALYTICAL, INC.	\$47,310.00

STAFF SUMMARY

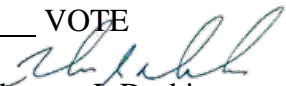
TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: May 24, 2023
SUBJECT: FY23 Financial Update and Summary through April 2023

COMMITTEE: Administration, Finance & Audit

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

X INFORMATION

 VOTE


Thomas J. Durkin
Director, Finance

RECOMMENDATION:

For information only. This staff summary provides the financial results and variance highlights for Fiscal Year 2023 through April 2023, comparing actual spending to the budget, and includes a projection to June 30, 2023.

DISCUSSION:

MWRA is continuing the practice of setting aside favorable Capital Finance variances into the Defeasance Account with the intention of recommending Board approval to use these funds to defease debt and provide rate relief in future years. Targeted defeasances are a critical component of the Authority's multi-year rate management strategy. As such, in April the year-to-date debt related savings of \$12.1 million was transferred to the Defeasance Account. This variance is primarily due to lower than budgeted senior debt spending, SRF spending, and variable interest expense.

The total Year-to-Date variance for the FY23 Current Expense Budget (CEB) is \$27.3 million, due to lower direct expenses of \$7.3 million and indirect expenses of \$2.1 million, as well as higher revenue of \$18.0 million. The year-end favorable variance is projected at \$49.8 million, of which \$22.1 million is related to debt service. Beyond debt service savings, staff project a favorable variance of approximately \$27.7 million at year-end of which \$6.6 million would be from lower direct expenses, \$0.8 million from lower indirect expenses, and \$20.3 million from greater than budgeted revenues.

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

FY23 Current Expense Budget

The CEB expense variances through April 2023 by major budget category were:

- Lower Direct Expenses of \$7.3 million or 3.3% under budget. Spending was lower for Wages & Salaries, Other Services, Fringe Benefits, Workers Compensation, Professional Services, Overtime, Training & Meetings, and Other Materials. Spending was higher than budget for Chemicals, Maintenance, and Utilities.
- Lower Indirect Expenses of \$2.1 million or 4.3% under budget due primarily to lower Watershed Reimbursements and PILOT payment.
- Debt Service expenses were right on budget after the transfer to the defeasance account, driven by lower senior debt spending as a result of the refunding and new money transactions, lower than budgeted SRF transactions and variable interest expense.
- Revenue was \$18.0 million or 2.4% greater than estimate driven by Investment Income, Other User Charges, and the receipt of Debt Service Assistance from the Commonwealth.

FY23 Budget and FY23 Actual Variance by Expenditure Category
(in millions)

	FY23 Budget	FY23 Actual	\$ Variance	% Variance
Direct Expenses	\$219.8	\$212.6	-\$7.3	-3.3%
Indirect Expenses	\$49.0	\$46.9	-\$2.1	-4.3%
Capital Financing	\$388.4	\$388.4	\$0.0	0.0%
Total	\$657.3	\$648.0	-\$9.3	-1.4%

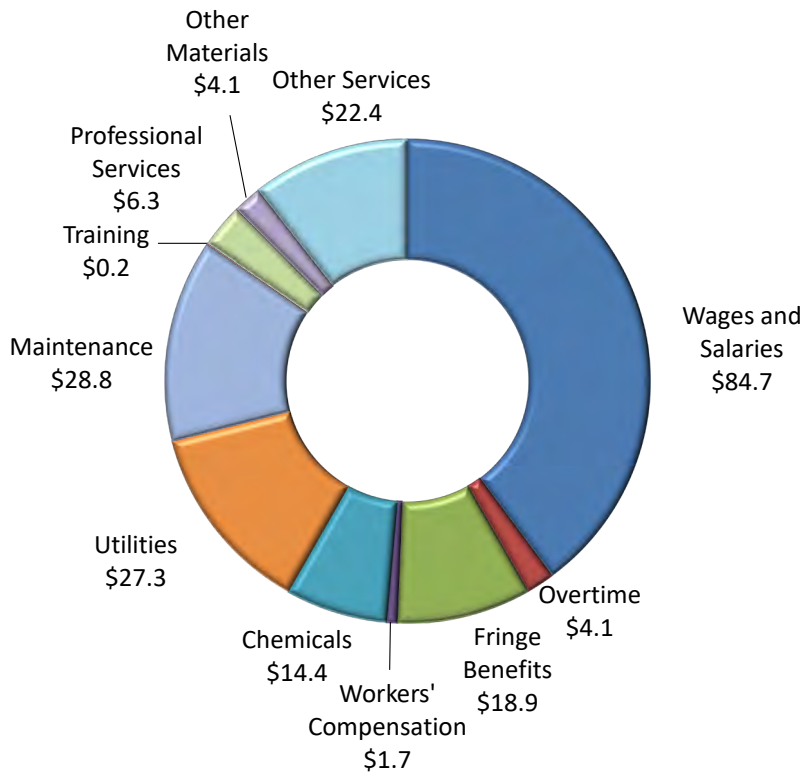
Totals may not add due to rounding

Please refer to Attachment 1 for a more detailed comparison by line item of the budget variances for FY23.

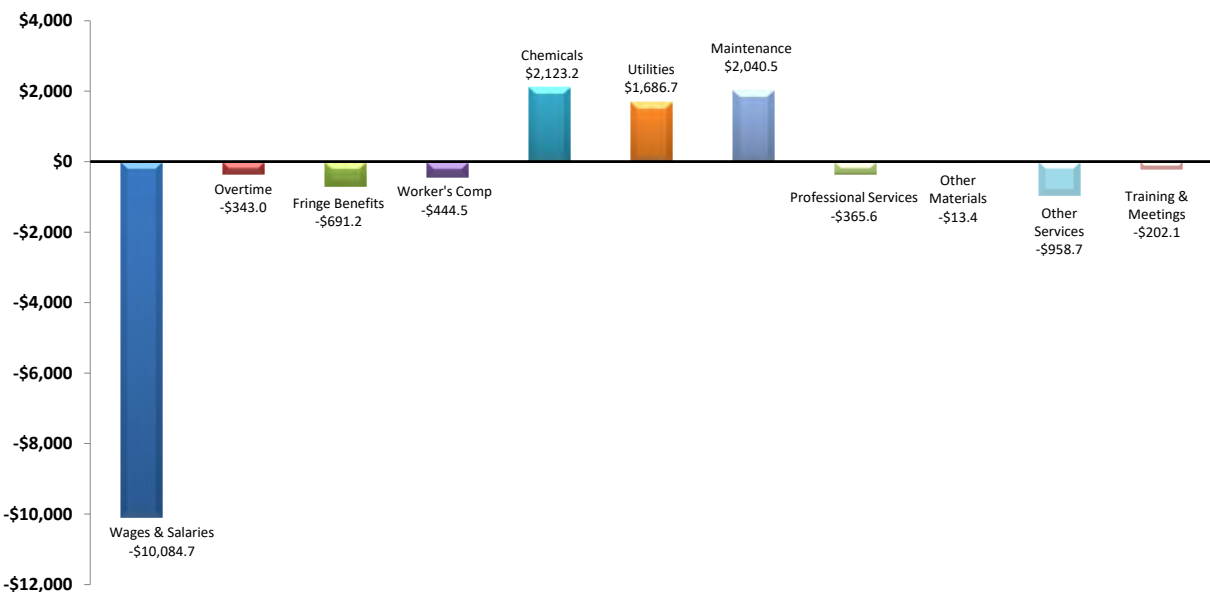
Direct Expenses

FY23 direct expenses through April totaled \$212.6 million, which was \$7.3 million or 3.3% less than budgeted.

**FY23 Direct Expenses
(in millions)**

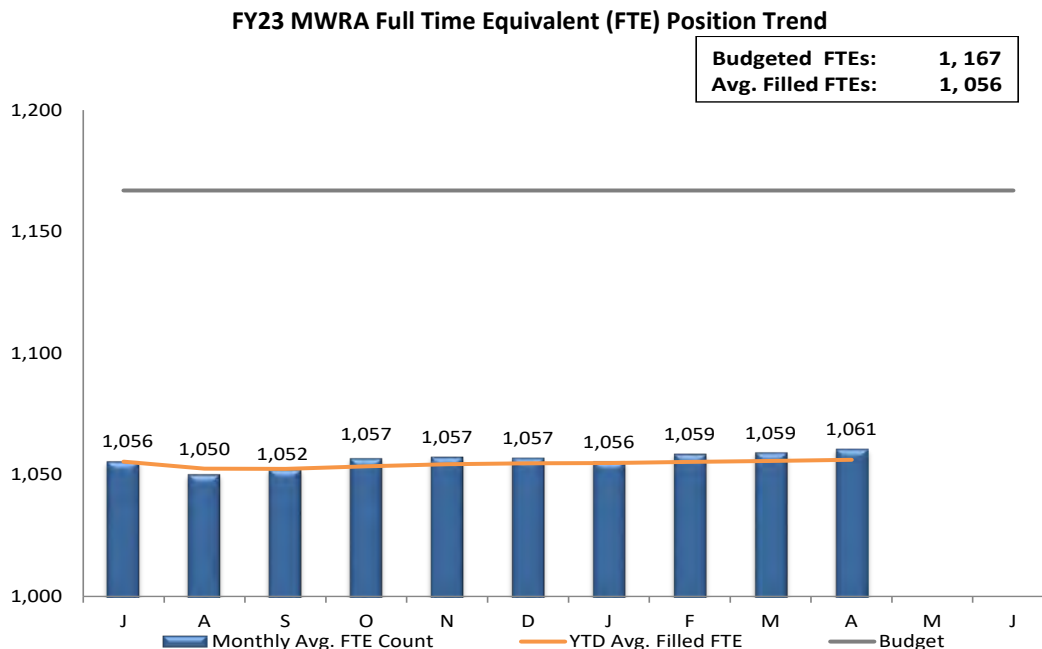


**FY23 Direct Expense Variance
(in thousands)**



Wages and Salaries

Wages and Salaries was under budget by \$10.1 million or 10.6%. Through April, there were 111 fewer average FTEs (1,056 versus 1,167 budget) or 9.5% and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions also contributed to Regular Pay being under budget.



Chemicals

Chemicals were greater than budget by \$2.1 million or 17.3%. Higher than budgeted spending on Sodium Hypochlorite of \$1.2 million driven by Deer Island of \$1.1 million due to additional usage for disinfection and odor control due to lower flows and higher pricing, \$112,000 in Wastewater Operations primarily at Nut Island Headworks. Ferric Chloride of \$777,000 driven by Deer Island to keep the orthophosphate levels in the digesters at the desired target level and higher pricing, Carbon Dioxide of \$178,000 primarily due to increased contract price, and Hydrogen Peroxide of \$164,000 driven by Deer Island to reduce elevated Hydrogen Sulfide (H₂S) levels for pretreatment and odor control and provide maintenance safely. These are partially offset by lower Sodium Bisulfite of \$109,000 primarily in Wastewater and Water Operations. Deer Island flows are 9.8% lower than the budget and Carroll flows are 4.0% greater than the budget through April. 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.

Maintenance

Maintenance was greater than budget by \$2.0 million or 7.6%, largely driven by the timing of projects. Maintenance Materials are over budget by \$1.6 million driven by Warehouse Inventory of \$743,000 due to the need for spare parts as well as purchasing of materials early due to supply chain issues, Special Equipment Materials of \$499,000 for additional SCADA materials needed, HVAC Materials of \$253,000 and Computer Materials of \$167,000, both due to timing. Maintenance Services are over budget by \$450,000 million due to higher Plant & Machinery

Services of \$1.7 million due to timing of some service contracts including the Norumbega Tank Cleaning award being greater than budgeted, and cleaning of surfaces and equipment at the Cottage Farm CSO facility that was unbudgeted, Computer Software Licenses of \$419,000 due to timing (and includes Windows Exchange renewal and the multi-factor authentication software support renewal that was greater than budgeted), and Pipeline Services of \$215,000 for interceptor sewer line leak in South Boston. These are partially offset by lower Building & Grounds Services of \$888,000 due to timing and includes the Eastern Ave Traffic Light and Shaft 8 Retaining Wall work and lower Computer Services of \$499,000 and Electrical Services of \$357,000 also due to timing.

Utilities

Utilities were greater than budget by \$1.7 million or 6.6%. Overspending in Electricity of \$1.8 million primarily at DITP of \$1.3 million driven by higher real time pricing as well as higher usage and peak demand charges. Electricity in Field Operations was greater than budget by \$567,000 due to T&D and Generation costs that were greater than budget.

Other Services

Other Services were lower than budget by \$959,000 or 4.1% driven by Telecommunications of \$606,000 due to less than anticipated costs, Space/Lease Rentals of \$177,000 primarily due to timing of the rock core storage, shelving, and furniture, and Grit & Screenings Removal of \$124,000 due to lower quantities.

Fringe Benefits

Fringe Benefit spending was lower than budget by \$691,000 or 3.5%. Lower than budget spending in Health Insurance of \$421,000 due to fewer than budgeted participants in health insurance plans, increased contributions 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, there was lower spending on Paid Family Medical Leave of \$82,000 and Unemployment Insurance of \$74,000.

Worker's Compensation

Worker's Compensation expenses were lower than budget by \$444,000 or 21.2%. The lower expenses were due to favorable variances in Compensation Payments of \$414,000 and Administrative Expenses of \$41,000. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.

Professional Services

Professional Services were less than budget by \$366,000 or 5.5% driven by lower Engineering Services of \$221,000, Other Services of \$174,000, and Lab and Testing and Analysis of \$102,000, primarily due to timing. These are partially offset by higher Computer Systems Consultant of \$164,000 also primarily due to timing and updated costs.

Overtime

Overtime expenses were less than budget by \$343,000 or 7.8%. Lower spending mainly in Field Operations of \$498,000 primarily for planned overtime (due to vacancies), emergency overtime being under budget and minimal bad weather conditions, and Engineering & Construction of \$77,000, are partially offset by higher spending at Deer Island of \$277,000 for shift coverage due to vacancies for Deer Island Operations positions.

Training & Meetings

Training & Meetings expenses were lower than budget by \$202,000 or 51.9% driven by the timing of spending.

Other Materials

Other Materials were less than budget by \$13,000 or 0.3% driven by lower Vehicle Expense of \$292,000 primarily due to delay in installation of electrical vehicle chargers, Equipment and Furniture of \$234,000 and Computer Software of \$92,000, both due to timing. This underspending is partially offset by higher Vehicle Purchase/Replacements of \$466,000 and Computer Hardware of \$289,000 both due to the timing of purchases.

Indirect Expenses

Indirect Expenses totaled \$46.9 million, which is \$2.1 million or 4.3% lower than budget. The variance is driven by lower Watershed reimbursements and PILOT payment.

Based on FY23 operating activity only, Watershed Reimbursement is \$2.3 million or 14.8% under budget. Lower spending on Wages and Salaries, Fringe Benefits and Equipment due to timing are slightly offset by higher spending on Utilities/Fuel. When factoring in the FY22 balance forward of \$273,000 which was paid during Q1 of FY23, Watershed Reimbursement is \$2.0 million or 12.7% below budget through April 2023. The PILOT payment in the amount of \$8.5 million was paid in February, and was \$424,000 under budget.

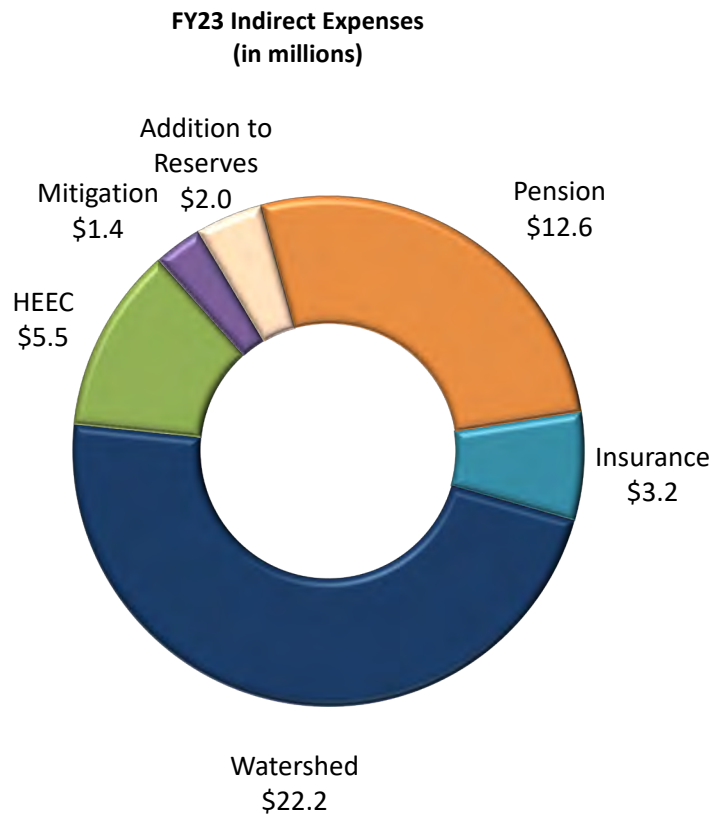
FY23 Watershed Protection Variance

\$ in millions	YTD Budget	YTD Actual	YTD \$ Variance	YTD % Variance
Operating Expenses	16.5	14.7	-1.7	-10.5%
Operating Revenues - Offset	0.8	1.4	0.6	75.5%
FY23 Operating Totals	15.7	13.4	-2.3	-14.8%
DCR Balance Forward (FY22 year-end accrual true-up)	0.0	0.3	0.3	
FY23 Adjusted Operating Totals	15.7	13.7	-2.0	-12.7%
PILOT	8.9	8.5	-0.4	-4.7%
Total Watershed Reimbursement	24.6	22.2	-2.4	-9.8%

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 arrears. 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 (with a vacancy adjustment applied). The FTE count at the end of April was 139 (and 140.8 on a year-to-date basis) vs. a budget of 150.

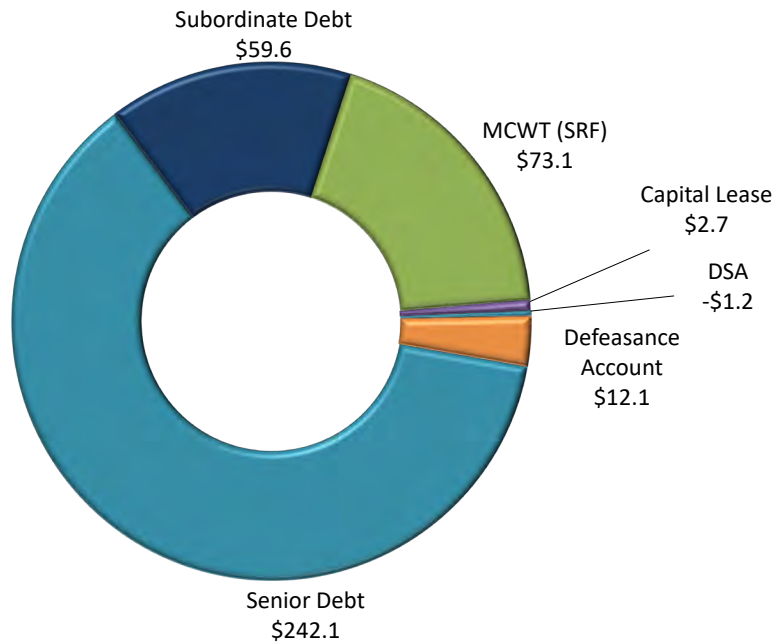


Capital Financing

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.

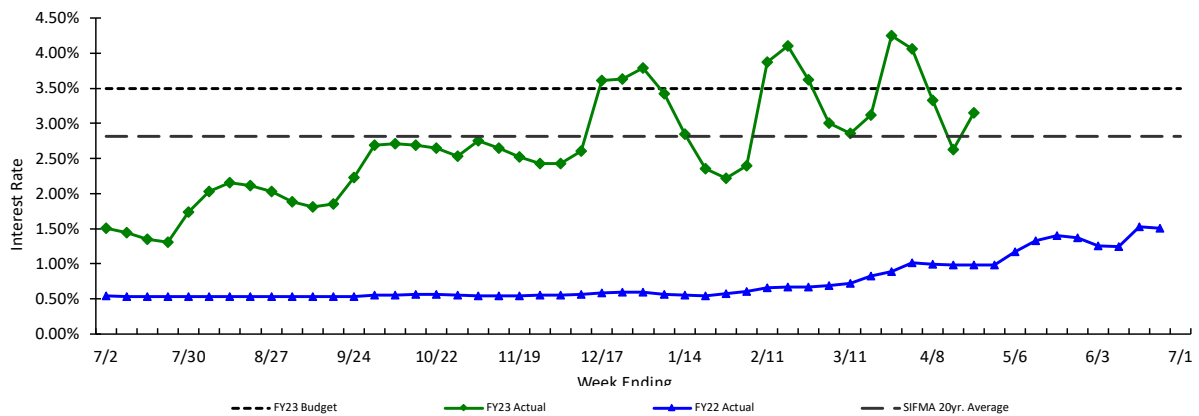
Capital Financing expenses for FY23 through April totaled \$388.4 million which matches the budget after the transfer of \$12.1 million to the Defeasance account. The positive year-to-date variance of \$12.1 million is driven by lower Senior Debt spending of \$5.7 million as a result of timing of the new money transaction and the refunding, lower SRF spending of \$3.5 million based on timing, and lower than budgeted variable interest expense of \$2.9 million.

**FY23 Capital Finance
(\$ in millions)**



The following graph reflects the FY23 actual variable rate trend by week against the FY23 Budget.

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



Revenue & Income

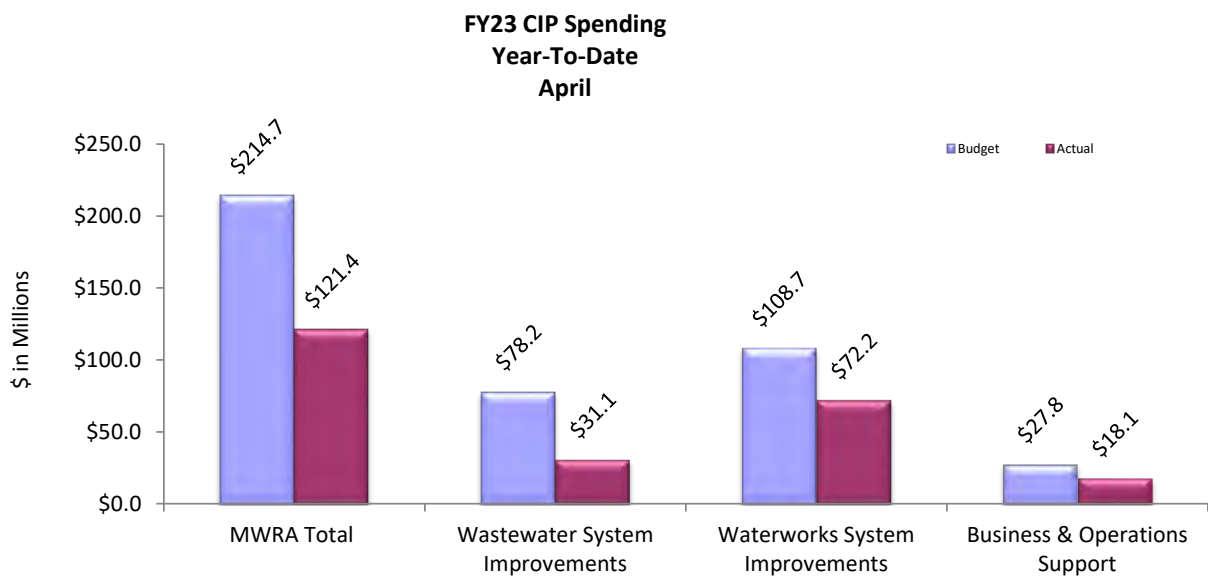
Revenues of \$713.7 million were \$18.0 million or 2.4% greater than estimate. Investment Income was \$11.0 million greater than estimate due to higher than anticipated interest rates. Other User Charges were \$4.6 million higher primarily due to water usage by the City of Cambridge. Other Revenue was \$2.4 million or 21.7% greater than estimate due to the receipt of \$1.2 million from the Commonwealth for Debt Service Assistance, as well as Energy Revenue of \$389,000,

Miscellaneous Revenue of \$328,000, and Operating Grants of \$168,000, all primarily due to timing.

FY23 Capital Improvement Program

Capital expenditures in Fiscal Year 2023 through April total \$121.4 million, \$93.2 million or 43.4% under planned spending.

After accounting for programs which are not directly under MWRA’s control, most notably the Inflow and Infiltration (I/I) grant/loan program, the Local Water System Assistance loan program, and the community managed Combined Sewer Overflow (CSOs) projects, capital spending totaled \$107.6 million, \$69.2 million or 39.1% under planned spending.



