MASSACHUSETTS WATER RESOURCES AUTHORITY
Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

Frederick A. Laskey
Executive Director
Chair: B. Card
Vice-Chair: J. Carroll
Secretary: A. Pappastergion
Board Members:
P. Flanagan
J. Foti
B. Peña
H. Vitale
J. Walsh
P. Walsh
M. White-Hammond
J. Wolowicz

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BOARD OF DIRECTORS' MEETING

To be Held on Wednesday, November 16, 2022

Time: 12:30pm

To be Held Virtually Pursuant to An Act Relative to Extending Certain State of Emergency Accommodations

REVISED WebEx Meeting Link (Registration Required)

https://mwra.webex.com/mwra/j.php?RGID=r7bf0f222eb33ef781c1a2b0ba4f9e47f

Event Number: 2349 698 5990 Password: 111622

REVISED AGENDA (2)

I. APPROVAL OF MINUTES

II. REPORT OF THE CHAIR

III. REPORT OF THE EXECUTIVE DIRECTOR

IV. EXECUTIVE SESSION

i. Approval of October 19, 2022 Executive Session Minutes

A. Real Estate

1. Watershed Land Acquisition

V. PERSONNEL & COMPENSATION

A. Approvals

1. Recommendations for Bargaining Unit Pay Equity Adjustments

VI. ADMINISTRATION, FINANCE & AUDIT

A. Information

1. FY23 Q1 Orange Notebook
2. FY21-FY25 Strategic Business Plan Annual Update for FY22
3. Delegated Authority Report – October 2022
4. FY23 Financial Update and Summary through October 2022

VI. ADMINISTRATION, FINANCE & AUDIT (Continued)

B. Approvals

1. Pilot Program for Use of Statewide Professional Services Contracts

C. Contract Amendments/Change Orders

1. Data Analyst Consultant: Clovity Inc., Bid WRA-5126Q, State Contract ITS77 Category 1A and 1B, Amendment 1
2. Security Guard Services for Various MWRA Facilities: Universal Protection Service, LLC d/b/a Allied Universal Security Services, Contract EXE-041, Amendment 2

VII. WASTEWATER POLICY & OVERSIGHT

A. Information

1. Clinton Wastewater Treatment Plant NPDES Permit

B. Contract Awards

1. Agency-Wide Technical Assistance Consulting Services: Hazen and Sawyer, P.C., Contract 7990; and Kleinfelder Northeast, Inc., Contract 7991

C. Contract Amendments/Change Orders

1. Harbor and Outfall Monitoring Contracts: Battelle, OP-401A, Amendment 1; and Normandeau, Contract 401B, Amendment 1
2. Nut Island Headworks Odor Control and HVAC System Improvements: Walsh Construction Co. II, LLC, Contract 7548, Change Order 12

VIII. WATER POLICY & OVERSIGHT

A. Information

1. Update on Lead and Copper Rule Compliance – Fall 2022
2. MWRA Water System Expansion Feasibility Studies

B. Contract Awards

1. Metropolitan Water Tunnel Program - Approval of Lease for Core Storage Facility: IC Needham Gould Portfolio, LLC, Contract W344
2. Wachusett Dam Lower Gatehouse Pipe and Boiler Replacement: J.F. White Contracting Co., Contract 7380
3. Technical Assistance Consulting Services for the John J. Carroll Water Treatment Plant: Hazen and Sawyer, Contract 7973; and Stantec Consulting Services, Inc., Contract 7974

IX. CORRESPONDENCE TO THE BOARD

X. OTHER BUSINESS

XI. ADJOURNMENT

MASSACHUSETTS WATER RESOURCES AUTHORITY
Meeting of October 19, 2022

A meeting of the Massachusetts Water Resources Authority ("MWRA") Board of Directors was held on October 19, 2022. 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.

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

MWRA General Counsel Carolyn Francisco Murphy participated remotely from MWRA headquarters. Other MWRA staff in attendance remotely included Frederick Laskey, Executive Director; David Coppes, Chief Operating Officer; Thomas Durkin, Director, Finance; Carolyn Fiore, Deputy Chief Operating Officer; Michele Gillen, Director, Administration; Kathy Murtagh, Director, Tunnel Redundancy; Paula Weadick, Director, MIS; Cori Barrett, Director, Construction; Andrea Murphy, Director, Human Resources; Rebecca Weidman, Director, Environmental and Regulatory Affairs; John Colbert, Chief Engineer; Matthew Horan, Deputy Director of Finance/Treasurer; Betsy Reilley, Director, ENQUAL; David Wu, Senior Program Manager, ENQUAL; Matthew Dam, Director, TRAC; Brian Kubaska, Assistant Director, Engineering; and, Assistant Secretaries Ria Convery and Kristin MacDougall. Vandana Rao, Executive Office of Environmental Affairs (EEA), and Matthew Romero, MWRA Advisory Board, were also in attendance remotely.

Chair Card called the meeting to order at 1:02pm. MWRA General Counsel Francisco Murphy took roll call of Board Members in attendance. The Chair announced that except for Executive Session, the meeting was open to the public virtually, via a link posted on MWRA's website. She added that the meeting would be recorded, and that the agenda and meeting materials were available on MWRA's website. Chair Card announced that the meeting would move into Executive Session after the Executive Director's report, and that the Open Session would resume after the adjournment of Executive Session. She also announced that individual roll call votes would be conducted after each motion was made and given an opportunity for discussion.

APPROVAL OF SEPTEMBER 14, 2022 MINUTES

A motion was duly made and seconded to approve the minutes of the Board of Directors' meeting of September 14, 2022.

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

Yes	No	Abstain
Card		
Flanagan		

Yes	No	Abstain
Peña		
Vitale		
J. Walsh		
P. Walsh		

(ref. I)

REPORT OF THE CHAIR

Secretary Card reported that drought conditions had continued to improve across the Commonwealth. She noted that the Western region was clear of drought; the Northeast, Cape Cod and Island regions were at Level 2; and the Connecticut River Valley, Central, and South Regions were at Level 1. She explained that the drought had caused fewer impacts to water supplies than to the agricultural sector, which was seeing reductions in seed germination and crop harvests. Chair Card advised that the Baker-Polito Administration was taking steps to support farmers affected by the drought. She then noted that the current drought status would remain in effect until the Drought Management Task Force met on November 9, 2022, and that MWRA's water supplies had remained within normal operating range throughout the drought period. Next, Chair Card commemorated the 50th anniversary of the Federal Clean Water Act; she commended MWRA for continuing to make strides in wastewater treatment and for protecting natural resources under the provisions of the Act. Finally, Chair Card thanked staff for progress made on the MWRA/MWRA Advisory Board Entrance Fee Waiver initiative. (ref. II)

(Board Member White-Hammond joined the meeting during the report.)

REPORT OF THE EXECUTIVE DIRECTOR

Mr. Laskey noted that the Boston Harbor Project was spotlighted at the EPA's 50th Anniversary of the Clean Water Act celebration tour. He reported that MWRA's Covid-19 Wastewater Monitoring team and Biobot Analytics were named "Harbor Heroes" at the Destination Boston Harbor gala hosted by Save the Harbor, Save the Bay, and congratulated MWRA's Director of Laboratory Services Steve Rhode and his team for their efforts. Next, Mr. Laskey reported that the EPA had conducted an audit of MWRA's Lead and Copper Rule (LCR) protocols for the Carroll Water Treatment Plant and found MWRA in compliance. Mr. Laskey then advised that the Town of Winthrop was the first MWRA community to exceed limits under the revised LCR; he explained that resident notifications were taking place and that a lead service line replacement schedule had been established for the Town, as required.

Chief Flanagan, the Board's Town of Winthrop representative, advised that the Town's notifications to residents made it clear that the water provided by MWRA was safe to drink, and added that town residents continued to have confidence in the MWRA water system.

Mr. Laskey then briefly updated Board Members on the Metropolitan Tunnel Program's Draft Environmental Impact Review submittal, the water system expansion study, and the CSO Control Program. (ref. III)

EXECUTIVE SESSION

Chair Card requested that the Board move into Executive Session to discuss litigation, since Open Session may have a detrimental effect on the litigating position of the Authority. She announced that the planned topic of discussion in Executive Session was an update on Conservation Law Foundation litigation regarding MWRA's Industrial Pretreatment program. 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 this purpose, 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 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 session discussion.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. 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 Litigation since discussing such in Open Session could have a detrimental effect on the litigating position of the Authority.

*** EXECUTIVE SESSION ***

The meeting entered Executive Session at 1:14pm and adjourned at 1:24pm.

*** CONTINUATION OF OPEN SESSION ***

WATER POLICY AND OVERSIGHT

Contract Amendments/Change Orders

Section 4 Walnut Street Bridge Pipe Restraint Replacement: R. Zoppo Corp., Contract 7483, Change Order 3

A motion was duly and made seconded to authorize the Executive Director, on behalf of the Authority, to approve Change Order 3 to Contract 7483, Section 4 Walnut Street Bridge Pipe Restraint Replacement, for an amount not to exceed $90,000, increasing the contract from $388,900 to $478,900, with no increase in contract term. Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7483 in an amount not to exceed the aggregate of $78,725, and 180 days in accordance with the Management Policies and Procedures of the Board of Directors.

MWRA Director of Construction Cori Barrett explained that staff were requesting Board approval for the proposed change order, which while not a large dollar value exceeded the Executive Director's Delegated Authority under the policy. She then presented the reasons for the proposed change order and renewed time extension, including the coordination of right-of-way access with MBTA/Keolis, and the continuation of service as the City of Cambridge takes water from MWRA. Next, she provided a brief history of the Walnut Street Bridge and the pipe installed on the bridge and progress update. She then presented the bridge's location and existing conditions. Finally, Ms. Barrett advised that inspections had determined that a missing fourth restraint rod was due to an obstruction caused by the pipe bridge's structural members, and that the proposed change order was requested for the installation of necessary steel collars and tie rods.

Board Member Jack Walsh asked why the cause of the missing restraint rod was not determined earlier. Ms. Barrett explained that staff did not have access to the bridge earlier including due to heavy vegetation, an MBTA fence and the need for a right-of-way permit; that everything was done visually from afar. Mr. Walsh asked staff to clarify the reason for the proposed change order's price. Ms. Barrett explained that gaining safe access to the bridge required specialized equipment, and that the design work was difficult to do without seeing how the fourth rod was missing, because of the obstruction at the bottom of the pipe.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. V A.1)

PERSONNEL AND COMPENSATION

Information

Recruitment and Retention Efforts

Staff updated Board Members on MWRA's recruitment and retention efforts. MWRA Director of Administration Michele Gillen reported that as of October 19, 2022, MWRA had added 6 Full Time Equivalents (FTEs), for a total of 1,056. Ms. Gillen advised that MWRA had a growing number of hard-to-fill positions, compounded by an increasing number of terminations. She noted that annual staff termination rates from FY15 through FY21 averaged 72 per year, and advised that MWRA saw 132 terminations in FY22 and expected 137 in FY23. Ms. Gillen then described staff's measures to increase recruitment and retention including the expanded use of recruitment and retention pay rates for hard-to-fill positions; a compensation study; negotiations with collective bargaining units regarding the development of entry level positions and career ladders; engagement with co-op students and vocational schools; a mentorship program; and Diversity, Equity and Inclusion initiatives.

Committee Vice Chair Peña asked if there was any discussion or questions from the Board. Hearing none, he moved to approval items. (ref. VI A.1)

Approvals

PCR Amendments - October 2022

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.

MWRA Director of Human Resources Andrea Murphy summarized the proposed PCR Amendments, including a new position and a title and grade change to a vacant position in Fleet Services; a new position in Lab Services; and salary adjustments to eight filled positions in the Operations Division, Grounds Maintenance and Inspection-Water Departments, per union agreement for internal pay adjustments due to a new recruitment rate. Ms. Murphy advised that staff recommended a recruitment rate at step three for OMC Laborer positions in order to recruit for 14 vacant positions and to retain current staffing levels.

Board Member Vitale requested clarification on MWRA's process for negotiating position changes with unions. Ms. Murphy explained that staff works with the unions on union position additions and title and grade changes, and noted that efforts to develop career ladders for OMC laborers and operators were underway. Mr. Vitale then asked staff to provide a brief overview of MWRA's process for posting union positions. Ms. Murphy explained that all union positions were posted, as required by collective bargaining agreements. She noted that one potential exception, with union approval, would be job postings with multiple vacancies. Ms. Gillen added that MWRA has also engaged in targeted recruitment for a very limited number of higher-level, non-union positions. Mr. Laskey noted that staff could also be appointed to positions on an acting basis in emergencies, pending requests for union and Board approval.

Board Member Patrick Walsh requested more information about the 14 OMC Laborer vacancies. Ms. Murphy explained that the OMC Laborer positions required CDL licenses, which were in high

demand. She further explained that these positions were stationed across the MWRA and that these vacancies were of particular concern due to the impending need for snow plowing at MWRA facilities. Ms. Gillen noted that staff planned to propose a number of OMC Laborer in Training positions that would not require a CDL, but would receive on-the-job CDL training. She advised that providing staff with CDL training was challenging due to recent federal requirements for third-party CDL training services that were limited in availability. Ms. Gillen added that staff were engaging with a potential CDL training vendor and would keep the Board updated. Mr. Laskey briefly described MWRA's former in-house CDL training program. There was general discussion about the shortage of job candidates with CDL licensees in Massachusetts.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. VI B.1)

Appointment of Manager, Metro Maintenance, Operations Division

A motion was duly made and seconded to approve the appointment of Mr. William Carter to the position of Manager, Metro Maintenance (Non-union, Grade 14) at an annual salary of $146,000.00 commencing on a date to be determined by the Executive Director.

Ms. Murphy described the proposed candidate's work experience and qualifications.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. VI B.2)

Appointment of Director, Human Resources

A motion was duly made and seconded to approve the appointment of Wen-Hwei (Wendy) Chu to the position of Director, Human Resources, (Non-Union, Grade 16) in the Administration Division, at an annual salary of $162,000, commencing on a date to be determined by the Executive Director.

Ms. Gillen advised that Andrea Murphy, MWRA's current Director of Human Resources, planned to retire in January 2023, providing ample time to onboard her recommended successor, Attorney Wen-Hwei (Wendy) Chu. She thanked Ms. Murphy for her exceptional work, loyalty to the MWRA, and friendship. Ms. Gillen then described the interview and hiring processes for the HR Director position, noted that the Authority was very fortunate to have two highly regarded and competent internal candidates for the position and detailed the proposed candidate's qualifications and work experience.

Mr. Laskey complimented Ms. Murphy's reliability, balance and graciousness in assisting with her successor's transition, and for completing important projects before her retirement. He added that he was looking forward to working with Ms. Chu.

Chair Card thanked Ms. Murphy for her leadership and teamwork-oriented approach to organizational challenges. She complimented MWRA senior staff for promoting succession planning.

Board Member Vitale wished Ms. Murphy well and commended her stellar performance.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. VI B.3)

ADMINISTRATION, FINANCE AND AUDIT

Information

Update on Environmental Justice Initiatives

MWRA Director of Environmental and Regulatory Affairs Rebecca Weidman introduced Tomeka Cribb-Jones, Associate Special Assistant for Affirmative Action. Ms. Weidman updated Board Members on MWRA's Environmental Justice (EJ) initiatives, including the implementation of outreach-related programs and impact analyses as required under Massachusetts Environmental

Policy Act (MEPA) regulations revised in January 2022. Ms. Weidman explained that the cornerstone of MWRA's EJ strategy was looking at current and upcoming projects through an EJ lens, and that a significant portion of MWRA's service area was represented by EJ populations. She then described key progress highlights including the launch of a new EJ section on MWRA's website; the development of an internal EJ intranet site to provide staff with information, resources and training materials; a language translation tool on the MWRA website; and, document translation. Ms. Weidman also noted that staff had been including a brief discussion of EJ impacts and benefits in key construction-related Staff Summaries and planned to include similar discussions in the Capital Improvement Program (CIP). She then described additional EJ actions taken by MWRA, including the issuance of rapid notifications of combined sewer overflows and sanitary sewer overflows in languages spoken within the communities directly affected; two MEPA submittals; and outreach to EJ populations impacted by the Section 22 Pipeline Rehabilitation project and the Metropolitan Tunnel Program.

Chair Card thanked MWRA staff for their work to develop an EJ strategy, and noted that MWRA's initiatives were part of a statewide effort under the EEA Secretariat to ensure the contemplation of impacts to environmental justice neighborhoods throughout Massachusetts. Chair Card added that at the direction of Governor Baker and in accordance with recent climate law, the EEA had established an Environmental Justice Advisory Council, which was meeting to examine definitional considerations associated with EJ. She also reported that the Massachusetts Department of Environmental Protection (DEP) and MEPA were developing a cumulative impact approach in the Commonwealth's Air Program, and stressed the importance of considering the potential aggregate impacts of multiple projects over time on EJ populations when making regulatory decisions.

Committee Vice Chair Flanagan asked if there was any further discussion or questions from the Board. Hearing none, he moved to the next informational item. (ref. VII A.1)

Delegated Authority Report – September 2022

Ms. Gillen noted that the Delegated Authority Report for September 2022 reflected inflationary impacts on chemical purchases. She advised that MWRA's Director of Finance Thomas Durkin would discuss inflation and chemical purchases later in the agenda. She then invited questions from Board Members.

Board Member Jack Walsh requested more information about resident engineering and resident inspection rates for item C4 in the Delegated Authority Report. Mr. Coppes explained that the total cost was $850,000 over a two-year contract, which included overhead and benefits. MWRA Chief Engineer John Colbert added that the item C4 cost was for one, full-time resident engineer for 5,364 hours, including overtime, at $160.00 per hour, which was within the typical range.

Committee Vice Chair Flanagan asked if there was further discussion or questions from the Board. Hearing none, he moved to the next informational item. (ref. VII A.2)

Fiscal Year 2022 Year-End Capital Improvement Program Spending Report

MWRA Director of Finance Thomas Durkin reported on Capital Improvement Plant (CIP) spending for FY22. He noted that MWRA had brought a number of projects to substantial completion in FY22, including the Chelsea Creek Headworks ($82.5 million) and Deer Island Gravity Thickener Upgrade ($20.2 million); and, noted that other capital projects had seen significant progress. Mr. Durkin then reported that as of June 30, 2022 MWRA's overall FY22 CIP expenses ($138.5 million) were lower than planned ($-33%), with a higher percentage variance than that of a typical year (-%27), due in large part to supply chain and inflationary challenges.

There was brief discussion about the impacts of inflation at the Boston Water and Sewer Commission (BWSC) and MWRA. Board Member Vitale then complimented the staff who prepared the report, and asked Mr. Durkin if staff had quantified trends of rising CIP costs. Mr. Durkin explained that staff monitored individual projects and expected to perform a more comprehensive CIP analysis in the future. He then described steps that staff were taking to control inflationary and supply chain impacts on the CIP, such as pre-ordering materials and updating engineers' estimates. Finally, Mr. Durkin advised that staff was applying inflation impact strategies as they prepared the FY24 CIP. There was general discussion about budgetary and scheduling challenges at water and sewer utilities due to inflation, and the potential value of pre-ordering certain materials and supplies in advance of construction contract awards.

Committee Vice Chair Flanagan asked if there was further discussion or questions from the Board. Hearing none, he moved to the next informational item. (ref. VII A.3)

FY22 Year-End Financial Update and Summary

Mr. Durkin provided a year-end summary of MWRA's financial results and variance highlights for FY 2022. He reported that the FY22 Current Expense Budget (CEB) saw a positive variance that included underspending on wages and salaries (-9.7%); chemical costs (-3.4%) that were trending higher than expected but controlled under existing contracts; indirect costs (-2.4%), which were under budget due in part to lower than expected watershed protection reimbursement expenses; and, debt service (-0.9%). Mr. Durkin advised that the actual FY22 debt service variance was trending higher than the budget assumption (3.5%). He noted that per MWRA's rate management strategy, portions of budget variances were typically used for a defease to offset debt service in subsequent years, with Board approval. Finally, Mr. Durkin reported that FY22 ended with a total positive variance of $30.9 million, including revenue above estimate including interest income ($1.5 million) and Town of Burlington water purchases ($1.7 million).

Committee Vice Chair Flanagan asked if there was any discussion or questions from the Board. Hearing none, he moved to the next informational item. (ref. VII A.4)

FY23 Financial Update and Summary through September 2022

Mr. Durkin reported that variance patterns seen in the latter half of FY22 continued through the first quarter of FY23, with the exception of wages and salaries (-10.7% through September 2022) and indirect costs, which remained stable as staff continued to monitor them. He then advised that variable rate bonds had been budgeted with an assumed interest rate expense of 3.5% for

FY23, and, due to rapidly rising interest rates, the FY23 budget variance for variable rate bonds has been shrinking. He advised that this trend could potentially reduce recommended amounts for any FY23 defeasances. Mr. Durkin then noted that since first engaging in its variable rate bond investment strategy in 2008, MWRA had $1.4 billion of variable rate par outstanding; as of October 2022, MWRA had $443 million outstanding because of natural amortization. Next, he reported that money market investments could exceed assumed returns. Mr. Durkin then provided examples of inflationary impacts to MWRA's budgets that could result in variances, including chemicals such as sodium hypochlorite, which, as of October 2022, had increased in price by +166%, vs. MWRA's conservative, May 2022 assumption of +15%; and, electricity purchased through profile accounts, which had risen +98% per megawatt hour. Finally, Mr. Durkin noted that 60% of MWRA's budget was comprised of debt service and advised that staff would continue to carefully monitor direct expenses, wages and salaries and the impacts of inflation.

Board Member Vitale asked staff if the strong dollar had any impact on MWRA's CEB, pension funds and Other Post-Employment Benefits (OPEB) trust fund. Mr. Durkin explained that in general, a stronger dollar could benefit MWRA's budgets, and that staff would continue to monitor actual effects on the CEB, pension and OPEB. There was general discussion about global currency markets.

Committee Vice Chair Flanagan asked if there was further discussion or any questions from the Board. Hearing none, he moved to the following approval item. (ref. VII A.5)

Approvals

Amendment to the Eighty-Fifth Supplemental Bond Resolution

A motion was duly made and seconded to amend the Eighty-Fifth Supplemental Bond Resolution and related Issuance Resolution approving issuance of the Authority's General Revenue Bonds (Subordinated Series), each adopted on April 13, 2022, to increase the principal amount of bonds authorized from $50,000,000 to $61,000,000; all other terms of the Issuance Resolution and the Eighty-Fifth Supplemental Resolution being hereby confirmed.

Mr. Durkin advised that staff requested Board authorization to amend the 85th Supplemental Bond Resolution by increasing MWRA's borrowing amount from $50 million to $61 million. Next, MWRA Deputy Director of Finance/Treasurer Matthew Horan explained that staff sought Board approval for the increased borrowing in order to prepare for the finalization of a Massachusetts Clean Water Trust bond transaction in December 2022, and to maximize MWRA's ability to draw down American Rescue Plan Act (ARPA) funding. Mr. Horan noted that every million dollars in ARPA funding received saved MWRA approximately $80,000 of debt service in a given year.