Overall, CIP spending reflects the underspending in Wastewater Improvements (\$47.1 million), Waterworks (\$36.5 million) and Business and Operations Support (\$9.6 million). Major variances in Wastewater are primarily due to timing of community grants and loans for the I/I Local Financial Assistance Program, schedule changes for the Deer Island Clarifier Rehab Phase 2, completion of some design and inspection tasks later than anticipated for Ward Street and Columbus Park Headworks Upgrades Design/ESDC, contractor behind schedule on Nut Island Odor Control and HVAC Improvements, schedule changes for Deer Island Roofing Replacement, South System Pump Station Variable Frequency Drive (VFD) Replacement Design/ESDC, and Clinton Digester Cover Replacement, and longer than anticipated delivery of equipment for the Clinton Screw Pumps Replacement.

Waterworks variances are primarily due to timing of community loan distributions for the Water Loan Program, long lead-time for piping material for Waltham Water Pipeline, longer than anticipated equipment lead time and updated Notice to Proceed for Wachusett Lower Gatehouse Pipe & Boiler Replacement – Construction, schedule changes for Quabbin Maintenance Garage/Wash Bay/Storage Building - Construction and CP-2 Shaft 5 Construction, timing of contractor work for Weston Aqueduct Supply Mains (WASM)/Spot Pond Supply Mains (SPSM)

West PRV, timing of services for Geotechnical Support, and timing of purchases for Watershed Land. This was partially offset by contractor progress for Section 89/29 Replacement and CP-1 Norther Extra High (NEH) Improvements, and timing of consultants work for Tunnel Redundancy Preliminary Design and Massachusetts Environmental Policy Act (MEPA) Review, Section 53 and 99 Improvements - Design/CA and NEH Improvements Design – ESDC.

FY23 Budget and FY23 Actual Variance by Program
(in millions)

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	32.1	20.2	(11.9)	-37.0%
Treatment	24.6	2.2	(22.4)	-90.9%
Residuals	0.0	0.0	0.0	0.0%
CSO	2.0	1.6	(0.5)	-22.9%
Other	19.4	7.0	(12.4)	-63.7%
Total Wastewater System Improvements	\$78.2	\$31.1	(\$47.1)	-60.2%
Waterworks System Improvements				
Drinking Water Quality Improvements	3.7	1.8	(1.9)	-51.8%
Transmission	48.3	28.2	(20.1)	-41.6%
Distribution & Pumping	29.0	28.4	(0.7)	-2.3%
Other	27.7	13.8	(13.8)	-50.0%
Total Waterworks System Improvements	\$108.7	\$72.2	(\$36.5)	-33.6%
Business & Operations Support	\$27.8	\$18.1	(\$9.6)	-34.6%
Total MWRA	\$214.7	\$121.4	(\$93.2)	-43.4%

Totals may not add due to rounding

FY23 Spending by Program:

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

Wastewater Treatment: Net underspending of \$22.4 million

- \$9.8 million for Clarifier Rehab Phase 2 Construction and REI due to schedule change.
- \$2.0 million for South System Pump Station VFD Design/ESDC due to updated construction schedule.
- \$2.0 million for Deer Island Roofing Replacement, \$1.5 million for Dystor Membrane Replacement, and \$1.0 million for Clinton Digester Cover Replacement due to schedule changes.
- \$1.1 million for As-needed Design due to lower than projected task order work.
- \$0.7 million for Screw Pumps Replacement Phase 1 – Construction due to (longer than anticipated delivery of pumps)

Waterworks Transmission: Net underspending of \$20.1 million

- \$11.6 million for Waltham Water Pipeline due to long lead time for piping material.
- \$2.0 million for Wachusett Lower Gatehouse Pipe & Boiler Replacement - Construction due to longer than anticipated equipment lead time and updated Notice to Proceed.
- \$1.9 million for Maintenance Garage/Wash Bay/Storage Building - Construction due to schedule change.

- \$1.7 million for CP-2 Shaft 5 Construction due to updated schedule.
- \$1.2 million for WASM/Spot Pond Supply Main Pressure Reducing Valves Improvements due to timing of contractor work.
- \$1.2 million for Geotechnical Support Services due to timing of services.
- \$0.7 million for Watershed Land due to timing of purchases.
- \$0.5 million for Wachusett Lower Gatehouse Windows & Doors due to long lead time for windows.
- This underspending was partially offset by overspending of \$1.2 million for Tunnel Redundancy Preliminary Design & MEPA Review due to timing of consultant work.

Other Waterworks: Net underspending of \$13.8 million

- \$12.4 million for Local Financial Assistance due to timing of community loan distributions.
- \$1.1 million for the Carroll Water Treatment Plant Supervisory Control and Data Acquisition (SCADA) Upgrades construction due to timing of work and long lead time for materials.
- \$0.5 million for Electrical Distribution Upgrades at Southborough due to timing of work.
- This underspending was partially offset by overspending of \$0.4 million for New Roofs at Water Pump Stations – Construction due to timing of work.

Other Wastewater: Net underspending of \$12.4 million

- \$12.4 million for Community I/I due to timing of community distributions of grants and loans.

Interception & Pumping: Net underspending of \$11.9 million

- \$3.2 million for Ward Street & Columbus Park Headworks Upgrades - Design/CA due to completion of some design and inspection tasks later than anticipated.
- \$3.1 million for Nut Island Odor Control & HVAC Improvements Phase 2 – Construction and CA/REI due to contractor behind schedule.
- \$1.0 million for Siphon Structure Rehab Construction due to updated schedule.

Business & Operations Support: Net underspending of \$9.6 million

- \$1.6 million for FY19-23 Vehicle Purchases due to timing of purchases and supply chain issues.
- \$3.9 million for Cabling, \$0.9 million for Lawson Upgrade, \$0.8 million for Oracle Database Appliance, and \$0.8 million for MAXIMO Interface Enhancements due to timing of work.
- \$1.1 million for Security Equipment & Installation due to timing of security initiatives.

Drinking Water Quality Improvements: Net underspending of \$1.9 million

- \$1.1 million for CWTP Chemical Feed System Improvements – Construction due to timing of work.
- \$0.6 million for CWTP Technical Assistance for lower than projected task order work.
- \$0.3 million for Marlboro Pump Station Connection due to timing of final work.

Water Distribution and Pumping: Net underspending of \$0.7 million

- \$1.6 million for Cathodic Protection Shafts N & W due to scope changes.
- \$1.3 million for CP3-Sections 23, 24, 47 Rehabilitation due to timing of work.
- \$0.8 million for Section 56 Replacement/Saugus River - Design/CA due to permitting delays.
- This underspending was partially offset by overspending of \$2.1 million for Section 89/29 Replacement – Construction, and \$0.5 million for CP-1 NEH Improvements due to contractor progress, \$0.6 million for Section 53 and 99 Improvements - Design/CA, and \$0.6 million for NEH Improvements Design – ESDC due to timing of consultants work.

Combined Sewer Overflow: Net underspending of \$0.5 million

- \$1.1 million for Chelsea 008 Pipe Replacement due to schedule change and long lead time for materials, partially offset by \$0.8 million for unplanned Fort Point Channel Sewer Separation work.

Construction Fund Balance

The construction fund balance was \$121.8 million as of the end of April. Commercial Paper/Revolving Loan available capacity was \$200 million.

ATTACHMENTS:

Attachment 1 – Variance Summary April 2023

Attachment 2 – Current Expense Variance Explanations

Attachment 3 – Capital Improvement Program Variance Explanations

Attachment 4 – Year-End Current Expense Projections vs. Budget

ATTACHMENT 1

FY23 Actuals vs. FY23 Budget

	Apr 2023 Year-to-Date					FY23 Approved
	Period 10 YTD Budget	Period 10 YTD Actual	Period 10 YTD Variance	%		
<u>EXPENSES</u>						
WAGES AND SALARIES	\$ 94,740,748	\$ 84,656,031	\$ (10,084,717)	-10.6%	\$ 118,980,689	
OVERTIME	4,410,058	4,067,010	(343,048)	-7.8%	5,337,896	
FRINGE BENEFITS	19,630,619	18,939,444	(691,175)	-3.5%	23,961,641	
WORKERS' COMPENSATION	2,099,793	1,655,310	(444,483)	-21.2%	2,519,751	
CHEMICALS	12,251,773	14,374,973	2,123,200	17.3%	14,994,036	
ENERGY AND UTILITIES	25,575,874	27,262,539	1,686,665	6.6%	30,896,365	
MAINTENANCE	26,715,710	28,756,171	2,040,461	7.6%	33,241,023	
TRAINING AND MEETINGS	389,397	187,268	(202,129)	-51.9%	492,197	
PROFESSIONAL SERVICES	6,622,923	6,257,322	(365,601)	-5.5%	8,197,575	
OTHER MATERIALS	4,064,650	4,051,237	(13,413)	-0.3%	6,728,862	
OTHER SERVICES	23,342,884	22,384,174	(958,710)	-4.1%	28,372,237	
TOTAL DIRECT EXPENSES	\$ 219,844,429	\$ 212,591,479	\$ (7,252,949)	-3.3%	\$ 273,722,272	
INSURANCE	\$ 3,238,232	\$ 3,242,459	\$ 4,227	0.1%	\$ 3,916,002	
WATERSHED/PILOT	24,574,599	22,162,389	(2,412,210)	-9.8%	28,890,762	
HEEC PAYMENT	5,205,726	5,525,117	319,391	6.1%	6,225,566	
MITIGATION	1,435,285	1,435,285	-	0.0%	1,735,694	
ADDITIONS TO RESERVES	1,999,875	1,999,875	-	0.0%	2,418,453	
RETIREMENT FUND	12,555,203	12,555,203	-	0.0%	12,555,203	
POST EMPLOYEE BENEFITS	-	-	-	---	4,754,061	
TOTAL INDIRECT EXPENSES	\$ 49,008,920	\$ 46,920,328	\$ (2,088,594)	-4.3%	\$ 60,495,741	
STATE REVOLVING FUND	\$ 76,547,286	\$ 73,066,126	\$ (3,481,160)	-4.5%	\$ 96,342,495	
SENIOR DEBT	247,872,259	242,144,447	(5,727,812)	-2.3%	302,169,940	
DEBT SERVICE ASSISTANCE	(1,182,494)	(1,182,494)	-	0.0%	(1,182,494)	
CURRENT REVENUE/CAPITAL	-	-	-	---	18,200,000	
SUBORDINATE MWRA DEBT	62,544,986	62,544,986	-	0.0%	75,491,975	
LOCAL WATER PIPELINE CP	-	-	-	---	6,233,882	
CAPITAL LEASE	2,660,261	2,660,261	-	0.0%	3,217,060	
VARIABLE DEBT	-	(2,938,815)	(2,938,815)	---	-	
DEFEASANCE ACCOUNT	-	12,147,787	12,147,787	---	-	
DEBT PREPAYMENT	-	-	-	---	5,500,000	
TOTAL CAPITAL FINANCE EXPENSE	\$ 388,442,298	\$ 388,442,298	\$ -	0.0%	\$ 505,972,858	
TOTAL EXPENSES	\$ 657,295,647	\$ 647,954,105	\$ (9,341,543)	-1.4%	\$ 840,190,871	
<u>REVENUE & INCOME</u>						
RATE REVENUE	\$ 673,651,230	\$ 673,651,230	\$ -	0.0%	\$ 814,648,000	
OTHER USER CHARGES	8,909,079	13,548,661	4,639,582	52.1%	9,836,507	
OTHER REVENUE	5,467,931	7,840,254	2,372,323	43.4%	6,139,104	
RATE STABILIZATION	810,385	810,385	-	0.0%	980,000	
INVESTMENT INCOME	6,860,262	17,836,202	10,975,940	160.0%	8,587,260	
TOTAL REVENUE & INCOME	\$ 695,698,887	\$ 713,686,733	\$ 17,987,846	2.6%	\$ 840,190,871	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY23 Budget YTD April	FY23 Actuals April	FY23 YTD Actual vs. FY23 Budget		Explanations
			\$	%	
Direct Expenses					
Wages & Salaries	94,740,748	84,656,031	(10,084,717)	-10.6%	Wages and Salaries are under budget by \$10.1 million or 10.6%. Year to date, there have been 111 fewer average FTEs (1,056 versus 1,167 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions.
Overtime	4,410,058	4,067,010	(343,048)	-7.8%	Overtime expenses were less than budget by \$343,000 or 7.8%. Lower spending mainly in Field Operations of \$498,000 primarily for planned overtime (due to vacancies), emergency overtime being under budget and minimal bad weather conditions, and Engineering & Construction of \$77,000, are partially offset by higher spending at Deer Island of \$277,000 for shift coverage due to vacancies for DITP Operations positions.
Fringe Benefits	19,630,619	18,939,444	(691,175)	-3.5%	Fringe Benefit spending was lower than budget by \$691,000 or 3.5%. Lower than budget in Health Insurance of \$421,000, 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, there was lower spending on Paid Family Medical Leave of \$82,000, Unemployment Insurance of \$74,000, Tuition Reimbursement of \$47,000, and Medicare of \$45,000.
Worker's Compensation	2,099,793	1,655,310	(444,483)	-21.2%	Worker's Compensation expenses were lower than budget by \$444,000 or 21.2%. The lower expenses were due to favorable variances in Compensation Payments of \$414,000, and Administrative Expenses of \$41,000. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.
Chemicals	12,251,773	14,374,973	2,123,200	17.3%	Chemicals were greater than budget by 2.1 million or 17.3%. Higher than budget spending on Sodium Hypochlorite of \$1.2 million driven by DITP of \$1.1 million due to additional usage for disinfection and odor control due to lower flows and higher pricing, \$112,000 in Wastewater Operations primarily at Nut Island Headworks. Ferric Chloride of \$777,000 driven by DITP to keep the orthophosphate levels in the digesters at the desired target level and higher pricing, Carbon Dioxide of \$178,000 primarily due to increased contract price, Hydrogen Peroxide of \$164,000 driven by DITP to reduce elevated Hydrogen Sulfide (H2S) levels for pretreatment and odor control and provide maintenance safely, Activated Carbon of \$65,000 driven by DITP of \$76,000 due to timing of replacements, partially offset by Sodium Bisulfite of \$109,000 primarily in Wastewater and Water Operations. DITP flows are 9.8% lower than the budget and CWTP flows are 4.0% greater than the budget through April. 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	25,575,874	27,262,539	1,686,665	6.6%	Utilities were greater than budget by \$1.7 million or 6.6%. Overspending in Electricity of \$1.8 million primarily at DITP of \$1.3 million driven by higher real time pricing as well as higher usage and peak demand charges. Electricity in Field Operations was greater than budget by \$567,000 due to T&D and Generation costs were greater than budget. Additionally, Field Operations had a Natural Gas increase of \$110,000, primarily due to price, which was offset by decrease of \$205,000 in Diesel, primarily due to use.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY23 Budget YTD April	FY23 Actuals April	FY23 YTD Actual vs. FY23 Budget		Explanations
			\$	%	
Maintenance	26,715,710	28,756,171	2,040,461	7.6%	Maintenance was greater than budget by \$2.0 million or 7.6%, largely driven by the timing of projects. Maintenance Materials are over budget by \$1.6 million driven by Warehouse Inventory of \$743,000, Special Equipment Materials of \$499,000 for additional SCADA materials needed and HVAC Materials of \$253,000 due to timing, higher Computer Materials of \$167,000, partially offset by Pipeline Materials of \$143,000 and Electrical Materials of \$101,000 also due to timing. <i>Maintenance Services</i> are over budget by \$450,000 million due to higher Plant & Machinery Services of 1.7 million due to timing of some service contracts, the Norumbega Tank Cleaning award being greater than budgeted, and cleaning of surfaces and equipment at the Cottage Farm CSO facility that was unbudgeted, Computer Software Licenses of \$419,000 due to timing (and includes Windows Exchange renewal and the multi-factor authentication software support renewal that was greater than budgeted), and Pipeline Services of \$215,000 for interceptor sewer line leak in South Boston. These are partially offset by lower Building & Grounds Services of \$888,000 due to timing and includes the Eastern Ave Traffic Light and Shaft 8 Retaining Wall work and lower Computer Services of \$499,000 and Electrical Services of \$357,000 also due to timing.
Training & Meetings	389,397	187,268	(202,129)	-51.9%	Training & Meetings was lower than budget by \$202,000 or 51.9% is primarily due to timing driven by MIS (\$134,000), DITP (\$22,000), Water Redundancy (\$18,000), Engineering & Construction (\$11,000), and Procurement (\$9,000), partially offset by higher spending in Field Operations \$27,000.
Professional Services	6,622,923	6,257,322	(365,601)	-5.5%	Professional Services were less than budget by \$366,000 or 5.5% driven by lower Engineering Services of \$221,000, Other Services of \$174,000, Lab & Testing and Analysis of \$102,000, primarily due to timing, partially offset by Computer Systems Consultant of \$164,000 also primarily due to timing and updated costs.
Other Materials	4,064,650	4,051,237	(13,413)	-0.3%	Other Materials were less than budget by \$13,000 or 0.3% driven by Vehicle Expense of \$291,000 primarily due to delay in installation of electrical vehicle chargers, Equipment Furniture of \$234,000 and Computer Software of \$92,000 due to timing. This underspending is partially offset by Vehicle Purchase/Replacements of \$466,000 due to timing of purchases and Computer Hardware of \$289,000 also due to timing for additional hardware purchases.
Other Services	23,342,884	22,384,174	(958,710)	-4.1%	Other Services were lower than budget by \$959,000 or 4.1% driven by Telecommunications of \$606,000 due to less than anticipated costs, Space/Lease Rentals \$177,000 primarily for Rock Core Storage and shelving & furniture due to timing, Grit & Screenings Removal \$124,000 due to lower quantities.
Total Direct Expenses	219,844,429	212,591,479	(7,252,950)	-3.3%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY23 Budget YTD April	FY23 Actuals April	FY23 YTD Actual vs. FY23 Budget		Explanations
			\$	%	
Indirect Expenses					
Insurance	3,238,232	3,242,459	4,227	0.1%	Higher Premiums of \$27,000 than budgeted and lower Payments/Claims of \$23,000 than budgeted.
Watershed/PILOT	24,574,599	22,162,389	(2,412,210)	-9.8%	Lower Watershed Reimbursement of \$2.4 million favorable variance to budget driven by lower spending on Wages & Salaries, Fringe Benefits and Equipment, partially offset by higher spending on Utilities and Fuel.
HEEC Payment	5,205,726	5,525,117	319,391	6.1%	HEEC Revenue Requirement of \$215,000, HEEC True Up of \$93,000, and O&M Charge of \$12,000.
Mitigation	1,435,285	1,435,285	-	0.0%	
Addition to Reserves	1,999,875	1,999,875	-	0.0%	
Pension Expense	12,555,203	12,555,203	-	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	49,008,920	46,920,328	(2,088,592)	-4.3%	
Debt Service					
Debt Service	388,442,298	389,624,792	1,182,494	0.3%	Debt Service matches the budget after the transfer of \$12.1 million to the Defeasance account, driven by lower Senior Debt spending of \$5.7 million as a result of the refunding and new money transactions, lower than budgeted variable interest expense of \$2.9 million, and lower SRF spending of \$3.5 million due to timing.
Debt Service Assistance	-	(1,182,494)	(1,182,494)		
Total Debt Service Expenses	388,442,298	388,442,298	-	0.0%	
Total Expenses					
Total Expenses	657,295,647	647,954,105	(9,341,541)	-1.4%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY23 Budget YTD April	FY23 Actuals April	FY23 YTD Actual vs. FY23 Budget		Explanations
			\$	%	
Revenue & Income					
Rate Revenue	673,651,230	673,651,231	1	0.0%	
Other User Charges	8,909,079	13,548,661	4,639,582	52.1%	Water usage by the City of Cambridge.
Other Revenue	5,467,931	7,840,254	2,372,323	43.4%	Other Revenue was \$1.2 or 21.7% over budget due to Payments from the Commonwealth for debt service assistance of \$1.2 million, Energy Revenue of \$389,00, Miscellaneous Revenue of \$328,000, Permit Fees of \$328,000, and Energy Rebates of \$59,000 primarily due to timing. Also, Operating Grant of \$168,000 for COVID-19 from FEMA.
Rate Stabilization	810,385	810,385	-	0.0%	HEEC Reserve.
Investment Income	6,860,262	17,836,203	10,975,941	160.0%	Investment Income is over budget due to higher than budgeted interest rates.
Total Revenue	695,698,887	713,686,734	17,987,847	2.6%	
Net Revenue in Excess of Expenses	38,403,240	65,732,629	27,329,388		

**ATTACHMENT 3
FY23 CIP Year-to-Date Variance Report (\$000s)**

	FY23 Budget YTD April	FY23 Actuals YTD April	YTD Actuals vs. Budget		Explanations
			\$	%	
Wastewater					
Interception & Pumping (I&P)	\$32,143	\$20,245	(\$11,898)	-37.0%	<u>Underspending</u> Ward Street & Columbus Park Headworks Upgrades - Design/CA: \$3.2M (completed some design and inspection tasks later than anticipated) Nut Island Odor Control & HVAC Improvements Phase 2 - Construction and CA/REI: \$3.1M (contractor behind schedule) Siphon Structure Rehabilitation Construction: \$1.0M, and Interceptor Renewal 7-Malden & Melrose - Construction: \$338k (updated schedules) Chelsea Creek Headworks Radio Equipment: \$350k (timing of equipment deliveries) Wastewater Meter System Equipment Replacement: \$324k (timing of final work)
Treatment	\$24,628	\$2,246	(\$22,381)	-90.9%	<u>Underspending</u> Primary & Secondary Clarifier Rehab Phase 2 Construction and REI: \$9.8M, DITP Roofing Replacement: \$2.0M, Deer Island Dystor Membrane Replacements: \$1.5M, DI Motor Control Center & Switchgear Replacement - Construction: \$1.0M, Fire Alarm System Replacement - Construction: \$667k, Cryo Plant Equipment Replacement Design/ESDC/REI: \$560k, Clinton Digester Cover Replacement: \$1.0M, and Digester & Storage Tank Rehabilitation Design/ESDC: \$403k (updated schedules) South System Pump Station VFD Replacement Design/ESDC: \$2.0M (construction schedule change) As-Needed Design: \$1.1M (lower than projected task order work) Screw Pumps Replacement Phase 1 - Construction: \$651k (longer than anticipated delivery of pumps) <u>Offset Overspending</u> Radio Repeater System Upgrade 2: \$389k (timing of work)
Residuals	\$0	\$0			
CSO	\$2,029	\$1,564	(\$465)	-22.9%	<u>Underspending</u> Chelsea 008 Pipe Replacement: \$1.1M (updated schedule and long lead time for materials) <u>Offset Overspending</u> Fort Point Channel Sewer Separation: \$750k (unplanned community managed work)
Other Wastewater	\$19,426	\$7,049	(\$12,377)	-63.7%	<u>Underspending</u> I/I Local Financial Assistance: \$12.4M (timing of community distributions of grants and loans)

**ATTACHMENT 3
FY23 CIP Year-to-Date Variance Report (\$000s)**

	FY23 Budget YTD April	FY23 Actuals YTD April	YTD Actuals vs. Budget		Explanations
			\$	%	
Total Wastewater	\$78,226	\$31,105	(\$47,121)	-60.2%	
Waterworks					
Drinking Water Quality Improvements	\$3,709	\$1,788	(\$1,921)	-51.8%	<u>Underspending</u> CWTP Chemical Feed System Improvements - Construction: \$1.1M, and Marlboro Pump Station Connection Construction: \$273k (timing of work) CWTP Technical Assistance: \$608k (lower than projected task order work)
Transmission	\$48,270	\$28,184	(\$20,086)	-41.6%	<u>Underspending</u> Waltham Water Pipeline - Construction and REI: \$11.6M (long lead time for piping material) Wachusett Lower Gatehouse Pipe & Boiler Replacement - Construction: \$2.0M (longer than anticipated equipment lead time and updated Notice to Proceed) Quabbin Maintenance Garage/Wash Bay/Storage Building - Construction: \$1.9M, and CP-2 Shaft 5 Construction: \$1.7M (schedule changes) WASM/SPSM West Pressure Reducing Valves - Design/CA and Construction: \$1.2M (timing of contractor's work) Geotechnical Support Services: \$1.2M (timing of support services) Watershed Land: \$734k (timing of purchases) Wachusett Lower Gatehouse Windows & Doors: \$482k (long lead time for windows) <u>Offset Overspending</u> Tunnel Redundancy Preliminary Design & MEPA Review: \$1.2M (timing of consultant work)
Distribution & Pumping	\$29,036	\$28,376	(\$660)	-2.3%	<u>Underspending</u> Cathodic Protection Shafts N & W: \$1.6M (scope changes) CP3-Sections 23, 24, 47 Rehabilitation: \$1.3M (timing of work) Section 56 Replacement/Saugus River - Design/CA: \$805k (permitting delays) <u>Offset Overspending</u> Section 89/29 Replacement - Construction: \$2.1M, and CP-1 NEH Improvements: \$458k (contractors progress) Section 53 and 99 Connection - Design/CA: \$605k, NEH Improvements Design - ESDC: \$551k, and Sections 25, 75, 24, 47, 59 & 60 - Design/CA: \$307k (timing of consultant work)

**ATTACHMENT 3
FY23 CIP Year-to-Date Variance Report (\$000s)**

	FY23 Budget YTD April	FY23 Actuals YTD April	YTD Actuals vs. Budget		Explanations
			\$	%	
Other Waterworks	\$27,662	\$13,828	(\$13,834)	-50.0%	<u>Underspending</u> Local Water Pipeline Financial Assistance Program: \$12.4M (timing of community distributions) CWTP SCADA Upgrades: \$1.1M (timing of work and long lead time for materials) Electrical Distribution Upgrades at Southborough: 481k (timing of work) <u>Offset Overspending</u> New Roofs at Water Pump Stations - Construction: \$443k (timing of work)
Total Waterworks	\$108,677	\$72,176	(\$36,501)	-33.6%	
Business & Operations Support					
Total Business & Operations Support	\$27,752	\$18,146	(\$9,606)	-34.6%	<u>Underspending</u> Cabling: \$3.9M, Lawson Upgrade: \$877k, MAXIMO Interface Enhancements: \$778k, and Oracle Database Appliance: \$775k (timing of work) FY19-23 Vehicle Purchases: \$1.6M (timing of purchases and supply chain issues) Security Equipment & Installation: \$1.1M (timing of security initiatives) MSSP/SIEM: \$940k (scope reduction) <u>Offset Overspending</u> Office Space Modifications: \$2.3M (contract award was greater than budget)
Total MWRA	\$214,655	\$121,426	(\$93,229)	-43.4%	

Attachment 4
FY23 Budget vs. FY23 Projection

TOTAL MWRA	FY23 Budget	FY23 Projection	Change FY23 Budget vs FY23 Projection	
			\$	%
EXPENSES				
WAGES AND SALARIES	\$ 118,980,689	\$ 107,177,992	\$ (11,802,697)	-9.9%
OVERTIME	5,337,896	5,177,759	(160,137)	-3.0%
FRINGE BENEFITS	23,961,641	23,242,792	(718,849)	-3.0%
WORKERS' COMPENSATION	2,519,751	2,141,788	(377,963)	-15.0%
CHEMICALS	14,994,036	18,142,784	3,148,748	21.0%
ENERGY AND UTILITIES	30,896,365	33,059,111	2,162,746	7.0%
MAINTENANCE	33,241,022	35,352,692	2,111,670	6.4%
TRAINING AND MEETINGS	492,197	344,538	(147,659)	-30.0%
PROFESSIONAL SERVICES	8,197,575	7,910,660	(286,915)	-3.5%
OTHER MATERIALS	6,728,862	6,728,862	-	0.0%
OTHER SERVICES	28,372,237	27,872,237	(500,000)	-1.8%
TOTAL DIRECT EXPENSES	\$ 273,722,272	\$ 267,151,215	\$ (6,571,057)	-2.4%
INSURANCE	\$ 3,916,002	\$ 3,955,162	\$ 39,160	1.0%
WATERSHED/PILOT	28,890,762	27,467,421	(1,423,341)	-4.9%
HEEC PAYMENT	6,225,566	6,798,522	572,956	9.2%
MITIGATION	1,735,694	1,735,694	-	0.0%
ADDITIONS TO RESERVES	2,418,452	2,418,452	-	0.0%
RETIREMENT FUND	12,555,203	12,555,203	-	0.0%
POSTEMPLOYMENT BENEFITS	4,754,061	4,754,061	-	0.0%
TOTAL INDIRECT EXPENSES	\$ 60,495,741	\$ 59,684,516	\$ (811,225)	-1.3%
STATE REVOLVING FUND	\$ 96,342,495	\$ 88,499,360	\$ (7,843,135)	-8.1%
SENIOR DEBT	302,169,940	291,597,013	(10,572,927)	-3.5%
SUBORDINATE DEBT	75,491,975	72,645,188	(2,846,787)	-3.8%
LOCAL WATER PIPELINE CP	6,233,882	5,384,397	(849,485)	-13.6%
CURRENT REVENUE/CAPITAL	18,200,000	18,200,000	-	0.0%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	5,500,000	5,500,000	-	0.0%
DEBT SERVICE ASSISTANCE	(1,182,494)	(1,182,494)	-	0.0%
TOTAL DEBT SERVICE	\$ 505,972,858	\$ 483,860,524	\$ (22,112,334)	-4.4%
TOTAL EXPENSES	\$ 840,190,871	\$ 810,696,255	\$ (29,494,616)	-3.5%
REVENUE & INCOME				
RATE REVENUE	\$ 814,648,000	\$ 814,648,000	\$ -	0.0%
OTHER USER CHARGES	9,836,508	14,548,590	4,712,082	47.9%
OTHER REVENUE	6,139,104	6,983,303	844,199	13.8%
RATE STABILIZATION	980,000	980,000	-	0.0%
INVESTMENT INCOME	8,587,259	23,363,206	14,775,947	172.1%
TOTAL REVENUE & INCOME	\$ 840,190,871	\$ 860,523,099	\$ 20,332,228	2.4%

VARIANCE:

\$ (49,826,844) \$ (49,826,844)

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
SUBJECT: Update on Pension Funding Status



COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

Matthew R. Horan, Deputy Director, Finance/Treasurer
Preparer/Title


Thomas J. Durkin
Director of Finance

RECOMMENDATION:

For information only. This staff summary provides an update on the funding status of the MWRA Retirement System.

DISCUSSION:

Annually, the MWRA Retirement System completes an actuarial valuation which reviews the impacts of the prior year’s investment results, actuarial assumption changes and any other changes to the overall demographics of the plan (e.g., administrative costs, staffing and retiree levels). Investment results have the largest impact on the overall funding status of the system, with favorable returns lowering the liability and negative results increasing it. In calendar year 2022, the Retirement System anticipated earning a 6.9% market return or approximately \$50 million in earnings on its investment portfolio; however, due to market conditions, the system ended up experiencing a negative 12.3% market return or a \$90 million reduction to assets. Since the Retirement System anticipated earning 6.9% return, the overall impact on the year was a negative return of 19.2% or approximately \$140 million market change over projections.

These investment return results were utilized to update the Retirement System’s 2023 actuarial valuation which, among at other things, determines the annual required contribution from MWRA. While the market value of the assets can change significantly year to year, the actuarial valuation recognizes the long-term nature of the analysis and changes in value of the assets is smoothed. The Retirement System utilizes a five-year actuarial smoothing to changes in asset value, and as a result only 20% of positive gains or losses are recognized in any year. The actuarial result of the Retirement System’s 2022 investment return was an approximately \$9.1 million change to the unfunded liability increasing it from \$82.0 million to \$91.1 million and changing the funding ratio from 89.1% to 88.4%.

As a result of the increased pension liability, the actuary was asked to complete four new actuarial funding schedules that would fully fund the Retirement System by either 2030, 2031 or 2032. The actuary was requested to keep the FY24 payment consistent with the amount included in the 2022 schedule. The following table details the annual cost of the funding schedules.

Detail	Fiscal Year Appropriation										Total Cost
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Existing Schedule	\$14,068,105	\$15,763,312	\$17,662,791	\$19,791,157	\$22,175,991	\$24,848,198	\$21,169,116	\$ 5,541,670			\$141,020,340
Schedule 1 -2030	\$14,068,105	\$16,065,776	\$18,347,116	\$20,952,406	\$23,927,648	\$27,325,374	\$31,195,022	\$ 5,385,834			\$157,267,281
Schedule 2 -2032	\$14,068,105	\$15,072,568	\$16,148,749	\$17,301,770	\$18,537,116	\$19,860,666	\$21,278,718	\$22,798,018	\$24,413,548	\$5,771,183	\$175,250,441
Schedule 3 -2031	\$14,068,105	\$15,469,288	\$17,010,029	\$18,704,228	\$20,567,169	\$22,615,659	\$24,868,179	\$27,329,154	\$ 5,575,230		\$166,207,041
Schedule 4 - 2030	\$14,068,105	\$15,474,916	\$17,918,405	\$20,747,721	\$24,023,786	\$27,817,142	\$32,194,205	\$ 5,385,834			\$157,630,114

The results of these new schedules were compared to the existing schedule included in MWRA's rate projection. The following table details the year over year change in funding levels.

Detail	Change Over 2022 Schedule										Increase over 2022
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Schedule 1 -2030	\$ -	\$ 302,464	\$ 684,325	\$ 1,161,249	\$ 1,751,657	\$ 2,477,176	\$10,025,906	\$ (155,836)	\$ -	\$ -	\$ 16,246,941
Schedule 2 -2032	\$ -	\$ (690,744)	\$ (1,514,042)	\$ (2,489,387)	\$ (3,638,875)	\$ (4,987,532)	\$ 109,602	\$17,256,348	\$24,413,548	\$5,771,183	\$ 34,230,101
Schedule 3 -2031	\$ -	\$ (294,024)	\$ (652,762)	\$ (1,086,929)	\$ (1,608,822)	\$ (2,232,539)	\$ 3,699,063	\$21,787,484	\$ 5,575,230	\$ -	\$ 25,186,701
Schedule 4 - 2030	\$ -	\$ (288,396)	\$ 255,614	\$ 956,564	\$ 1,847,795	\$ 2,968,944	\$11,025,089	\$ (155,836)	\$ -	\$ -	\$ 16,609,774

The change in funding requirements between the 2022 schedule and the proposed 2023 schedules ranged from a 0.04% increase to a 0.08% decrease to the rate revenue requirement in 2025. Extending the funding schedule from 2030 to 2031 would increase MWRA's contribution by \$8.9 million and by \$18.0 million if the schedule was extended to 2032. In addition to the financial consideration, extending the full funding timeline beyond 2030 introduces new statutory restrictions on the funding schedule. In particular, these restriction place limitations on the funding schedules such that MWRA's payment cannot be less than the payment in the prior year until full funding is achieved, regardless of actuarial changes. In addition, the restrictions limit the annual increase to the amortization of the unfunded liability to no more than 4%, which could result in a significant increase to the first year of the funding schedule.

After review of the financial and potential regulatory impacts of the various schedules, the Retirement Board voted to approve schedule 1. The Retirement Board acknowledged that this schedule will be updated annually, and in future years the full funding date may need to be extended beyond 2030 if difficult market conditions persisted or if there was a significant impact to MWRA's budget and rate increase. The Retirement Board also discussed opening a dialog with the Public Employee Retirement Administration Commission (PERAC) to address the impacts of changes in the actuarial schedules for well-funded systems which are close to their funding date. The new funding schedule has been approved by PERAC.

Staff will continue to update the Board on the Retirement System's funding progress.

BUDGET/FISCAL IMPACT:

The Proposed FY24 CEB includes funds sufficient to meet the funding requirement in FY24. In addition to the required \$14.1 million deposit, the Proposed FY24 CEB included an additional \$1.9 million in funding. The \$1.9 million is a result of a reduction to the OPEB funding. This additional funding would reduce the Retirement System's unfunded liability.

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
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 \$31.9 million defeasance in June 2023 to reduce future year rate increases. The \$31.9 million in available funds is derived from the use of \$22.1 million from the FY23 projected positive budget variance, the \$5.5 million Debt Prepayment included in the FY23 CEB, \$2.9 million in remaining FY22 funds, and projected \$1.3 million of interest earnings on the escrow. These funds will be used to prepay debt service coming due in FY24 through FY28 (\$28.8 million in principal and \$4.2 million in interest).

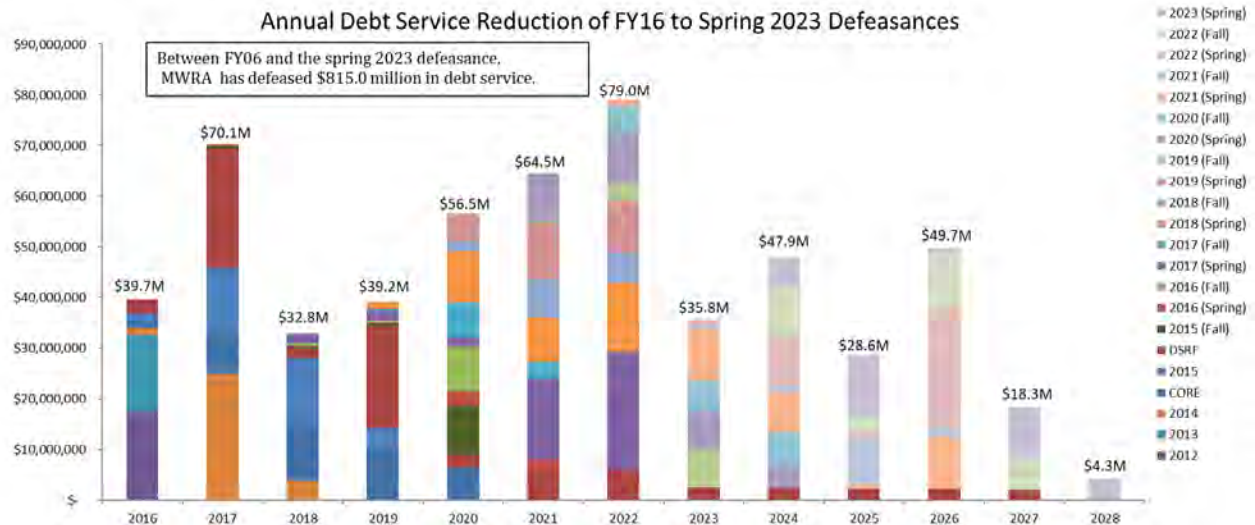
RECOMMENDATION:

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 \$28,785,000 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 \$32,981,250 in the FY24 through FY28 timeframe.

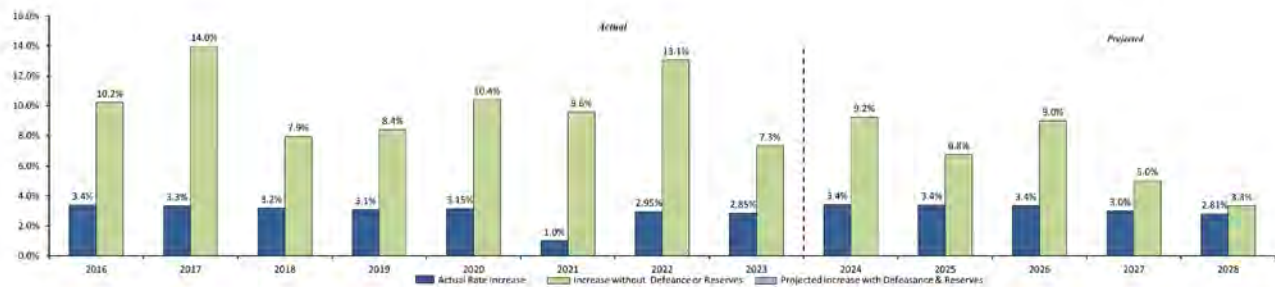
DISCUSSION:

Since FY12, the MWRA has utilized the budgetary defeasance account strategy to set aside positive budget variances associated with the capital finance budget to defease outstanding debt. In order to mitigate rate increases, staff reflected the impact of a \$15.0 million defeasance in the Proposed FY24 CEB comprised of the projected FY23 positive budget variance as well as the FY23 CEB Debt Prepayment. Now, based on current year-end projections, the proposed defeasance has increased to approximately \$31.9 million, consisting of \$22.1 million from the projected FY23 positive budget variance, \$5.5 million of FY23 Debt Prepayment, \$2.9 million remaining from FY22, and \$1.3 million of interest earnings on the escrow for even greater debt service reductions in future years. In the low interest rate environment over the last 15 years, staff had not factored escrow earnings when sizing the defeasance. With the large increase in short-term interest rates, MWRA is able to earn significant more on the escrow securities and that additional income has been factored into the sources of funding.

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 \$815.0 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
2016B	August 1, 2025	August 1, 2025	\$ 1,525,000	\$ 1,647,000
2016C	August 1, 2024	August 1, 2024	\$ 4,350,000	\$ 4,567,500
2016D	August 1, 2025	August 1, 2025	\$ 2,510,000	\$ 2,761,000
2016D	August 1, 2027	August 1, 2026	\$ 2,320,000	\$ 2,668,000
2016D	August 1, 2028	August 1, 2026	\$ 390,000	\$ 448,500
2017B	August 1, 2025	August 1, 2025	\$ 2,235,000	\$ 2,458,500
2017B	August 1, 2027	August 1, 2027	\$ 2,460,000	\$ 2,952,000
2017C	August 1, 2025	August 1, 2025	\$ 4,570,000	\$ 5,027,000
2018B	August 1, 2027	August 1, 2025	\$ 3,690,000	\$ 4,059,000
2018B	August 1, 2028	August 1, 2025	\$ 3,735,000	\$ 4,108,500
2019B	August 1, 2027	August 1, 2027	\$ 1,000,000	\$ 1,200,000
Total			\$ 28,785,000	\$ 31,897,000

(1) Defeasance costs is only anticipated funds from surplus and does not included current year deposits.

The following table details the annual budget savings by fiscal year for the proposed FY23 spring defeasance.

Budget Reduction by Fiscal Year					Total CEB Savings
2024	2025	2026	2027	2028	
\$ 5,774,000	\$ 12,046,500	\$ 679,750	\$ 10,149,750	\$ 4,331,250	\$ 32,981,250

The proposed defeasance reduces debt service by a total of \$33.0 million between FY24 and FY28. The total debt service reduction attributable to the defeasance is approximately \$1.1 million higher than the defeasance cost because the 2027 maturities of 2016D and 2018B, as well as the 2028 maturities of 2016D, and 2018B bonds are callable prior to their maturity date. The payment of these bonds on the call date will yield interest savings, as a result of paying off the bonds prior to maturity without interest accruing. Since 2006, MWRA has avoided \$38.8 million in interest by defeasing callable bonds.

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 FY24 through FY28 debt service requirement by \$33.0 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: May 24, 2023
SUBJECT: MWRA FY24 Insurance Program Renewal



COMMITTEE: Administration, Finance & Audit

 INFORMATION

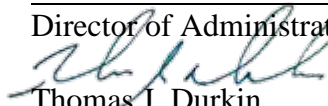
 X VOTE



Michele S. Gillen

Director of Administration

Paul F. Whelan, Risk Manager
Douglas J. Rice, Director of Procurement
Preparer/Title



Thomas J. Durkin

Director of Finance

MWRA's Insurance Program is renewed on an annual basis at the beginning of each fiscal year. Annual renewals are required due to the insurance industry's reluctance to provide firm pricing for more than a one-year period. Staff conducted a full competitive bid process for all lines of coverage in an effort to obtain the most competitive pricing. All policies expire on June 30, 2023, except the Treasurer's Bond, which renews in January. Premium increases were received for most coverages reflecting current marketplace conditions; however, the availability of Membership Credits on our property policy have offset most of these increases resulting in an overall program increase of 5.7%. The FY24 program renewal totals \$3,810,045.

RECOMMENDATION:

To approve awards to the lowest eligible and responsive proposers for insurance policies, bonds, and related broker services for MWRA's FY24 Insurance Program, and to authorize the Executive Director, on behalf of the Authority, to execute contracts for broker services, for the terms, premiums, and fees described below, and incorporated by reference for the record, resulting in a total program amount not to exceed \$3,810,045 for FY24:

- (1) Workers' Compensation Excess Policy with Chubb Global Casualty Co. (Chubb Global), submitted by broker Northeast Series of Lockton Companies, LLC (Lockton), for the period beginning July 1, 2023 through June 30, 2024, with a \$25 million limit and a \$1 million self-insured retention, for a premium of \$240,783;
- (2) Property Policy (including Boiler & Machinery coverage) with Factory Mutual Insurance Co. (FM Global), for the period beginning July 1, 2023, through June 30, 2024, with various limits of coverage and a \$2.5 million self-insured retention, resulting in a premium of \$1,879,405;
- (3) General Liability Policy (including Automobile Liability, Marine Liability, Wharfingers, Limited Pollution, and Employment Practice Liability) with Lexington Insurance Company and Berkshire Hathaway Specialty Insurance, submitted by broker Optisure Risk Partners, LLC (Optisure), for the period beginning July 1, 2023 through June 30, 2024, with a combined \$25 million limit and a \$2.5 million self-insured

- retention, for a combined premium of \$655,200;
- (4) Excess General Liability Policies with insurance companies to be determined and submitted by broker Optisure, for the period beginning July 1, 2023 through June 30, 2024, providing a combined total of \$75 million of excess liability coverage for a total combined premium not to exceed \$827,770;
 - (5) Public Official's Liability Policy with National Union Fire Insurance Company of Pittsburgh, PA (National), submitted by broker Arthur J. Gallagher Risk Management Services Inc. (AJG), for the period beginning July 1, 2023 through June 30, 2024, with a \$5 million limit and a \$1 million self-insured retention, for a premium of \$113,576, including broker commission;
 - (6) Fiduciary Liability Policy with Chubb/Federal Insurance Co. (Chubb Federal), submitted by broker AJG, for the period beginning July 1, 2023 through June 30, 2024, with a \$5 million limit and a \$1 million self-insured retention, for a premium of \$10,022, including broker commission;
 - (7) Public Official's/Crime Bond with Great American Insurance Co., submitted by broker Optisure, for the period beginning July 1, 2023 through June 30, 2024, with a \$1 million limit and a \$25,000 deductible for a premium of \$5,789;
 - (8) Treasurer's Bond with a \$1 million limit with an insurance company to be determined in an amount not to exceed \$2,500, with a one-year term beginning January 2024; and
 - (9) Broker contracts with Optisure, for an amount of \$55,000, Lockton, for an amount of \$20,000, and AJG for the commissions included within the policy premiums, from notice of award through June 30, 2024.

DISCUSSION:

MWRA's insurance program consists of various types of coverage including: Excess Workers' Compensation, Property (including Boiler and Machinery coverage), General Liability, Excess Liability, Public Official's Liability, Fiduciary Liability, Public Official's/Crime Bond, and Treasurer's Bond. The Excess Workers' Compensation policy is required by state statute and is a prerequisite for MWRA to operate as a self-insured entity for Workers' Compensation benefits. Insurance coverage required by MWRA's Enabling Act includes Public Official's/Crime Bond and Treasurer's Bond, which serve to protect the Authority against losses due to fraudulent or dishonest acts, failure to perform duties faithfully or improper accounting of monies or property by employees. Other policies are maintained in order to protect MWRA assets and limit MWRA's financial exposure to loss. In addition, policies are maintained to comply with covenants contained within MWRA's General Revenue Bond Resolution. All policies under the current program (except Treasurer's Bond) expire on June 30, 2023, and require renewal.

MWRA's insurance program is renewed on an annual basis due to the reluctance on the part of insurance companies to provide firm pricing for more than a one-year term. For FY24, staff conducted a full competitive bid process for all lines of coverage in an effort to obtain the most competitive pricing and coverage available. Staff anticipated increases in rates and premiums on all lines of coverage for FY24 based on current insurance market conditions and inflationary pressures.

Insurance companies across all lines of coverage have seen increased losses and risk exposures leading to an increased level of uncertainty and risk in the marketplace. “Hard market” conditions continue to persist resulting in limited capacity, restrictive coverage and premium increases. However, MWRA’s property insurance carrier, FM Global, a mutual company, has experienced favorable loss and financial conditions in the past few years and has authorized two Membership Credits¹, providing a premium credit for the FY24 renewal cycle. Based on MWRA’s years of membership and favorable loss experience, the premium credit against the FY24 property renewal equates to a credit of \$307,848. This credit serves to offset other premium increases and reduce the overall insurance program cost.

This year, staff again made an effort to attract multi-year policies, but none were received. As mentioned above, the insurance marketplace continues to be considered a “Hard Market” with limited offerings, coverage restrictions and increasing premiums. MWRA’s Insurance Consultant, KFDA Advisors (KFDA), reports seeing similar trends across its client base. Broker fees remain stable with flat or small increases. Overall, the cost of the insurance program recommended for FY24, including all policies and broker fees, is \$3,810,045, an increase of 5.7% above the expiring FY23 program.