Board Member Jack Walsh asked staff to clarify the mechanics of the proposed borrowing. Mr. Horan explained that the Massachusetts Clean Water Trust receives money from the state and federal government, and in turn provides loans at a favorable rate of 2% for 20 years. He added that in the case of the proposed borrowing, MWRA would be able to draw down some principal forgiveness loans. There was brief discussion about the overall US financial climate.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. VII B.1)

Contract Amendments/Change Orders

Dental Insurance: Delta Dental of Massachusetts, Contract A631, Amendment 1

A motion was duly made and seconded to approve Amendment 1 to Contract A631 with Dental Service of Massachusetts, Inc. d/b/a Delta Dental of Massachusetts, exercising the first option to renew, increasing the contract amount by $235,000, from $289,000 for a total not-to-exceed amount of $524,000, and extending the term by 12 months from January 1, 2023 to December 31, 2023 for a total contract term of 24 months.

Board Member Vitale asked for more information about the proposed contract's coverage for dental cleanings, and employee out-of-pocket costs. Ms. Murphy explained that the contract covers two cleanings in full per year. She added that the contract's calendar year maximum was $1,500, and that it included a program to roll over some dental benefits from one year to the next.

Board Member Jack Walsh asked how many employees received coverage under the contract. Ms. Murphy advised that the plan covered 154 MWRA subscribers, plus their family members. There was brief, general discussion about the cost of dental care.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. VII C.1)

Senior Web Developer Consultant: Computer & Engineering Services, Inc., Bid WRA-5076Q, State Contract ITS77 Category 1A and 1B, Amendment 2

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Purchase Order Contract WRA-5076Q, Senior Web Developer Consultant, with Computer & Engineering Services, Inc., increasing the contract amount by $231,563, from $115,710 to an amount not-to-exceed $347,273, and extending the contract term by fifteen months, from October 31, 2022 to January 31, 2024.

MWRA MIS Director Paula Weadick described the purpose of the staff augmentation purchase order contract to provide web developer services in support of all specialized, in-house applications. She explained that the existing contractor, along with the existing application developer contractor in the following agenda item, fulfill the requirements of two vacant, hard to fill, positions that had been posted for over one year. Finally, Ms. Weadick advised that this proposed amendment would extend the existing contract by 15 months to support MWRA's existing customer development environment.

Board Member Vitale noted the similar process undertaken at Boston Water and Sewer Commission, and that the hourly rate for the proposed Senior Web Development contractor was competitive. Board Member Jack Walsh asked if staff expected to recruit a qualified contractor within fifteen months. Ms. Weadick clarified that the existing contractor was available to provide services for an additional fifteen months, and that their contracting agency agreed to maintain their rate. Mr. Jack Walsh then asked if MWRA could hire the contractor as a full-time employee. Ms. Weadick advised that it would not be possible due to the contractor's employment status, and that the proposed contract was under a state blanket. Ms. Gillen added that Ms. Weadick had successfully transitioned other staff augmentation contractors into full-time staff in the past.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. VII C.2)

Application Developer Consultant: Lancesoft Inc., Bid WRA-5125Q, State Contract ITS77 Category 1A and 1B, Amendment 1

A motion was duly made and seconded to authorize the Executive Director, on behalf of the authority, to approve Amendment 1 to Purchase Order Contract WRA-5125Q, Application Developer Consultant, with Lancesoft, Inc., increasing the contract amount by $207,188, from

$82,875 to an amount not-to-exceed $290,063, and extending the contract term by fifteen months, from November 1, 2022 to February 1, 2024.

Ms. Weadick described the terms of the proposed contract amendment. She explained that the recommended contractor would augment staff in the MIS Customer Development group, and noted that this contractor would not be eligible for full-time employment at MWRA.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. VII C.3)

WASTEWATER POLICY AND OVERSIGHT

Information

2021 Deer Island Outfall Monitoring Overview

Staff presented the results of MWRA's outfall monitoring overview (OMO) report for 2021. MWRA Director of Environmental Quality Betsy Reilley began the presentation with a brief history of the outfall monitoring program, noting that it had been conducted and reported to the EPA for 30 years as required under the National Pollutant Discharge Elimination (NPDES) permit for MWRA's Deer Island Wastewater Treatment Plant (DITP). She then described the monitoring programs purpose: to contrast Boston Harbor water quality improvements while also demonstrating that DITP effluent was not degrading the water quality of its receiving waters in Massachusetts Bay. She explained that the results were reviewed by the Outfall Monitoring Science Advisory Panel (OMSAP). Ms. Reilley then presented MWRA's outfall monitoring locations and reported that DITP had recently received the Platinum 15 award from the National Association of Clean Water Agencies (NACWA) for meeting effluent requirements for 15 consecutive years. Next, she described the NPDES permit's monitoring parameters and contingency plan (CP) threshold limits; the reporting requirements for CP limit exceedances; and, MWRA's methods for data collection and analysis. Ms. Reilley then reported that the results for 2021 were excellent. Next, she advised that the results showed CP exceedances for an algal bloom of *Alexandrium* (red tide) and low dissolved oxygen and that staff had assessed them as unrelated to DITP effluent discharges. Next, MWRA Senior Program Manager, Environmental Monitoring David Wu presented the monitoring results for 2021, including metals, which had shown a sharp decrease since 1990; and flounder health and CHV (an indicator related to the incidence of liver tumors in flounder) which had also decreased. Mr. Wu then presented more information on the CP exceedances in 2021 through 2022 to date, and explained that an exceedance indicated a change from the baseline

rather than immediate environmental harm. He explained that dissolved oxygen exceedances reported in September and November 2021 and in August and September 2022 were attributable to a natural, seasonal process of ocean stratification and mixing. Next, Mr. Wu noted that MWRA was participating in studies of contaminants of emerging concern (CECs) such as microplastics, PFAS and pharmaceuticals, and that one pilot study's preliminary results showed that pharmaceuticals and PFAS were detected in DITP effluent and Massachusetts Bay. Mr. Wu explained that these things are ubiquitous throughout the environment. He added that current effluent monitoring requirements for PFAS were standard in newly-issued NPDES permits in Massachusetts and that influent and biosolids were also sampled for PFAS. Finally, Ms. Reilley presented a video clip from a July 2020 seafloor survey that showed some small fish and a healthy and dynamic environment near DITP outfall riser number two.

Chair Card asked if finding PFAS and pharmaceuticals in DITP effluent was unexpected. Ms. Reilley explained that the finding was expected due to the ubiquitous nature of these compounds in wastewater. She also noted that while staff had did not have exact numerical values to report, the PFAS values appeared to be within those typically seen in wastewater streams. Board Member Jack Walsh asked if there was direct correlation between dissolved oxygen and water temperature. Ms. Reilley responded in the affirmative.

Committee Chair Jack Walsh asked if there was further discussion or questions from the Board. Hearing none, he moved to the next informational item. (ref. VIII A.1)

There was brief discussion to confirm Board members' availability through the remainder of the agenda.

MWRA Industrial Waste Report #38: Industrial Pretreatment Program Annual Report to EPA for FY22

MWRA Director of Toxic Reduction and Control (TRAC) Matthew Dam provided an informational update on TRAC activities to Board Members in advance of submitting MWRA's FY22 Industrial Pretreatment Program Annual Report to EPA and DEP, as required under DITP and Clinton Wastewater Treatment Plant NPDES permits. Mr. Dam explained that MWRA oversees 2,300 permitted sewer users, including 184 significant industrial users (SIUs) as defined by EPA on the basis of flow, nature of discharge or potential to violate standards. He advised that FY22 was challenging for TRAC due to staff turnover, with 17 of 47 positions vacant at some point during the year; however, staff had successfully inspected all SIUs and performed all required SIU monitoring for the159 SIUs with monitoring requirements. Next, Mr. Dam reported on other TRAC accomplishments for FY22, including: 1,436 industrial inspections, of which 329 were at the 184 SIU locations; 1,452 monitoring events at permitted facilities; and the issuance of 239 enforcement actions. He advised that staff shortages had caused some challenges in issuing permits within the 120- and 180-day timeframes required under the NPDES permit; however, no permittees operated without a discharge permit as all permits were extended upon the on-time submittal of applications. Finally, Mr. Dam noted that there was an electronic copy of the draft Industrial Waste Report was available for review and that the final report would be submitted to EPA and DEP by October 31, 2022 as required.

Committee Chair Jack Walsh asked if there was any discussion or questions from the Board. Hearing none, he moved to the following approval item. (ref. VIII A.2)

Approvals
Memorandum of Understanding and Financial Assistance Agreement with the Boston Water and Sewer Commission for Implementation of the Fort Point Channel and Mystic/Chelsea Confluence Combined Sewer Overflow Control Projects

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to execute a Memorandum of Understanding and an accompanying Financial Assistance Agreement with Boston Water and Sewer Commission for the Implementation of Fort Point Channel and Mystic/Chelsea Confluence Combined Sewer Overflow Control, substantially in the form attached to the October 19, 2022 Staff Summary presented and filed with the records of the meeting, wherein the Boston Water and Sewer Commission agrees to design and construct certain combined sewer overflow abatement projects associated with four outfalls, and MWRA agrees to provide funding for eligible design and construction work, for a total not-to-exceed amount of $10,000,000 and for a term of 32 months, from November 1, 2022 through June 30, 2025.

MWRA Assistant Director of Engineering Brian Kubaska presented an overview of the proposed Memorandum of Understanding and Financial Assistance Agreement (MOU/FAA) with the Boston Water and Sewer Commission (BWSC) for the implementation of Mystic/Chelsea Confluence and Fort Point Channel CSO control projects. He summarized MWRA's CSO Control Program accomplishments to date. Mr. Kubaska then noted that the program had achieved an 87% reduction in overflow volumes overall, which was 1% short of the program goal, and explained that staff was working aggressively to address 16 CSO outfalls that did not meet long term performance goals, including six located in the environmental justice communities of Chelsea, East Boston and Somerville. He provided a brief update on projects to address CSOs in those communities. He then advised that six of the challenging CSOs were sited in variance waters, and that staff continued to study alternatives to address them. Next, Mr. Kubaska described projects to improve control at four outfalls not meeting Long Term Control Plan (LTCP) goals located within the BWSC service area under the proposed MOU/FAA, including modification to a siphon structure to divert flows away from BOS017; a secondary connection at BOS062; the raising of a weir at BOS065 and potential adjustments at BOS064 to address a slight increase given modification to 062 and 065; and, modifications to the Boston Main Interceptor to reduce CSO volumes and activations at 070 DBC. He then advised that the recommended MOU/FAA included a not-to-exceed amount of $10 million in funding to BWSC for the design and construction of the proposed CSO improvements with an expected completion date in December, 2024. Mr. Kubaska then provided a brief overview of the proposed scope of work, including design and resident inspection services provided by Santec, and noted that the project schedule aligned with MWRA's December 2024 supplemental performance assessment submittal to EPA, DEP and the Federal Court.

Mr. Laskey noted that this project was a worthwhile financial investment that supported environmental justice for Boston neighborhoods, and he urged the Board's support.

Board Member Jack Walsh asked how confident MWRA staff were with the proposed system adjustments meeting the CSO LTCP goals. Mr. Kubaska explained that staff's projections were based on hydraulic modeling. He briefly described the hydraulic modeling process and explained that future adjustments would be made as necessary based on the designer's findings. Board Member White-Hammond asked for additional information about the scope of MWRA's CSO Control program and the proposed MOU/FAA. Mr. Kubaska briefly provided more background information about the Program and the scope of the projects under the proposed MOU/FAA. Chair Card added that the projects were expected to increase sewer system capacity and therefore provide treatment for greater wastewater flow volumes. Mr. Laskey explained that there's a variety of strategies, depending on the location. There was brief discussion about MWRA's CSO control strategies, and drought, climate impacts and recent rain events. Board Member Vitale asked how MWRA's success with CSO control compared to that of other regional sewer utilities. Mr. Laskey explained that each utility faced unique challenges, and that he believes MWRA has done very well, especially with the strong team at MWRA and the cooperative approach with the Boston Water and Sewer Commission. Chair Card added that MWRA'S CSO Control Program was among the earliest of such programs implemented, and that MWRA's program was unique in its cooperative approach with its partner municipalities, watershed advocacy groups and other constituencies.

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

(ref. VII B.3)

CORRESPONDENCE TO THE BOARD

There was no correspondence to the Board.

OTHER BUSINESS

There was no other business.

ADJOURNMENT

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

Chair Card thanked MWRA staff for their preparation in advance of the meeting, and thanked Board members for their participation.

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

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

Yes	No	Abstain
Card		
Flanagan		
Peña		
Vitale		
J. Walsh		
P. Walsh		
White-Hammond		

The meeting adjourned at 3:12pm.

Approved: November 16, 2022

Attest: _____

Andrew M. Pappastergion, Secretary

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

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Recommendations for Bargaining Unit Pay Equity Adjustments

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COMMITTEE: Personnel & Compensation

_____ INFORMATION
__X__ VOTE

Natalie Wadzinski, Manager, Compensation
Andrea Murphy, Director, Human Resources
Patterson Riley, Special Assistant for Affirmative Action
Preparer/Title

Michele S. Gillen
Director, Administration

RECOMMENDATION:

To accept the recommendations of the pay equity consultant Hirsch Roberts Weinstein LLP and approve the salary adjustments for Bargaining Unit positions summarized in Attachment B "List of Recommended Salary Adjustments" effective October 1, 2021.

DISCUSSION:

In March 2019, MWRA presented the findings of a pay equity analysis for Non-Union Managers to the Board of Directors including some equity adjustments. On October 16, 2019, MWRA amended the consultant contract to request that Hirsch Roberts Weinstein LLP (HRW) assist MWRA with conducting a self-evaluation of its pay practices for Bargaining Unit employees.[1]

The purpose of the self-evaluation is to assist the Authority with complying with the Massachusetts Equal Pay Act (MEPA) which went into effect July l, 2018. MEPA clarifies the already existing requirement that employers pay employees doing comparable work at the same rate of pay without distinction by gender. MEPA defines "comparable work" as any work that requires substantially similar skill, effort and responsibility, and is performed under similar working conditions.

Employers are permitted to pay employees at different rates for comparable work under MEPA only when based on specified factors including but not limited to a seniority system and/or the education, training, or experience of a particular employee. MEPA also prohibits an employer from retaliating against an employee who files a complaint or reports a violation of the law.

MEPA provides an affirmative defense to liability for employers if, within the previous three years and prior to the commencement of the employee action, the employer has completed a good-faith self-evaluation of its pay practices and has demonstrated that reasonable progress has been made toward eliminating any wage differentials potentially based on gender identified by the self-evaluation.

[1] The contract was extended twice to add time, but at no additional cost

An internal team of staff from Law, Operations, Human Resources, and Affirmative Action partnered with employment law attorneys from HRW and an experienced human resources professional from Bondcliff HR Advisors, Inc. with expertise in employee compensation practices to work on the self-evaluation, which considered pay rates for comparable work across genders as well as within genders.

There were a total of 84 meetings between October 2019 and September 2022 to conduct the following key tasks needed to perform a self-evaluation:

- Identify comparable jobs
- Assess whether any differences in pay are justified under MEPA
- Provide recommendations for remediating any gender-based pay differentials
- Perform statistical analyses required under MEPA
- Recommend adjustments in pay practices generally (irrespective of gender)
- Provide a findings and recommendations report

Working with the internal MWRA project team, Bondcliff facilitated the process of identifying MWRA Bargaining Unit jobs that were of substantially similar skill, effort, responsibility, and working conditions and placed them into "job groupings." At the end of this process, a total of 196 separate job groupings were established that spanned the following occupational groups:

- Administrative/Clerical
- Finance/Accounting
- Operations/Maintenance
- Engineering
- Science
- Science or Engineering
- Technical
- Professional Administration and Compliance
- Information Technology/Programming

Pay levels of incumbents within each of these job groupings were then reviewed and analyzed. It should be noted that no member of the MWRA project team participated in the pay analysis of the job grouping associated with their own position. Further, the analysis was based on positions and pay levels as of October 1, 2021.

Using tools and resources provided by the Bondcliff, individual pay levels were compared with one another based on the applicable MEPA factors of seniority, education, training, and experience. Using this approach, Bondcliff was able to identify pay differentials that could not be explained by these factors. In conducting this analysis, Bondcliff was required under contract with HRW to identify situations where a salary adjustment is warranted to address any potential gender-based pay differentials as well as situations where an adjustment may be warranted based on internal inequity unrelated to gender.

A preliminary draft report was provided in January 2022, but additional analysis had to be performed. The consultant provided their final report in October 2022 which is included as Attachment A.

That final report included nine recommendations for salary adjustments out of a possible 1,027

Bargaining Unit employees. These adjustments, in total, have an annual cost of $86,487 and represent 0.1% of the total annual payroll of the Bargaining Unit group.

Five female employees and four male employees are included for salary adjustments. All nine adjustments are recommended to remediate potential gender-based pay differentials under MEPA. There were no internal equity issues observed within the job groupings.

HRW and the Consultant's findings and recommendations report is included as Attachment A of this staff summary. Attachment B provides a summary of the recommended salary adjustments.

BUDGET/FISCAL IMPACTS:

There are sufficient funds in the FY23 Current Expense Budget to fund these adjustments.

ATTACHMENTS:

Attachment A:	Massachusetts Water Resources Authority Pay Equity Report – Hirsch Roberts Weinstein LLP and Bondcliff HR Advisors, Inc.
Attachment B:	List of Recommended Salary Adjustments

MASSACHUSETTS WATER RESOURCE AUTHORITY PAY EQUITY REPORT

To: MWRA Project Team

From: David B. Wilson, Hirsch Roberts Weinstein LLP and Russell Sullivan, Bondcliff HR Advisors, Inc.

Date: October 18, 2022

Re: Massachusetts Water Resource Authority Pay Equity Report

I. Introduction

The Pay Equity Team (as that term is defined below) conducted a self-evaluation of the Massachusetts Water Resource Authority (MWRA) pay practices for union and non-union employees in an effort to assess and confirm that we were paying employees fairly and to assist MWRA in establishing an affirmative defense to liability under the Massachusetts Equal Pay Act (MEPA), which went into effect on July 1, 2018. Our in-depth review confirmed our initial belief that the MWRA pay practices were already closely aligned with the spirit of MEPA and fair pay in general.

MEPA clarifies the already existing requirement that employers pay employees doing comparable work at the same rate of pay without distinction by gender. MEPA defines "comparable work" as any work that requires substantially similar skill, effort, and responsibility, and is performed under similar working conditions.

Massachusetts employers are permitted to pay employees of different genders at different pay rates for comparable work only when the differential is based on one of six statutory justifications, including, for example, a seniority system and/or the education, training, or experience of a particular employee. An employer that violates MEPA generally will be liable for twice the amount of unpaid wages owed to the affected employee, plus reasonable attorneys' fees, and costs.

MEPA provides a complete affirmative defense to liability for employers if, within the prior three years and prior to the commencement of an employee's claim for violation of MEPA, the employer has completed a good-faith and reasonable self-evaluation of its pay practices. To be eligible for this affirmative defense, the self-evaluation must be reasonable in scope and detail and the employer must also demonstrate that reasonable progress has been made toward eliminating any impermissible wage differentials based on gender identified by the self-evaluation.

MEPA also adds several other protections for employees and job applicants. Under the law, employers may not prohibit employees from disclosing or discussing their wages. In addition, employers may not seek the salary history of any prospective employee before making an offer for employment that includes compensation. Finally, employers may not retaliate against an employee who exercises his or her rights under the law.

II. Pay Equity Review Participants

MWRA established a cross-functional team to participate in the review of positions and employee pay. The MWRA Team Members included:

- Robert Donnelly, Manager Operations Support (Team Lead)[1]
- Kathleen Chaloux, Senior Staff Counsel (Labor and Employment)[2]
- Andrea Murphy, Director, Human Resources
- Patterson Riley, Special Assistant for Affirmative Action
- Natalie Wadzinski, Manager, Compensation

The MWRA Team awarded a consultant contract to the law firm Hirsch Roberts Weinstein LLP (HRW) to assist MWRA with the self-evaluation. In order to conduct a self-evaluation on MWRA pay practices, HRW provided employment law advice. HRW also retained Russ Sullivan, a human resources professional from Bondcliff HR Advisors, Inc. to provide advice concerning employee compensation practices. The HRW/Bondcliff Team included:

a. David Wilson, Partner, Hirsch Roberts Weinstein LLP
b. Arielle Kristan, Partner, Hirsch Roberts Weinstein LLP
c. Alexandra Mitropoulos, Associate, Hirsch Roberts Weinstein LLP
d. Russell Sullivan, President, Bondcliff HR Advisors, Inc.

The MWRA Team and the HRW/Bondcliff Team together made up the Pay Equity Team.

III. Process

The Pay Equity Team first met on October 24, 2019, to plan its review. Between October 24, 2019, and September 23. 2022, the MWRA Team and Mr. Sullivan met, on-site or via web meeting, 84 times totaling 157 hours on the following dates:

10/24/2019	3/5/2020	9/17/2020	12/22/2020	3/4/2021	3/31/2021	6/24/2021
11/14/2019	4/23/2020	9/25/2020	1/7/2021	3/9/2021	4/1/2021	6/29/2021
11/21/2019	5/4/2020	10/15/2020	1/7/2021	3/11/2021	4/15/2021	7/2/2021
12/3/2019	5/12/2020	10/22/2020	1/14/2021	3/16/2021	5/4/2021	9/28/2021
12/13/2019	5/28/2020	10/29/2020	1/28/2021	3/18/2021	5/6/2021	9/30/2021
12/19/2019	6/4/2020	11/5/2020	2/4/2021	3/18/2021	5/10/2021	10/7/2021
1/9/2020	6/18/2020	11/12/2020	2/11/2021	3/18/2021	5/11/2021	10/8/2021
1/16/2020	7/9/2020	11/23/2020	2/16/2021	3/19/2021	5/13/2021	10/13/2021
1/23/2020	8/6/2020	11/30/2020	2/18/2021	3/23/2021	5/20/2021	10/14/2021
2/13/2020	8/20/2020	12/3/2020	2/23/2021	3/24/2021	6/3/2021	12/13/21

[1] Robert Donnelly retired in March 2021
[2] Kathleen Chaloux retired in January 2021

2/20/2020	9/3/2020	12/10/2020	2/25/2021	3/25/2021	6/17/2021	9/22/22
2/27/2020	9/10/2020	12/17/2020	3/2/2021	3/30/2021	6/23/2021	9/23/22

The Pay Equity Team first collected information related to positions and employees for review of comparable positions and equal pay analyses. The information related to the position analysis included:

- Unit and Non-Unit Job descriptions, including:
    - Education and experience requirements;
    - Key duties and responsibilities;
    - Physical and mental effort; and
    - Working conditions.
- Organizational charts, identifying reporting relationships and peer positions; and
- Collective Bargaining Agreements.

Similarly, the documents related to the pay analysis included:

- HRIS data including the following employee information:
    - Name
    - Date of hire
    - Gender
    - Age
    - Position Title
    - Department
    - Supervisor
    - Collective Bargaining Group if any
    - EEO Group
    - FLSA status
    - Current pay
    - Shift
    - Essential Employee Designation
- Collective Bargaining Agreements including Salary charts, promotion and transfer language, and other compensation-related language;
- Employee resumes, including information related to education, prior relevant experience, and licenses and certifications; and
- MWRA employee files including certification and license records.