Procurement Process

On January 31, 2023, MWRA issued a Request for Letters of Interest that was publically advertised in the Goods and Services Bulletin, the Boston Herald, Banner Publications and El Mundo, and on the MWRA Supplier Portal. In addition, staff sent direct solicitations to 18 insurance brokers and direct writers² that have expressed an interest in or participated in previous MWRA insurance procurements. In response to the solicitation, five brokers and one direct writer submitted Letters of Interest listing their requested insurance markets. Staff, with the assistance of insurance consultant KFDA, reviewed all requests and assigned more than 40 insurance companies to the brokers. A Request for Qualifications/Proposals, including technical specifications and rating data, was made available to all participants along with their market assignments. Additional information and responses to questions were provided to proposers during the bid stage. One request for additional time for proposal preparation was received and the due date for proposals was extended. On April 26, 2023, MWRA received six proposals.

Proposals varied with respect to the lines of coverage offered. As shown on the attached table, while multiple proposals/options were received for Excess Workers’ Compensation and Property, the other policies had only one proposal from incumbent carriers. This response is similar to previous years and not surprising due to the competitive pricing of MWRA’s current program. The proposals were reviewed by KFDA for adherence to MWRA’s technical specifications. The approvals requested herein represent those recommended by KFDA for each line of coverage. The attached table provides a summary of all lines of coverage with the limits, deductibles, and premiums comparing the expiring FY23 premiums with the proposed FY24 premiums. A brief summary of each line of coverage is provided below.

Workers’ Compensation Excess – Three proposals were received for this coverage. The first proposal was from broker Lockton, with a policy from the incumbent insurer, Chubb Global, with a \$1 million self-retention and a limit of \$25 million for a premium of \$240,783 (not including broker fee). This bid represents a flat rate (.1901 per \$100 payroll) applied to a 3% increase in

¹ A Membership Credit is a form of dividend issued by a mutual insurance company to policyholders and is similar to a public stock dividend. The credit is applied to the following year’s premium cost.

² A direct writer is an insurance company that deals directly with customers and does not require a broker.

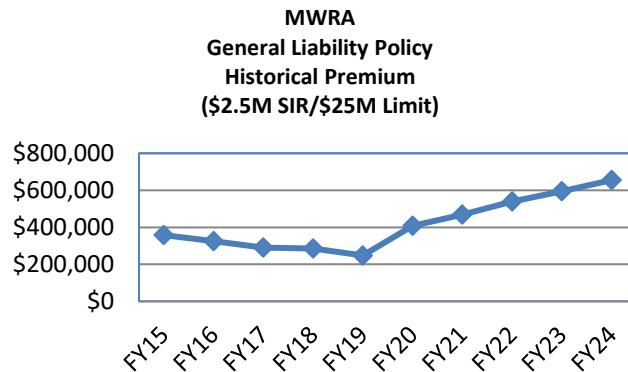
estimated payroll, resulting in a 3% increase over last year's premium. A second proposal was received from broker Sullivan Group LLC (Sullivan), with a policy from Safety National Casualty Co. (Safety), with a \$1 million self-retention and a limit of \$25 million for a premium of \$228,008 (not including broker fee). KFDA reviewed the coverages afforded under both policies and determined the coverage under the Safety policy was limited in areas relating to certain types of claims that arise under certain Federal Acts. Thus, while the Safety policy cost less, the coverage provided is limited and not in compliance with the specifications. A third proposal was submitted by broker, Sullivan, with a policy from Arch Insurance, with a \$1 million self-retention and a limit of \$25 million for a premium of \$249,000. Accordingly, staff recommend the purchase of the policy from Chubb Global with a \$1 million per occurrence self-insured retention and \$25 million limit through broker Lockton, for the specified premium of \$240,783 and an associated broker fee of \$20,000.

Property Insurance (including Boiler & Machinery) – Two proposals were received for this line of coverage. The first proposal was from direct writer FM Global, the incumbent provider. FM Global's proposal contained various policy options with a \$2.5 million and \$5 million self-retention levels with limits of \$200 million and \$300 million in coverage.³ Also, FM Global's proposal included reduced limits of coverage for flood exposures for certain high-risk MWRA facilities and for damages arising from communicable disease. The option shown on the attached table and recommended by staff includes a policy limit of \$300 million with a \$2.5 million self-retention for a total premium of \$1,879,405. This premium is based on a fixed rate applied to MWRA's Total Insured Value (TIV) of \$3,891,233,635, which is 5% less than last year due to the elimination of the Navy Yard location and due to adjustments in values for Deer Island and Carroll Water Treatment Plant based on recently obtained appraisals for these locations. The fixed rate offered by FM Global increased from 5.02 cents per \$100 TIV to 5.62 cents per \$100 TIV, which is an increase of 12%. However, the total premium above also includes a Resiliency Credit and a Membership Credit available to MWRA's FY24 policy renewal. These credits combined result in a reduction in the FY24 premium of \$307,848.

The second proposal received was from Alliance Insurance Services (APIP Program) submitted through broker USI Services, including coverage limits of \$300 million with \$2.5 million self-retention with a proposed cost, including premium and broker fees, of \$2,970,161. This proposal was not only higher than the FM Global proposal, but it was indefinite with respect to costs relating to MWRA's Deer Island turbine generators, providing instead a range of estimated premium cost for this coverage. The bid amount above includes the high end of the range provided as well as associated broker fee. Accordingly, staff recommend approval of FM Global's proposal described above for a total premium \$1,879,405.

3 The additional options offered by FM Global are not cost effective because they subject the Authority to an additional \$2.5 million of risk exposure in return for relatively small premium savings that would quickly evaporate with just one claim in excess of the \$2.5 million self-retention.

General Liability – One proposal was received for the General Liability coverage. The incumbent broker, Optisure, submitted a bid from the incumbent carrier, Lexington Insurance Co, with a limit of \$10 million and a self-retention of \$2.5 million. The quote for the \$10 million limit was \$375,000, an increase of 10% above the expiring policy. As the only proposer for this coverage and the apparent successful bidder, staff directed the broker to obtain a quote for the next \$15 million layer of coverage. The broker obtained and submitted a quote for the next \$15 million layer of coverage from Berkshire Hathaway Specialty Co. for a premium of \$255,000, also a 10% increase over last year. This combined proposal offered \$25 million in coverage with a \$2.5 million self-retention for a combined premium of \$655,200, including applicable surplus line charges (4%). This reflects an increase of \$60,257 or 10% over the expiring FY23 policies. The chart at right provides Historical Premium costs for this coverage over the past ten years and illustrates past and current trending of costs for this coverage. Consequently, staff recommend the acceptance of the proposal from Optisure with an associated broker fee of \$55,000, which also includes services for placement of the Excess General Liability, Crime and Treasurer’s Bond outlined below.



Excess General Liability – As the recommended broker for the General Liability coverage, Optisure will be directed to solicit quotes from various insurance companies for the additional excess layers of liability coverage.⁴ The companies and final premium costs for the additional \$75 million of excess liability coverage will not be available in time for this Board meeting. In order to keep all insurance-related items together in one summary, staff recommend a not-to-exceed amount of \$827,770 for this item. This amount was estimated from current pricing on the underlying general liability policy and current market conditions, and represents an increase of 15% over last year’s premium.

Public Official’s Liability – One proposal was received for this line of coverage with the specified \$5 million limit and \$1 million self-retention, from incumbent, National, submitted through broker AJG, for a premium of \$113,576. This represents a flat renewal from the expiring FY23 policy. Therefore, staff recommend the renewal of this coverage with National for the specified premium, which includes a broker’s commission.

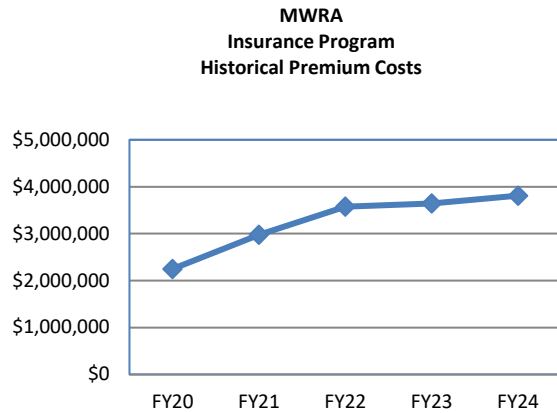
Fiduciary Liability – One proposal was received for this line of coverage with the specified \$5 million limit and \$1 million self-retention, from the incumbent, Chubb Federal, submitted through broker AJG, for a premium of \$10,022. This is \$665 or 7% higher than the expiring FY23 policy. Accordingly, staff recommend the placement of this coverage with Chubb Federal for the specified premium, which includes a broker’s commission.

Public Official’s/Crime Bond – One proposal was received for this line of coverage with the specified \$1 million limit with a \$25,000 self-retention from incumbent, Great American Insurance Company, submitted through broker Optisure, for a premium of \$5,789. This is \$168 or 3% higher than the existing FY23 policy. Accordingly, staff recommend the placement of this coverage with Great American for the specified premium.

⁴ Excess Liability policies cannot be purchased until the underlying General Liability policy is first established.

Treasurer’s Bond – The Treasurer’s Bond is required by the MWRA Enabling Act and is written in the name of the person holding the position of Treasurer. This bond is off-cycle from the rest of the insurance program and does not expire until January 2024. To keep all insurance program approvals consolidated in one summary, staff included a not-to-exceed amount of \$2,500 for the renewal of this bond upon its expiration. The broker fee associated with renewal of this bond is included in the FY24 broker scope of services.

Staff recommend the renewal of MWRA’s insurance program for FY24, with the various coverages, limits and self-insured retention levels from the brokers and insurance companies identified above and as listed in the attached table. If approved, the FY24 total insurance premium cost will be a not-to-exceed sum of \$3,810,045, an increase of 5.7% from last year. The chart at right provides MWRA’s Insurance Program Historical Premium Costs over the past few fiscal years.



BUDGET/FISCAL IMPACT:

The Draft Final FY24 CEB includes \$4.1 million for the total cost of maintaining MWRA’s insurance program, consisting of premiums, fees and for payment of estimated claims in FY24. The budget contains sufficient funds for the renewal of the insurance program outlined above.

MBE/WBE PARTICIPATION:

There were no minimum MBE and WBE participation requirements established for this procurement, as the nature of the services provided do not allow for subcontracting.

ATTACHMENT:

FY2024 Insurance Proposal Table

MWRA FY24 INSURANCE PROPOSALS

EXPIRING FY23 PREMIUMS

PROPOSED FY24 PREMIUMS

Item #	Coverage	Deductible/ Limit	FY23 Final Premium	Current (FY23) Insurance Co. (Broker)	FY24 Bids (See Note 1)	FY24 Insurance Co. (Broker)	Notes
1	Excess Workers Comp.	\$1M /\$25M	233,227	Chubb (Lockton)	240,783 228,008 249,000	Chubb (Lockton) Safety National (Sullivan) Arch Insurance (Sullivan)	Chubb premium increase of 3% including a flat rate applied to 3% increase in estimated payroll. Safety National bid lower cost but contains policy coverage limitations. Arch Ins. Bid is highest cost. Additional Broker Fee of \$20,000 applies to all bids.
2	Property Insurance (including Boiler & Machinery)	\$2.5M / \$300M	1,857,167	FM Global (Direct Writer- No Broker Fee)	1,879,405 2,970,161	FM Global (Direct Writer- No Broker Fee) Alliance (APIP) (USI Services) (Includes \$100,000 Broker Fee)	FM Global Bid includes \$307,848 Member Credits. Bid includes 12% increase in Rate applied to 5% decrease in Total Insured Value (TIV). FM Global options for higher retention (\$5M) and lower limits of coverage(\$200M) not feasible. USI Services bid includes additional turbine generator premium and Broker Fee.
3	General Liability (Incl., Auto, Marine, Wharfingers, Limited Pollution and Employment Practice Liability)	\$2.5M/\$25M	594,943	Lexington Insurance Co. and Berkshire Hathaway Specialty Ins. (Optisure Risk Partners)	655,200	Lexington Insurance Co. and Berkshire Hathaway Specialty Ins. (Optisure Risk Partners)	Premium increase of \$60,257 or 10%. Price increase reflects current market conditions. Premium include Surplus Lines charge of 4%. Optisure Broker fee of \$55,000 also includes fees for placing Excess Liability and Crime policies.
4	Excess Liability	\$25M/\$75M	719,800	Allied World, Great American, Westchester, Berkshire Hathaway & The North River Ins Co. (Optisure Risk Partners)	827,770	To Be Determined. (Optisure Risk Partners)	Premium shown is Not-to-Exceed amount. Coverage is based on the General Liability policy above which must be finalized first. Amount shown represents a 15% increase over last year.
5	Public Official's Liability	\$1M/\$5M	113,576	National Union (AIG) (Arthur J. Gallagher)	113,576	National Union (AIG) (Arthur J. Gallagher)	Premium shown is flat renewal - no increase. No other bids received for this coverage. Bid amount includes broker commission.
6	Fiduciary Liability	\$1M/\$5M	9,357	Chubb/ACE (Arthur J. Gallagher)	10,022	Chubb/ACE (Arthur J. Gallagher)	Premium increase of \$665 (or 7.1%). Bid amount includes broker commission.
7	Public Official's/Crime Bond	\$25K/\$1M	5,621	Great American Insurance (Optisure Risk Partners)	5,789	Great American Insurance (Optisure Risk Partners)	Premium increase of \$168 (or 3%).
8	Treasurer's Bond	\$0/\$1M	1,800	Travelers Casualty & Surety (Optisure Risk Partners)	2,500	To Be Determined. (Optisure Risk Partners)	Renews in January 2024. Amount shown is a Not-to-Exceed amount.
9	Broker Fees -Various		70,000	Various	75,000	Various - See Note 2	Broker Fees increase of \$5,000 (or 7%).
Total Program Cost					\$ 3,605,491	\$ 3,810,045	Total program increase of \$204,554 or 5.7%.

Note 1: Proposed for approval shown in bold.

Note 2: Broker Fees are \$55,000 for Optisure Risk Partners (General Liability, Excess Liability and Crime policies) and \$20,000 for Lockton (WC Excess). Arthur J. Gallagher's commission for Public Official and Fiduciary Policies are included in premiums shown.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
SUBJECT: Metropolitan Water Tunnel Program Update




COMMITTEE: Water Policy and Oversight

 X INFORMATION
 VOTE



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

Thomas J. Durkin, Director of Finance
Paul V. Savard, P.E., Director, Design and Construction
Preparer/Title



Kathleen M. Murtagh
Director, Tunnel Redundancy

RECOMMENDATION:

For information only. This staff summary provides a review of the needs for the Metropolitan Water Tunnel Program, an update on the Program activities, and a review of the financial considerations for the Program.

DISCUSSION:

On February 5, 2017, the Board of Directors approved construction of northern and southern deep rock water supply tunnels to provide needed redundancy for the Metropolitan Tunnel system. The Board directed staff to proceed with preliminary design, geotechnical investigations and Massachusetts Environmental Policy Act review of the project.

This decision was the culmination of a series of meetings that started with a Special Meeting of the Board of Directors on October 6, 2016, at which staff provided a briefing on the status of the existing MWRA water transmission system and the lack of redundancy for the City Tunnel (1950), City Tunnel Extension (1963), and the Dorchester Tunnel (1976) with an accompanying binder of supporting materials.

- Staff concluded that the tunnels and shafts themselves require little or no maintenance and represent a low risk of failure. However, the cast iron, steel pipe and valves at the tops of the shafts are in poor condition and are in need of rehabilitation and maintenance.



Figure 1 – Condition of Some Existing Tunnel System Valves

- Failure at the tops of shafts in the existing system could result in widespread outages of water service, impacting 60% of the service area which would require activation of emergency backup sources of supply, water use restrictions, pressure swings, and a boil order.

The economic impact to the metropolitan region was determined through Federal Emergency Management Agency methodology to be on the order of \$300 million per day (2016).

- Staff presented financial considerations of advancing a capital program to address metropolitan tunnel redundancy with the goal of:

- preserving sustainable and predictable rates at the water utility level
- ensuring adequate capital is available when necessary, and
- minimizing the cost of borrowing

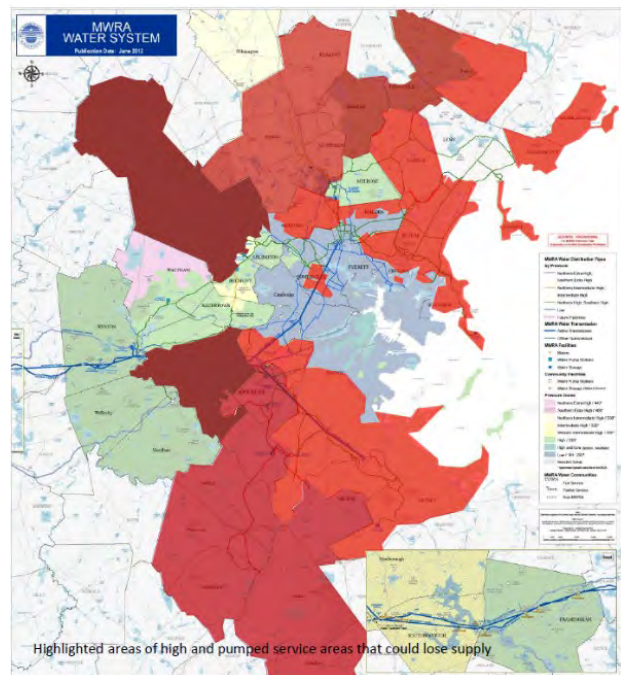


Figure 2 –Impact of Metropolitan Tunnel System Shutdown

At the conclusion of the Special Meeting, staff were directed to brief member communities and state and local officials in order to build consensus and support.

The MWRA Advisory Board hosted a Long-Term Redundancy Forum on December 8, 2016 at which staff presented the history of the MWRA waterworks system, the need for Metropolitan Tunnel redundancy and the challenges, both implementation and financial, of building redundancy. The Honorable Jeanette A. McCarthy, Mayor of Waltham provided the perspective

of local communities on the potential for impacts and disruption. On January 19, 2017, the MWRA Advisory Board met and voted to support moving forward with the deep rock, two-tunnel project, utilizing a Program Management Division Approach, similar to the model used for the Boston Harbor Project; and concurrent construction of both tunnels, rather than a phased approach.

Interim System Improvements

Staff developed a series of capital improvement projects to both reduce identified risks in the existing system and provide for better response capabilities in the event of a system failure before the new tunnels are constructed. Several projects have been identified to strengthen existing structures and provide additional operational flexibility and redundancy. Two construction contracts have been completed, providing flexibility and redundancy at the Commonwealth Avenue Pumping Station, and strengthening the top of shaft structures and components at the Top of Shafts 6, 8 and 9A. Three construction contracts are in progress:

- Construction Package 1 (CP1) – rehabilitation of two-plus miles of 56 and 60-inch diameter steel pipe along the eastern end of Weston Aqueduct Supply Main 3 (WASM3);
- Replacement of Pressure Reducing Valves to allow the Northern Low Service pipelines to operate at increased grade lines to supply additional flow to the Spot Pond and Gillis Pumping Stations in an emergency condition with the tunnel system out of service; and
- Section 101 extension to provide sufficient capacity to maintain water service to Waltham during the anticipated shutdowns of WASM 3 and the Lexington Street Pumping Station for future rehabilitation.



Figure 3 – Protective coating for top of shaft appurtenances

A second WASM construction contract to rehabilitate the middle portion of WASM 3 is in final design. Two construction contracts are currently in final design at Shaft 5 and include strengthening exposed pipe and valve bodies, and replacement of nuts and bolts on shaft caps and flange connections, and building improvements. Similar improvements to Shafts 7, 7B, 7C and 7D are in preliminary design phase. A future contract is planned to rehabilitate the remaining length of WASM 3.

Tunnel Program Update

The Tunnel Program consists of a North Tunnel and a South Tunnel. The North Tunnel will include a completed tunnel from the I-90/I-95 Interchange to a connection to WASM 3 in Waltham (Segment 1). The South Tunnel will include a completed tunnel that can be isolated in two segments: from the I-90/I-95 Interchange to the Highland Avenue/I-95 interchange in Needham (Segment 2) and from there to the American Legion site in Mattapan near Shaft 7C of the Dorchester Tunnel (Segment 3). Each tunnel will include two to four intermediate shafts that allow for connections to existing MWRA or community infrastructure. The current tunnel alignment differs slightly from that initially proposed in 2016 in that it no longer includes a connection shaft near the Commonwealth Avenue Pumping Station in Newton (along the City Tunnel), but rather

provides for connections to community pumping stations in both Wellesley and Needham for much needed redundancy to MWRA’s Section 80 pipeline. Figure 4 shows the current preliminary tunnel alignment, limits of segments and shaft sites.

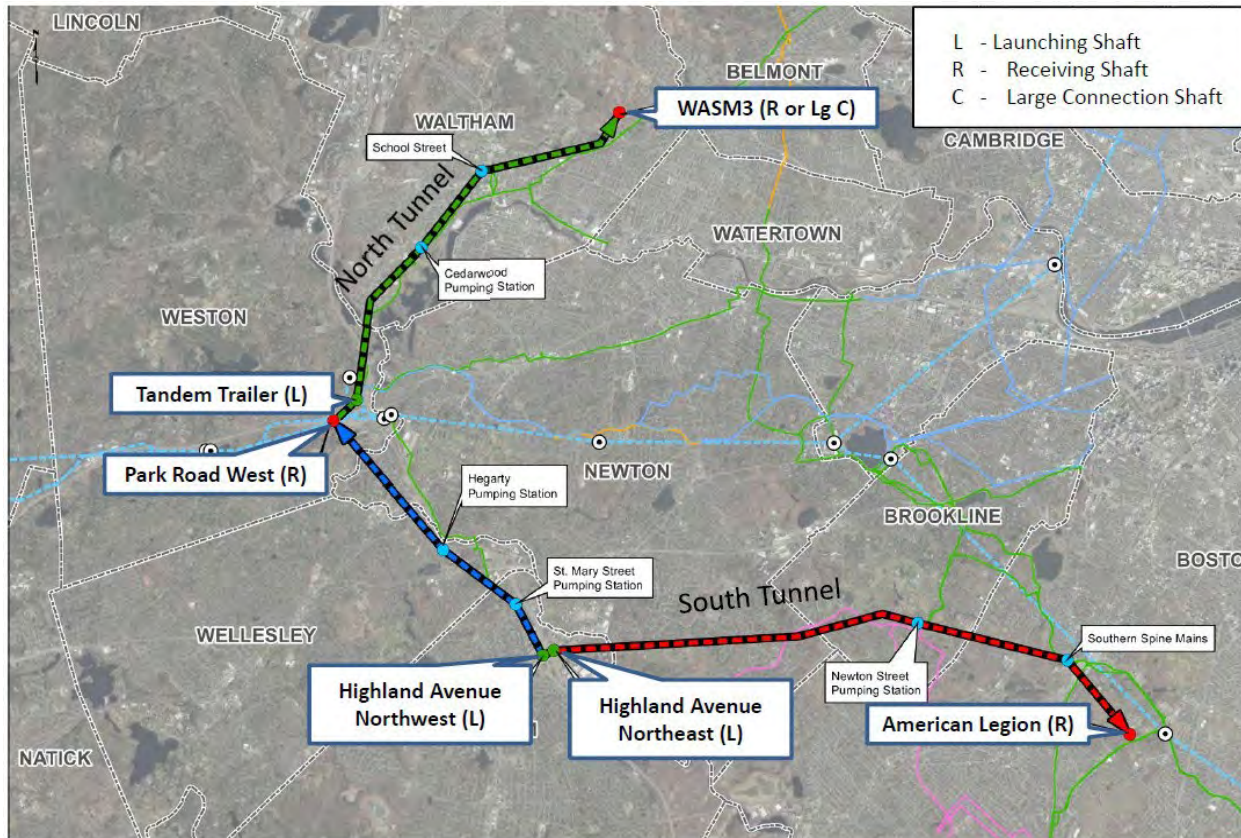


Figure 4 – Preliminary Tunnel Alignment (DEIR Alternative 4)

In addition to the shaft sites at Street Mary Street Pumping Station and Newton Street Pumping Station that the Authority currently owns, in September 2021 the Board approved and the Authority purchased a parcel of land along School Street in Waltham for a connection shaft site. Staff are currently working with the remaining shaft site landowners (MassDOT, DCR, UMass, Wellesley and Waltham) on land access and acquisition.

The Tunnel Program is currently in the preliminary design phase, which will end in early January 2024. Final design is anticipated to start in 2024 with a target for the first tunnel construction contract bidding in 2027. Program completion is anticipated by 2040.

Awarded and Future Contracts

Currently three professional services contracts and one real estate lease have been approved by the Board and executed in support of the Tunnel Program. The professional services contracts include:

- Program Support Services (PSS), which provides general consulting, submittal review, risk management support, constructability reviews, cost estimating/validation, schedule support, staff augmentation, and Expert Review Panel (ERP) engagement support;
- Preliminary Design, which consists of the execution of initial geotechnical investigations, preparation of Environmental Impact Reports, and preparation of a

- Preliminary design report, drawings, schedule and cost estimate; and
- Geotechnical Support Services, which focusses on the collection of geotechnical/geological data to support final design, bidding and construction of the Program.



Figure 5 – Preliminary Geotechnical Investigations

Last December, a 10-year real estate lease was approved by the Board and executed by the Executive Director for approximately 19,000 square feet of warehouse/flex space in Needham for the processing and storage of geotechnical samples (primarily rock core) that is needed for the Program. The space also provides some office and meeting space for Program use.

Additional professional services and construction contracts are planned in support of the Program. Those include an extension to the PSS contract, Final Design and Engineering Services During Construction, and Construction Management. At this time, two or possibly three tunnel/shaft/near surface facility construction contracts are planned. It is likely that a few enabling construction contracts will be needed to facilitate the overall Program schedule.

Environmental Impact Report (EIR) Status

Staff submitted an Environmental Notification Form (ENF) to the MEPA Office for public comment in March of 2021. The ENF included an Alternatives Screening Report that documented the comparison and selection of the preferred two-tunnel concept to other surface pipe and tunnel alternatives. The Secretary of Energy and Environmental Affairs (EEA) issued a certificate on the ENF that requires the submittal of a mandatory Draft Environmental Impact Report (DEIR).

Staff submitted a DEIR to the MEPA Office for public comment on October 22, 2022. The DEIR evaluated the preferred alternative (Alternative 4) along with the two backup alternatives.

The DEIR included information on the following topics for the three DEIR Alternatives:

- Project Description and Permitting;
- Public Outreach/Environmental Justice;
- Alternatives Analysis;
- Land Alteration, Open Space, Wetlands, Rare Species Habitat, Cultural and Historical Resources;
- Water Management Act/Water Supply;
- Climate Change (adaption and resiliency, greenhouse gas emissions);
- Construction Period; and
- Responses to ENF Comments.

Alternative 4 was selected as the preferred alternative in large part because it provides the most flexibility for construction and the shortest overall construction schedule. The DEIR also included Mitigation and Draft Section 61 Findings, as required by MEPA.

EEA issued a certificate on the DEIR that requires the submittal of a Supplemental Draft Environmental Impact Report (SDEIR) before the Program can proceed to the Final EIR phase. Specifically, the SDEIR is to address the validity of the proposed North Tunnel receiving shaft site at the Fernald Property in Waltham, which was common to all three alternatives included in the DEIR, and to analyze and present any potential alternate receiving shaft locations. In addition, the SDEIR is to respond to comments on the DEIR received as part of the public comment and to supplement Environmental Justice and Greenhouse Gas analysis presented in the DEIR.

Staff are currently working to address comments regarding the DEIR and prepare a SDEIR that will present two new shaft sites for the end of the North Tunnel with the intention to file in summer 2023.

Community and Stakeholder Outreach

Staff have implemented a communication plan to ensure that communities and stakeholders are informed as to the importance of this effort and what can be expected in the years ahead. Staff have contacted all ten communities within the Program Study Area and have formed a working group, which includes representatives of each of the ten communities, the MWRA Advisory Board, the Water Supply Citizens Advisory Committee and the Metropolitan Area Planning Council. These working group members participate in regular meetings with the Program Team to be kept informed on progress, and provide input on certain elements of the Program. The goals of the working group meetings are to provide a collaborative and transparent process for evaluating alternatives and yield more informed comments during the MEPA process. The working group has met six times since it was formed in April 2021.

Staff are holding additional meetings with community representatives from the seven municipalities where the tunnel will be constructed. Coordination meetings with public safety personnel from several communities has begun and will continue through design and construction to ensure the safety of the public who may be impacted by the Program as well as the workers who will construct the tunnels.

Multiple fact sheets covering a variety of topics have been created for the Program and translated into four languages. A program website is available for additional information at <https://www.mwra.com/mwtp.html>.

Program Financial Considerations

The estimated cost of the Tunnel Program has evolved as information and time have progressed. During the early presentations to the Board, the Advisory Board, stakeholder groups and Finance staff used an estimate of \$1.1 billion to model debt service and assessment impacts. As more refined estimates became available, staff used an estimate of \$1.341 billion, representing the average of two possible alternatives. Staff averaged Alternative 2A - two tunnels, one to the north and one to the south, totaling 14 miles with an estimated cost of \$1.183 billion and Alternative 3D - also two tunnels, though further to the north to Shaft 9A in Malden and south to Shaft 7C, totaling 18.2 miles with an estimated cost of \$1.499 billion.

The Tunnel Program was first included as Project #625 in the Fiscal Year 2017 Proposed Capital Improvement Program (CIP). Project #625 as proposed was revised from earlier alternatives to include additional sub-phase work on the WASMs, the Wachusett Aqueduct Pumping Station and other improvements. The Fiscal Year 2017 CIP, Project #625 included an estimated project cost of \$1.429 billion plus \$41 million related to inflation. For Fiscal Year 2018, the additional sub-phases were moved from Project #625 to a different project reducing the cost to \$1.259 billion plus \$99 million for inflation. Annually, the Project cost estimate is revised to reflect updated amounts due to contract awards, design progress, revised estimates and inflation. Presently, the Fiscal Year 2024 Proposed CIP includes an updated estimate for Project #625 of \$1.461 billion plus \$334 million for inflation (\$1.8 billion).


Staff continue to assume the Program will be financed with long-term tax exempt bonds. The debt service for these bonds is modeled based on the current CIP estimated cost, estimated interest rates and amortization. The resulting modeled debt service is included in the Current Expense Budget (CEB) projections. As Project spending increases with the commencement of construction, short-term temporary capitalized borrowings may be advantageous. Staff will continue to monitor Project specific spending and the rate of overall spending from the Construction Fund and will make the evaluation as to long or short-term borrowings as it becomes necessary.

Each fiscal year as the CEB recommendation is developed, staff iteratively monitor the necessary revenue from community assessments. All additions, deletions and revisions to the CEB are evaluated for the impacts to the rate of increase to the assessments. The Fiscal Year 2024 Proposed CEB resulted in a 3.9% increase to the Water Utility assessment and the model projected a 3.9% increase for Fiscal Years 2025-2028. This proposed increase and the projected increases include the impact of the modeled debt service associated with the Project included in the Fiscal Year 2024 Proposed CIP.

BUDGET/FISCAL IMPACTS:

The proposed FY24 CIP includes \$1.8 billion for the Metropolitan Water Tunnel Program. This budget will be refined at the completion of Preliminary Design.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: May 24, 2023
SUBJECT: 2022 Annual Water Quality Report (Consumer Confidence Report)

COMMITTEE: Water Policy & Oversight

X INFORMATION
 VOTE

Beverly Anderson, Project Manager, Public Health
Ria Convery, Special Assistant to the Executive Director
Stephen Estes-Smargiassi, Director, Planning & Sustainability
Preparer/Title


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

RECOMMENDATION:

For information only. The 2022 Annual Water Quality Report will be mailed to every household in MWRA's service area between June 1 and June 28, 2023 to meet EPA's Consumer Confidence Report Rule annual deadline of July 1. This staff summary highlights the report's key findings and features. A PDF of the "generic" report is attached, and electronic copies of community specific reports will be emailed to Board members.

DISCUSSION:

EPA's Consumer Confidence Report (CCR) program has been an important national initiative that has promoted better information and education for consumers about their drinking water. It has been an integral part of MWRA's drinking water communication program since 1999, along with monthly online water quality reports and other web-based information.

Each year, MWRA produces reports for each fully supplied community and most of the partially supplied communities¹. Each report contains information about the MWRA system and system-wide data. Within each report is a community specific page with local information. MWRA also prints a "generic" version with a page of water conservation information (instead of the community specific page) for use at regional community events.

As part of MWRA's inclusive communication efforts, since 1999 the reports have been mailed to every household providing information on water quality, rather than just those who pay water bills as required by the EPA regulation. This allows the report to reach all customers, including the hard to reach lower income renter population. Roughly twice as many reports are mailed than is required for compliance with the EPA regulation. A Spanish translation and a large print version are produced and the on-line version is set up to be translated into dozens of languages (as is the whole of the MWRA web page) via Google translate.

¹ The partially-supplied communities of Burlington, Cambridge, Dedham-Westwood, Stoughton, and Wellesley send their own CCR geared toward local source water quality, with additional information on MWRA water provided in their reports by MWRA staff. All other partially-supplied communities use the MWRA report.

All of the community reports will be posted on the MWRA website before the end of May. MWRA maintains an archive of previous years' annual water quality reports as well as of the monthly Water Quality Update reports.

As in prior years, the 2022 CCR emphasizes MWRA's excellent source water, state of the art treatment and test results from the reservoir to the tap.

The Executive Director's letter provides an update on last year's drought, the fact that MWRA water meets current and proposed standards for PFAS, and emphasizes the importance of lead service line replacement.

The report itself again has two pages concentrating on lead in drinking water. These pages highlight lead service line information, how to find out if you have a lead service line, and how to get it replaced. These pages also emphasize how to get your water tested for lead, steps customers can take to make sure there is no lead in their tap water, and a brief summary of the school lead testing program and where to find more information.

Consistent with past practice, MWRA will conduct an outreach effort to increase awareness of the CCR, including e-mailing copies to local officials, health care professionals, and other interested parties, and sending press releases to local weekly publications and all regional newspapers. It will also be promoted through social media. Information and pictures of the CCR, with links to MWRA's website, will be provided to community web pages, and local public health and environmental organizations.

Mailing of the CCR will begin by the end of May and the reports should be arriving in customers' mailboxes through the last week of June. Certification of the CCR to DEP is due by July 1, 2023. MWRA provides certification materials to DEP on behalf of each community.

The report is printed on paper which is recycled and certified by the Forest Stewardship Council and Sustainable Forestry Initiative, with appropriate logos included on the cover.

Proposed Changes to EPA's Consumer Confidence Report Regulations:

In April, EPA released its long anticipated package of changes to the CCR regulations, prompted in major part by changes mandated by Congress in the America's Water Infrastructure Act of 2018. Among the changes will be a requirement that larger water systems issue two CCRs each year, and codifying EPA's policy allowing electronic distribution of the reports. There are also a number of other proposed changes intended to increase the readability, clarity and accessibility of the reports. The changes are anticipated to be in effect for the CCR published in 2025, with the twice annual reports then due by July 1 and December 30.

MWRA has already been using some of the flexibility offered by EPA's policy on electronic distribution to include web links to allow communities to provide more detailed materials on violations or other important topics, as well as providing additional, more comprehensive information on unregulated contaminants, lead, PFAS, and *Giardia* and *Cryptosporidium*. With all of the additional types of information now being required to be in the annual water quality report, many community reports have been running into space constraints for the printed version. Staff are considering piloting the electronic distribution next year to be ready for the required twice annual reports in 2025. This would involve developing and mailing an attractive postcard with

summary level information and links to the on-line version of the report, as well as making a printed version available to anyone who requests one.

Staff anticipate working with the Advisory Board's Operations Committee to further explore the possibility of using electronic delivery in 2024, and to establish processes with communities for managing the data needs for the December version of the report.

BUDGET/FISCAL IMPACT:

The FY23 Current Expense Budget includes sufficient funds for printing and mailing services, and postage. Production and graphic design are performed in-house by MWRA staff. The cost of printing and mailing almost 900,000 copies of the 2022 CCR is approximately \$0.35 per copy.

ATTACHMENT:

Copy of Generic Annual Water Quality Report



MWRA BOARD OF DIRECTORS

Rebecca Tepper,
Chair

Andrew Pappastergion,
Vice Chair

Brian Peña, Secretary

Paul E. Flanagan

Joseph C. Foti

Louis M. Taverna

Henry F. Vitale

John J. Walsh

Patrick J. Walsh

Rev. Mariama White-Hammond

Jennifer L. Wolowicz

Dear Customer,

No matter how you say it, water is essential. And you can be sure that the safety of your drinking water is the top priority for the women and men of the MWRA.

This report provides you with the results of our annual drinking water testing for 2022. We take hundreds of thousands of tests each year to ensure that your water is safe and our state-of-the-art surveillance system monitors your water every step of the way. Once again, every federal and state standard was met and the quality of your drinking water is excellent.

Every day, we see news stories about PFAS—or ‘forever chemicals’—in drinking water. Because our source water is so well protected, our water meets the current state, and recently proposed federal standards with levels so low they cannot be quantified.

We also continue to take actions to reduce the risk of lead in drinking water. System-wide, we remain below the Lead Action Level. Since 2016, we have provided \$34 million in zero-interest loans to 14 communities for full lead service line removals. Please read your community’s letter on page 7 for more information on your local water system, and consider replacing your lead service line if your home has one.

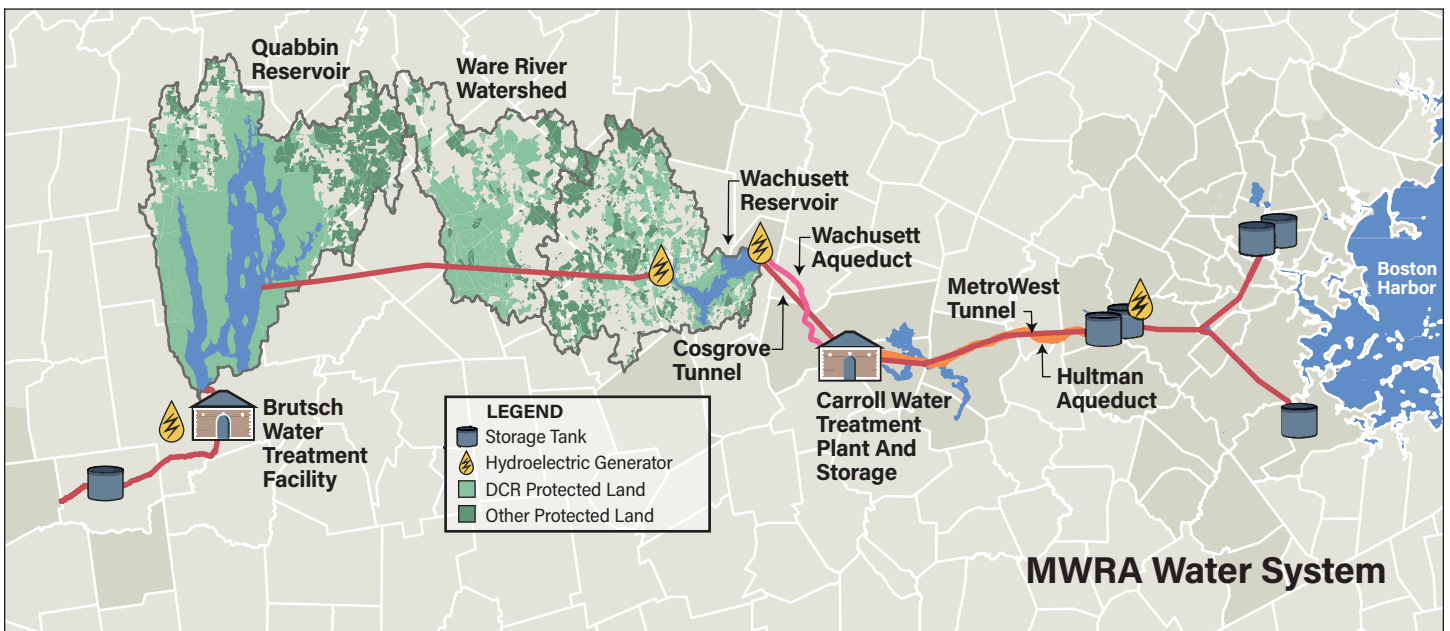
Last summer, our region experienced a significant drought. Thanks to all of our customers’ efforts to use water wisely, MWRA’s reservoirs remained at normal operating levels. It is important that we always conserve water wherever possible. As stewards of these reservoirs, we know how precious a resource we have and we cannot afford to waste it.

I hope you will take a moment to read this report. We want you to have the same confidence in the water we deliver to your homes and businesses as we do. Please contact us if you have any questions or comments about your water quality, or any of MWRA’s programs.

Sincerely,

Frederick A. Laskey
Executive Director

For more information on MWRA and its Board of Directors, visit www.mwra.com



All The Way From Quabbin, To All Of Us

Massachusetts experienced a significant drought during 2022, with about 30 percent less precipitation than normal. Thanks to our customer's wise use of water during the drought and the long-term reduction in water use, MWRA's reservoirs stayed well within normal operating range throughout the year, and no mandatory restrictions were needed. This annual water quality report illustrates MWRA's ongoing efforts to provide you with safe water under all conditions.

MWRA works with your community, the Department of Conservation and Recreation (DCR), and state and federal regulators to provide and protect your drinking water. From the reservoirs surrounded by forests and wetlands, through treatment and miles of pipelines, to your drinking water faucet, MWRA's laboratories conduct hundreds of thousands of tests on your water every year.

The water MWRA and your community provide to your home or business starts with our two pristine reservoirs in central Massachusetts—the Quabbin Reservoir, 65 miles from Boston, and the Wachusett Reservoir, 35 miles from Boston. Combined, these two reservoirs provide an average of 200 million gallons of pure, highly protected, high quality water each day to 53 communities. The Ware River provides additional water when needed.

The Quabbin and Wachusett watersheds—areas that drain water to the reservoirs—are naturally protected. More than 85% of the land is covered with forests and wetlands, which filter the rain and snow that enter the streams that flow to the reservoirs. This water comes in contact with soil, rock, plants, and other material as it follows its natural path to the reservoirs. This process helps to clean the water, but it also can dissolve and carry very small amounts of material into the reservoir. Minerals and rock do not typically cause problems in the water. Water can also transport contaminants, including bacteria, viruses or

other potential pathogens, from human and animal activity that can cause illness. Testing results show that few contaminants are found in the reservoir water, and those few are in very small amounts well below EPA's standards.

MWRA and DCR work together to implement our nationally recognized watershed protection program. The Department of Environmental Protection's (MassDEP) Source Water Assessment report for the Quabbin and Wachusett Reservoirs commended DCR and MWRA for our source water protection plans. The report states that our "watershed protection programs are very successful and greatly reduce the actual risk of contamination." MWRA and DCR follow the report recommendations to maintain the pristine watershed areas and high quality source water. For more information on our source water, go to: www.mwra.com/sourcewater.html.

Water: Tested From the Source

MWRA analyzes, treats and protects the quality of your water, starting with the watershed streams, to the billions of gallons of water in the reservoirs, to hundreds of miles of MWRA pipes and thousands of miles of local pipes, all the way to your home.

A key, initial test for reservoir water quality is turbidity, or cloudiness. Turbidity refers to the amount of suspended particles in the water and can impair water disinfection. All water must be below 5 NTU (nephelometric turbidity units), and water can only be above 1 NTU if it does not interfere with effective disinfection. In 2022, typical levels in the Wachusett Reservoir were 0.30 NTU, and even at its highest level of 1.07 NTU for one hour during a December storm, disinfection met all requirements.

MWRA also tests water for potential disease-causing organisms, including fecal coliform bacteria, and parasites such as *Giardia* and *Cryptosporidium*, that can enter the water from animal or human waste. All

test results for the reservoir water were well within state and federal testing and treatment standards. Learn more about MWRA test results for waterborne contaminants and their potential health impacts at: www.mwra.com.



Your Annual Water Quality Report

This report provides consumers of MWRA water with important information on water quality. MWRA also has monthly water quality reports, information on specific potential contaminants, water system updates, and more at www.mwra.com. We welcome your questions at 617-242-5323 or Ask.MWRA@mwra.com.

MWRA Water Test Results 2022

EPA requires that MWRA test for over 120 contaminants that may be in drinking water. MWRA found only those listed here. All of these levels were below EPA's Maximum Contaminant Levels (MCL).

Compound	Units	(MCL) Highest Level Allowed	(We Found) Detected Level-Average	Range of Detections	(MCLG) Ideal goal	Violation	How It Gets in the Water
Barium	ppm	2	0.009	0.008–0.010	2	No	Common mineral in nature
Monochloramine	ppm	4-MRDL	2.00	0.05–3.50	4-MRDLG	No	Water disinfectant
Fluoride	ppm	4	0.679	0.385–0.828	4	No	Additive for dental health
Nitrate [^]	ppm	10	0.55	0.032–0.55	10	No	Atmospheric deposition
Nitrite [^]	ppm	1	0.007	ND–0.007	1	No	Byproduct of water disinfection
Total Trihalomethanes	ppb	80	19.8	9.08–20.7	NS	No	Byproduct of water disinfection
Haloacetic Acids-5	ppb	60	19.9	4.4–24.4	NS	No	Byproduct of water disinfection

KEY: MCL=Maximum Contaminant Level. The highest level of a contaminant allowed in water. MCLs are set as close to the MCLGs as feasible using the best available technology. MCLG=Maximum Contaminant Level Goal. The level of contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. MRDL=Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. MRDLG=Maximum Residual Disinfectant Level Goal. The level of a drinking water disinfectant below which there is no known or expected health risk. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination. ppm=parts per million ppb=parts per billion NS=no standard [^]=As required by DEP, the maximum result is reported, not the average.

Great Water From Forest To Faucet



Treatment Plant Namesake Passes On

John J. Carroll served on the MWRA Board of Directors as its Vice Chair from the Authority's inception in 1985 until his death in February 2023. In 2005, the MWRA Board honored his many contributions to the MWRA mission by naming the new water treatment plant after him.

Treating Your Water

MWRA's John J. Carroll Water Treatment Plant in Marlborough provides state-of-the-art treatment and monitoring of your water. Our well trained and licensed operators add measured doses of treatment chemicals.

- Ozone, made from pure oxygen, disinfects the water, killing bacteria, viruses and other organisms, and improves water clarity and taste.
- Ultraviolet light (UV), a more powerful form of the natural disinfection of sunlight, renders pathogens non-infectious.
- Fluoride protects dental health.
- The water chemistry is adjusted to reduce corrosion of lead from home plumbing.
- Monochloramine (a compound of chlorine and ammonia), provides a mild and long-lasting disinfectant to protect the water as it travels through miles of pipes to your home.

Water Monitoring After Treatment

EPA and state regulations require regular monitoring of water quality to evaluate the water you drink. MWRA conducts hundreds of thousands of tests per year on over 120 contaminants. A complete list is available on www.mwra.com. The results of MWRA's water quality tests in 2022 are shown in the table on page 2. They confirm the quality and safety of the water your community and you receive from MWRA.

Building Redundancy for Reliability

Planning and environmental review for two new tunnels north and south of Boston to provide reliable service to the entire region is underway. We also have major projects underway to rehabilitate the Weston Aqueduct Supply Main 3, a 60-inch pipe in Weston, Waltham, Belmont, Arlington and Medford, as well as a 48-inch pipe in Stoneham and Woburn. Maintaining the system and adding redundancy allows us to continue uninterrupted water delivery to your community, even if sections of our system need inspection, repair or rehabilitation. See www.mwra.com for more information.

Your community is investing in reliability as well. MWRA provides zero-interest loans to communities for pipeline rehabilitation and other water quality improvements. During 2022, we loaned \$29 million to 15 communities for pipeline projects.

Fun Fact

Did you know Quabbin means "great waters"? While the Nipmuc Native American name could be understood to mean that or "place of many waters," we know it means great tasting water.



Sodium and Drinking Water

MWRA tests for sodium monthly, and the highest level was 38.1 mg/L (about 10 mg per 8 oz. glass). This level would be considered to be Very Low Sodium by the Food and Drug Administration (FDA). Sodium in drinking water contributes only a small fraction of a person's overall sodium intake (less than 5%).

Your Water Wins Awards

The MWRA received an award from Mass DEP for outstanding performance in 2022.

Conservation, Climate Change, and Your Reservoirs

To be sure that we can supply all the water you need in both wet and dry years, now and in the future, MWRA works with the communities we serve to promote water conservation. Efficient and wise use of our water keeps it available for the future. For information on water use, reservoir levels and conservation, go to www.mwra.com.

What We All Need To Know About Lead

While there is no lead in your source water, lead can be found in your home, including from your plumbing. Learn about the health impacts of lead, and how to reduce exposure to this toxic metal.

How Lead Affects Health and Development

Lead affects young children, and may cause damage to the brain, slow growth and development, and learning and behavior problems. Preventing lead exposure is particularly important if a pregnant woman or a child lives in your home or apartment. Lead can also impact the health of your entire family. While lead poisoning frequently comes from exposure to lead paint dust or chips, lead in drinking water can also contribute to total lead exposure.