A. Comparability Analysis

Once the information described above was collected, the Pay Equity Team conducted on-site and web-based meetings to discuss the relevant factors to define skill, effort, responsibility, and working conditions required for positions at MWRA. A total of 505 unique positions were reviewed against a comparability matrix developed by the Pay Equity Team based on employee and position data as of October 1, 2021. ***See*** **Appendix A** (Comparability Factors). Once these factors were finalized, each position was discussed against each factor, with reference to both the job description for the position and the knowledge of the MWRA Pay Equity Team Members relating to the position. The Pay Equity Team further reviewed and clarified these factors and evaluated positions against them during multiple on-site meetings, email exchanges, and conference calls. These discussions totaled approximately 116 hours over 59 meetings.

Positions with common Skill, Effort, Responsibility, and Working Conditions profiles were placed into common groups. The groups were then compared to identify where differences in skill, effort, responsibility, and working conditions were substantial. Where differences were not substantial, positions were combined into common groups. Finally, groups were arranged according to primary area and level of responsibility using the grid below.

Within each major group, positions with comparable skill, effort, responsibility, and working conditions were organized into individual groups. ***See*** **Appendix B** (Comparable Groups).

By and large the comparable groups consist of multiple positions. In some instances, single job groupings exist where the management and/or operational requirements of the job were deemed unique. Ultimately, the Pay Equity Team came to consensus on each position.

B. Pay Analysis

a. Pay Factors

Once the comparable groups were finalized, the Pay Equity Team conducted onsite meetings to review the statutory justifications for pay disparities and to determine their applicability to the relevant positions at the MWRA. In discussion with the MWRA Team, the Pay Equity Team made the following determinations:

Statutory Justification	Analysis
Merit System	MWRA does not have a process that meets the criteria of a Merit System as defined in the Massachusetts Equal Pay Act, so it was not used in the analysis.

Seniority System	MWRA does have a process for determining pay rates for bargaining unit positions that meets the criteria of a Seniority System as defined in the Massachusetts Equal Pay Act, so it was used in the analysis of bargaining unit positions. MWRA does not have a process for determining pay rates for non-bargaining unit positions that meets the criteria of a Seniority System as defined in the Massachusetts Equal Pay Act, so it was not used in the analysis of non-bargaining unit positions.
System which measures earnings by quantity or quality of production, sales, or revenue	MWRA does not differentiate employee pay by quantity or quality of production, sales, or revenue, so this factor was not used in the analysis.
Geographical location in which a job is performed	MWRA does not differentiate pay based on the geographic location in which the employee works, so this factor was not used in the analysis.
Travel	MWRA does not differentiate pay based on the amount of travel an employee incurs in the performance of work, so this factor was not used in the analysis. A group of employees do receive vehicles to travel to and from work. Use of these vehicles by these employees is limited to commuting to and from work to home per state law restrictions. The use of these vehicles was not considered in the analysis.
Education, training, or experience	Each of these factors were deemed relevant to the pay of employees in all comparable work groups and were therefore used in the analysis. Of note, offers of employment for all non-bargaining unit positions and for some bargaining unit positions with MWRA consider the education, experience, licenses, and certifications of the prospective employee weighed against the current employee population. In addition, position descriptions identify both minimal and preferred education, experience, licenses, and certifications for positions. Internal promotions and transfers also consider time employed in a current position, additional time at MWRA, prior experience, education, and certifications and licenses to determine pay. All of these factors were included as relevant pay factors. Please see section on MWRA Compensation Practices below.

b. MWRA Compensation Practices

MWRA has established compensation practices for setting pay rates at time of hire, time of promotion, and time of transfer. These practices differ for non-bargaining unit employees and bargaining unit employees.

i. Non-Bargaining Unit Positions

When making offers of employment, MWRA reviews the education, training, and experience of applicants (or finalists) and compares these factors to the education, training, and experience of the current employees within comparable positions. For promotions and transfers, MWRA reviews the education, training, and experience of the employee to be promoted or transferred and compares these factors to the education, training, and experience of the current employees within comparable positions as the one to which the employee is to be promoted or transferred. In addition to overall experience, MWRA factors in experience in the position. MWRA adjusts the employee's pay accordingly to align with the education, training, and experience of others in comparable positions. However, MWRA does not reduce an employee's pay, even if the analysis would suggest doing so.

ii. Bargaining Unit Positions

For employees within a bargaining unit, the process for determining an employee's pay rate at the time of hire, promotion, or transfer is addressed in the collective bargaining agreements. In most cases, the rate at hire is the Step 1 rate for the position. Based on the specific union contract language, when an employee is promoted, the employee either receives an increase equal to a set percentage of the employee's current rate of pay or the step that meets or exceeds the sum of the current salary plus the promotional increment in the contract for the job grade to which the employee is moving. This practice uses seniority within a position as a determining factor consistent with the allowable pay factors under MEPA.

For some positions, particularly for those for which MWRA experiences difficulty in hiring at the Step 1 rate, MWRA and the respective collective bargaining unit representatives, have entered into memorandums of understanding allowing for the hiring at a step rate higher than Step 1. When so doing, the education, training, and experience of the prospective employee is used to determine the appropriate initial pay step. A comparison is made to current employees and if the education, training, and experience of a current employee at a lower step rate compares favorably to the education, training, and experience of the newly hired employee, then the current employee's rate of pay is adjusted to the rate of pay of the newly hired employee.

c. Identification of Prior Experience

At the time of this review, MWRA did not have a consistent practice of recording new hire education and prior experience electronically; nor were current resumes for employees available. Education and prior, relevant experience information for employees hired prior to the review was not always easily available. As a result, employee information on education and prior experience was not always available for the analysis. As a proxy, pre-MWRA experience was determined using the employee's age, less the employee's time at MWRA plus the expected

career commencement age for the position. Career commencement age was based on the minimum education requirement for the position:

Minimum Education Requirement	Career Commencement Age
High School	18
Associate Degree	20
BS / BA	22
MS / MA / MBA	24
JD	25
PhD	26

d. Pay Review Process

i. Attorney General's Office Calculation Tool

Once the relevant factors were determined, employees' position experience, organizational experience, total experience, education, and licenses/certifications were identified. These factors were identified from employee resumes, where available, and from information obtained from the MWRA HRIS system and employee files. The following information was then compiled into the Pay Calculation Tool provided by the Office of the Massachusetts Attorney General[3] (the "AGO Pay Calculation Tool") for comparison and analysis:

- Name
- Date of Hire and calculated MWRA years of experience
- Job Title
- Scheduled hours
- Current Pay Rate
- Date of entry into current position and calculation of position experience (when the information was available through resumes or other sources or when the pay analysis required further analysis to determine the position start date)
- Prior MWRA experience (where position experience has been determined)
- Date of Birth and calculated Maximum Possible Experience
- Pre-MWRA experience (Calculated Maximum Possible Experience less MWRA experience)
- Highest Degree of Education (when the information was available through resumes or other sources or when the pay analysis required further analysis to determine the position start date)
- Licenses and Certifications

[3] The AGO Pay Calculation Tool may be accessed by visiting https://www.mass.gov/massachusetts-equal-pay-law.

See **Appendix C (**Attorney General's Office MEPA Tool) and **Appendix D (**Attorney General's Office MEPA Tool – Further Analysis).

ii. Detailed Pay Analysis

In addition to the analysis using the AGO Pay Calculation tool, the Pay Equity Team held on-site and web-based meetings to perform comparator pay analysis within each group with more than one employee. MWRA Team Members and Mr. Sullivan spoke during multiple meetings and email exchanges to review and clarify the comparator pay analysis. These discussions totaled 35 hours over 22 web-based meetings. In connection with this analysis, Mr. Sullivan provided a custom Excel tool to facilitate the comparison of pay and pay factors among employees within each comparable group.

A regression analysis was not employed for any groups. All groups that included non-bargaining unit employees had fewer than 30 employees and thus did not meet the minimum requirements for a regression analysis. Some groups that included bargaining unit employees met the statistical requirements for a regression analysis. However, in all cases these groups were comprised of employees within the same bargaining unit and the same salary grade. As a result, the established pay steps served as a de facto regression analysis line. A comparator analysis for these groups aligned the employees within these groups to the established steps.

Two comparator analyses were conducted. In the first analysis, which the Pay Equity Team referred to as the MEPA analysis, the pay of each male employee in each comparable group was compared to the pay of each female employee in each comparable group and vice versa. In the second analysis, which the Pay Equity Team referred to as the Internal Analysis, the pay of each employee in each comparable group was compared to the pay of every other employee in each comparable group regardless of gender. In both analyses, comparisons were made of employee pay based on the position experience, MWRA experience, prior maximum experience, total maximum experience, education, and licenses/certification of each employee. All factors were weighed equally. Differences in pay were identified when an employee with a greater combination of experience, education, and licenses/certifications was found to be paid less than a comparator employee. In the MEPA analysis, unexplained pay differences between employees were identified when an employee with a greater combination of experience, education, and license/certifications was found to be paid less compared to a comparator employee of the other gender within the comparable group. In the Internal Analysis, unexplained pay differences between employees within the group were identified when an employee with a greater combination of experience, education, and license/certifications was found to be paid less compared to another employee regardless of gender within the comparable group.

In both the MEPA analysis and the Internal Analysis, pay differences that could not be explained through the Excel tool were further reviewed to determine if additional considerations need to be included in the analysis. These additional considerations included the application of

promotional factors per the collective bargaining agreements, rounding issues due to the calculation of pay based on less than full-time hours, de minimus differences in pay that are slated to be addressed in the next annual pay adjustment, delays in step increases for bargaining unit employees due to time off of payroll for reasons other than those protected under the MEPA statute, and the balancing of educational and experience factors among employees in a comparable group.

C. Identification of Pay Differences That Cannot be Explained by Pay Factors

As stated above, the pay of employees within a comparable group were compared to each other according to the relevant pay factors. If an employee's pay factors were determined to be equal to or greater than another employee with a higher rate of pay, then the higher paid employee was identified as a comparator to the initial employee. The comparator's pay rate then became the comparative measure pay rate for the initial employee. If the employee who served as a comparator was of a different gender, then the comparative measure pay was identified as a MEPA comparative rate. If the employee who served as a comparator was of the same gender, then the target pay was identified as an Internal comparative rate, representing that there was not a MEPA compliance issue, but there was a potential internal equity issue.

The results for the MEPA analysis and the Internal analysis were identical. There were 9 employees (0.9% of all employees) with current pay at some level below their MEPA comparative rate of pay. These unexplained pay differences equal $82,529, or 0.09% of payroll. Of the 9 identified employees, 5 are female (2.2% of all female employees) and 4 are male (0.5% of all male employees). The unexplained pay differences for female employees equal $55,254 or 0. 27% of the payroll for female employees. The unexplained pay differences for male employees equal $27,275 or 0.04% of the payroll for male employees.

The analysis results are summarized below.[4]

Payroll	Headcount	Payroll	Adjustment $	# Adjusted
All	1035	$89,696,542	$82,529	9
% All	100%	100%	0.09%	0.9%
Females	226	$20,165,730	$55,254	5
% Females	21.8%	22.5%	0.27%	2.2%
Males	809	$69,520,812	$27,275	4
% Males	78.2%	77.5%	0.04%	0.5%
Non-Binary	0	$0	$0	0
% Non-Binary	0.0%	0.0%	0.00%	0.0%

[4] MWRA previously completed a Pay Equity review of the non-unit positions in 2019. In that review, 14 pay adjustments were made, 11 of which were for MEPA reasons and 3 for internal equity reasons. Total adjustments equaled 0.74% of the non-unit payroll. The analysis below and subsequent similar analyses reflect unit positions, only.

The detailed pay analysis is shown in Appendix E.

IV. Remedial Plan

In preparing a Remedial Plan to address the identified unexplained pay differences, various thresholds for adjustment were reviewed. The results above show the impact of adjusting all identified unexplained pay differences to 100% of the comparative rate of pay. The Detailed Pay Analysis Tool included a factor to adjust comparisons to a percent of the comparative rate of pay. For example, an employee currently earning $16.00 per hour with a comparative rate of pay of $20.00 per hour is currently at 80% of target. A $4.00 increase would be required to bring the employee to 100% of the comparative rate of pay. At 90% of the comparative rate of pay, or $18.00, the employee would receive $2.00 adjustment to pay. However, if the target is adjusted to 80%, or $16.00, then the employee is at the comparative rate of pay and no adjustment would be recommended. The charts below show the number of employees impacted at various comparative rates of pay.

At 95% of Comparative Rate of Pay

Payroll	Headcount	Payroll	Adjustment $	# Adjusted
All	1035	$89,686,542	$41,981	6
% All	100%	100%	0.05%	0.6%
Females	226	$20,165,730	$31,036	3
% Females	21.8%	22.5%	0.15%	1.3%
Males	809	$69,520,812	$10,945	3
% Males	78.2%	77.5%	0.02%	0.4%
Non-Binary*	0	$0	$0	0
% Non-Binary	0.0%	0.0%	0.00%	0.0%

At 95% of comparative rate of pay, the detailed pay analysis identified 6 employees for adjustment. Three of these employees are female; three are male. The total to adjust to target would be $41,981, or 0.05% of payroll.

- All MWRA employees are noted as male or female in the HRIS system based on (legal) gender identity.

At 90% of Comparative Rate of Pay

Payroll	Headcount	Payroll	Adjustment $	# Adjusted
All	1035	$89,686,542	$15,490	4
% All	100%	100%	0.02%	0.4%
Females	226	$20,165,730	$14,568	3

% Females	21.8%	22.5%	0.07%	1.3%
Males	809	$69,520,812	$923	1
% Males	78.2%	77.5%	0.00%	0.1%
Non-Binary	0	$0	$0	0
% Non-Binary	0.0%	0.0%	0.00%	0.0%

At 90% of comparative rate of pay, the detailed pay analysis identified 4 employees for adjustment. Three of these employees are female; one is male. The total to adjust to target would be $15,490, or 0.02% of payroll.

After review of the analysis and to prioritize outlier situations, it was determined that adjustments would be recommended at 100% of the comparative rate of pay. The adjustments equal $82,529, or 0.09% of payroll for unit positions. Of the 9 identified employees, 5 are female (2.2% of all female employees in unit positions) and 4 are male (0.5% of all male employees in unit positions). The unexplained pay differences for female employees equal $55,254 or 0.27% of the unit position payroll for female employees. The unexplained pay differences for male employees equal $27,275 or 0.04% of the unit position payroll for male employees.

V. Recommendations

Following the conclusion of the analysis, the Pay Equity Team proposes the following recommendations in addition to the recommended pay adjustments to ensure continued compliance with MEPA:

Compensation Review Process. MWRA should adopt a pay equity review as part of its periodic compensation review process. This process would compare the key pay factors of education, licenses/certifications, and experience (position, MWRA and total) to the pay of employees within each comparable group and adjust pay increases to ensure pay aligns with these factors.

Salary Setting Process for New Hires, including members of the Pay Equity Team serving as the "MEPA gatekeeper" within the hiring process tasked with ensuring equal pay within groups. Prior to the commencement of the pay equity review process, MWRA reviewed the education, experience, and licenses/certifications of potential new hires against that of existing employees within the same position or salary grade. MWRA expanded this practice to ensure that the comparison is made against all employees within the comparable group to which the position belongs. MWRA should continue comparing new hires to the current employees within the comparable group to which the position belongs.

Salary Setting Process for Transfers and Promotions, including the MEPA gatekeeper within the hiring process tasked with ensuring equal pay within groups. MWRA currently reviews the education, experience, and licenses/certifications of employees

under consideration for promotions and transfers compared to existing employees within the same position or salary grade. MWRA should expand this practice to ensure that the comparison is made against all employees within the comparable group that contains the position to which the employee is being transferred or promoted.

Payroll Job Codes. MWRA assigns a job code to each position title. In some cases, there is more than one job code assigned to the same position title. In a few cases, these position titles are in different comparable groups due to the different skills, effort, responsibilities and working conditions of the positions. However, to better promote clarity in reviewing positions for comparability, creating unique job codes for each position title will better enable MWRA to audit their workforce ensuring that employees are compared to others within their comparable group.

Comparability Analysis for new positions, including the MEPA gatekeeper within the evaluation process tasked with ensuring that new, non-bargaining unit positions are placed into the appropriate comparable group. MWRA currently reviews new non-bargaining unit positions through its salary grading process to determine the grade and salary range for the position. In addition to this process, MWRA should use the comparability analysis employed in the pay equity review to determine the comparable pay equity grouping for the new position. This practice should apply to bargaining unit and non-bargaining unit positions.

Integration with Positions within Collective Bargaining Units. MWRA currently conducts a regular review of pay among non-bargaining unit positions that supervise employees within the bargaining unit, particularly those feeder positions from which the non-bargaining unit supervisors and managers are often promoted. This practice should continue. In addition, they should periodically review the comparability analysis to ensure that any potential pay equity issues that may result from the identification of comparable groups' positions that include both bargaining unit and non-bargaining unit positions are identified and addressed.

VI. Conclusions

Members of the Pay Equity Team met for approximately 116 hours to determine comparable groups and an additional 35 hours to conduct the pay analysis in a genuine attempt to identify MEPA prohibited pay disparities among employees performing comparable work. The analysis resulted in 9 recommended adjustments, or 0.9% of the 1,035 employees in unit positions reviewed in this analysis.

(1) 5 of the 226 female employees (2.2%) are recommended to receive adjustments

(2) 4 of the 809 male employees (0.5%) are recommended to receive adjustments

(3) All of the recommended adjustments are for Massachusetts Pay Equity and internal equity reasons.

It should be noted that MWRA has historically employed an effective review process when making pay decisions. As a result, the number of recommended adjustments is relatively few as compared to other organizations performing similar self-evaluations.

The annual total dollar amount of recommended adjustments at 100% of comparative rate of pay is $82,529, or 0. 09% of payroll. As a result, the adjustments appear to be within MWRA available resources to address immediately. All adjustments are recommended to be presented to the MWRA Board of Directors for approval as soon as possible.

David B. Wilson

Appendices

Appendix A Comparability Factors

Appendix B Comparability Analysis

Appendix C Attorney General's Office Tool

Appendix D Attorney General's Office Tool– Further Analysis

Appendix E Detailed Pay Analysis

List of Recommended Salary Adjustments
November 16. 2022

Job Grouping	PCR Number	Job Title	Gender	Base Compensation* 10/1/21	Proposed salary adjustment* 10/1/21	Proposed Base Compensation* 10/1/21	Justification
Group 091	4510042	Sr Financial Analyst	M	$80,702	$6,656	$87,358	MEPA adjustment
Group 091	4410031	Sr Financial Analyst	M	$71,667	$9,035	$80,702	MEPA adjustment
Group 091	4410029	Sr Financial Analyst	M	$85,644	$8,881	$94,525	MEPA adjustment
Group 080	8250039	Communications Manager	F	$107,849	$14,767	$122,616	MEPA adjustment
Group 117	5525039	Program Manager	F	$110,564	$24,262	$134,826	MEPA adjustment
Group 135	5811018	Senior Engineer	F	$77,808	$10,850	$88,658	MEPA adjustment
Group 031	24700150	Executive Secretary	F	$59,602	$2,918	$62,520	MEPA adjustment
Group 63	7110036	Sr Staff Counsel	F	$128,108	$5,174	$133,282	MEPA adjustment
Group 122	3370006	Project Manager	M	$90,852	$3,944	$94,796	MEPA adjustment

Total Increases*	$86,487
Total Payroll	$89,696,542
As % of Total	0.10%

* includes recent collective bargaining increases

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: FY2023 First Quarter Orange Notebook

COMMITTEE: Administration, Finance & Audit

X 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 first quarter of fiscal year 2023.

Staffing Levels

High levels of staff turnover continue, especially retirements, and hiring replacements continues to be difficult. During FY22, 68 percent of hires were either internal promotions or transfers, compared to 56 percent in FY21. During the first quarter of FY23, 60 percent of hires were internal promotions or transfers. (See page 43.) While hiring internally fills one vacancy, it creates another, so a lower percentage of external hires makes it difficult to restore overall staffing levels.

As of the end of September 2022, there were 1045.3 FTEs compared to a target of 1151.4 FTEs, about a nine percent vacancy rate. (See page 43.) Of note, the number of hirings, promotions, and transfers for the first quarter of FY23 (70 total) are already 35 percent of the entirety of last fiscal year (203 total) and 48 percent of FY21 (145 total). Despite this upturn in hiring rates progress toward the staffing target has been slow due to continued turnover and the higher number of promotions as discussed previously. Staff continue to undertake a number of actions to improve recruiting and retention.

Deer Island Treatment Plant Flows

Flows at the Deer Island Treatment Plant for the first quarter FY23 were 17.3 percent below the four year average (210.2 mgd actual versus 254.3 mgd expected) due to precipitation being 53.2 percent below the four year average (4.69 inches actual versus 10.03 inches expected). (See page 1.) The plant set new monthly low flow records in July and August and set the all-time monthly

low flow record in August with 201.73 mgd. (See page 2.) Lower flows reduce energy use for pumping (see page 1), and may also have effects on other aspects of treatment due to the more concentrated flow.

Clinton Treatment Plant Permit Violations

There were four permit violations in FY23 at the Clinton Treatment Plant. (See page 28.)

Two of the four permit violations in the first quarter were for exceedances of the monthly average copper effluent limit. This appears to be the result of the current dry conditions reducing the dilution effect of infiltration on copper concentrations in the drinking water discharged to the community sewers. Allowable levels of copper in drinking water are substantially higher than those allowed in the NPDES discharge permit. (See page 28.)

One of the violations was for chronic toxicity. A whole effluent toxicity (WET) test exceedance occurred in September. Occasional WET test exceedances can occur due to the complex nature of this test, which is biologically based, and therefore inherently volatile with substantial statistical variability.

Lastly, as mentioned in previous updates, the Clinton Wastewater Treatment Plant's NPDES permit includes a flow limit for a 12-month rolling annual average. The carryover impacts of the wet conditions during the summer of 2021 continued to affect the 12-month rolling annual average through July, resulting in an exceedance of the NPDES permit limit (3.01 mgd). Fortunately, this impact has subsided and there were no flow violations for August and September.

Customer Water Use

MWRA customers used an average of 238.48 mgd in the first quarter (July to September 2022) of FY23. This is an increase of 26.81 mgd or 12.7% compared to the average of the first quarters in FY20 and FY21. (See page 29). The increase is being driven by both increased water use by many communities during the dry weather, but also by partially-served communities using more MWRA water due to PFAS contamination of their local sources. Cambridge normally takes no MWRA water, but used 438.31 million gallons in the first quarter as it temporarily switched to 100 percent MWRA water in August due to PFAS contamination in its supply. Cambridge is making changes to the carbon in its filters and plans on gradually returning to it local supplies over the next few months. Similarly, Wellesley has significantly increased its use of MWRA water due to limitations on its use of its local sources affected by elevated levels of PFAS, with a 44 percent increase in use so far this calendar year. Burlington and Dedham-Westwood Water District are also using additional MWRA water.

Despite the drought conditions over much of this calendar year and the increased use of MWRA water, Quabbin storage levels remained well within normal operating levels throughout the quarter, ending the quarter at 88.8 percent full. (See page 26.)

Source Water Quality

With the reduced precipitation during this year's drought and, therefore, reduced runoff into Wachusett Reservoir, staff were able to transfer larger quantities of Quabbin water to Wachusett. (See page 26.) The long residence time in the massive Quabbin Reservoir naturally improves some

aspects of water quality. When MWRA can maintain a steady transfer of Quabbin water into Wachusett during the summer stratified conditions, this can significantly improve the water quality withdrawn for treatment at the Carroll Water Treatment Plant. In particular UV254, a measure of the reactive natural organic matter in the water, was much lower this year, providing benefits in terms of reduced chlorine demand, better disinfectant residuals throughout the system, and possibly lower lead corrosivity. (See pages 20 and 24.)

MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

First Quarter FY2023

Q1	Q2	Q3	Q4

Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
November 16, 2022

Board of Directors Report on Key Indicators of MWRA Performance

1st Quarter - FY23

Table of Contents

Operations and Maintenance

Construction Programs

Drinking Water Quality and Supply

Wastewater Quality

Community Flows and Programs

Business Services

Other Management

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

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

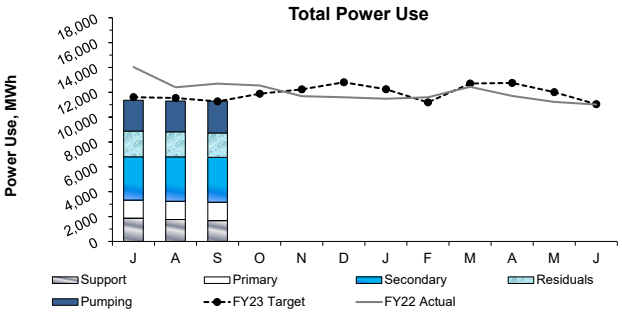
November 16, 2022

OPERATIONS AND MAINTENANCE

Deer Island Operations

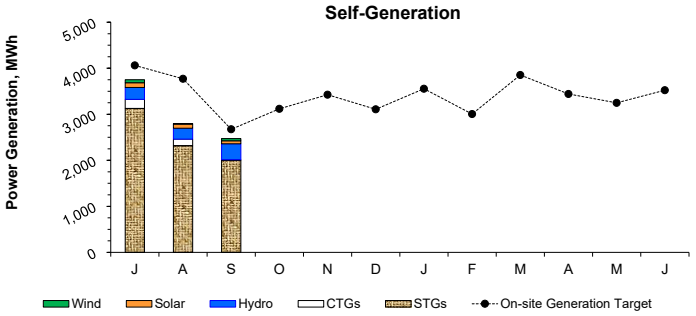
1st Quarter - FY23

Total Power Use



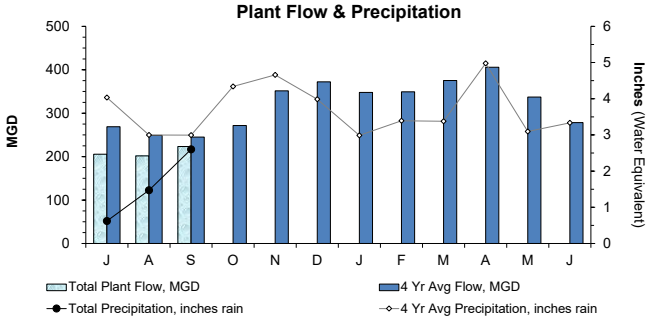
Total power usage in the 1st Quarter was 1.4% below target as plant flow for this period was 17.3% below target with historical data (4 year average) used to generate the electricity model. As a result, power usage in nearly all areas and treatment processes was similar to or below target, including power used for raw wastewater pumping, which was 8.4% below target.

Self-Generation



Power generated on-site during the 1st Quarter was 14.1% below the target. CTGs generation was below target by 49.5% as operation for ISO-New England demand response events and for peak shaving were lower-than-expected. STGs generation was 11.3% below as digester gas production was 12.4% below target. Hydro Turbine generation was 7.4% below target as Total Plant Flow was 17.3% below target. Wind Turbine generation was 46.6% below target as Turbine #1 has been out of service since April 11 pending repairs to the failed main shaft bearing and a failed cooling fan which left Turbine #2 out of service for much of the time from August 7 to September 10. Solar Panel generation was 4.7% below target due to a faulty power supply on one of the rooftop solar arrays on the Maintenance/Warehouse Building which kept the array out of service for several days and a failed grid inverter on the solar array on the Residuals Odor Control (ROC) Facility which has kept the array out of service since September 12. The ROC solar grid inverter is no longer available and is pending repair by the vendor.

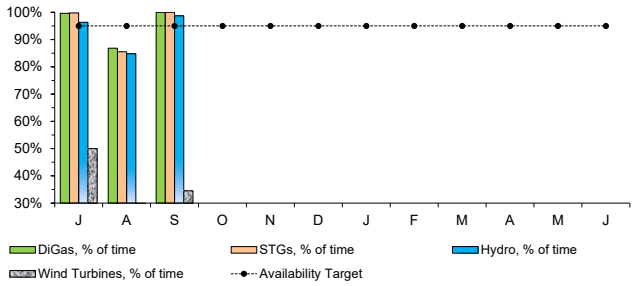
Plant Flow & Precipitation



Total Plant Flow for the 1st Quarter was 17.3% below target with the budgeted 4 year average plant flow (210.2 MGD actual vs. 254.3 MGD expected) as precipitation was 53.2% below target this quarter (4.69 inches actual vs. 10.03 inches expected).

Self-Generation Equipment On-Line

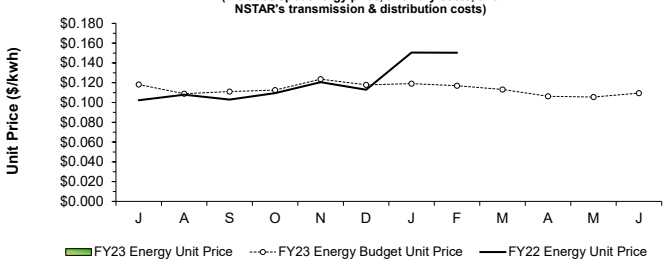
(% of Time in Operation)



The DiGas System and STGs availability exceeded the 95% availability in the 1st Quarter, even though annual maintenance shut down portions or all of the Thermal Plant between August 21 through September 12. Hydro Turbine availability fell just below target (93.3%) due to electrical issues in the Hydro Turbine Facility in August. Wind Turbine availability was only 31.7% due to mechanical issues with Turbine #1 (main shaft bearing failure) which has left the turbine out of service since April 11, and Turbine #2 which was out of service from August 7 through September 10 due to a failed cooling fan and minor repairs that were needed on the turbine blades.

Total Electricity Pricing

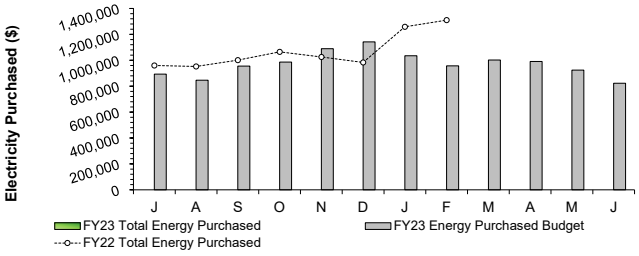
(includes spot energy price, ancillary costs, and NSTAR's transmission & distribution costs)



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

Note: Only the actual energy prices are reported. Therefore, the dataset lags by seven (7) months (since March) due to the timing of invoice receipt and review.

Total Cost of Electricity



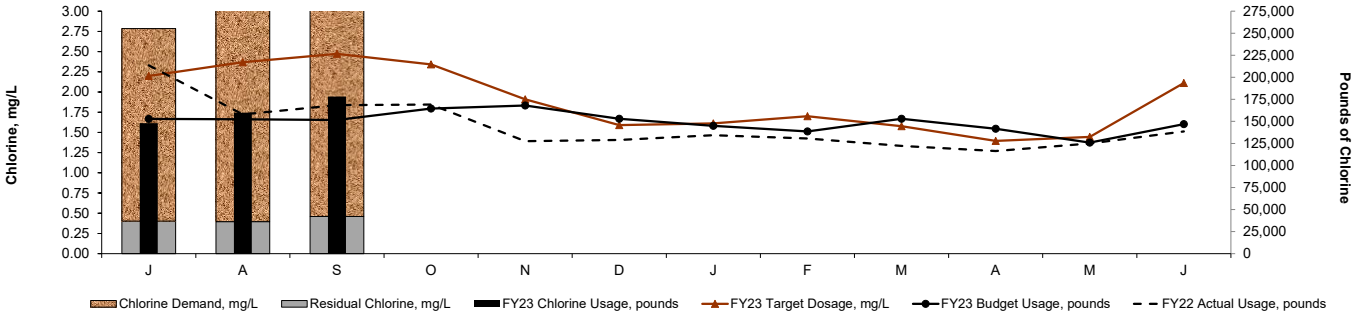
The Electricity cost data for Electricity Purchased in July, August, and September are not yet available as the complete invoices have not been received.

Note: Only months with complete Electricity Purchased data are reported. Therefore, the dataset lags by seven (7) months (since March) due to the timing of invoice receipt and review.

Deer Island Operations

1st Quarter - FY23

Deer Island Sodium Hypochlorite Use



The disinfection dosing rate in the 1st Quarter was 28.0% above target with budgetary estimates. Additionally, actual sodium hypochlorite usage in pounds of chlorine was 6.4% higher-than-expected, even though the average plant flow was 17.3% below target. DITP maintained an average disinfection chlorine residual of 0.42 mg/L this quarter with an average dosing rate of 3.01 mg/L (as chlorine demand was 2.59 mg/L). The higher hypochlorite usage and dosing is due to a higher effluent chlorine demand resulting from the lower-than-expected plant flow.

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

Secondary Blending Events

Month	Count of Blending Events	Count of Blending Events Due to Rain	Count of Blending Events Due to Non-Rain-Related Events	Secondary, as a Percent of Total Plant Flow	Total Hours Blended During Month
J	0	0	0	100.0%	0.00
A	0	0	0	100.0%	0.00
S	0	0	0	100.0%	0.00
O					
N					
D					
J					
F					
M					
A					
M					
J					
Total	0	0	0	100.0%	0.00

100.0% of all flows were treated at full secondary during the 1st Quarter as there were no blending events.

The Maximum Secondary Capacity during the entire quarter was 700 MGD. Secondary permit limits were met at all times during the 1st Quarter of FY23.

Deer Island Operations & Maintenance Report

Environmental/Pumping:
The plant achieved an instantaneous peak flow rate of 630.2 MGD during the early evening of August 26. This peak flow occurred during a storm event that brought 0.41 inches of rain to the metropolitan Boston area. The Total Plant Flow in Quarter 1 was 17.3% below the 4 year average plant flow target for the quarter.

Several recordsetting low monthly influent flows were recorded for July and August as the previous Total Plant Influent, North System Influent, and South System Influent flow records, and precipitation amounts were broken as a result of the regional drought conditions. These new records are shown in the tables below and are highlighted in yellow.

July Low Plant Flow Records

	Previous July Low Flow Record (since plant startup July 1998)	New July Low Flow Record (set 2022)	All-time Monthly Low Flow Record (since plant startup July 1998)
Total Plant Influent Flow	217.79 MGD (2016)	205.58 MGD	204.12 MGD (Sept. 2020)
North System Influent Flow	151.14 MGD (2020)	138.93 MGD	138.78 MGD (Sept. 2020)
South System Influent Flow	66.64 MGD (2016)	66.64 MGD (tied)	62.28 MGD (Sept. 2016)
Precipitation	0.63 inches (1997)	0.62 inches	0.00 inches (June 1999)

August Low Plant Flow Records

	Previous August Low Flow Record (since plant startup July 1998)	New August Low Flow Record (set 2022)	Current All-time Monthly Low Flow Record (since plant startup July 1998)
Total Plant Influent Flow	213.32 MGD (2020)	201.73 MGD (also New All Time Low Flow Record)	201.73 MGD (August 2022) Previous record: 204.12 MGD (Sept. 2020)
North System Influent Flow	145.34 MGD (2020)	139.10 MGD	138.78 MGD (Sept. 2020)
South System Influent Flow	66.96 MGD (2016)	62.63 MGD	62.28 MGD (Sept. 2016)
Precipitation	0.66 inches (2007)	No new record set (1.47 inches)	0.00 inches (June 1999)
All-time lowest Daily Average South System Flow	-----	55.83 MGD (Aug 20) and 55.96 MGD (Aug 21)	55.83 MGD (August 20, 2022) Previous record: 56.26 MGD (Sept. 4, 2016)

Deer Island Operations & Maintenance Report (continued)

Secondary Treatment:
Annual turnaround maintenance on Train #1 in the Cryogenic Oxygen Facility began on September 26 and will be completed on October 7. This two (2) week turnaround maintenance is performed on roughly half of the components and systems in the Cryogenic Oxygen Facility. During this turnaround maintenance, the contractor calibrated all the instrumentation on Cold Box unit #1 as well as, a number of other components of the oxygen plant. The same turnaround maintenance was completed on Train #2 in the spring (April).

Residuals Treatment:
Module #1 Digester #4 was taken out of service on August 22 due to a clog in the digester's recirculation line or pump which prevented the ability to properly heat the sludge in the digester and also prevented the addition of ferric chloride to control struvite to this single digester. The digester was emptied of sludge to allow staff to perform essential corrective maintenance to unclog a recirculation line and to replace several faulty isolation valves. The maintenance was completed by the end of the September and staff began preparing the digester for its return to operation in October, including conducting leak tests on the repairs and other necessary maintenance.

Odor Control Treatment:
Carbon adsorber (CAD) units #1 through #4 in the East Odor Control (EOC) Facility were emptied and refilled with new regenerated activated carbon media in September as part of routine maintenance to replace spent activated carbon. CAD unit #5 in the West Odor Control (WOC) Facility was emptied of spent carbon and will be filled with regenerated carbon in October.

Energy and Thermal Power Plant:
Overall, total power generated on-site accounted for 26.6% of Deer Island's total power use for the 1st Quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 25.5% of Deer Island's total electrical power use for the quarter.

The CTGs were operated on a total of eight (8) days in July and August for a combination of peak demand shaving, Eversource, or ISO-New England demand response events during the 1st Quarter.

Annual maintenance at the Thermal Power Plant (TPP) began on August 21 and continued through September 12. Various maintenance activities on the STG, BP-STG, the two (2) Zurn boilers, and the common systems included maintenance on various pumps, valves, and instrumentation throughout the TPP and the DITP heat loop system. On August 21, maintenance began on the offline Boiler 101 and the main STG. On August 27 and 28, Boiler 201, the BP-STG, and the Deaerator, were taken out of service to allow for maintenance to proceed on these units, as well as maintenance on the common systems, and the DITP heat loop system. The boiler common system and the BP-STG maintenance was completed on August 29 allowing Boiler 201 to be returned to service overnight. The BP-STG was placed into operation on September 1 and the STG was returned to service on September 7. A gasket leak on Boiler 101 was repaired on September 9 and the boiler was successfully test operated before returning the boiler to stand by mode. All digester gas produced was flared from August 28 to August 31 during the full TPP shutdown and there were no negative impacts caused by this annual maintenance shutdown.

On September 8, the air starter that supports CTG 2B was replaced. The air starter drives the internal high pressure compressor at the gearbox until the required rotation for ignition is reached. The unit was successfully test operated following the air starter replacement and the CTG was returned to standby status. On September 12, CTG 1A's start air tank was inspected (by Dept. of Public Safety) as required every 2 years. As a result, CTG 1A was unavailable for most of the day as the start air tank was emptied to allow for the inspection and refilling of the start air tank takes several hours to complete. CTG 1A start air tank was filled by 3:00 p.m. and the turbine was returned to stand by mode. One CTG unit was available for operation at all times during both of these tasks in the event backup power was needed.

The blades on Wind Turbines #2 were inspected on September 7 and minor repairs were performed on a couple of areas on the leading edge and a few spots on the trailing edges of the turbine blades. The areas requiring attention were cited as being caused by normal wear. Wind Turbines #1 and #2 have been in operation since April 2010.

Other:
MWRA staff hosted a tour on July 28 for approximately 30 people, including executive staff, from the Mystic River Watershed Association. The group was provided a bus tour, with MWRA senior staff on board hosting the group, and included stops with accompanying brief tours and presentations at the Alewife Pump Station, the Chelsea Creek Headworks Facility, and the Deer Island Treatment Plant. The group was also able to view the approximate location of the Somerville Marginal CSO outfall where it discharges to the receiving water while on the bus enroute from the Alewife Pump Station to the Chelsea Creek Headworks Facility. The stop at DITP included a brief tour and a lunchtime presentation by ENQUAL staff on Alewife Brook and Mystic River Water Quality. DITP hosted a similar event for the Charles River Watershed Association on August 24.

A WCVB Channel 5 film crew was at DITP on July 22 to conduct an interview with MWRA Executive Director, Mr. Fred Laskey, as well as to record footage around the treatment plant, the surrounding public access walkway, and of Boston Harbor. This footage was used in a Chronicle segment that was broadcasted on August 8 focusing on the "Changing Boston Harbor" which featured Deer Island among other Boston Harbor highlights.

DITP was host for the Boston Harbor Islands Partnership's annual meeting and awards ceremony on the afternoon of September 20. Eleven different agencies make up the Boston Harbor Islands Partnership, the federally legislated body that governs the Boston Harbor Islands National and State Park. A brief tour of the Deer Island Treatment Plant was provided for all the attendees as part of the annual meeting.

Clinton Operations & Maintenance Report

Dewatering Building
Maintenance repositioned the drive gear, replaced the top and bottom belts, upper and lower wash box seals and doctor blade on # 1 sludge belt filter press. They also replaced a gasket on a leaking polymer valve. Operations and Maintenance staff worked on repositioning the ventilation duct work and painted black lines on the wall of the sludge garage. Maintenance completed several monthly PM work orders. A contractor repaired the # 1 gravity thickener rake arm skimmer and a contractor replaced the two (2) modine heaters and installed a 2 inch pressure reducing station.

Chemical Building
Operations took #1 and #2 chlorine contact basins down for cleaning and both were returned to service. Maintenance staff cleaned several soda ash lines for the pump distribution lines. They also cleaned soda ash lines on the upstairs and down stairs mixing tank. Staff cleaned and reassembled the process water strainer and re-piped the polymer system for the phosphorus removal system. A contractor repaired a leaking 1 inch process water line.

Aeration Basins
Operations staff cleaned the pH and D.O. probes. Maintenance staff checked the oil level in all six (6) blowers. The Facilities Specialist continued with the concrete repairs on top of the aeration tanks.

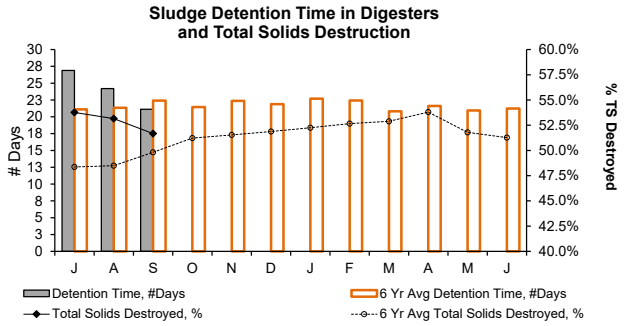
Phosphorus Building
Maintenance staff acid washed all three (3) disk filters, cleaned the troughs, and inspected all the nozzles. Staff replaced tubing with hard piping and cleaned the #1 polymer pump. Operation staff cleaned both CL17 chlorine analyzers.

Headworks
Plant staff hose cleaned Lancaster's Parshall Flume. Maintenance also cleaned the influent and mechanical bar rack and greased the upper and lower pin racks. They also installed a new sump pump # 2 in lower grit.

Digester Building
Operations staff changed from # 2 to #1 sludge digester heater. A contractor cleaned the boiler tubes and installed new gaskets on both units. Maintenance staff greased the floating cover mixers. The Facilities Specialist vacuumed and pressure washed the boiler room in preparation for paint. Deer Island staff connected the digester boiler room gas detector to the plant verbatim alarm system.

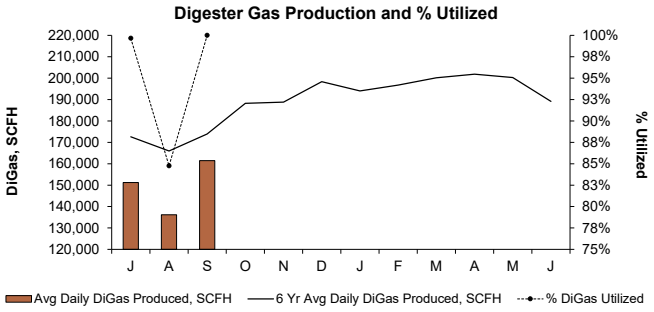
Deer Island Operations and Residuals

1st Quarter - FY23



Total solids (TS) destruction following anaerobic sludge digestion averaged 52.9% during the 1st Quarter, 8.1% above target with the 6 year average of 48.9%. Sludge detention time in the digesters was 24.1 days, 11.4% above target. 7.5 digesters were in operation, below target with the the 6 year average of 7.8 digesters due to corrective maintenance needed to unclog the Mod #1 Digester 4 recirculation line. Sludge detention time and solids destruction was higher-than-expected as the volume of sludge going to the digesters was lower-than-expected.

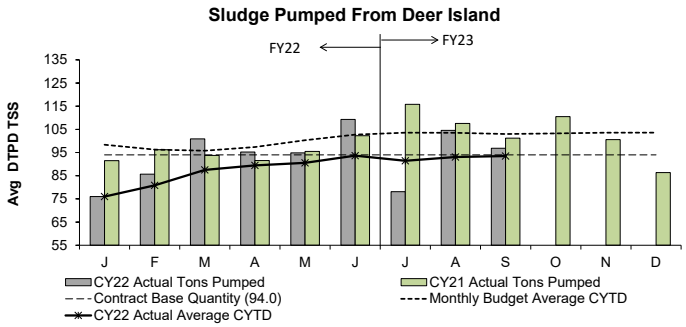
Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting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



The Avg Daily DiGas Production in the 1st Quarter was 12.4% below the 6 Year Avg Daily DiGas Production due to 19.1% lower-than-expected primary sludge production as a result of the lower plant flows. 94.8% of the Digas produced was utilized at the Thermal Power Plant as usage in August was 84.8% due to the annual Thermal Power Plant maintenance shutdown.

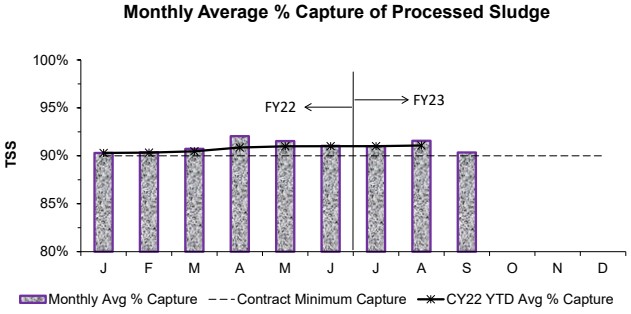
Residuals Pellet Plant

New England Fertilizer Company (NEFCO) operates the MWRA Biosolids Processing Facility (BPF) in Quincy under contract. MWRA pays a fixed monthly amount for the calendar year to process up to 94.0 DTPD/TSS as an annual average (for the extended contract period of January 1, 2021 through December 31, 2022). The monthly invoice is based on 94.0 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional payments are made on any quantity above the base amount. On average, MWRA processes more than 94.0 DTPD/TSS each year (FY22's budget is 104.0 DTPD/TSS and the preliminary FY23's budget is 103.3 DTPD/TSS).