Important Lead Information From EPA

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water comes primarily from materials and components associated with service lines and home plumbing. MWRA is responsible for providing high quality drinking water, but cannot control the variety of

materials used in plumbing components. If your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or www.epa.gov/safewater/lead.

How Lead Can Enter Your Water

Lead in your home plumbing or a lead service line can contribute to elevated lead levels in the water

you drink. MWRA's water is lead-free when it leaves our reservoirs. Water mains are made mostly of iron, steel or concrete, and do not add lead to the water. Lead can enter your tap water from your service line (the line that connects your home to the water main) if it is made of lead, lead solder used in plumbing, or from some older brass faucets.

Corrosion, or wearing away of lead-based materials, can add lead to tap water, especially if water sits for a long time in the pipes before it is used. MWRA's water treatment helps limit the amount of lead in your water. In 1996, MWRA began adding sodium carbonate and carbon dioxide to adjust the water's pH and buffering capacity. This treatment makes the water less corrosive and reduces leaching of lead into drinking water. Lead levels found in tap water samples have dropped by nearly 90% since this treatment change. Learn more about lead in drinking water at www.mwra.com.

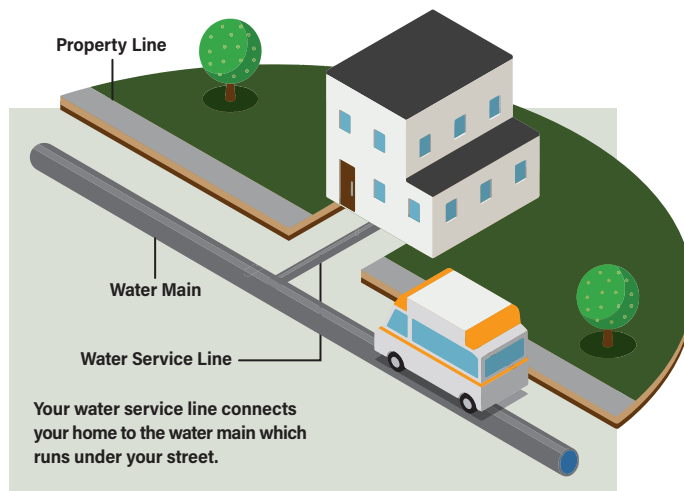
MWRA Meets Lead Standard in 2022

Under EPA and MassDEP rules, MWRA and your local water department are required to test tap water each year. Because we collect samples from homes with lead service lines or lead solder, the results do not reflect lead levels in all homes. The EPA rule requires that 9 out of 10 homes tested (90%) must have lead levels below the Action Level of 15 parts per billion (ppb).

This testing process can provide information on whether lead is corroding and mixing with the drinking water. It also provides communities and you with information on how to reduce lead in your drinking water.

Nine out of 10 homes tested in the MWRA service area were below 7.3 ppb—well below the Action Level. All sampling rounds over the past 19 years have been below the EPA Action Level.

Only one community—Winthrop—was above the lead Action Level in September 2022. Your community letter on Page 7 will provide you with local results and more information.

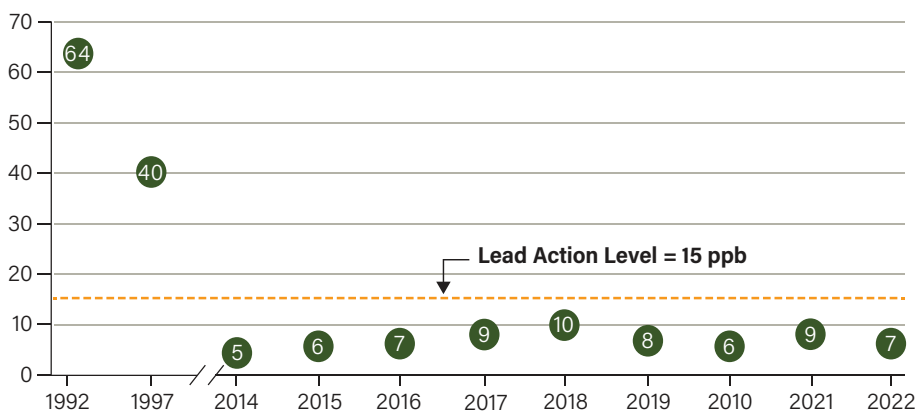


Lead & Copper Results, September 2022

	Range	90% Value	AL	Ideal Goal (MCLG)	#Homes Above AL/ #Homes Tested
Lead (ppb)	ND-121	7.3	15	0	18/595
Copper (ppb)	3.2-258	88.5	1300	1300	0/595

Key: AL=Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

90% Lead Levels in MWRA System of Fully Served Communities (ppb)



What is An Action Level?

An Action Level is the amount of lead that requires action to reduce exposure. If your home or school's drinking water is above the lead Action Level, additional steps to reduce lead may be required. If more than 10% of your community's samples were over the lead Action Level, your local water department is taking action to address the problem. See page 7.

What We All Can Do To Reduce Lead



Lead Service Lines

A service line connects your home or building to the water main in the street. If yours is made of lead, it can be the main source of lead in your tap water. Older galvanized iron pipes with lead connectors ("goosenecks") can also release lead. Lead service lines should be removed entirely to reduce lead in your drinking water.

Replacing Lead Service Lines

Your local water department can help find out if you have a lead service line, and provide help in replacing it. In some cases, an onsite check may be needed.

You can also check if your service line is made of lead by scratching the pipe near your water meter with a key or other metal object. Lead pipes will show a dull grey color, while copper pipes will not. For an online how-to guide, go to www.epa.gov/pyt.

MWRA Funding to Replace Lead Service Lines

MWRA and its Advisory Board offer zero-interest loans to customer communities for full lead service line replacement projects. Each MWRA community can develop its own local plan, and many communities have already taken steps to remove lead service lines. Since 2016, MWRA has provided \$34 million to 14 communities to fully replace lead service lines. To find out more, contact your local water department.

Reduce Your Exposure to Lead

Remove Lead Piping

- Find out if you have a lead service line. Learn about replacement options from your local water department.

Other Measures for Lead Reduction

- Any time water has not been used for more than 6 hours, run the faucet used for drinking water or cooking until after the water becomes cold.
- Let water run before using it—fresh water is better than stale. To save water, fill a pitcher with fresh water and place it in the refrigerator for future use.
- Never use hot water from the faucet for drinking or cooking, especially when making baby formula or other food for infants or young children.
- Remove loose lead solder and debris. Every few months, remove the aerator from each faucet and flush the pipes for 3 to 5 minutes.
- Be careful of places where you may find lead in or near your home. Paint, soil, dust and pottery may contain lead. Call the Massachusetts Department of Public Health at 1-800-532-9571 or 1-800-424-LEAD for information on lead and health impacts.

How to Test Your Drinking Water

If you are concerned about lead piping in your home, contact your local water department about testing your drinking water. MWRA also maintains a list of certified laboratories and sampling instructions at www.mwra.com. You may also call MWRA at 617-242-5323.

Lead Testing in Schools

Children can consume most of their drinking water at school or daycare. The plumbing inside some schools and childcare facilities can contain lead and contribute to lead exposure. MWRA, in coordination with MassDEP, provides no-cost lab analysis and technical assistance for schools and day care centers in MWRA communities. This service has been offered since 2016, and nearly all MWRA communities have participated. To date, more than 40,000 tests have been completed in more than 560 schools. Results are available on the MassDEP website at: www.mass.gov/dep (search for "lead in schools"). You may also contact your local school or water department for results.



3 Ways to reduce lead in your water:

- Remove your lead service line
- Run your water before using
- Use a filter certified to remove lead

Water Service Lines — Lead and Copper



You can identify lead service line by carefully scratching with a key.



New copper service line.

Information We All Need



Testing in Local Pipes

MWRA works with local water departments to sample and test 300-500 water samples each week for total coliform bacteria. Total coliform bacteria can come from the intestines of warm blooded animals, or can be found in soil, plants, or other places. Most of the time, they are not harmful. However, their presence could signal that harmful bacteria from fecal waste may be there as well. If any water sample does test positive, we run a more specific test for *E. coli*, which is a bacteria found in human and animal fecal waste and may cause illness. If total coliform is detected in more than 5% of samples in a month, the water system is required to investigate the possible source and fix any identified problems. If your community was required to do an investigation, or found *E. coli*, it will be in the letter from your community on page 7.



We listen to you!

You can help provide information about local water quality. Every call is investigated. Most complaints are related to discolored water (usually related to local construction or hydrant use), or conditions in a building's plumbing. If you have a concern, contact your local water department, or call MWRA at (617) 242-5323.

Important Research for New Regulations

MWRA works with EPA and health research organizations to help define new national drinking water standards by collecting data on water contaminants that are not yet regulated. Very few of these potential contaminants are found in MWRA water due to our source water protection efforts. Detailed information on testing for unregulated contaminants, as well as data on PFAS, disinfection by-products, *Giardia* and *Cryptosporidium*, and other contaminants can be found at www.mwra.com.

MWRA Monitoring for PFAS

PFAS compounds, used since the 1940s for many purposes, from stain and waterproofing to firefighting, continue to be a concern. Tests of MWRA water show only trace amounts of these compounds, too small to be quantified, and well below the state standard of 20 parts per trillion. MWRA results are also well below recently proposed EPA standards. See www.mwra.com for full details and all results.

Important Health Information: Drinking Water and People with Weakened Immune Systems

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline (1-800-426-4791).

Cross-Connection Information

A cross-connection is any temporary or permanent connection between a potable (drinking) water source and a non-potable source. Non-potable water or other sources can contaminate your drinking water if backflow occurs.

Sources could include:

- Garden hoses
- Boilers
- Swimming pools
- Irrigation systems or wells
- Residential fire protection systems

Massachusetts DEP recommends the installation of backflow prevention devices for inside and outside hose connections to help protect the water in your home as well as the drinking water system in your town. For more information on cross-connections, please call 617-242-5323 or visit www.mwra.com.

EPA Information on Bottled Water and Tap Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791) or MWRA. In order to ensure that tap water is safe to drink, the Massachusetts DEP and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration (FDA) and the Massachusetts Department of Public Health (MDPH) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.



Continue to Conserve

MWRA water use has dropped by over a third since the 1980s. It's up to all of us to continue to use water wisely. Every drop is valuable. Our website has many tips on how to save water indoors and outside.

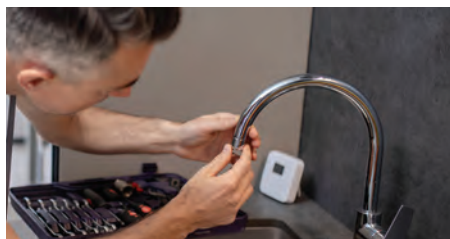
Water Conservation



Indoor Water Saving Tips

Check for leaky pipes, faucets, or toilets! Leaks can waste 180 gallons per week. An easy check to see if your toilet has a leak, simply add a dye tablet or food coloring to your toilet's water tank. If any color dye appears in the bowl within 15 minutes, you have a leak. The flush valve or flapper can be easily cleaned or replaced.

Low-flush toilets could cut your home water consumption by 25% or more! Old inefficient toilets can use over 6 gallons per flush compared to the current state standard that requires all newly installed toilets to use no more than 1.6 gallons per flush. Newer models can use as little as 1.3 gallons per flush.



Replace dripping faucets and showerheads. Installing new fixtures are an easy and cost-effective way to reduce unnecessary water use. Installing a low-flow faucet aerator can reduce the flow from 2-7 gallons to 1.5 gallons per minute



Look for the **Energy Star** label for the most efficient household products and appliances. Reduce your water consumption by only washing full loads of dishes or clothes.

Turning off the tap while you brush your teeth or shave can save 8 gallons per day.

Showering for 5 minutes uses only 10-25 gallons while a full bathtub uses up to 70 gallons. Try conserving water by taking shorter showers or filling the tub only halfway.



Search for WaterSense® labeled products, with various options on both high efficiency and high performance models to meet your family's needs while also saving you water.



Outdoor Water Saving Tips

Water your lawn (and other landscaping) in the **early morning** or **evening** to avoid evaporation.



Be sure sprinklers water **only your lawn**, not your pavement.

Never use water on a windy day.

No need to use the hose to clean debris from your driveway or sidewalk. **Use a broom!**



Apply mulch around plants to reduce evaporation, promote plant growth, and control weeds.

Don't overwater! If there has been an inch of rainfall during the week, you don't need to water at all.



The Inch Rule: most lawns, shrubs, vegetables, and flowers need just one inch of water a week.



Why save water?

Saving water can save you money by lowering your monthly water bill.

Minimize ecosystem impacts by reducing the water we return to the environment.

Reducing water use reduces energy costs by decreasing the energy needed to clean, pump, and heat water.

More information on water conservation and efficiency can be found at: www.mwra.com/comsupport/waterconservationmain.htm

MWRA is an EPA Water Sense Partner!

MWRA has teamed up with the EPA's WaterSense Program to help consumers save water for future generations and reduce costs on their utility bills. For more information on WaterSense, and for a full list of labeled products and WaterSense irrigation partners, visit: www.epa.gov/watersense.

Request free MWRA water conservation kits at: wc.mwra.com/home



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
SUBJECT: Intermediate High Pipeline Improvements CP2,
Rehabilitation of Sections 24 and 25 Water Mains
Albanese D&S, Inc.
Contract 6956



COMMITTEE: Water Policy & Oversight

 INFORMATION
 X VOTE


Michele S. Gillen

Director of Administration



David W. Coppes, P.E
Chief Operating Officer

John Colbert, P.E., Chief Engineer
Patrick Smith, P.E., Program Manager
Preparer/Title

RECOMMENDATION:

To approve the award of Contract 6956, Intermediate High Pipeline Improvements CP2, Rehabilitation of Sections 24 and 25 Water Mains, to the lowest responsible and eligible bidder, Albanese D&S, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$18,673,000 for a contract term of 912 calendar days from the Notice to Proceed.

DISCUSSION:

Construction Contract 6956, designed by CDM Smith Inc. and Green International Affiliates under Contract 6955, is one of three contracts to interconnect the two geographically distinct and hydraulically unconnected Intermediate High pressure zones (Newton to the south and Arlington/Belmont/Watertown to the north) to provide redundancy and operational flexibility in the event of pipe failures. This contract was bid first to coordinate scheduled work by other agencies in the area. (See Figure 1 for CP2 contract area as well as future CP1 and CP3 contract areas to complete the Intermediate High Improvements program.)

This contract includes replacement and hydraulic pipe size increase from 16 to 20 inches of 5,900 linear feet for Section 25 and the cleaning and lining rehabilitation of 3,300 linear feet of Section 24 along with replacement of revenue Meters 2 and 40 (both serving Watertown). The majority of this work is located in Watertown with minor work in Newton at the crossing of the Charles River. This project also reroutes Section 25 from Common Street in Watertown, to Bellevue Road, Russell Avenue and extending along Mount Auburn Street per the request of the City of Watertown following road reconstruction work in Common Street.

To meet paving schedules of the Massachusetts Department of Transportation (MassDOT) and Watertown, design and construction of this contract was accelerated ahead of CP1 (Section 75

Extension). MassDOT has a full roadway reconstruction project for Mount Auburn Street in Watertown that is scheduled to start in late 2023. This requires that MWRA's 1,300 linear feet of 20-inch diameter pipe be constructed prior to roadway reconstruction and paving. In response to current long lead times for materials, 20-inch and smaller diameter pipe, fittings, and valves were pre-purchased under Contract 6956A. This will allow the Contractor to start pipe construction in the field immediately following site mobilization.

Procurement Process

Contract 6956 was advertised in the following publications: the Central Register, the Boston Herald, El Mundo, Banner Publications and on COMBUYS. The bid utilized the MWRA's e-procurement system (Event 5460) and was bid in accordance with Massachusetts General Laws, Chapter 30. A remote pre-bid conference, via Webex, was held on March 9, 2023 with four general contractors participating.

Two bids were received and opened on April 14, 2023. The bid results were as follows:

<u>Bidders</u>	<u>Bid Amount</u>
Albanese D&S, Inc.	\$18,673,000
<i>Engineer's Estimate</i>	<i>\$21,260,500</i>
RJV Construction Corp.	\$23,625,000

Albanese submitted the lowest bid price of \$18,673,000, which is 12.2% below the Engineer's Estimate. In comparison, the second bidder, RJV, submitted a bid price that is 11.1% higher than the Engineer's Estimate. MWRA staff reviewed the scope of work with Albanese and are satisfied that the bid includes all elements of the work for the bid price. The difference between Albanese's bid price and the Engineer's Estimate is a combination of Albanese's past experience working with MWRA, knowledge of the area (Albanese is currently working on the southern end of Section 24 under Contract 6392 that connects to this contract's piping) and lower material prices than included in the Engineer's Estimate as Albanese stated that prices have stabilized.

References were checked and found to be favorable. Albanese successfully completed several water and sewer projects for MWRA, including three Northern Intermediate High Pipeline projects in Stoneham, Wakefield and Reading, which included large diameter pipe construction. Albanese's performance on these projects was good. Albanese is currently working on Contract 6544, WASM 3 Rehabilitation Construction Package 1, in the amount of \$19,487,850; Contract 6522, Northern Extra High Pressure Zone Improvements Section 63 (Lexington) in the amount of \$11,737,000; and Contract 6392, Sections 23, 24 and 47 Water Mains (Boston and Newton) in the amount of \$26,843,000. Its performance to date has been good. Staff also checked references for other non-MWRA projects, which were favorable. Five years of OSHA records for Albanese were reviewed and no violations were found.

Albanese has successfully completed numerous projects for MWRA and is experienced with performing similar work. Staff have concluded that Albanese possesses the skill, ability, and integrity necessary to perform the work under this contract, and is qualified to do so. Albanese is confident in its ability and experience in the class of work required to perform Contract 6956 and advised staff that it has sufficient capital and capacity to enable successful performance within the contract time.

Staff have determined that the bid price is reasonable, complete and includes the payment of prevailing wage rates, as required. Therefore, staff recommend the award of Contract 6956 to Albanese D&S, Inc. as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACTS:

The FY23 CIP includes \$14,200,000 for Contract 6956. The cost estimate was updated in the FY24 Proposed CIP to include \$22,000,000 for Contract 6956 which included the Pre-purchase Contract 6956A that was previously awarded for \$721,786.56. The award amount for Contract 6956 is \$18,673,000.

MBE/WBE PARTICIPATION:

The MBE and WBE participation requirements for this project were established at 7.24% and 3.6%, respectively. The Authority's Affirmative Action and Compliance Unit has reviewed Albanese's bid and determined that it is responsive to these requirements.

ATTACHMENT:

Figure 1 – Intermediate High Pipeline Improvements – Contract 6955

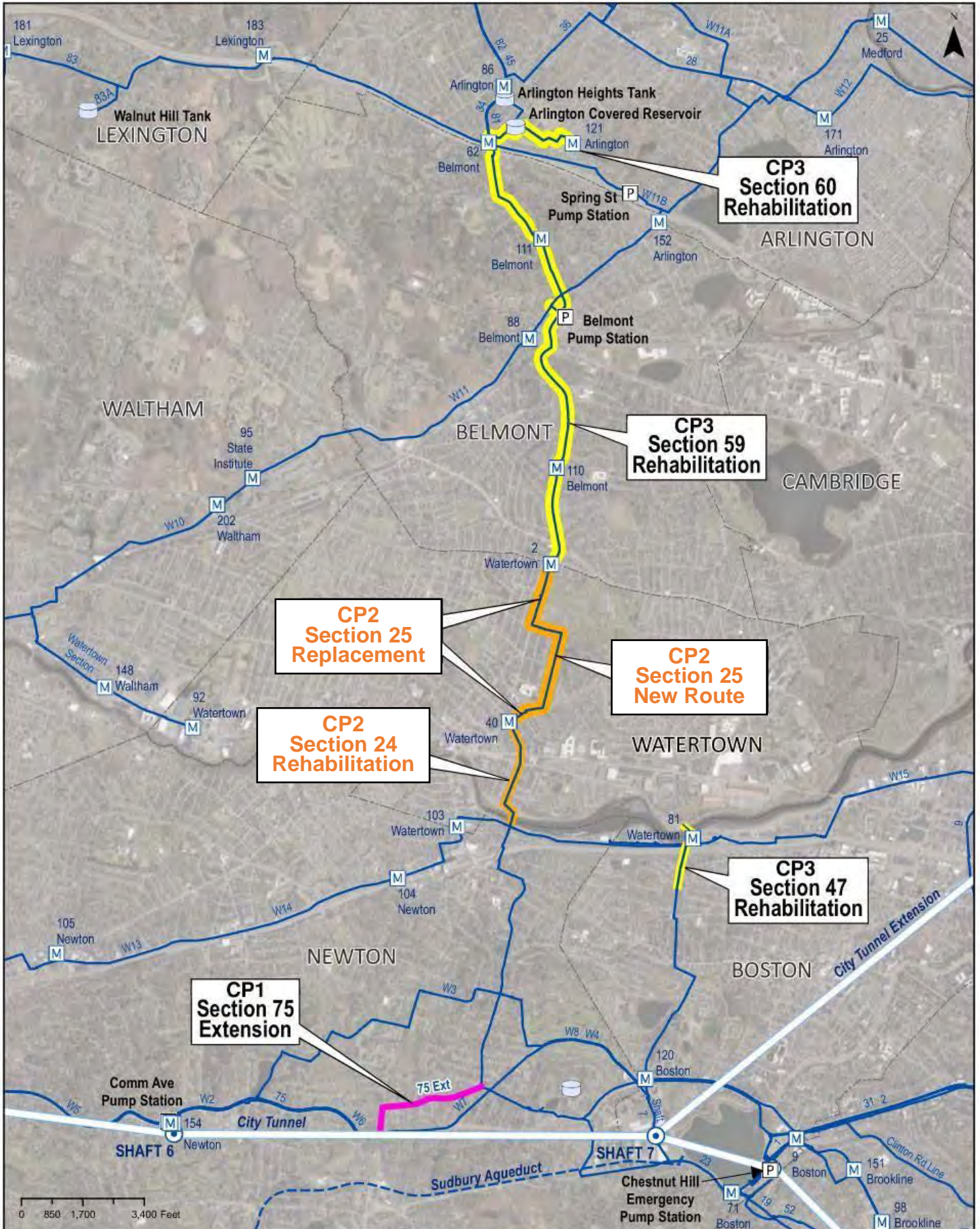



FIGURE 1: INTERMEDIATE HIGH PIPELINE IMPROVEMENTS - CONTRACT 6955

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: May 24, 2023
SUBJECT: Intermediate High Pipeline Improvements CP2 Sections 24 and 25
 Resident Engineering and Inspection Services
 CDM Smith Inc.
 Contract 7680

COMMITTEE: Water Policy & Oversight


 INFORMATION

 X VOTE


Michele S. Gillen

Director of Administration

Alexander Sampson, P.E., Project Manager
John P. Colbert, P.E., Chief Engineer
 Preparer/Title


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

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract 7680, Intermediate High Pipeline Improvements CP2 Sections 24 and 25 Resident Engineering and Inspection Services, to CDM Smith Inc. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed \$1,902,278.71 for a contract term of 33 months from the Notice to Proceed.

DISCUSSION:

Contract 7680 will provide Resident Engineering and Inspection Services for the Intermediate High Pipeline Improvements Construction Package 2 Sections 24 and 25, Contract 6956, which was designed by CDM Smith Inc. and Green International Affiliates and is a separate agenda item for award at this Board meeting. This is one of three construction contracts to interconnect the two geographically distinct and hydraulically unconnected Intermediate High pressure zones (Newton to the south and Arlington/Belmont/Watertown to the north) to provide redundancy and operational flexibility in the event of pipe failures. Construction Package 2 was bid first to coordinate scheduled work by other agencies in the area. See Figure 1, attached, for the details of the three construction packages to complete the Intermediate High Improvements program.

The selected firm will provide resident engineering and inspection services for a duration of 33 months to cover the construction contract period through substantial completion, punchlist, final inspections and construction contract closeout. The Resident Engineer and Inspector's responsibilities include daily, on-site observation and documentation of the progress and quality of the construction work to ensure it conforms to the construction contract documents and approved schedules. The contract includes a full-time Resident Engineer and Resident Inspector and one part-time Resident Inspector to accommodate work at multiple work sites, multiple contractor work shifts; or work outside normal contract working hours. The cost for this contract

is approximately 10 percent of the construction contract, which is typical for resident engineering and inspection services. In addition, MWRA staff will provide overall construction management for the contract.

Procurement Process

On March 8, 2023, MWRA issued a one-step Request for Qualifications Statements/Proposals (RFQ/P) that was publicly advertised in the Central Register, the Boston Herald, Banner Publications and El Mundo, and on the MWRA Supplier Portal. A total of 18 firms requested the RFQ/P documents.

The RFQ/P included the following evaluation criteria and points: Cost (35 points); Qualifications and Key Personnel (35 points); Relevant Experience/Past Performance (10 points); Capacity/Organization and Technical/Management Approach (15 points); and Minority and Women Business Enterprise Participation (5 points).

On April 12, 2023, MWRA received two proposals, one from CDM Smith and one from WSP USA Inc. The following table represents the cost and level of effort proposed:

Proposer	Proposed Cost	Proposed Hours
CDM Smith Inc.	\$1,902,278.71	14,260
<i>Engineer’s Estimate</i>	<i>\$1,961,450.00</i>	<i>14,260</i>
WSP USA Inc.	\$2,417,708.47	16,478

The Selection Committee met on April 24, 2023 to evaluate and rank proposals. The five voting members on the Selection Committee reviewed, scored and ranked the proposals as follows:

Proposer	Total Final Score	Order of Preference Points	Ranking
CDM Smith Inc.	431.5	5	1
WSP USA Inc.	369	10	2

CDM received the top ranking for this consultant selection process. The cost estimate was 3% lower than the Engineer’s Estimate, and 23% lower than WSP, due to a lower number of hours and a lower hourly rate carried by CDM for the Resident Engineer. The proposed Resident Engineer has over 25 years of experience in construction and was rated as excellent by MWRA staff on previous projects, including Chelsea Creek Headworks Upgrades and currently on the Low Service PRV Improvements projects. CDM demonstrated a clear understanding of the work required in its technical approach. The proposal was clearly presented, and the team has the capacity, organization and management approach necessary to successfully complete the project.

WSP received the second ranking for this consultant selection process. Although WSP’s proposal was good, its overall proposed cost was 23% higher than both the Engineer’s Estimate and CDM, due to exceeding the estimated hours and higher hourly rate for the Resident Engineer and Project Manager. WSP included extensive additional hours for project management and clerical support that is not typical for MWRA resident engineering and inspection contracts, as MWRA internal construction staff oversee the consultant field staff. The proposed Resident Engineer has extensive experience on local utility and roadway reconstruction projects, but not directly on recent MWRA work.

Based on the final rankings, the Selection Committee recommends award of this contract to CDM Smith Inc. in an amount not to exceed \$1,902,278.71.

BUDGET/FISCAL IMPACT:

The FY23 CIP includes \$4,268,000 for Contract 7680, which was intended to support all three construction contracts. The award amount is \$1,902,278.71. The proposed FY24 CIP includes \$1,960,000 for Contract 7680 and two new additional contracts were established to support the other construction packages separately.

MBE/WBE PARTICIPATION:

The MBE and WBE participation requirements for this contract were established at 7.18% and 5.77%. CDM proposed 15% for MBE participation and requested a partial waiver for WBE participation. The Massachusetts Water Resources Authority's Affirmative Action Compliance Unit has approved the partial waiver for WBE participation.

ATTACHMENT:

Figure 1: Intermediate High Pipeline Improvements – Contract 6955

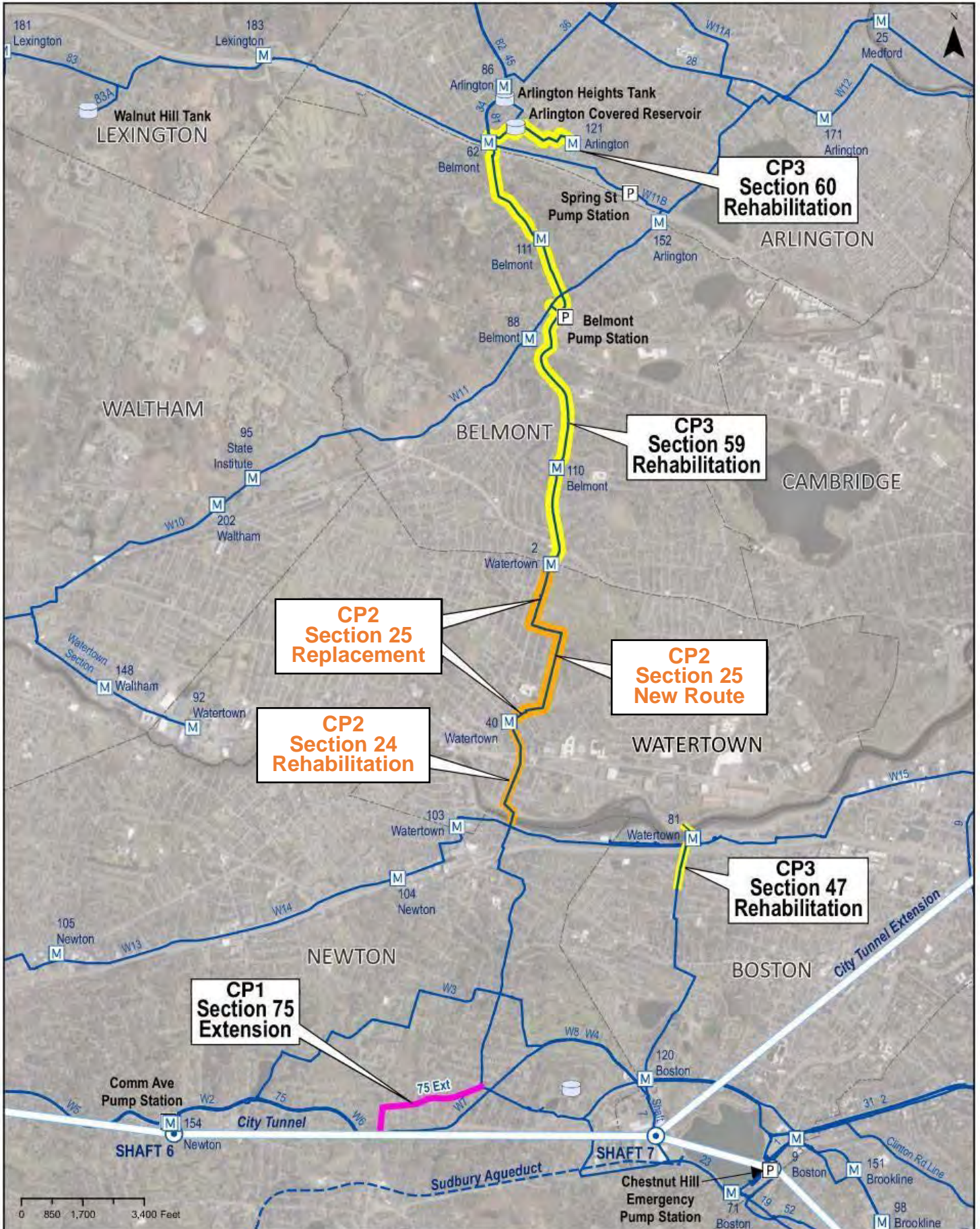


FIGURE 1: INTERMEDIATE HIGH PIPELINE IMPROVEMENTS - CONTRACT 6955


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
SUBJECT: Grit and Screenings Hauling and Disposal
W. L. French Excavating Corporation
Contract S612




COMMITTEE: Wastewater Policy & Oversight

 INFORMATION
 X VOTE


Michele S. Gillen
Director of Administration

David Duest, Director, Deer Island Treatment Plant
Chad Whiting, Deputy Director, Deer Island Treatment Plant
Caitlin Hunt, Program Manager, Process Engineering
Preparer/Title


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

RECOMMENDATION:

To approve the award of Contract S612, Grit and Screenings Hauling and Disposal, to W. L. French Excavating Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$4,902,019.25, for a contract term of 731 calendar days from the Notice to Proceed.

DISCUSSION:

Contract S612 is a two-year replacement contract to haul and dispose of "minor residuals" from various MWRA wastewater facilities. Minor residuals are by-products of wastewater pre-treatment and primary/secondary treatment processes, and include grit, screenings, floatable scum and scum screenings. Grit and screenings are essentially all the solids that are captured when the largest items, such as rags, wood, plastics and other larger floating material are removed from the wastewater. These solids are removed by bar screens that filter the material to protect downstream equipment. Heavier material, such as sand and gravel, is removed by settling in the grit chambers. Scum typically refers to material that floats and congeals on the surface of tanks, such as fats, oils, and greases, as well as some plastic and rubber products.

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

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



Figure 1: Grit Trailer (Left) and Grit Conveyors (Right) at Deer Island Wastewater Treatment Plant



Figure 2: Grit Chute and Trailer at Nut Island Headworks Facility (Left) and the grit bay with Dumpsters at the Intermediate Pump Station (Right)

This Contract

The current contract (Contract S595) will expire on July 8, 2023. This new, three-year contract requires the vendor to pick up screenings, grit, and scum at the various MWRA facilities. Typically, this requires pickups from one to 12 times per month, depending on the facility. Each pickup ranges from about 10 to 40 tons of material. The contractor is responsible for monthly laboratory testing to confirm that the material meets regulatory requirements for landfill disposal. The contractor is also responsible for finding a landfill that will accept the material.

Procurement Process

Contract S612 was advertised as a non-professional services contract in the Boston Herald, Goods and Services, El Mundo, Banner Publications, and MWRA's e-Procurement system (Event 5421-2) and bid as a non-professional services contract. A remote pre-bid conference was held on March 2, 2023.

Bids were opened on April 27, 2023 with the following results:

<u>Bidder</u>	<u>Bid Amount</u>
<i>Engineer's Estimate</i>	\$3,854,180.58
W.L. French Excavating Corp.	\$4,902,019.25

During the pre-bid conference, a second vendor expressed an interest in bidding on this contract. After closer evaluation, that vendor determined that it would be significantly challenged to provide a competitive bid as a result of equipment and manufacturing constraints, and decided not to put in a bid at this time.

Shortly before the scheduled bid opening, another prospective bidder informed MWRA that local landfills would only provide pricing for one-year landfill disposal contracts and that disposing of the grit and screenings at landfills located farther away and/or out-of-state would increase costs significantly. Landfill space in Massachusetts and surrounding areas is becoming more difficult to source. To allow all prospective bidders time to explore alternative landfill site costs, the bid deadline was extended by four weeks. Additionally, the contract length was shortened from three years to two years to alleviate some of the risk of unknown trucking and landfill costs. The contract line items were also bid separately for Year 1 and Year 2.

This contract contained a modest number of changes to the specifications from the previous contract. One of these changes was the addition of the Braintree-Weymouth Pump Station, which is currently undergoing an upgrade that includes the installation of a new screenings removal system. This screenings system is expected to go online during the first year of this contract.

W.L. French's bid is \$1,047,838.67 (or 27.19%) higher than the Engineer's Estimate. The difference is due to a number of increasing costs since 2020. According to W.L. French, local landfill disposal costs have increased by approximately 70% since 2020. In addition, the cost of fuel has nearly doubled and W.L. French's equipment costs have increased by approximately 45% since 2020. Despite these increases, W.L. French's bid for Deer Island and Nut Island grit and scum disposal in Year 1, as well as lab testing services, was consistent with the staff estimate. The largest unit price increases were in container transport and placement, and disposal of other facilities' grit and screenings, which includes disposal from various pump stations as discussed previously. The disposal of other facilities' grit and screenings requires more trucking and equipment than the other disposal line items. In previous bids, W.L. French did not account for these additional transportation costs. The bid also included a 10% increase per ton for disposal costs for Year 2 of this contract due to estimated landfill disposal cost increases. W. L. French intends to dispose of MWRA's grit and screenings in a local landfill located in Fitchburg, Massachusetts.

References were checked and found to be favorable. If approved, this award will be W. L. French's sixth MWRA contract for grit and screenings hauling, including the current Contract S595, and staff have been satisfied with the company's performance. After reviewing the bid and follow-up discussions with the contractor, staff are of the opinion that the bid price is reasonable and that W. L. French understands the full nature and scope of the work under this contract, can perform the work for the bid price, and is qualified to do so. Therefore, staff recommend the award of this contract to W. L. French Excavating Corporation as the lowest responsive bidder.


BUDGET/FISCAL IMPACT:

There are sufficient funds available for the first portion of this contract in the Proposed FY24 Current Expense Budget. Appropriate funding also will be included in subsequent Proposed CEB requests for the remaining term of the contract.

MBE/WBE PARTICIPATION:

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

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: May 24, 2023
SUBJECT: Extended Warranty, Service and Maintenance Sole Source Contract for the Process Instrumentation and Control System at the Deer Island Treatment Plant ABB, Inc.

COMMITTEE: Wastewater Policy & Oversight

 INFORMATION

 X VOTE


Michele S. Gillen

Director of Administration

David Duest, Director, Deer Island Treatment Plant
 Lisa Wong, Manager, Process Control
Patrick Phillips, Program Manager, Process Control
 Preparer/Title



David W. Coppes, P.E.

Chief Operating Officer

RECOMMENDATION:

To approve the award of a sole source extended warranty, service and maintenance contract for the Process Instrumentation and Control System at the Deer Island Treatment Plant with ABB, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the amount of \$1,370,722 for a contract term of three years, from July 1, 2023 through June 30, 2026.

DISCUSSION:

The Deer Island Treatment Plant is controlled by a \$24 million Process Instrumentation and Control System (PICS), which was originally procured competitively and installed under the Boston Harbor Project between 1995 and 2000. Staff estimate the current replacement value to be approximately \$52 million. That original contract was awarded to Bailey Controls Company, now known as ABB, Inc. PICS provides a means for Deer Island staff to execute overall plant-wide process control, as well as centralized monitoring, enabling the operation of the facility with minimum staffing. Process data from PICS is also available throughout MWRA via the MIS network and is essential for compliance reporting, plant optimization efforts, budgeting, and “event” evaluations.

MWRA’s PICS system is among the most expansive of any wastewater plant in the United States. Thousands of field instrumentation devices are used to gather process information, such as: temperature, pressure, flow, and on and off status of remote equipment. These devices are wired back to 63 control cabinets, commonly referred to as distributed processing units, or DPUs (pictured on the following page), positioned at various locations around the 150-acre site. There are more than 1,000 control modules of various types used in these DPUs to gather inputs from process sensors and to send control signals back to Operations, resulting in more than 30,000 input/output points in the PICS system.



Figure 1: PICS DPU Cabinets

All of the information gathered from process equipment is sent to primary and backup control rooms (e.g. a control room pictured below) and is displayed through a Human Machine Interface (HMI) supplied by Emerson Process Management Power & Water Solutions, Inc. HMI includes hardware (i.e. computer servers, operator workstations, and security appliances), software, and control graphics. The plant operators use HMI as the main tools for monitoring and operator-intervened control of the process at both the Deer Island Treatment Plant and the Thermal/Power Plant. HMI is the direct interface between Operations staff and the ABB portion of the PICS system. Further, HMI gathers information from all the processes and presents that information to staff through control graphics.

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

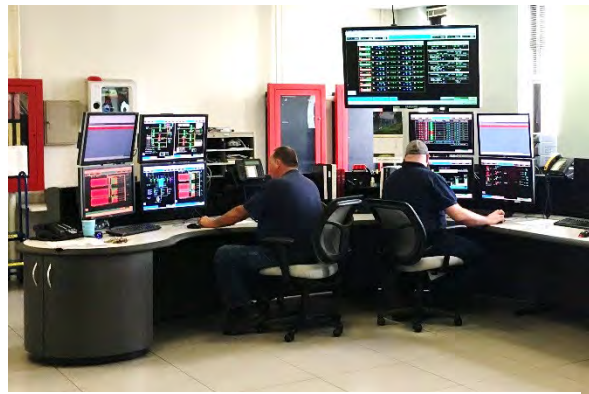


Figure 2: One of Deer Island's Control Rooms

Servicing the PICS system is critical to its reliable operation. MWRA staff performs all "first response" service, addressing the needs and requests from Operations staff, and implementing process automation changes driven by changing operational strategies.

For the past 23 years, PICS has been serviced under a sole source contract with the original equipment manufacturer ABB, Inc., formerly Bailey Controls Company. The current contract in the amount of \$1,220,469, will expire on June 30, 2023. The new contract amount is \$1,370,722, which represents a 12% increase from the current three-year contract price.

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

Staff have thoroughly researched the sole source nature of this procurement. The ABB equipment is of proprietary design and manufacture; there are no third party vendors of new ABB replacement parts. There are suppliers of reconditioned parts and there are vendors who can provide preventive maintenance on electronic control equipment. These vendors, particularly in the parts area, tend to rely on recently retired or former vendor personnel to troubleshoot and provide services. Staff are of the opinion that this type of support is not as reliable as support from the manufacturer. Staff's

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

Staff recommend that MWRA contract again with the original equipment vendor to provide the extended warranty and the ongoing service of the PICS system. Combined with the efforts of MWRA staff, this contract will ensure an uninterrupted supply of replacement parts and up-to-date, system-wide technical information and documentation, and will minimize downtime by ensuring the committed availability of an extensive and qualified field engineering staff necessary for optimum performance. ABB has provided excellent service during all past and current contracts. The vendor's workmanship has been excellent and ABB's technical support has been responsive in all ways to MWRA's needs. ABB's parts replacement has been timely and professional.

Contract Components

The contract scope and cost elements are broken down into several categories as follows:

Extended Warranty Service and Onsite Parts Inventory \$431,185

A major element of the contract is the extended warranty program for the entire PICS system. Under the extended warranty program, ABB will replace any hardware component that fails up to a maximum total of \$576,000. These parts are supplied at a substantial discount off list price, 30% on average. Similar to the existing contract, this proposed contract includes an on-island ABB parts warehouse, storing the most critical parts onsite under ABB's custody, but readily available to staff, if required, without impacting warranties. This eliminates delivery delays that could extend downtime.

Onsite Support Services \$587,169

The installed PICS hardware is operating well and is in excellent condition because of current efforts by ABB's factory-trained field service technicians, who provide, at a minimum, the following services: equipment cleaning; DPU cabinet air filter inspections and change outs; corrosion inhibitor replacements; and DPU voltage level and indicator light inspections. ABB will provide up to 600 onsite field service hours per year to perform these control system services, as well as other duties as assigned.

Included under this agreement is up to 36 days (96 hours per year, taken from the 600 hours) of onsite support services, other than field service engineering, including after-hours support. Staff have utilized these services to supplement MWRA staff where continuous operation is critical. This function also provides vendor backup to MWRA staff in the event that severe problems are encountered anywhere on the island.



Figure 3: DPU Cabinet Showing Control Modules

Project Services

\$225,000

Due to the age of the current PICS system, there is a need to evaluate options for, as well as to phase in, future system upgrades. The Project Services line item was included in this proposed contract to be used for engineered projects and evaluations for system upgrades and expansions. This allowance will be utilized as-needed with scope and budget undergoing internal review and approval as per other MWRA technical assistance contracts.

Internet Subscription Service, Telephone Consultation Service

\$73,575

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

Software Maintenance Program

\$53,793

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

BUDGET/FISCAL IMPACT:

There are sufficient funds available for the first portion of this contract in the Proposed FY24 Current Expense Budget. Appropriate funding will be included in subsequent Proposed CEB requests for the remaining term of the contract.

MBE/WBE PARTICIPATION:

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

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
SUBJECT: Hayes Pump Station Rehabilitation Design and Engineering Services During Construction
Hazen and Sawyer, P.C.
Contract 7162, Amendment 2
Technical Assistance Consulting Services
Hazen and Sawyer, P.C.
Contract No. 7497, Settlement of Claim
Weston Aqueduct Sluice Gates Construction Project



COMMITTEE: Wastewater Policy and Oversight

 INFORMATION
 X VOTE

Patricia A. Mallett, P.E., Senior Program Manager
John P. Colbert, P.E., Chief Engineer
Preparer/Title



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

This staff summary recommends Board approval of Amendment 2 to Contract 7162, Hayes Pump Station Rehabilitation Design and Engineering Services During Construction (ESDC), with Hazen and Sawyer, for additional level of effort for project management and ESDC. In addition, this staff summary recommends a settlement with Hazen and Sawyer of \$36,475 for the Authority's claim of a design deficiency arising on a separate project - Weston Aqueduct Sluice Gates Construction - which settlement amount shall be applied as an offset against sums that become due and payable to Hazen and Sawyer on Contract 7162.

RECOMMENDATION:

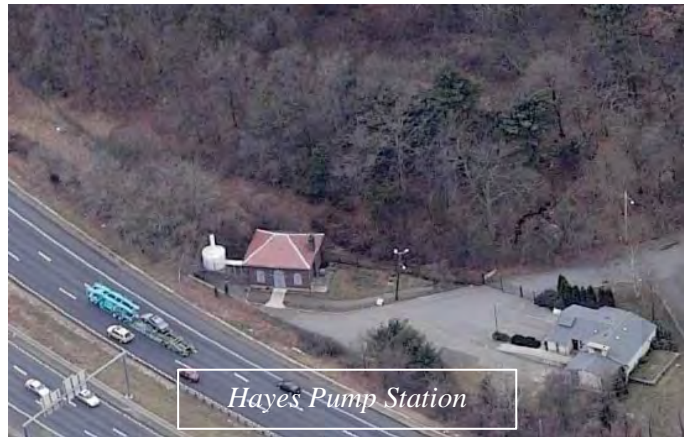
To approve Amendment 2 to Contract 7162, Hayes Pump Station Rehabilitation, Design and Engineering Services During Construction, with Hazen and Sawyer, P.C. to increase the contract amount by \$143,875, from \$2,099,924 to \$2,243,799, and increase the contract term by 23 months from October 22, 2025 to September 22, 2027.

Further, to authorize the Executive Director, on behalf of the Authority, to execute a settlement agreement with Hazen and Sawyer, P.C. to settle the Authority's claim of a design deficiency under Contract No. 7497, Technical Assistance Consulting Services, for \$36,475 relating to the Weston Aqueduct Sluice Gates Construction project, subject to terms and conditions that are satisfactory to the Authority.

DISCUSSION:

Proposed Amendment 2 to Contract 7162

The Hayes Pump Station was built in 1987 to replace the old Reading Pump Station. It is located adjacent to I-95 in Reading at the end of Redfield Road, as shown in Figure 1. The station receives wastewater flows from Reading, the northwest corner of Wakefield and portions of Stoneham. The station pumps flows of approximately three MGD on a typical day and is able to pump peak flows of approximately 9.4 MGDmgd. Pumped flows are conveyed through a force main under I-95 to



MWRA’s Reading Extension Relief Sewer. The old Reading Pump Station building, located on the southern end of the property, is currently used to house the odor control fan, which draws air from the Hayes Pump Station and discharges through a carbon vessel.

On September 16, 2020, the Board approved the award of Contract 7162 to Hazen and Sawyer, P.C. for a contract term of 60 months for design and engineering services during construction for the Hayes Pump Station Rehabilitation project. This project will provide a major facility rehabilitation, including replacement of facility gates, solids handling equipment, primary wastewater pumps and motors, SCADA equipment, odor control system, HVAC system, and electrical equipment, including the emergency generator. A bypass pump station is being designed so the entire pump station may be taken offline during rehabilitation of the pump station. Design of the pump station improvements and bypass pump station is currently ongoing with 100% design documents due at the end of this month.

Amendment 1 was previously approved under delegated authority and modified the contract’s technical assistance allowance to allow the use of the remaining funds, which were earmarked for specific tasks, for other unanticipated services. Amendment 1 did not increase the contract amount nor extend the contract term.

If approved, Amendment 2 will increase the contract amount by \$143,875, from \$2,099,924 to \$2,243,799, and increase the contract term by 23 months, from October 22, 2025 to September 22, 2027, for the following items.

Additional Project Management for Design Phase 12 Months, \$70,461

The design phase of Contract 7162 has taken 12 months longer than the original contract schedule due to additional time for out-of-scope design items and more than anticipated permitting support required for project construction. The out-of-scope design items were completed using contract allowance funds. These items include the addition of a portable emergency generator docking station to improve facility resiliency in the event of a power outage, security upgrades, and structural analyses to provide access hatches for pump station equipment maintenance.

Multiple permits are required prior to construction of the identified improvements at Hayes Pump Station. An access permit to the MassDOT stormwater system is required for overflow from the

site drainage system and construction dewatering discharge, which required computer modeling of the MassDOT drainage system prior to permit approval. A plumbing variance was required to allow one bathroom for the facility and an egress variance was required to accept the current egress configuration. These variances were both approved, but required additional time. The variance applications could not be submitted until after the 90% design submittal when the design details were complete. The design effort to support these permits and the approval process delayed completion of the design by 12 months.

An additional \$70,461 is requested to cover the 12-month extension for additional project management, including coordination with subconsultants and completion of the design. The additional cost includes \$5,400 for escalation of labor that will occur later than originally planned.