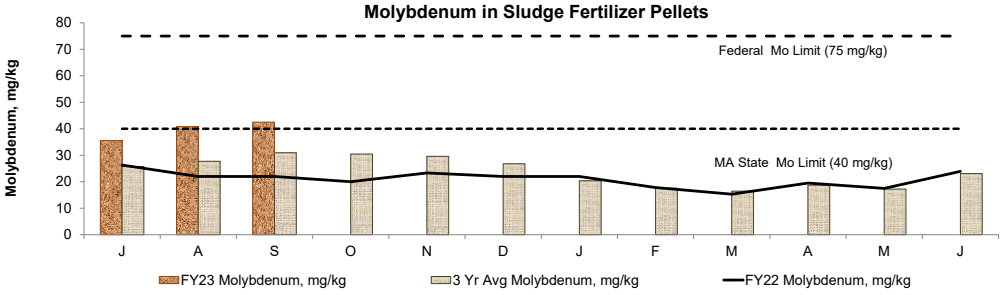


The average quantity of sludge pumped to the Biosolids Processing Facility (BPF) in the 1st Quarter was 93.2 TSS Dry Tons Per Day (DTPD), 10.1% below target with the FY23 budget of 103.6 TSS DTPD for the same period.

The overall CY22 average quantity of sludge pumped through September is 93.5 DTPD, 9.2% below target compared to the CY22-to-date average budget of 103.0 DTPD for the same time period.



The contract requires NEFCO to capture at least 90.0% of the solids delivered to the Biosolids Processing Facility. The average capture for the 1st Quarter was 90.98%.



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

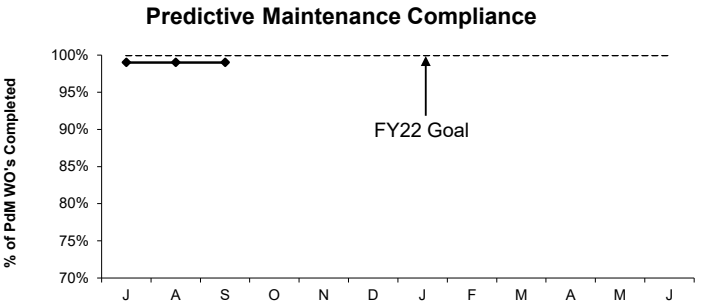
The levels have been below the DEP Type 1 limit copper and lead. For Mo, the level in the MWRA sludge fertilizer pellets during the 1st Quarter averaged 39.6 mg/kg, 41% above the 3 year average, on target (-1%) with the MA State Limit, and 47% below the Federal Limit. However, the August Mo level of 40.8 mg/kg and the September Mo level of 42.5 mg/kg were above the MA State Limit, causing the sales of the pellets to be restricted to a smaller market where the product is still able to be utilized. Above average summer temperatures have resulted in increased Mo levels due to increased air conditioning "blow down" and the use of Mo-containing corrosion chemicals.

Deer Island Maintenance

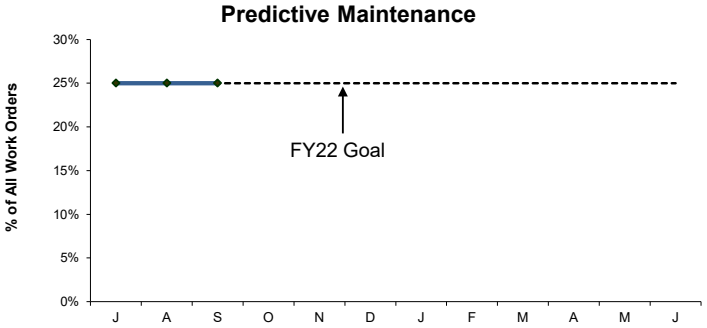
1st Quarter - FY23

Productivity Initiatives

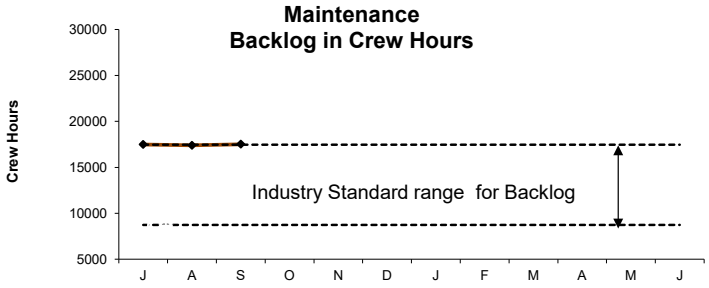
Productivity initiatives include increasing predictive maintenance compliance and increasing PdM work orders. Accomplishing these initiatives should result in a decrease in overall maintenance backlog.



Deer Island's FY23 predictive maintenance goal is 100%. DITP completed 99% of all PdM work orders this quarter. DITP is continuing with an aggressive predictive maintenance program. Deer Island is below are goal this quarter, but we are trending upward.



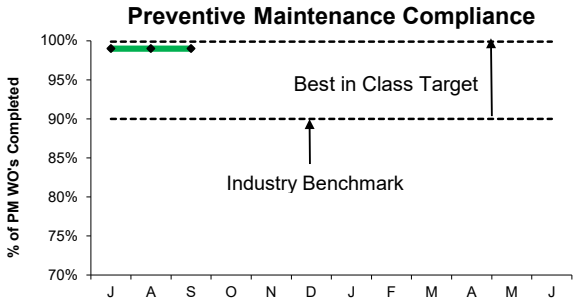
Deer Island's increased FY23 predictive maintenance goal is 25% of all work orders to be predictive. 25% of all work orders were predictive maintenance this quarter. The industry is moving toward increasing predictive maintenance work to reduce downtime and better predict when repairs are needed.



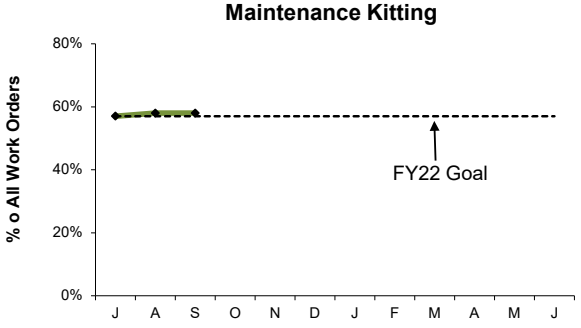
DITP's maintenance backlog at Deer Island is 17,501 hours this quarter. DITP is above the industry average for backlog. The industry Standard for maintenance backlog with 97 staff (currently planned staffing levels) is between 8,730 hours and 17,460 hours. Backlog is affected by (5) vacancies; (2) Electricians, (1) O&M Specialist, (1) HVAC Technician and (1) Welder. Management continues to monitor backlog and to ensure all critical systems and equipment are available.

Proactive Initiatives

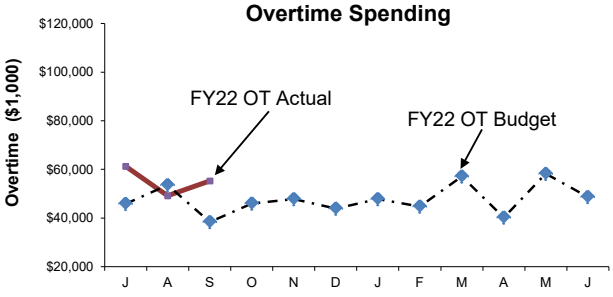
Proactive initiatives include completing 100% of all preventative maintenance tasks and increasing preventative maintenance kitting. These tasks should result in lower maintenance costs.



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. Deer Island was below our goal, but within Best in Class Target.



Deer Island's increased FY23 maintenance kitting goal is 57% of all work orders to be kitted. 58% 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.

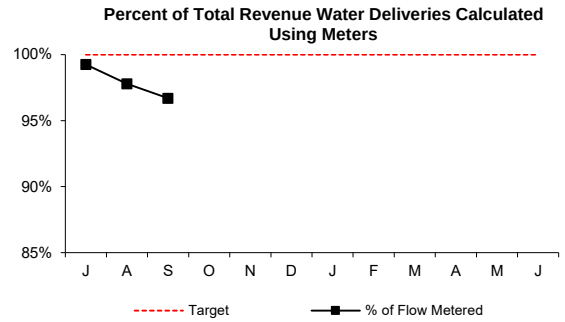


Maintenance overtime was over budget by $28K this quarter and $28k over for the year. Management continues to monitor backlog and to ensure all critical equipment and systems are available. This quarter's overtime was predominately used for Storm Coverage/High Flows, Pump Clogging Issues, Installation of Cooling Tower Bypass System, Start-Up/Testing of EN:DG.CHILL-2000, Repair of Hypo Tank Farm Emergency Showers, Thermal Boiler Annual Outage, and Miscellaneous Tank Work.

Operations Division Metering & Reliability

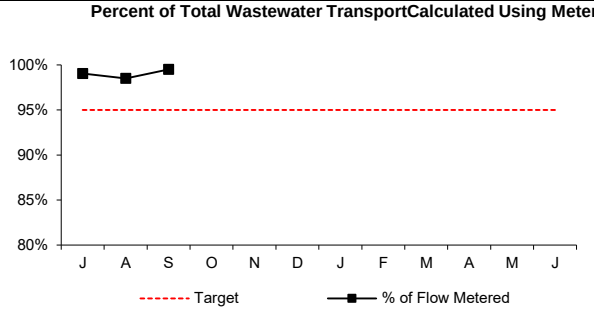
1st Quarter - FY23

WATER METERS



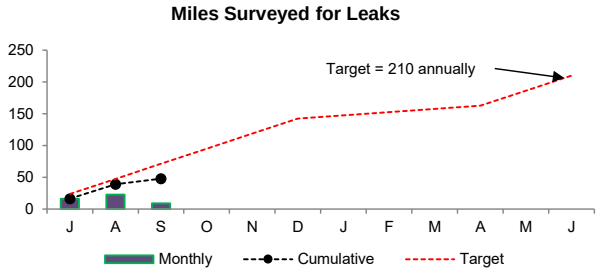
The target for revenue water deliveries calculated using meters is 100%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. During Q1 FY23, 2.1% of the billed water flow was estimated. 97.9% was based on meter actuals. The majority of this estimate was because of an unmetered connection at the meter 181 site in Lexington which was opened to aid in additional flow to Burlington. a total of 314 MG was estimated at this site alone, 1.5% of the overall total A total of 1.4% of the total flow was measured using annubar bypass meters.

WASTEWATER METERS



The Wastewater Meter Replacement Project is complete. The new meters were installed during the period from April 2021 through December 2021. As of calendar year 2022 rates are being calculated using the new meters. The target for revenue collection meters is a 95% data capture rate. During Q1 FY23, 99.5%bf billed data was metered with only 0.5% estimated. All eight months since the new wastewater meters have been online have been above the 95% target with the lowest month at 97.9%

WATER DISTRIBUTION SYSTEM PIPELINES



During the 1st Quarter of FY23, 47.82 miles of water mains were inspected. The total inspected for the fiscal year to date is 47.82.

Leak Backlog Summary													
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	Totals
Leaks Detected	2	1	1										4
Leaks Repaired	2	1	1										4
Backlog	4	4	4										n/a

During the 1st Quarter of FY23 four leaks were detected, and four were repaired. Refer to FY22 Leak Report below for details. Also, community service ranging from individual leak location to hydrant surveys were conducted for Lexington, Medford, Newton, Revere, Saugus and Somerville.

1st Quarter - Leak Report FY23

Date Detected	Location of Leaks	Repaired
07/06/22	Felton St @ Water St., Waltham	07/15/22
07/18/22	Felton St @ Water St., Waltham	07/25/22
08/06/22	Duxbury Rd., @ RTE 128 Wellesley	08/06/22
09/22/22	Winthrop Ave. @ Upland Rd., Revere	09/22/22

Date Detected	Location of Leaks/Unrepaired
12/04/16	710 Ashland St/Summer St. Lynn, Sect 91. Not surfacing. Leaking emergency connection valve btw MWRA & LWSC systems. LWSC has difficulty isolating 16" main.
08/27/20	**Hyde Park Ave. @ River St. Hyde Park. BWSC is in process of isolating their water main first.
01/14/22	#2 Woodland Rd., Gillis P.S. - Stoneham
06/09/22	West St. @ Pierce St., Hyde Park. Leak repair to be coordinated with Milton. Mobile Pumping Unit will need to be utilized.
	** See above for: Hyde Park Ave. = MWRA is currently evaluating the abandonment of this pipeline based on hydraulic needs.

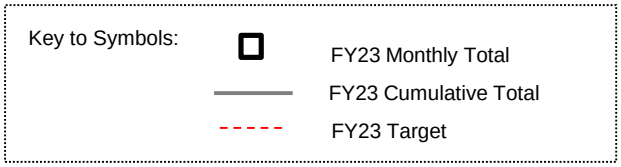
Water Distribution System Valves

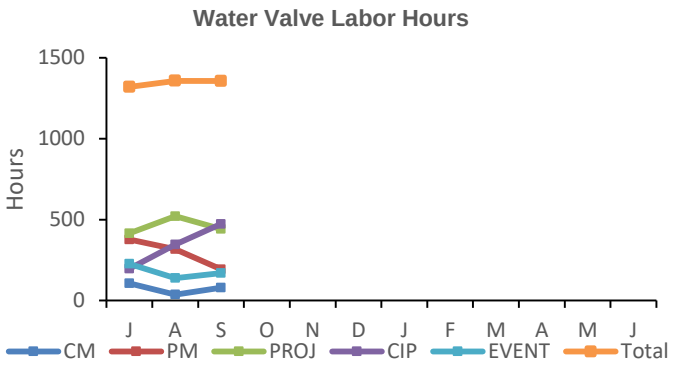
1st Quarter - FY23

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.

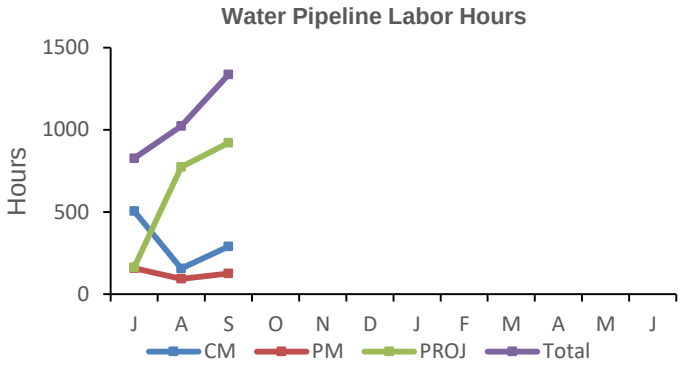
Type of Valve	Inventory #	Operable Percentage	
		FY23 to Date	FY23 Targets
Main Line Valves	2,159	97.1%	95%
Blow-Off Valves	1,682	98.6%	95%
Air Release Valves	1,519	95.8%	95%
Control Valves	49	100.0%	95%



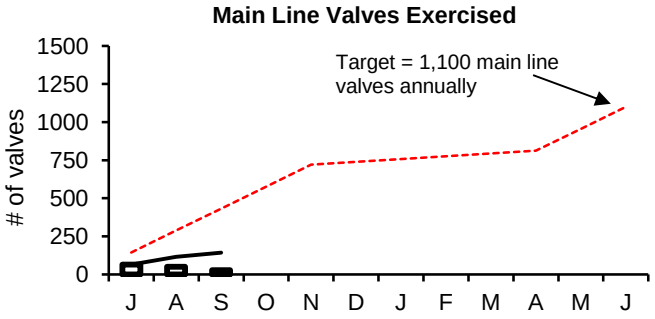


During Q1 FY23 there was a total of 4033 hours worked. Percentage breakdown; Corrective Maintenance 5%, Perventative Maintenance 22%, Project 34%, Capital Improvement Project 25%, Event - Wtr Fountain 13%

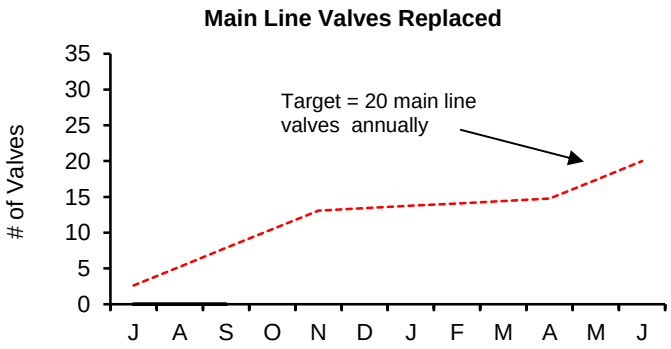
Q1



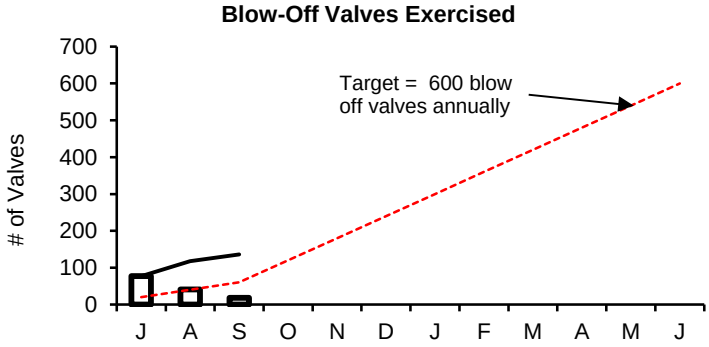
During Q1 FY23 there was a total of 3185 hours worked. Percentage breakdown; Corrective Maintenance 30%, Preventative Maintenance 12%, Project 58%



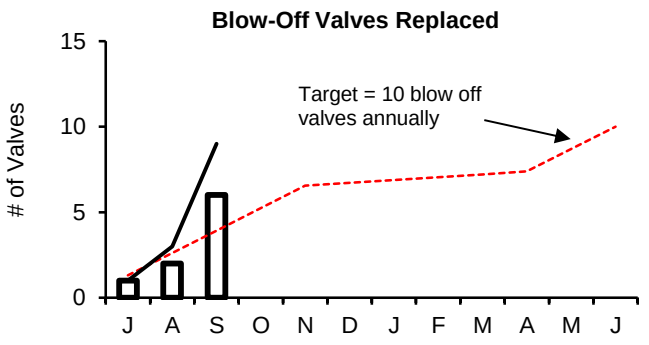
During Q1 FY23, 143 main line valves were exercised. The total exercised for the fiscal year to date is 143. Below target due to necessary hours spent to support Capital Improvement Projects and in-house construction work.



During Q1 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.



During Q1 of FY23, 136 blow off valves were exercised. The total exercised for the fiscal year to date is 136.



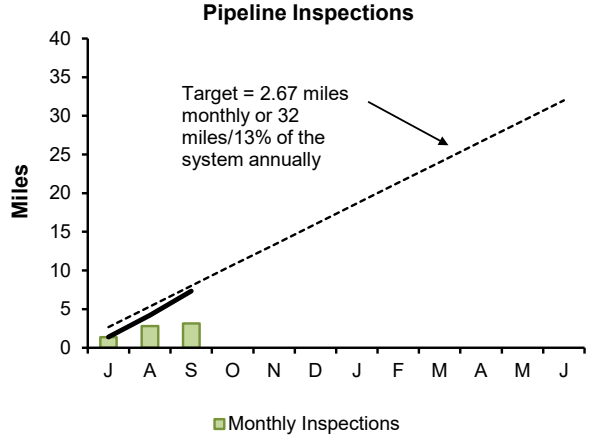
During Q1 of FY23, there were 9 blow off valves replaced. The total replaced for the fiscal year to date is 9.

Wastewater Pipeline and Structure Inspections and Maintenance

1st Quarter - FY23

Inspections

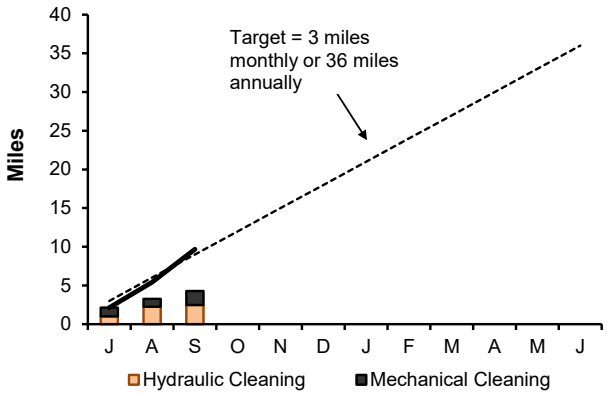
Pipeline Inspections



Staff internally inspected 7.33 miles of MWRA sewer pipe during this quarter.The year to date total is 7.33 miles. No Community Assistance was provided.

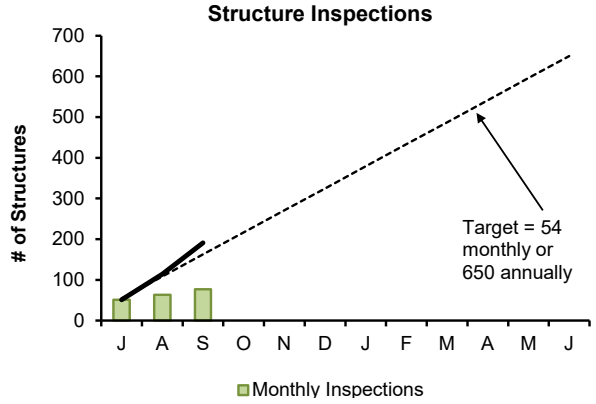
Maintenance

Pipeline Cleaning



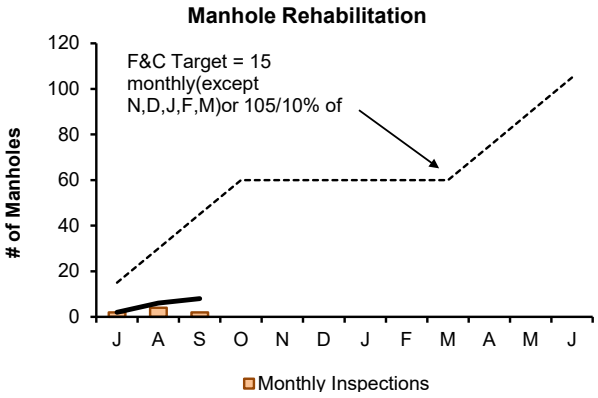
Staff cleaned 9.68 miles of MWRA sewer pipe, and removed 14 yards of grit. The year to date total is 9.68 miles. No Community Assistance was provided.

Structure Inspections



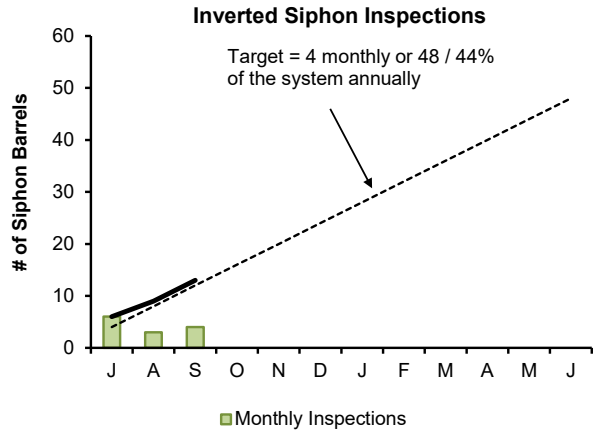
Staff inspected the 12 CSO structures and performed 65 other additional manhole/structure inspections during this quarter. The year to date total is 77 inspections.

Manhole Rehabilitation



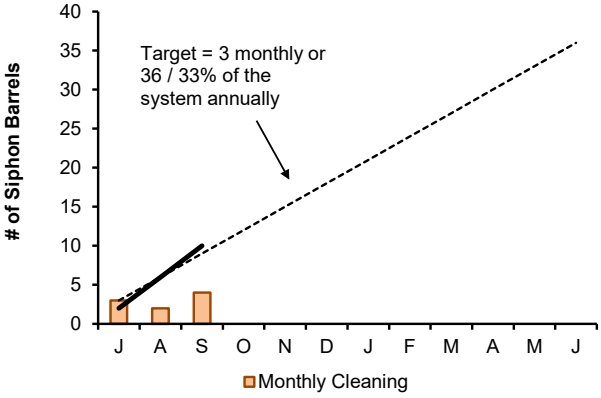
Staff replaced 8 frame and cover replacements this quarter.The year to date total is 8.

Inverted Siphon Inspections



Staff inspected 13 siphon barrels this quarter. The year total is 13 inspections.

Inverted Siphon Cleaning

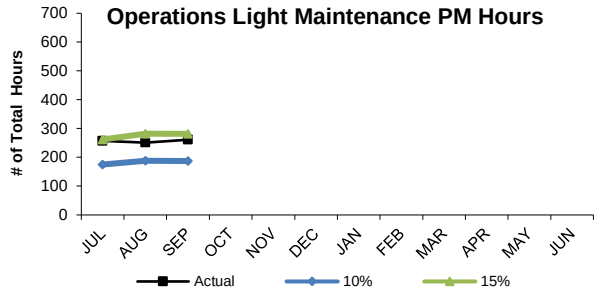


Staff cleaned 10 siphon barrels this quarter.

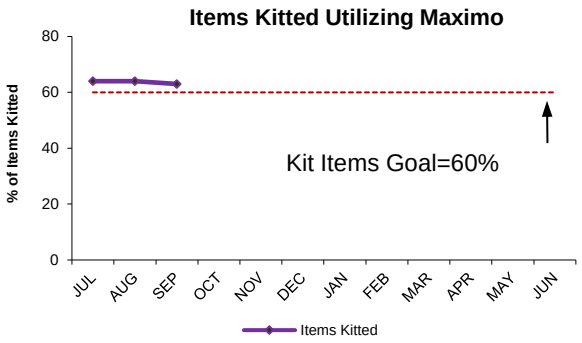
Field Operations' Metropolitan Equipment & Facility Maintenance

1st Quarter - FY FY23

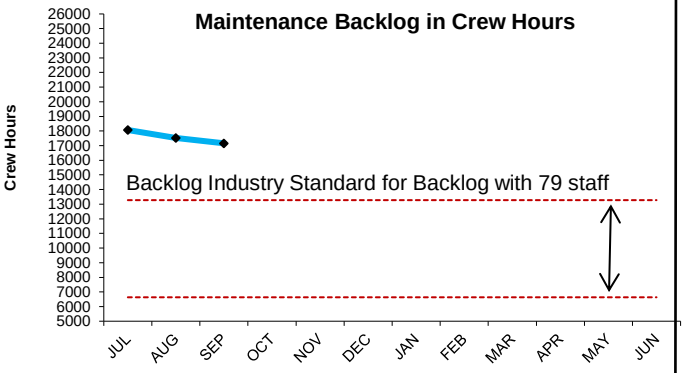
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion is 100%. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog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



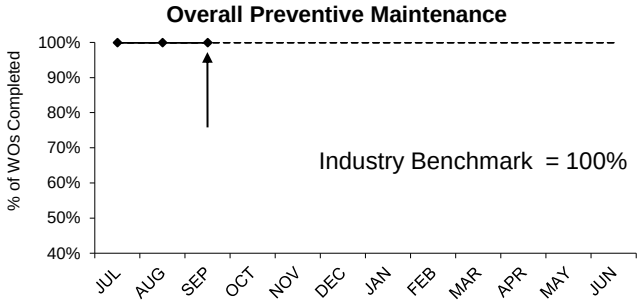
Operations staff averaged 256 hours per month of preventive maintenance during the 1st Quarter of FY23, an average of 14% of the total PM hours for the 4th Quarter, which is within the industry benchmark of 10% to 15%.



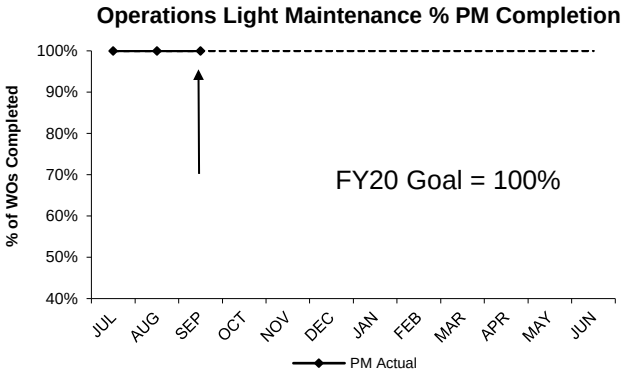
Operations' FY23 maintenance kitting goal has been set at 60% of all work orders to be kitted. Kitting is the staging of parts or material neccesary to complete maintenance work. In the 1st Quarter of FY23, 64% of all applicable work orders were kitted. This resulted in more wrench time and increased productivity.



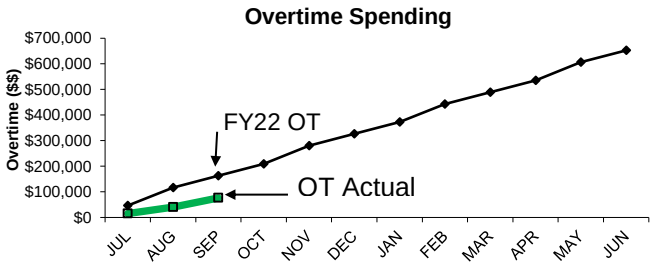
The 1st Quarter of FY23 backlog average is 17,583 hours. Management's goal is to continue to control overtime and try to get back within the industry benchmark of 6,636 to 13,275 hours. The increase is due to vacations, vacancies and several large maintenance projects.



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 1st 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 1st Quarter of FY23.

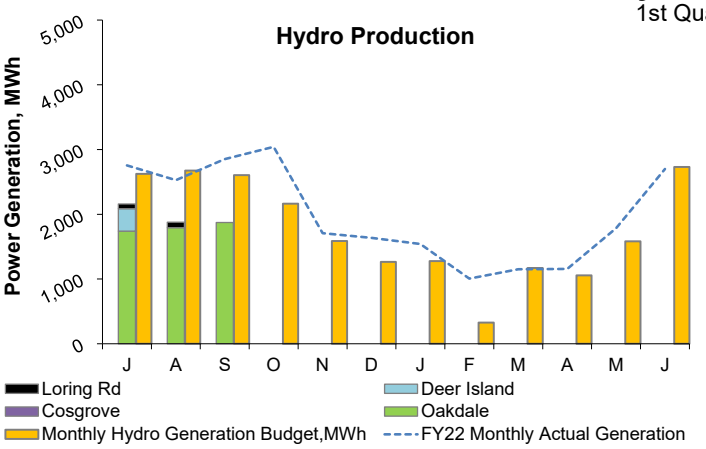


Maintenance overtime was $28,976 under budget on average, per month, for the 1st Quarter of FY23. Overtime is used for critical maintenance repairs and wet weather events. The overtime budget through the 1st Quarter of FY23 is $163,138. Overtime spending was $76,209 which is $86,929 under budget for the fiscal year.

Renewable Electricity Generation: Savings and Revenue

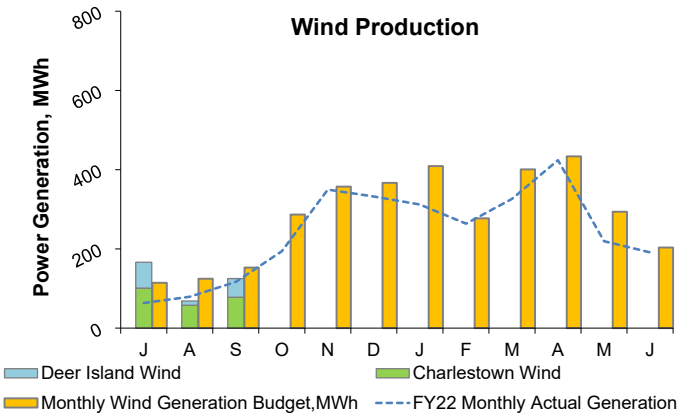
1st Quarter - FY23

Hydro Production



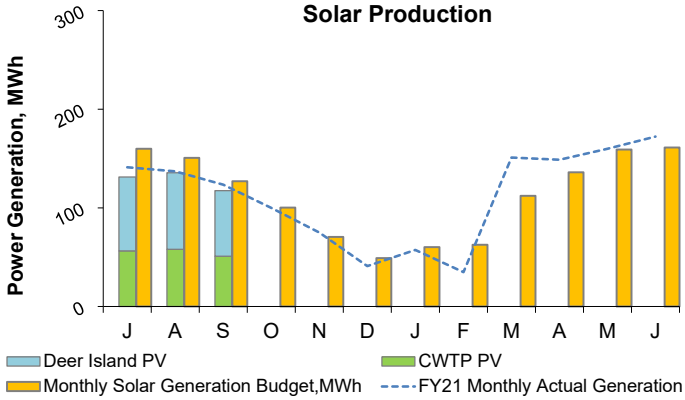
In Quarter 1 of FY23, the renewable energy produced from all hydro turbines totaled 6,512 MWh; 18% below budget[3]. Savings and revenue invoices have not yet been received for this FY23 reporting period.

Wind Production



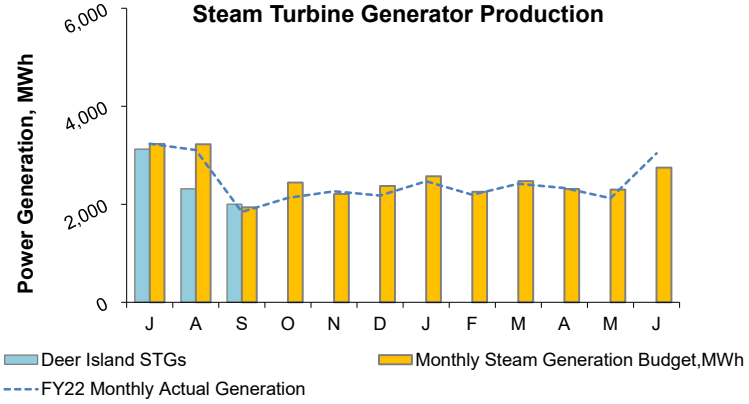
In Quarter 1 of FY23, the renewable energy produced from all wind turbines totaled 360 MWh; 8% below budget[3]. Savings and revenue invoices have not yet been received for this FY23 reporting period.

Solar Production



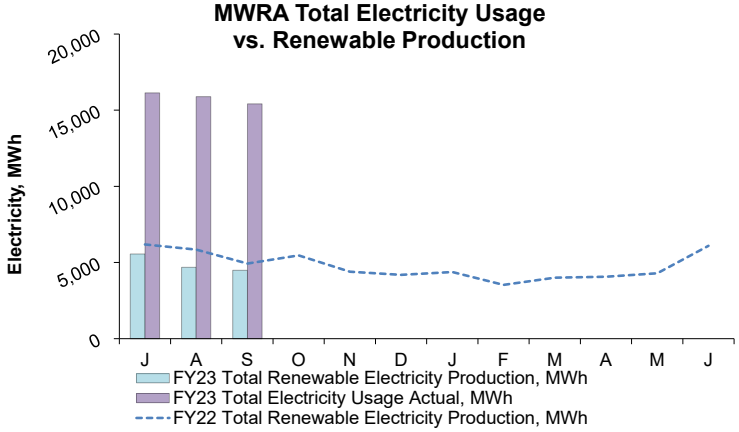
In Quarter 1 of FY23, the renewable energy produced from all solar PV systems totaled 422 MWh; 4% below budget[3]. Savings and revenue invoices have not yet been received for this FY23 reporting period.

Steam Turbine Generator Production

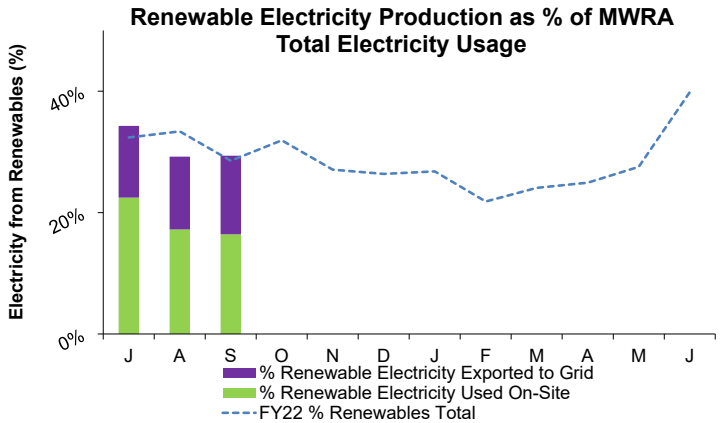


In Quarter 1 of FY23, the renewable energy produced from all steam turbine generators totaled 7,444 MWh; 11% below budget[3]. Savings and revenue invoices have not yet been received for this FY23 reporting period.

MWRA Total Electricity Usage vs. Renewable Production



Renewable Electricity Production as % of MWRA Total Electricity Usage

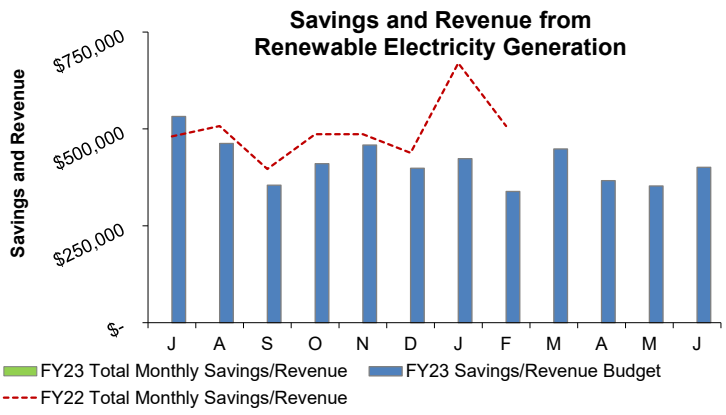


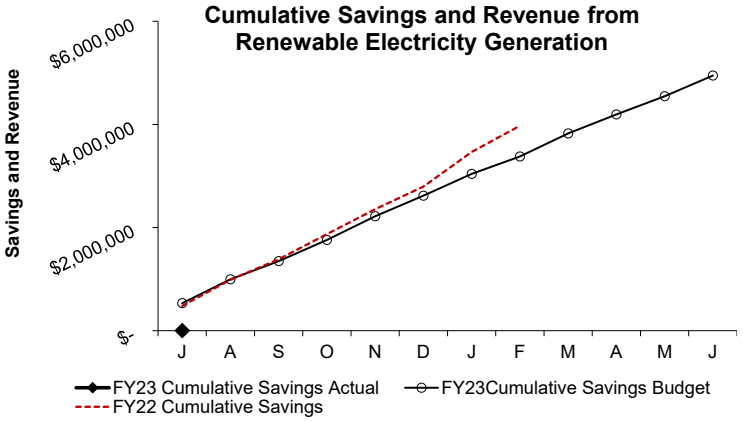
In Quarter 1 of FY23, MWRA's electricity generation by renewable resources totaled 14,737 MWh, 14% below budget.. MWRA's total electricity usage was approximately 47,449 MWh. Renewable resources were 31% of total usage. The MWRA total electricity usage is the sum of all electricity purchased for Deer 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

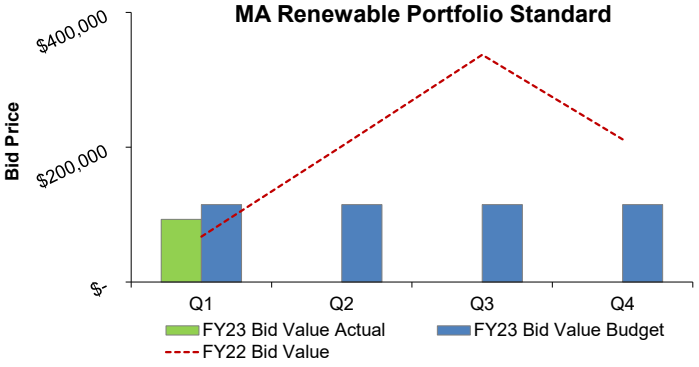
1st Quarter - FY23

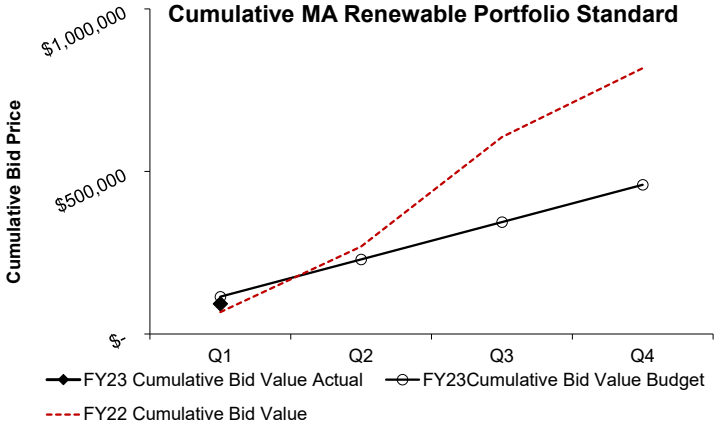




Savings andSavings and revenue invoices have not yet been received for this FY23 reporting period.

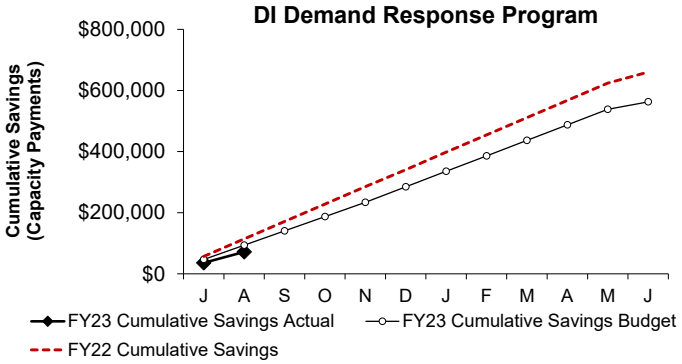
Savings and revenue[2] from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS RECs).
The use of DITP digester gas as a fuel source provides the benefit of both electricity generation from the steam turbine generators, and provides thermal value for heating the plant, equivalent to approximately 5 million gallons of fuel oil per year (not included in charts above).

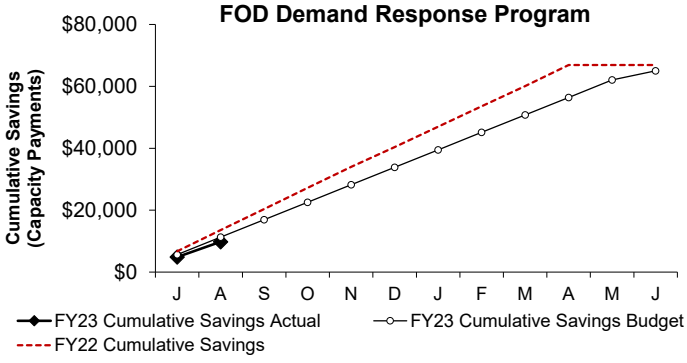




Bids were awarded during the 1st Quarter[1] from MWRA's renewable energy assets; 2,625 Q1 CY2022 Class I Renewable Energy Certificates (RECs) were sold for a total value of $92,920 RPS revenue; which is 19% below budget[3] for the Quarter.
REC values reflect the bid value on the date that bids are accepted. Cumulative bid values reflects the total value of bids received to date.

*Only Class I are being reported for Q1 CY2022 sales. Class II RECs have not been sold and are currently reserved for future sale.
SRECs have converted to Class 1 RECs starting in FY23.



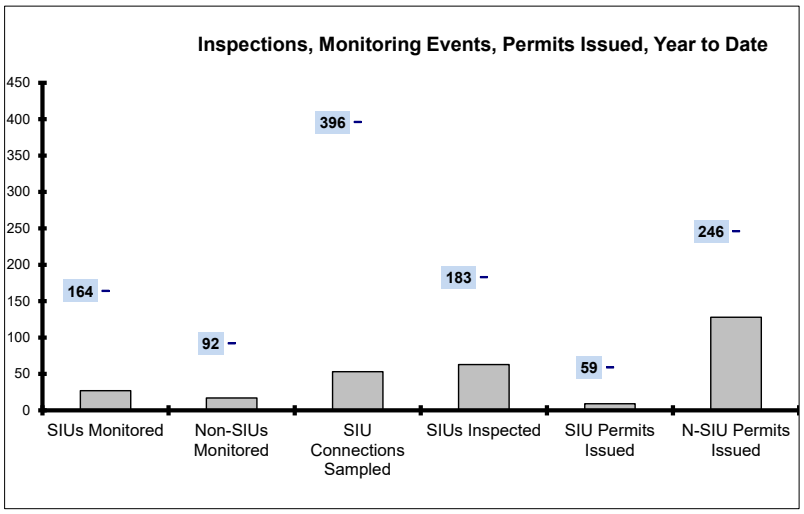


Currently Deer Island, JCWTP, Loring Rd, and Brutsch participate in the ISO-New England Demand Response Programs[4]. By agreeing to reduce demand and operate the facility generators to help reduce the ISO New England grid demand during periods of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates the generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. FY22 Cumulative savings (Capacity Payments only) through August[1] total $71,738 for DI and payments for FOD total $9,800 for the same period[1].

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

Toxic Reduction and Control

1st Quarter - FY23



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								
	0 to 120		121 to 180		181 or more		Permits Issued	
							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							-	-
Nov							-	-
Dec							-	-
Jan							-	-
Feb							-	-
Mar							-	-
Apr							-	-
May							-	-
Jun							-	-
% YTD	67%	48%	11%	13%	22%	40%	9	128

This is the first quarter of the MWRA fiscal year, FY23.

In the first quarter, 137 permits were issued, of which 9 were SIUs. Six of the SIU permits were issued within the 120-day timeframe, with two issued beyond 181 days. There were 128 non-SIU permits issued, of which 67 were issued late.

Reasons for late issuances continue to include a) staffing due to turnover and vacancies b) waiting for critical data needed for permit processing c) delays relating to new start-up operations and d) the late payment of the relevant permit charges. In addition, there are new Industrial Coordinators on board which caused some slow-down in processing while they get acquainted with their roles.

There were 66 new permits issued: 1-SIU and 5 N-SIUs not including 23-Low Flow Permits, 34-Dental, 1-Food Processing and 2-Construction dewatering.

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

EPA Required SIU Monitoring Events
for FY23: 164
YTD : **27**

Required Non-SIU Monitoring Events
for FY23: 92
YTD : **17**

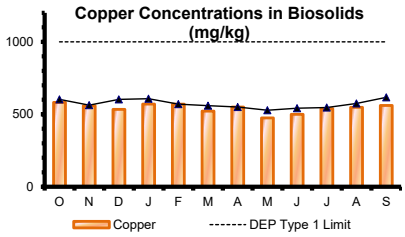
SIU Connections to be Sampled
For FY23: 396
YTD: **53**

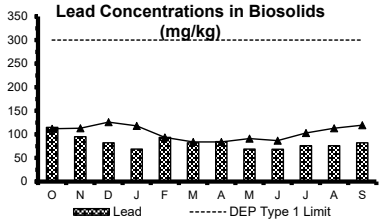
EPA Required SIU Inspections
for FY23: 183
YTD: **63**

SIU Permits due to Expire
In FY23: 59
YTD: **9**

Non-SIU Permits due to Expire
for FY23: 246
YTD: **128**

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.