Additional Engineering Services during Construction 11 Months, \$73,414

The original construction duration was 24 months. Longer than expected material delivery due to supply chain problems has resulted in a longer construction duration for this project. Long lead equipment times, including the backup generator, pumps, PLCs, and actuators, has resulted in the addition of 11 months to the construction duration.

The sum of \$73,414 is requested to cover the added level of effort for project management and ESDC during the additional 11 months in the construction duration. This item includes \$30,611 for escalation of labor that will be provided later than originally planned.

Settlement Agreement

Under the Technical Assistance Consulting Services Contract No. 7497, Hazen and Sawyer provided design services for the Weston Aqueduct Sluice Gates Construction Project (MWRA Contract 7369). The specification listed a sluice gate manufacturer that did not meet the specification requirement for 20 years of experience. The contractor ordered a sluice gate from that specified manufacturer. The contractor was then ordered to provide a sluice gate from a manufacturer with the required experience, and a change order was issued to the contractor that included a termination cost of \$36,475 it was required to pay the original gate supplier to cancel the order. The Authority requested reimbursement from Hazen and Sawyer for the termination cost. Hazen and Sawyer acknowledged the error and agreed to the reimbursement. Hazen and Sawyer took responsibility for its design, and overall its performance on this contract was good. Therefore, staff recommend settlement of this cost recovery claim for \$36,475. The \$36,475 sum will be applied as a credit against amounts that become due and payable to Hazen and Sawyer by MWRA on Contract 7162. If approved, MWRA will execute a settlement agreement with Hazen and Sawyer.

CONTRACT SUMMARY:

	Amount	Time	Dated
Original Contract:	\$2,099,924	60 Months	11/20/2020
Amendment 1*	\$0	0 Months	1/24/2023
<u>Amendment 2</u>	<u>\$143,875</u>	<u>23 Months</u>	Pending
Adjusted Contract:	\$2,243,799	83 Months	

*Approved under delegated authority

Amendments 1 and 2 increase the total contract amount by 7%.

BUDGET/FISCAL IMPACT:

The FY23 CIP includes \$2,100,013 for Contract 7162. Including this amendment for \$143,875, the adjusted contract total will be \$2,243,799 or \$143,786 over the CIP amount. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

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



MASSACHUSETTS WATER RESOURCES AUTHORITY

Deer Island
33 Tafts Avenue
Boston, MA 02128

Frederick A. Laskey
Executive Director

Chair: J. Wolowicz

Vice-Chair: M. White-Hammond

Committee Members:

P. Flanagan

J. Foti

A. Pappastergion

H. Vitale

J. Walsh

Telephone: (617) 242-6000

Fax: (617) 788-4899

TTY: (617) 788-4971

PERSONNEL & COMPENSATION COMMITTEE MEETING

Date: Wednesday, May 24, 2023

Time: Immediately following the MWRA Board of Directors Meeting

Location: Deer Island Reception/Training Building, 1st Floor
33 Tafts Avenue
Boston, MA 02128

A photo ID will be required for entry to the building.

The meeting will also be available via Webex. The Webex meeting link, event number and password to attend virtually are:

Webex Meeting Link (Registration required):

<https://mwra.webex.com/weblink/register/r01fd1ba0ffc126ed3b2347cd470db5ce>

Event Number: 2343 926 0193

Password: 52423

AGENDA

Annual Meeting of the Personnel and Compensation Committee Independent of Management

A. Authority Accountability and Transparency Act Compliance

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: May 24, 2023
SUBJECT: Authority Accountability and Transparency Act Compliance

COMMITTEE: Personnel and Compensation

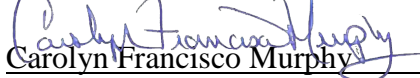
X INFORMATION

 VOTE


Michele S. Gillen

Director, Administration

Wendy Chu, Director, Human Resources
Preparer/Title


Carolyn Francisco Murphy
General Counsel

As required by the 2011 Authority Accountability and Transparency Act, the Personnel and Compensation Committee must meet independently of management at least once a year to establish and evaluate executive compensation, and analyze and assess comparable compensation for positions with similar functions and responsibilities at state agencies and authorities, and for-profit and non-profit private sector employers. This meeting will occur at the end of the May 24, 2023 Personnel and Compensation meeting. Analyses of comparable salaries are attached to facilitate the Committee's review.

RECOMMENDATION:

For information only.

DISCUSSION:

The Authority Accountability and Transparency Act (G.L. c. 29, §29K) became law in July 2011 and required the Executive Office for Administration and Finance (A&F) to adopt regulations governing accountability and transparency for state authorities. As applicable to MWRA, the statute requires the Board to review executive compensation based on an analysis of comparable public and private-sector compensation; and to prepare an annual report of all Authority expenditures including disclosure of salaries of highly compensated employees who earn more than the Governor's salary. It also prohibits the Commonwealth from subsidizing the health insurance, pension, and other post-employment benefits of employees and retirees of authorities that participate in the state retirement system or the Group Insurance Commission. A&F filed interim emergency regulations in July 2011, and in 2013, A&F promulgated the permanent regulation.

The final regulation:

- Defines the statutory term "executive" as the authority's chief executive officer, chief financial officer, general counsel and others as determined by the authority's compensation committee.
- Defines "highly compensated employees," whose compensation is reported in the annual

financial report, as those whose salary exceeds that of the Governor.

- Defines “meet independently of management” to exclude authority managers from statutorily required meetings of the authority's audit and compensation committees.
- Implements the benefits anti-subsidy statute, by requiring each state authority that participate in the state retirement system or the Group Insurance Commission to:
 - contribute the employer share of the cost attributable to that authority of the state retirement system (as determined by the PERAC actuary), and of the state group insurance system (as determined by the GIC);
 - be responsible for the full actuarial value of its liabilities as determined no less often than every 3 years by PERAC and the GIC after consulting A&F, the State Treasurer, and the State Board of Retirement.

At the April 2012 meeting, the Board took several steps in order to comply with the Transparency Act and the emergency regulations: the Board created the Administration, Finance and Audit Committee, as well as the Personnel and Compensation Committee; made adjustments to the sick leave buy back for executives; and made certain minor adjustments to existing employment contracts. Each year since 2012, the Personnel and Compensation Committee has met independently of management as required by the regulations. As a result of these actions, MWRA is in compliance with the permanent regulations and Transparency Act. Neither MWRA Board members nor the Administration, Finance and Audit Committee are required to meet independently with respect to the audited financials of the Authority because the statute carves out an exception for state authorities that are otherwise required to retain an outside independent audit firm.

In order to remain in compliance with the statute’s requirements, staff recommend that the Personnel and Compensation Committee meet independently of management at the May 24, 2023 meeting. In order to facilitate the committee's review, analyses of comparable salaries are included with this staff summary.

BUDGET/FISCAL IMPACT:

The passage and implementation of section 29K of Chapter 29 of the Massachusetts General Laws will not have any impact upon either the FY24 CEB or CIP.

ATTACHMENTS:

- Attachment A: Summary of Compensation Data for State Agencies, Authorities, Non-Profit Organizations and Private Companies
- Attachment B: Survey of Comparable National Water/Wastewater Utilities
- Attachment C: American Water Works Association – 2022 Water Utility Survey

Attachment A

Summary of Compensation Data for State Agencies, Authorities, Non-Profit and Private Companies

May 2023

MWRA Position:	Executive Director			
Organization	Sector	Title	Reporting Period	Annual Salary
Public Service of New Hampshire, an Eversource Energy company	Private Utility	President and CEO	2022	\$1,273,078
Citizens Energy, Inc.	Non-Profit	Chief Executive Officer	2020	\$821,197
Boston Foundation, Inc.	Non-Profit	President and CEO	2021	\$665,661
Massachusetts Bay Transit Authority (MBTA)	State	General Manager	2023	\$470,000
City Year, Inc.	Non-Profit	Chief Executive Officer	2021	\$462,202
Massachusetts Port Authority (Massport)	Quasi Public	Chief Executive Officer	2023	\$396,000
Greater Boston Food Bank, Inc.	Non-Profit	President and CEO	2022	\$497,365
Massachusetts Housing Partnership	Quasi Public	Executive Director	2023	\$275,600
Massachusetts Convention Center Authority	Quasi Public	Executive Director	2023	\$264,617
Conservation Law Foundation	Non-Profit	President	2021	\$272,466
Boston Harbor Now	Non-Profit	President	2022	\$252,350
Commonwealth of Massachusetts	State	Treasurer	2023	\$238,794
MWRA	Quasi Public	Executive Director	2023	\$233,398
Commonwealth of Massachusetts	State	State Auditor	2023	\$229,377
Commonwealth of Massachusetts	State	Attorney General	2023	\$222,639
Commonwealth of Massachusetts	State	Governor	2023	\$222,185
Commonwealth Health Insurance Connector Authority	Quasi Public	Executive Director	2023	\$217,529
Commonwealth of Massachusetts	State	Secretary of State	2023	\$187,433
Massachusetts Department of Transportation (MASSDOT)	State	Secretary and CEO	2023	\$181,722
Massachusetts Department of Revenue (DOR)	State	Commissioner of Revenue	2023	\$181,290
Save the Harbor/Save the Bay	Non-Profit	Executive Director	2020	\$127,339

Attachment A

Summary of Compensation Data for State Agencies, Authorities, Non-Profit and Private Companies

May 2023

MWRA Position:	Chief Operating Officer			
Organization	Sector	Title	Reporting Period	Annual Salary
Public Service of New Hampshire, an Eversource Energy company	Private Utility	Executive Vice President/Chief Operating Officer	2022	\$787,693
Citizens Energy, Inc.	Non-Profit	No match		
City Year, Inc.	Non-Profit	Chief Strategy Officer	2021	\$296,330
Greater Boston Food Bank, Inc.	Non-Profit	Chief Operating Officer	2022	\$302,268
Massachusetts Port Authority (Massport)	Quasi Public	Director, Capitol Programs & Environmental Affairs	2023	\$283,920
Massachusetts Bay Transit Authority (MBTA)	State	Chief Operating Officer	2023	\$250,799
Massachusetts Housing Partnership	Quasi Public	Managing Director	2023	\$243,000
Commonwealth Health Insurance Connector Authority	Quasi Public	Chief Operating Officer	2023	\$205,000
MWRA	Quasi Public	Chief Operating Officer	2023	\$204,326
Massachusetts Convention Center Authority	Quasi Public	General Manager	2023	\$183,580
Massachusetts Department of Transportation (MASSDOT)	State	Deputy Administrator and Chief Engineer	2023	\$177,750
Conservation Law Foundation	Non-Profit	Executive VP and Director	2021	\$161,700
Boston Harbor Now	Non-Profit	Vice President, Park Partnerships and Operations	2022	\$113,702
Save the Harbor/Save the Bay	Non-Profit	No Match		
Boston Foundation, Inc.	Non-Profit	No Match		

Attachment A

Summary of Compensation Data for State Agencies, Authorities, Non-Profit and Private Companies

May 2023

MWRA Position:	Director, Finance			
Organization	Sector	Title	Reporting Period	Annual Salary
Citizens Energy, Inc.	Non-Profit	Chief Financial Officer	2020	\$531,922
Public Service of New Hampshire, an Eversource Energy company	Private Utility	Executive Vice President & CFO	2022	\$543,046
Boston Foundation, Inc.	Non-Profit	Chief Financial Officer and Treasurer	2021	\$386,671
City Year, Inc.	Non-Profit	Chief Financial and Administrative Officer	2021	\$304,236
Greater Boston Food Bank, Inc.	Non-Profit	Chief Financial Officer	2022	\$279,970
Massachusetts Bay Transit Authority (MBTA)	State	Chief Financial Officer	2023	\$240,000
Massachusetts Port Authority (Massport)	Quasi Public	Deputy Director, Admin & Finance	2023	\$238,470
Massachusetts Housing Partnership	Quasi Public	Chief Financial & Administrative Officer	2023	\$213,200
Commonwealth Health Insurance Connector Authority	Quasi Public	Chief Financial Officer	2023	\$189,999
Massachusetts Convention Center Authority	Quasi Public	Chief Financial Officer	2023	\$184,017
MWRA	Quasi Public	Director, Finance	2023	\$182,808
Massachusetts Department of Transportation (MASSDOT)	State	Chief Financial Officer	2023	\$163,125
Massachusetts Department of Revenue (DOR)	State	Chief Financial Officer	2023	\$158,255
Boston Harbor Now	Non-Profit	Director of Finance	2022	not available
Conservation Law Foundation	Non-Profit	No Match		
Save the Harbor/Save the Bay	Non-Profit	No Match		

Attachment A

Summary of Compensation Data for State Agencies, Authorities, Non-Profit and Private Companies

May 2023

MWRA Position:	General Counsel			
Organization	Sector	Title	Reporting Period	Annual Salary
Public Service of New Hampshire, an Eversource Energy company	Private Utility	Executive Vice President and General Counsel	2022	\$685,387
Massachusetts Port Authority (Massport)	Quasi Public	Chief Legal Counsel	2023	\$281,576
City Year, Inc.	Non-Profit	Co-Clerk and General Counsel	2021	\$247,705
Massachusetts Housing Partnership	Quasi Public	General Counsel	2023	\$208,000
Commonwealth Health Insurance Connector Authority	Quasi Public	General Counsel	2022	\$184,999
Massachusetts Convention Center Authority	Quasi Public	General Counsel	2023	\$184,017
MWRA	Quasi Public	General Counsel	2023	\$182,808
Massachusetts Department of Transportation (MASSDOT)	State	General Counsel	2023	\$181,621
Massachusetts Department of Revenue (DOR)	State	General Counsel	2023	\$168,868
Massachusetts Bay Transit Authority (MBTA)	State	Chief Counsel	2022	\$164,853
Conservation Law Foundation	Non-Profit	Senior Counsel	2021	\$160,241
Boston Foundation, Inc.	Non-Profit	No match		
Greater Boston Food Bank, Inc.	Non-Profit	No match		
Citizens Energy, Inc.	Non-Profit	Senior Vice President & General Counsel	2020	not available
Save the Harbor/Save the Bay	Non-Profit	No match		
Boston Harbor Now	Non-Profit	No match		

Attachment A

Summary of Compensation Data for State Agencies, Authorities, Non-Profit and Private Companies

May 2023

MWRA Position:	Director, Administration			
Organization	Sector	Title	Reporting Period	Annual Salary
Public Service of New Hampshire, an Eversource Energy company	Private Utility	Executive Vice President - Human Resources and Information Technology	2022	\$553,808
City Year, Inc.	Non-Profit	Chief Financial and Administrative Officer	2021	\$304,236
Massachusetts Bay Transit Authority (MBTA)	State	Chief Administrative Officer	2023	\$277,553
Massachusetts Port Authority (Massport)	Quasi Public	Deputy Director, Admin & Finance	2023	\$238,470
Massachusetts Housing Partnership	Quasi Public	Chief Financial and Administrative Officer	2023	\$213,200
MWRA	Quasi Public	Director, Administration	2023	\$182,808
Massachusetts State Police	State	Chief Administrative Officer	2023	\$173,753
Massachusetts Department of Transportation (MASSDOT)	State	Chief Administrative Officer	2023	\$159,962
Massachusetts Department of Revenue (DOR)	State	Deputy Commissioner, Admin Affairs	2023	\$149,297
Boston Foundation, Inc.	Non-Profit	No match		
Boston Harbor Now	Non-Profit	No match		
Citizens Energy, Inc.	Non-Profit	No match		
Conservation Law Foundation	Non-Profit	No match		
Greater Boston Food Bank, Inc.	Non-Profit	No match		
Save the Harbor/Save the Bay	Non-Profit	No match		
Commonwealth Health Insurance Connector Authority	Quasi Public	No match		
Massachusetts Convention Center Authority	Quasi Public	No match		

Attachment B
 MWRA Survey of Comparable National Water/Wastewater
 Utilities - May 2023

Executive Director										
Organization	Location	Operating Budget	# Employees	Population Served	Title	2022 Base Salary	2022 Car Allowance	2022 Deferred Comp	2022 Bonus	2022 Employment Contract
Fairfax Water	Fairfax, VA	\$105.24 million	475	2.5 million	General Manager	\$313,500	\$0 - car provided	\$0	\$0	Yes
Metropolitan Water District of Southern California	Los Angeles, CA	\$1.496 billion	1786	19 million	General Manager	\$465,962	District vehicle	\$0	\$0	Yes
WSSC Water (formerly known as Washington Suburban Sanitary Commission)	Laurel, MD	\$931.2 million	1613	1.9 million	General Manager/CEO	\$297,252	\$12,000	\$25,000	\$11,315	Yes
Seattle Public Utilities	Seattle, WA	\$935 million	1,304	1.4 million	General Manager/CEO	\$285,371	\$0	\$0	\$0	No
East Bay Municipal Utility District	Oakland, CA	\$641.8 million	1,962	1.4 Million	General Manager	\$356,892	\$0	\$27,000	\$0	Yes
					Average Salary	\$343,795				
Massachusetts Water Resources Authority (MWRA)	Boston, MA	\$840.2 million	1,062	3.1 million	MWRA Executive Director	\$233,398	included in salary			
Chief Operating Officer										
Organization	Location	Operating Budget	# Employees	Population Served	Title	2022 Base Salary	2022 Car Allowance	2022 Deferred Comp	2022 Bonus	2022 Employment Contract
Fairfax Water	Fairfax, VA	\$105.24 million	475	2.5 million	Deputy General Manager	\$277,200	\$0 - car provided	\$0	\$0	No
Metropolitan Water District of Southern California	Los Angeles, CA	\$1.496 billion	1786	19 million	Assistant General Manager/ Chief Operating Officer	\$359,237	\$0	\$0	\$0	No
WSSC Water (formerly known as Washington Suburban Sanitary Commission)	Laurel, MD	\$931.2 million	1613	1.9 million	Deputy General Manager for Operations	\$252,603	\$8,000	\$0	\$0	Yes
Seattle Public Utilities	Seattle, WA	\$935 million	1,304	1.4 million	Deputy Director	\$209,248	\$0	\$0	\$0	No
East Bay Municipal Utility District	Oakland, CA	\$641.8 million	1,962	1.4 Million	Director, Operations & Maintenance	\$309,000	\$0	\$0	\$12,500	No
					Average Salary	\$281,458				
Massachusetts Water Resources Authority (MWRA)	Boston, MA	\$840.2 million	1,062	3.1 million	MWRA Chief Operating Officer	\$204,326				

Director Finance										
Organization	Location	Operating Budget	# Employees	Population Served	Title	2022 Base Salary	2022 Car Allowance	2022 Deferred Comp	2022 Bonus	2022 Employment Contract
Fairfax Water	Fairfax, VA	\$105.24 million	475	2.5 million	Director, Finance	\$209,625	\$0	\$0	\$0	No
Metropolitan Water District of Southern California	Los Angeles, CA	\$1.496 billion	1786	19 million	Assistant General Manager/ Chief Financial Officer	\$349,586	\$0	\$0	\$0	No
WSSC Water (formerly known as Washington Suburban Sanitary Commission)	Laurel, MD	\$931.2 million	1613	1.9 million	Chief Financial Officer	Vacant. Range: \$176,686 to \$265,137; midpoint is \$220,912	\$3,000	\$0	\$0	Yes
Seattle Public Utilities	Seattle, WA	\$935 million	1,304	1.4 million	Div Director Finance	\$178,766	\$0	\$0	\$0	No
East Bay Municipal Utility District	Oakland, CA	\$641.8 million	1,962	1.4 Million	Director, Finance	\$283,860	\$0	\$0	\$11,245	No
					Average Salary	\$248,550				
Massachusetts Water Resources Authority (MWRA)	Boston, MA	\$840.2 million	1,062	3.1 million	MWRA Director, Finance	\$182,808				
General Counsel										
Organization	Location	Operating Budget	# Employees	Population Served	Title	2022 Base Salary	2022 Car Allowance	2022 Deferred Comp	2022 Bonus	2022 Employment Contract
Fairfax Water	Fairfax, Virginia	\$105.24 million	439	2.5 million	No Match					
Metropolitan Water District of Southern California	Los Angeles, CA	\$1.496 billion	1786	19 million	General Counsel	\$369,117	\$0	\$0	\$0	No
WSSC Water (formerly known as Washington Suburban Sanitary Commission)	Laurel, MD	\$931.2 million	1613	1.9 million	General Counsel	\$249,138	\$3,000	\$0	\$0	Yes
Seattle Public Utilities	Seattle, WA	\$935 million	1,304	1.4 million	No Match (uses city legal services)					
East Bay Municipal Utility District	Oakland, CA	\$641.8 million	1,962	1.4 Million	General Counsel	\$267,348	\$0	\$0	\$0	Yes
					Average Salary	\$295,201				
Massachusetts Water Resources Authority (MWRA)	Boston, MA	\$840.2 million	1,062	3.1 million	MWRA General Counsel	\$182,808				

Attachment B
 MWRA Survey of Comparable National Water/Wastewater
 Utilities - May 2023

Chief Administrative Officer										
Organization	Location	Operating Budget	# Employees	Population Served	Title	2022 Base Salary	2022 Car Allowance	2022 Deferred Comp	2022 Bonus	2022 Employment Contract
Fairfax Water	Fairfax, Virginia	\$105.24 million	439	2.5 million	No match					
Metropolitan Water District of Southern California	Los Angeles, CA	\$1.496 billion	1786	19 million	No match					
WSSC Water (formerly known as Washington Suburban Sanitary Commission)	Laurel, MD	\$931.2 million	1613	1.9 million	Deputy General Manager, External Affairs	\$235,000	\$8,000	\$0	\$0	Yes
Seattle Public Utilities	Seattle, WA	\$935 million	1,304	1.4 million	No match					
East Bay Municipal Utility District	Oakland, CA	\$641.8 million	1,962	1.4 Million	No match					
					Average Salary	\$235,000				
Massachusetts Water Resources Authority (MWRA)	Boston, MA	\$840.2 million	1,062	3.1 million	MWRA Director, Administration	\$182,808				

Survey Position:	Top Executive				
MWRA Position:	Executive Director				
Survey Scope:	ALL utilities serving a population in excess of 1,000,000				
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary	MWRA Salary
	34	35	\$222,718	\$264,218	\$233,398
Survey Scope:	All <u>water</u> utilities serving a population in excess of 1,000,000				
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary	MWRA Salary
	15	15	\$213,495	\$234,376	\$233,398
Survey Scope:	All <u>water/wastewater</u> utilities serving a population in excess of 1,000,000				
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary	MWRA Salary
	19	20	\$222,600	\$286,599	\$233,398

Survey Position:	Top Operations and Maintenance Executive				
MWRA Position:	Chief Operating Officer				
Survey Scope:	ALL utilities serving a population in excess of 1,000,000				
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary	MWRA Salary
	32	40	\$174,745	\$180,092	\$204,326
Survey Scope:	All <u>water</u> utilities serving a population in excess of 1,000,000				
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary	MWRA Salary
	14	19	\$165,671	\$169,109	\$204,326
Survey Scope:	All <u>water/wastewater</u> utilities serving a population in excess of 1,000,000				
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary	MWRA Salary
	18	21	\$182,332	\$190,029	\$204,326

Survey Position:	Top Finance Executive			
MWRA Position:	Director, Finance			
Survey Scope:	ALL utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	29	30	\$170,806	\$184,063
	MWRA Salary	\$182,808		
Survey Scope:	All <u>water</u> utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	13	14	\$165,195	\$179,841
	MWRA Salary	\$182,808		
Survey Scope:	All <u>water/wastewater</u> utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	16	16	\$176,522	\$187,758
	MWRA Salary	\$182,808		

Survey Position:	Top Legal Executive			
MWRA Position:	General Counsel			
Survey Scope:	ALL utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	22	22	\$213,660	\$215,988
	MWRA Salary	\$182,808		
Survey Scope:	All water utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	11	11	\$215,010	\$214,425
	MWRA Salary	\$182,808		
Survey Scope:	All <u>water/wastewater</u> utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	11	11	\$199,400	\$217,571
	MWRA Salary	\$182,808		

Survey Position:	Top Administration Executive			
MWRA Position:	Director, Administration			
Survey Scope:	ALL utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	18	18	\$162,274	\$173,078
	MWRA Salary			
	\$182,808			
Survey Scope:	All water utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	8	8	\$151,027	\$170,727
	MWRA Salary			
	\$182,808			
Survey Scope:	All water/wastewater utilities serving a population in excess of 1,000,000			
	# of Utilities	# of Employees	50th Percentile Salary	Average Salary
	10	10	\$168,075	\$174,959
	MWRA Salary			
	\$182,808			