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

Overall, copper and lead levels remain relatively constant, below the DEP Type 1 Limit, and within the range of values over the past several years.

A discussion of molybdenum concentrations in biosolids is included in the Deer Island Residuals Pellet discussion.

Field Operations Highlights
3rd Quarter – FY22

Western Water Operations and Maintenance

- Chestnut Hill Reservoir Refill via the Sudbury Aqueduct: Chestnut Hill had been lowered below its normal operating band to freeze invasive plants. To refill it, staff activated the Sudbury Aqueduct in March. It took around 7 hours for flow to reach Chestnut Hill and 3.5 days to refill it. Activation provided a training opportunity on the operation of this critical backup facility.

- Hultman Tree Project: About 5 acres of Red Pine trees along the aqueduct in Framingham were cleared as a safety measure for the houses and school in the area. The area will be replanted.

- Oakdale Turbine Bearing Inspection: While the Oakdale turbine was offline and no Quabbin transfer was taking place this spring, staff inspected the lower bearing on the turbine. No issues were identified and the turbine has subsequently been run for environmental testing.

- Carroll Water Treatment Plant Hypochlorite Project: Replacement of all the hypo piping and pumps is still underway. During the quarter, the operations team isolated, flushed, and opened the hypo storage tanks so the project team could replace the suction line piping feeding the pumps.

- Carroll Water Treatment Plant Lighting Project: Replacement of all the fixtures at CWTP with more efficient LED fixtures was completed in March.

Operations Engineering

- Section 89 Replacement: Staff provided contingency training for communities and in-house staff.
- Staff continued community assistance as needed:
    - Newton System, supported the testing of the isolation of Ward Street to support the replacement of Newton's 20 inch.
- Staff continued to manage the lead pipe rig corrosion control study at CWTP.
- Staff assisted in several wet weather storm events, compiled and finalized storm reports, monitored and reported on CSO activation durations and volumes.
- Staff provided on-going hydraulic modeling assistance for operational shutdowns.
- Staff developed simplified SOPs for water pumping stations. Staff continued Processbook development for water and wastewater facilities and OMMS updates.
- SCADA Staff completed the investigation of pump vibration issues at Alewife and resolved gate control issues of Channel 1 at Columbus Park Headworks.
- Staff improved SCADA alarming at Nut Island Headworks and supported Chelsea Headworks
- Rehabilitation Project, Nut Island Odor Control Improvements Project, and Hayes Pump Station Improvements Project.

Wastewater Operations & Maintenance

- Ward Street and Columbus Park Headworks Upgrade – Contract 7429: Operations staff continued to work Engineering staff and the consultant for this project. Staff attended meetings to discuss the lessons learned from the Chelsea Creek Headworks upgrade project.

- Chelsea Screen House: Based on the forecast for the predicted storm surge for the incoming storm on 1/26/22, the flood barrier protection was installed at the Chelsea Screen house facility as a precaution.

- Operations & Maintenance Meeting: Operations and maintenance staff attended weekly meetings to discuss the top 25 critical maintenance items that need to be addressed. Nuisance alarms: Operations and Operations Engineering staff attended bi-weekly meetings to discuss the top 15 alarms that came into SCADA to determine if operational issues are causing the condition.

- MassDEP Sewer System Overview: Staff met with MassDEP Northeast Region on 2/22/22 to discuss the operation of the MWRA wastewater collection and transport system.

Metro Equipment and Facility Maintenance

- Commonwealth Ave East Pump Station: The variable frequency drive for Pump #3 failed. MWRA electricians installed a new drive.

- Braintree/Weymouth IPS: The #1 Vortex grit pump was not operating properly. A pinch valve for the grit pump failed. MWRA mechanics installed a new pinch valve.

- An outside vendor and an MWRA Medium Voltage electrician conducted non-invasive thermal imaging scans at Columbus Park and Ward Street Headworks, Hayes, Squantum. New Neponset, Chestnut Hill, Braintree/Weymouth, Quincy, Framingham, and Gillis pump stations, and Somerville Marginal.

- New Neponset Pump Station: Light fixtures in the screen room/wet well area of the facility were corroded beyond repair. MWRA electricians replaced fixtures with more efficient LED explosion proof lighting.

- Hingham Pump Station: Operations requested better lighting in the wet well area in preparation for the valve replacement project. MWRA electricians installed new LED explosion proof fixtures.

Metering

Wastewater upgrade project:

Field Operations Highlights
3rd Quarter – FY22

- The Wastewater Meter upgrade project had conditionally accepted all meters by the December 2021 install deadline. Staff have begun tracking wastewater community flows for billing purposes. The wastewater collection system has a stated goal of billing greater than 95% of wastewater flows off metered flows. Prior to the meter replacement project, equipment reliability had left us unable to meet this goal with data capture rates typically between 88% and 93%. During Q3FY22, the new wastewater metering system will allow MWRA to bill communities with a data capture rate of 98%. Our 95% data capture goal was met all 3 months this quarter. This is the first time we met this goal across all 3 months in a quarter since 2017.

TRAC

Compliance and Enforcement

- TRAC issued 47 Notices of Violation, 6 Notices of Noncompliance and 1 Extension Letter.

- Dental Permit Fees: TRAC issued Annual Fee Invoices to the facilities permitted under the Group Permit for Dentists. The total number of invoices issued was 738, for a total of $150,756.

Inspections and Permitting

- TRAC monitored the septage receiving sites a total of 30 times, and conducted inspections at 20 new construction and 168 existing gasoline/oil separators.

- TRAC staff conducted 44 Annual SIU Inspections and 278 other inspections. Annual SIU Inspections are required under TRAC's EPA approved Industrial Pretreatment Program. Other inspections include inspections for enforcement, permit renewal, NSIU, follow-up, temporary construction dewatering sites, group/combined permit audits, out-of-business facility reviews, and surveys.

- 118 MWRA Sewer Use Discharge Permits (Permits) were issued and/or renewed to its sewer users. One permit was issued and/or renewed in the Clinton Service Area.

Monitoring

- TRAC completed 80 first time SIU monitoring events, 33 first time NSIU monitoring events and 124 other events including Clinton NPDES and Local Limits sampling, Metropolitan Local Limits sampling, Local Limits PFAS sampling, Special Sulfide sampling, Cosgrove and Oakdale NPDES sampling, CSO NPDES sampling, Sudbury Aqueduct monitoring and CSO Hypochlorite Tank chemical sampling.

Environmental Quality-Water

- DCR algae monitoring commenced at Wachusett and Quabbin Reservoirs in March. Both reservoirs continue to be well-mixed with diatoms noted as the dominant phytoplankton. Sampling staff are preparing for algae monitoring season by establishing the annual algal toxin monitoring contract and training on the use of FlowCam Cyano fluid imaging equipment.

- Community & In-House Support

  - Sampling & Analysis: On 1/27, staff assisted Melrose with a complaint sample collection. Coliform and HPC results were non-detect and all other results were typical. On 3/23, staff assisted Hanscom AFB in collecting chlorine measurements at several coliform monitoring locations. Staff also trained their staff and the sampling contractor on proper technique for cleaning the sample taps and total chlorine testing. On 3/25, staff performed clearance samples associated with WASM-3, Segment 1A: all results were typical and bacteria results were absent for total coliform.

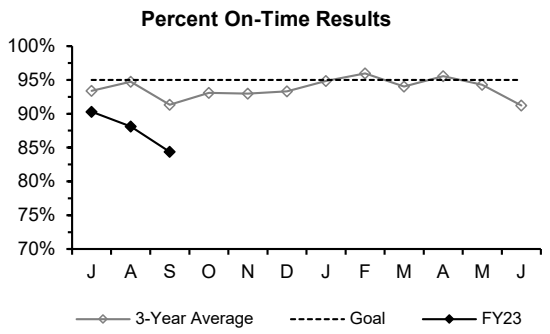
  - Training & Guidance: Staff helped in the filming of a video for community drinking water sampling staff on proper coliform sampling technique and chlorine residual testing. On March 31, staff provided a virtual presentation to 17 MWRA and community drinking water sampling staff from several local communities on proper coliform sampling technique and chlorine residual measurement.

  - Projects: Staff collected samples on six occasions during the quarter as part of the pipe-loop study. Many MWRA departments are involved in this initiative, to measure lead levels through community lead service lines with various corrosion control treatments. On March 29 and March 31, staff helped with clearance samples following an ROV inspection at four MWRA tanks: Arlington Covered, Bear Hill, Spot Pond Tank #1, and Blue Hills #1. All results were typical and bacteria results were absent for total coliform, and all tanks were cleared to go back on-line.

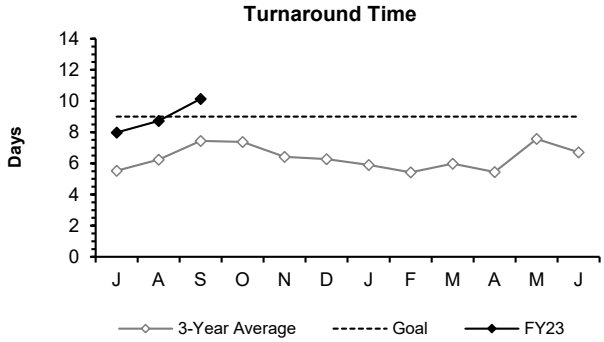
  - Chemical Supply: Staff are closely monitoring bulk chemical inventories and adherence to delivery schedules. Staff continue to check-in with chemical suppliers to review adherence to delivery schedules and to work on chemical supply emergency planning.

Laboratory Services

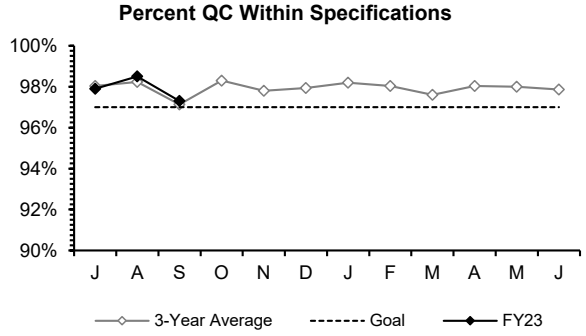
1st Quarter - FY23



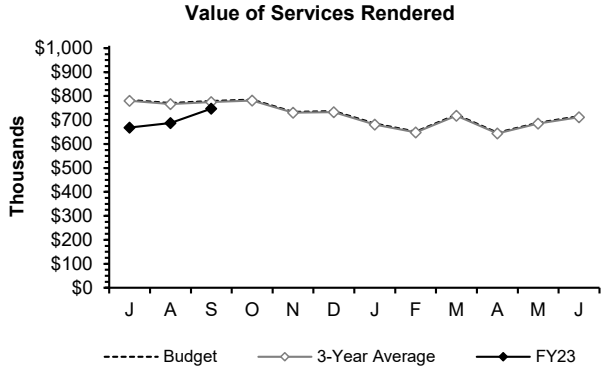
The Percent On-Time measurement continued to run below the 95% goal due to staffing vacancies.



Turnaround Time exceeded the 9-day goal.



Percent of QC tests within specifications met the 97% goal.



Value of Services Rendered continued to run below the annual budget projection due to staffing vacancies.

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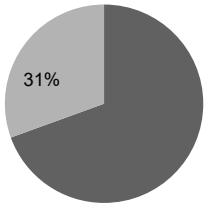
Performance: Percent QC within Specification continues to meet the goal, but all other indicators fell short of the goals for the quarter due to reduced staffing levels.

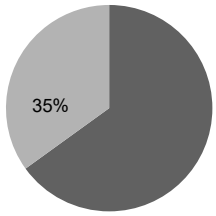
School Lead Program: During the 1st quarter of FY23, MWRA's lab completed 216 tests from 55 schools and childcare facilities in 27 communities. Since 2016, MWRA's Laboratory has conducted over 40,000 tests from 557 schools and daycares in 44 communities. We have also completed over 700 home lead tests under the DPH sampling program since 2017.

CONSTRUCTION PROGRAMS

Money



Time



Carroll Water Treatment Plant SCADA Improvements

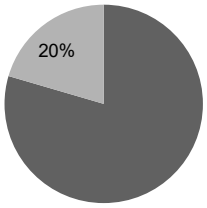
Project Summary: This project will replace SCADA Control equipment at the Carroll Plant, to enhance cybersecurity, redundancy, ensure future reliability, and maintain secure plant operations.

Contract Amount: $12,929,159.87 *Contract Duration:* 1,127 Days

Notice to Proceed: 1-Sep-21 *Contract Completion:* 2-Oct-24

Status and Issues: As of September, the Contractor continued working in the Ozone Building coring holes and installing sleeves for conduit wall penetrations. In the Corridors, Switchgear Room and Ozone Generator Room conduit racks and conduits are being installed. In the Operation Building temporary telephone and power wiring was installed.

Money



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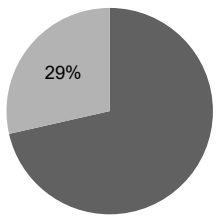


Section 89 Replacement Pipeline

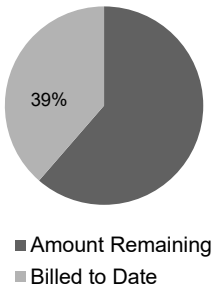
Project Summary: This project will include replacement of a 10,500-foot portion of PCCP with class IV reinforcing wire, line valves and appurtenances, and abandonment of the 118-year old, 24-inch diameter cast iron Section 29 pipeline.

Contract Amount: $32,619,000 *Contract Duration:* 1,475 Days

Notice to Proceed: 5-Aug-21 *Contract Completion:* 19-Aug-25

Status and Issues: As of September, the Contractor continuing to provide submittals for review and coordination on major components of the work with longest lead time for product delivery and installation scheduling. They completed installing an additional 36" horizontal gate valve and manhole on Section 110, Straw Point, Stoneham. In addition, they completed installing 465 LF of 12" ductile iron water line for the Stone Zoo.

Money



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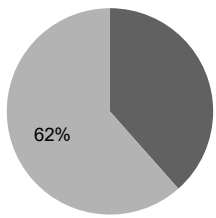


Low Service PRV Improvements

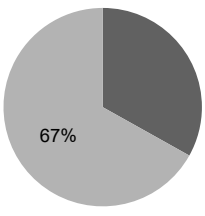
Project Summary: This project will replace pressure reducing valves on the Weston Aqueduct Supply Main (WASM) 4 at Nonantum Road in Boston and WASM 3 at Mystic Valley Parkway in Medford

Contract Amount: $11,326,000 *Contract Duration:* 720 Days

Notice to Proceed: 14-Jul-21 *Contract Completion:* 4-Jul-23

Status and Issues: As of September, the Contractor took delivery of the 48" butterfly valves. They loaded trucks for the removal of excavated materials and performed additional sampling of soil samples. In addition, they were on-site to take monthly construction progress photos at W14.

Money



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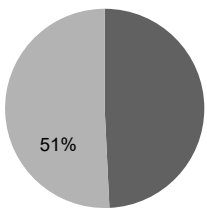


Rehabilitation of WASM 3

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

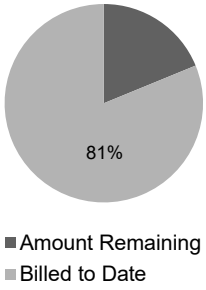
Contract Amount: $19,656,427.23 *Contract* Duration: 1,383 Days

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

Status and Issues: As of September, the Contractor successfully shutdown and dewatered the 56" steel WASM3 pipe from the butterfly valve on Mass Ave near Swan Place to the butterfly valve on Pleasant St at Brunswick Rd.

Projects In Construction
1st Quarter – FY23

Money



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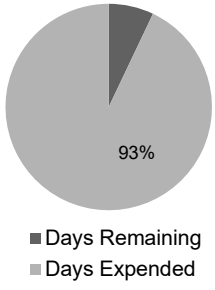


Nut Island Odor Control and HVAC

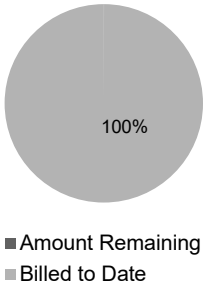
Project Summary: This project will provide upgrades to the odor control system, heating, ventilation and air conditioning system and other equipment.

Contract Amount: $58,913,925.69 *Contract Duration:* 1,034 Days

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

Status and Issues: As of September, the Contractor prepared the floor, installed formwork and rebar, and placed concrete for equipment pad extension for AHU-10. They removed carbon from the existing carbon adsorbers and removed from site. They demolished the FRP inlet ducts to the carbon adsorbers and removed them from the building.

Money



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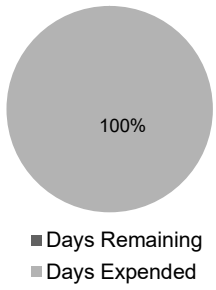


Chemical Tank Relining & Pipe Replacement

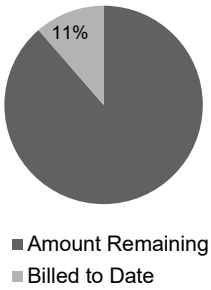
Project Summary: This project involves replacing the chlorobutyl rubber linings in 3 sodium hypochlorite and 2 sodium bisulfite storage tanks and assorted gravity thickener overflow piping at Deer Island.

Contract Amount: $8,794,899 *Contract Duration:* 850 Days

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

Status and Issues: This project is complete. Staff are awaiting bids for a future project to replace this one.

Money



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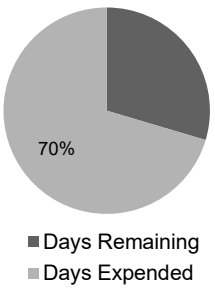


DITP Odor Control Damper Replacement

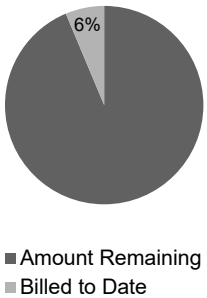
Project Summary: This project involves replacing three existing 30-inch diameter steel dampers with stainless steel dampers, surface preparation and coatings application on the existing 30-inch diameter ductile iron pipe. ,

Contract Amount: $538,000 *Contract Duration:* 365 Days

Notice to Proceed: 3-Feb-22 *Contract Completion:* 3-Feb-23

Status and Issues: As of September, the fabrication of stainless steel dampers and spool piece continues.

Money



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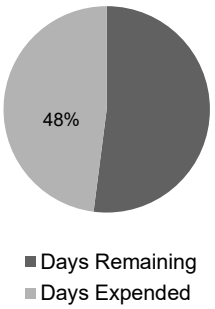


Clinton Screw Pump Replacement

Project Summary: This project involves demolishing and replacing three screw pumps and motors and three existing 72-inch by 60-inch pump isolation slide gates and associated electrical and controls.

Contract Amount: $3,452,985 *Contract Duration:* 540 Days

Notice to Proceed: 14-Jan-22 *Contract Completion:* 8-Jul-23

Status and Issues: As of September, the gate testing plan was submitted and approved, and the gate leakage test was performed and passed.

CSO CONTROL PROGRAM

1st 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 6 of the 16 CSOs in line with the LTCP goals. With respect to the remaining 10 CSO outfalls, MWRA identified potentially feasible alternatives that may enable four to achieve CSO LTCP volume and activation goals.

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 **9/22/22** and the next meeting scheduled for **12/22/22**.
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. MassDEP and EPA conditionally approved MWRA's Updated CSO Control Plan Scope of Work and the Authority is currently working closely with the CSO communities of Cambridge and Somerville to develop these plans over the upcoming years.

Progress on the progress made as identified in the variance is reported at monthly meetings with EPA/MassDEP. The last meeting was on **10/12/22** and the next meeting is scheduled for **11/9/2022**. Key elements of the Updated CSO Control Plan discussed were the development of an Updated Typical year which includes climate change and the development of a Unified Model. **Next public meeting to be held the third week of December**.

Ongoing Projects as of September 30, 2022

Boston Water and Sewer Commission (BWSC)

- East Boston CSO Control: As part of the East Boston CSO financial assistance agreement executed in June 2021, BWSC is finalizing design of an upgraded connection to the MWRA system to lower CSO discharges at Outfall BOS014. MWRA has agreed to fund a portion of the work and has set up a FAA/MOU in the amount of $2.1 million dollars to assist with the cost of the eligible construction. **FAA/MOU is effective form 7/1/2022 to 6/1/2023.**
- South Boston Sewer Separation: The South Boston sewer separation project includes five sewer separation contracts and two paving contracts. The five separation contracts are to be completed in 2027.The purpose of this project is to achieve CSO LTCP volume and activations goals and reduce pollution levels into Fort Point Channel and Boston Harbor from BOS070/DBC.
- Fort Point Channel and Mystic Confluence - BOS062, BOS065, BOS070 DBC and BOS017: Currently in design with substantial completion November 15, 2024 - MWRA portion not to exceed $10 million. The purpose of this project is to bring four of the sixteen outfalls currently not forecast to attain LTCP in to compliance. Design commenced in October 2022, Final Design due September 2023, the construction contract will be advertise in November 2024 and shall be substantially completed in December 2024. On 10/19/2022 the BOD approved the request to enter into a new FAA/MOU with BWSC to fund up to $10 million dollars of eligible design and construction costs. **The agreement and the account are being set up now for a 32 month term, from 10/1/2022 to June 30, 2025.**

City of Somerville

- Somerville Marginal Interceptor Rehabilitation: As part of a financial assistance agreement with Somerville, the City will repair its combined sewer trunk line upstream of the Somerville Marginal CSO Facility. Pursuant to the agreement, the repair work is intended to maintain the full in-system storage capacity of the trunk sewer to support CSO control. Somerville completed design and construction commenced in January 2022.

MWRA CSO Performance Assessment

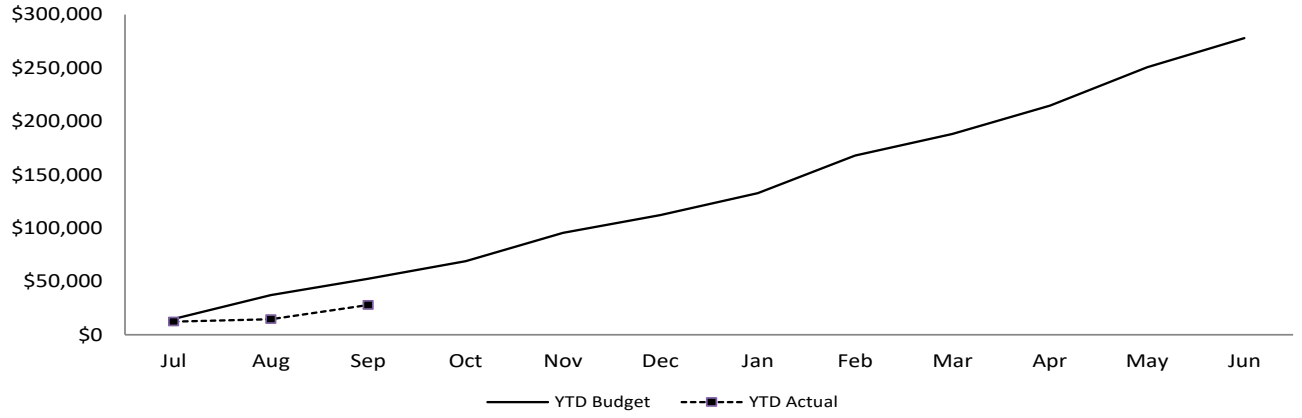
- In November 2017, MWRA signed a contract for CSO Post-Construction Monitoring and Performance Assessment with AECOM Technical Services, Inc. The contract includes CSO inspections, overflow metering, hydraulic modeling, system performance assessments and water quality impact assessments, culminating in the submission of a report to EPA and MassDEP in December 2021 verifying whether the LTCP goals are attained.
    - AECOM continues to conduct receiving water quality modeling and CSO and stormwater sampling, evaluate additional CSO controls for those outfalls that do not meet the LTCP requirements, coordinate and draft the Updated CSO Control Plan mentioned above in relation to the variance water bodies, and develop an updated Typical Year CSO performance assessment relative to the LTCP activation and volume goals.

CIP Expenditures
1st Quarter – FY23

FY23 Capital Improvement Program Expenditure Variances through September by Program - ($ in thousands)				
Program	FY23 Budget Through September	FY23 Actual Through September	Variance Amount	Variance Percent
Wastewater	$17,582	$9,505	($8,077)	-45%
Waterworks	$30,625	$14,700	($15,925)	-52%
Business and Operations Support	$4,348	$3,706	($643)	-14%
Total	$52,555	$27,910	($24,644)	-46%

Project underspending within Wastewater was due to timing of grant and loan distributions for the I/I Local Financial Assistance program, contractor behind schedule for the Nut Island Odor Control and HVAC Improvements, and completion of some design and inspection tasks were later than anticipated for Ward Street and Columbus Park Headworks Upgrades Design/CA. Project underspending in Waterworks was due to timing of community distributions for the Water Loan program, long lead time for piping material for Waltham Water Pipeline Construction, timing of work for WASM/SPSM Pressure Reducing Valves, and less than anticipated progress for CP-1 NEH Improvements. This underspending was partially offset by contractor progress for NIH Section 89 & 29 Replacement, and Wachusett Bastion Rehabilitation.

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 9/24/22	$108.5 million
Unused capacity under the debt cap:	$2.1billion
Estimated date for exhausting construction fund without new borrowing:	Nov-22
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper/Revolving loan outstanding: Commercial paper capacity / Revolving Loan	$ 90 million $160 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

1st Quarter – FY23

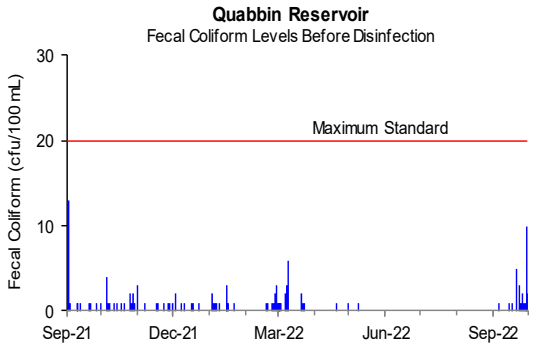
Source Water – Microbial Results

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.**

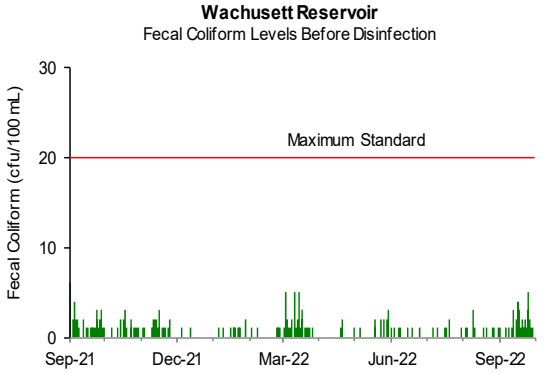


Sample Site: Wachusett Reservoir

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

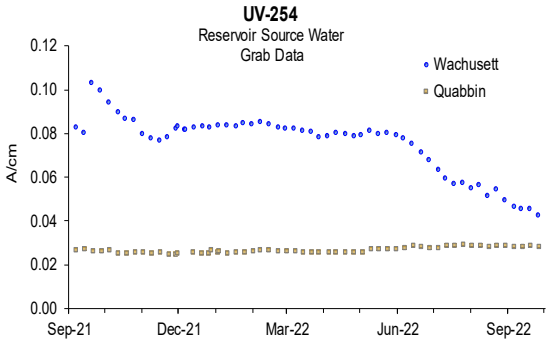


Source Water – UV Absorbance

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

Quabbin Reservoir UV-254 levels averaged 0.028 A/cm for the quarter.

Wachusett Reservoir UV-254 levels averaged 0.052 A/cm for the quarter.



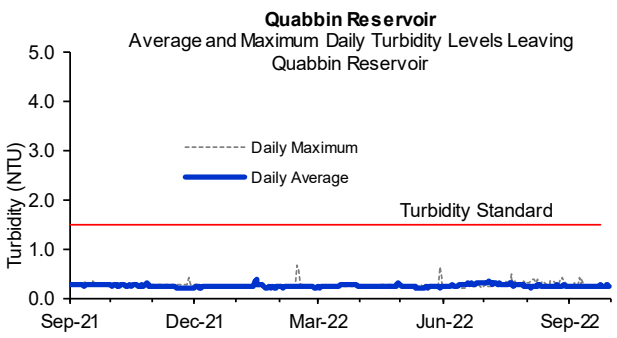
Source Water – Turbidity

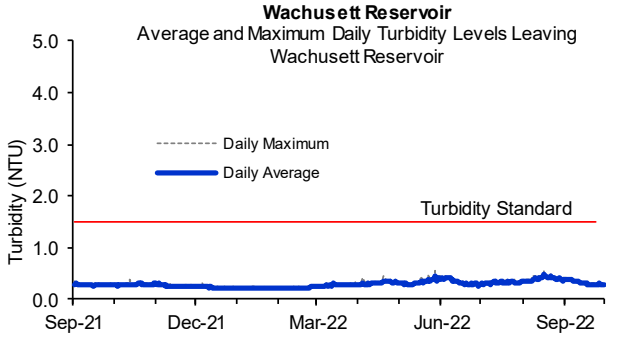
1st Quarter – FY23

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.



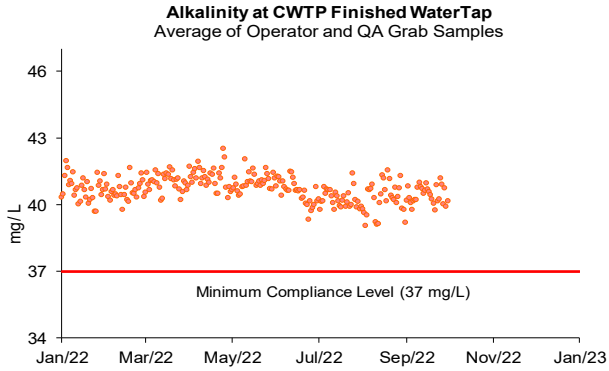


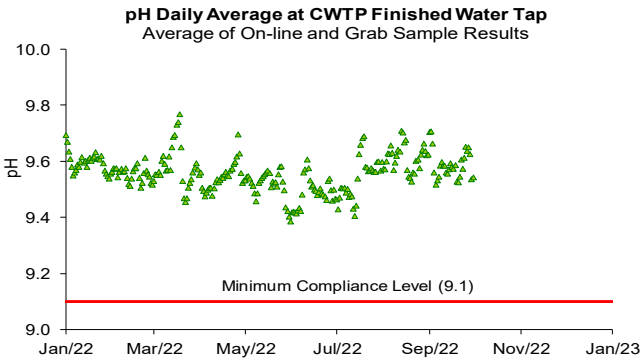
Treated Water – pH and Alkalinity Compliance

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 September. Distribution system sample pH ranged from 9.3 to 9.7 and alkalinity ranged from 39 to 42 mg/L. No sample results were below DEP limits for this quarter.





Treated Water – Disinfection Effectiveness

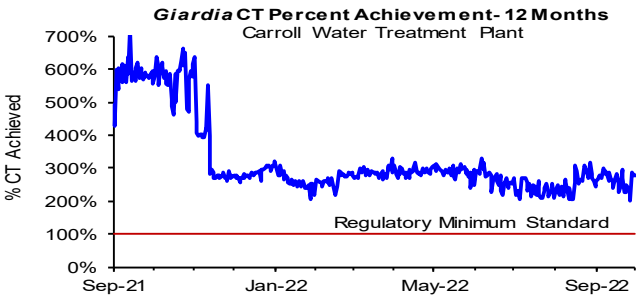
1st Quarter – FY23

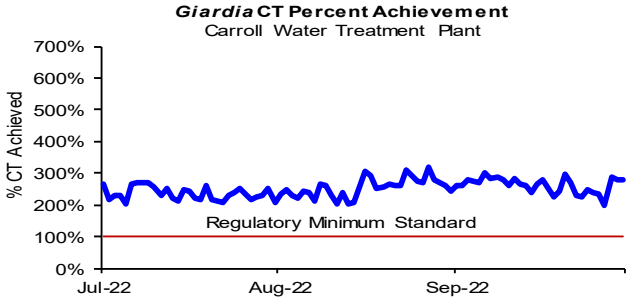
At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA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

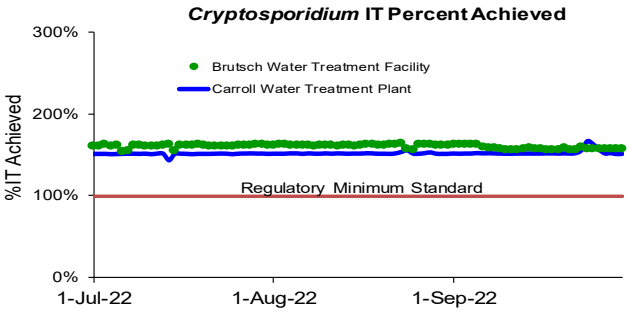
- The chlorine dose at the CWTP varied between 3.6 and 3.9 mg/L for the quarter.
- Ozone dose at the CWTP varied between 1.5 to 2.7 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- *Cryptosporidium* IT was maintained above 100% for the quarter. Off-spec water was less than 5%.
- The ozone target was increased in mid-August 2021 through early November to reduce chlorine demand and decay, as during this time chlorine residuals declined in the distribution system.

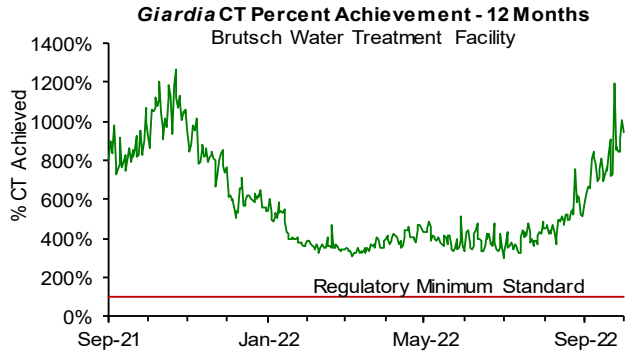


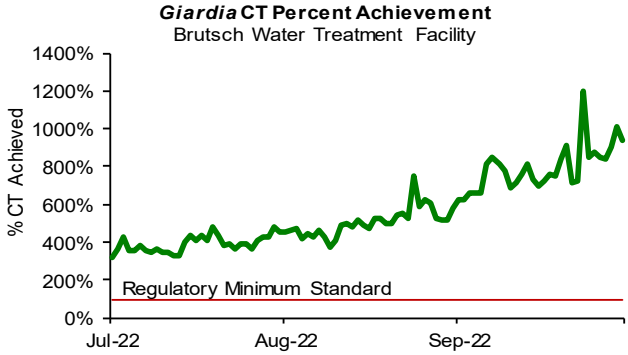


Quabbin Reservoir (CVA Supply) at: Brutsch Water Treatment Facility

- 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 1.54 to 1.80 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%.







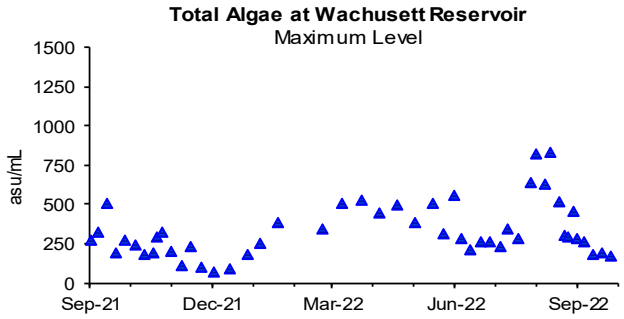
Source Water - Algae

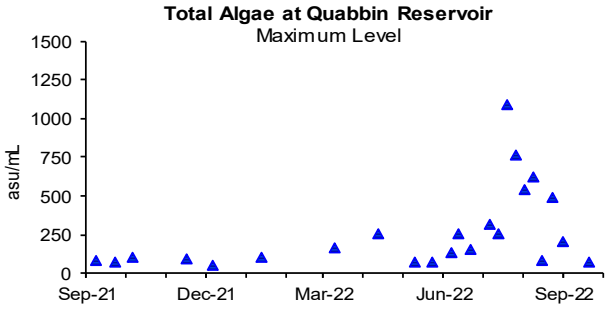
1st Quarter – FY23

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 1st quarter, there were no complaints which may be related to algae reported from the local water departments.



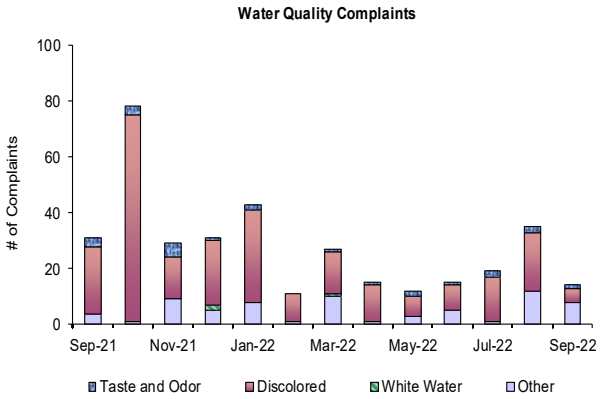


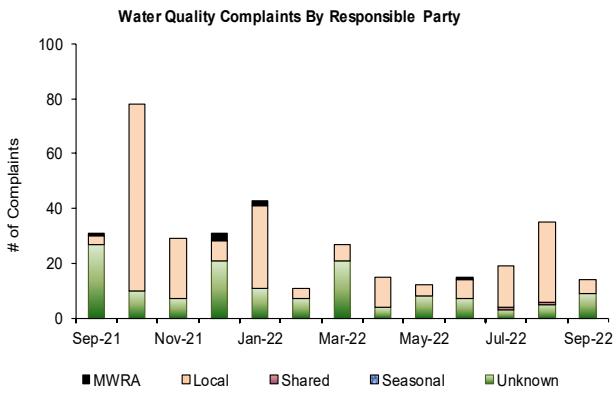
Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

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 42 complaints during the quarter compared to 77 complaints from 1st Quarter of FY21. Of these complaints, 29 were for “discolored water”, 4 were for “taste and odor”, and 9 were for “other”. Of these complaints, 22 were local community issues, 1 was an MWRA related issue, and 19 were unknown in origin.





Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

1st 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 1st Quarter, eighty-one of the 6,450 samples (1.26% system-wide) submitted to MWRA labs for analysis tested positive. Fourteen of the 1975 MWRA locations or Community/MWRA Shared samples (0.71%) tested positive for total coliform. Eleven of the 418 CVA/MWRA community samples tested positive for total coliform. Eleven communities were required to perform a Level Assessment. In July, MWRA was required to conduct a Level 1 Assessment for the CVA system based on positive total coliform samples at Ludlow Monitoring Station. (Bedford, Burlington, Marlborough, Wilbraham, Winthrop – August; Milton, Newton, Southborough, Wakefield, Wilmington, Winthrop, Woburn – September). One sample in Wilmington, collected on September 7, tested positive for *E.coli*. A Boil Water Order was required and an automatic Level 2 Assessment will be conducted since repeat samples confirmed for total coliform. Only 0.3% of the Fully Served community samples had chlorine residuals lower than 0.2 mg/L for the quarter.

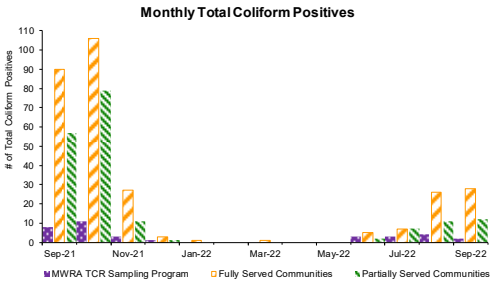
NOTES:

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

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

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

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



			Total Coliform # Samples (b)	Total Coliform # (%) Positive	*E.coli* # Positive	Assessment Required
MWRA	a	MWRA Locations	410	5 (1.22%)	0	
		Shared Community/MWRA sites	1565	9 (0.06%)	1	
		Total: MWRA	1975	14 (0.71%)	1	No
Fully Served		ARLINGTON	169	0 (0%)	0	
		BELMONT	104	0 (0%)	0	
		BOSTON	795	5 (0.63%)	0	
		BROOKLINE	230	2 (0.87%)	0	
		CHELSEA	172	1 (0.58%)	0	
		DEER ISLAND	52	0 (0%)	0	
		EVERETT	169	0 (0%)	0	
		FRAMINGHAM	237	0 (0%)	0	
		LEXINGTON	117	0 (0%)	0	
		LYNNFIELD	18	0 (0%)	0	
		MALDEN	234	0 (0%)	0	
		MARBLEHEAD	87	1 (1.15%)	0	
		MARLBOROUGH	126	0 (0%)	0	
		MEDFORD	210	10 (4.76%)	1	Yes
		MELROSE	117	0 (0%)	0	
		MILTON	126	6 (4.76%)	0	Yes
		NAHANT	30	0 (0%)	0	
		NEWTON	285	6 (2.11%)	0	Yes
		NORTHBOROUGH	51	1 (1.96%)	0	
		NORWOOD	99	0 (0%)	0	
		QUINCY	355	1 (0.28%)	0	
		READING	130	0 (0%)	0	
		REVERE	195	0 (0%)	0	
		SAUGUS	104	0 (0%)	0	
		SOMERVILLE	255	1 (0.39%)	0	
		SOUTHBOROUGH	40	3 (7.50%)	0	Yes
		STONEHAM	91	0 (0%)	0	
		SWAMPSCOTT	51	0 (0%)	0	
		WALTHAM	217	1 (0.46%)	0	
		WATERTOWN	130	0 (0%)	0	
		WESTON	45	0 (0%)	0	
		WINTHROP	96	23 (23.96%)	0	Yes
		Total: Fully Served	*5137*	*61 (1.19%)*		
Partially Served	c	BEDFORD	63	3 (4.76%)	0	Yes
		BURLINGTON	153	1 (2.56%)	0	No
		CANTON	88	0 (0%)	0	
		NEEDHAM	123	0 (0%)	0	
		PEABODY	207	0 (0%)	0	
		WAKEFIELD	151	7 (4.64%)	0	Yes
		WELLESLEY	114	0 (0%)	0	
		WILMINGTON	97	3 (3.09%)	1	Yes
		WINCHESTER	91	0 (0%)	0	
		WOBURN	226	6 (2.65%)	0	Yes
		Total: Partially Served	*1313*	*20 (1.52%)*		
		Total: Community Samples No CVA	*6450*	*81 (1.26%)*		
CVA	d	MWRA CVA Locations	117	7 (5.98%)	0	Yes
		CHICOPEE	186	0 (0%)	0	
		SOUTH HADLEY FD1	63	1 (1.59%)	0	
		WILBRAHAM	52	3 (5.77%)	0	Yes
		Total: CVA	*418*	*11 (2.63%)*		

Chlorine Residuals in Fully Served Communities

	2021				2022								
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
% <0.1	0.7	0.9	0.5	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
% <0.2	2.8	3.1	1.7	0.8	0.1	0.2	0.0	0.0	0.1	0.0	0.1	0.3	0.4
% <0.5	12.3	10.9	7.4	2.8	1.1	1.1	0.5	0.6	0.5	0.5	1.4	1.6	1.8
% <1.0	27.9	26.2	15.7	7.3	3.7	4.1	2.3	2.3	2.1	2.6	4.0	5.7	6.5
% ≥1.0	72.1	73.8	84.4	92.7	96.3	95.9	97.7	97.7	97.9	97.4	96.0	94.3	93.5

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

1st Quarter – FY23

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

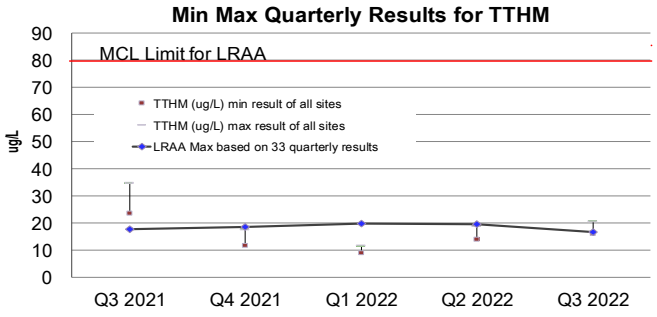
The locational running annual average calculated quarterly at each individual sampling location must be below the Total HAA5 or Total TTHM MCL standard. The charts below show the highest and lowest single values for all sites, and the LRAA of the highest location each quarter.

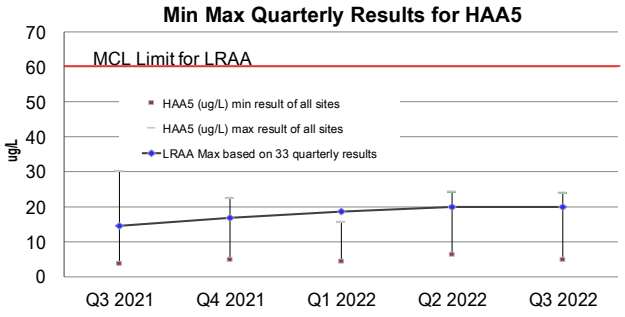
Partially served and CVA communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their individual results. The chart below combines data for all three CVA communities data (Chicopee, Wilbraham and South Hadley FD1). Each community is regulated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

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

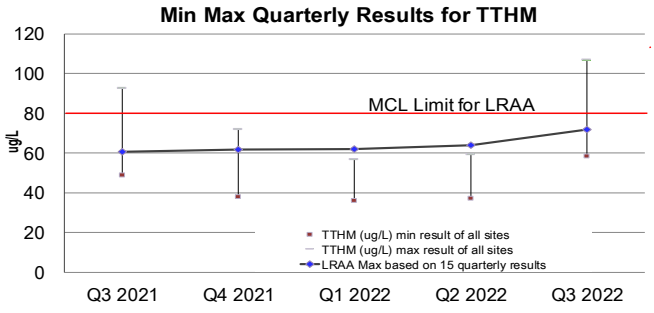
The LRAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remain below current standards. The Max LRAA in the quarter for TTHMs = 16.7 ug/L; HAA5s = 19.9 ug/L. The current RAA for Bromate = 0.0 µg/L No LRAA exceedances or violations occurred this quarter for MetroBoston and any of the CVA communities. MWRA and the CVA communities continue to closely monitor and manage the disinfection process to minimize DBP production.

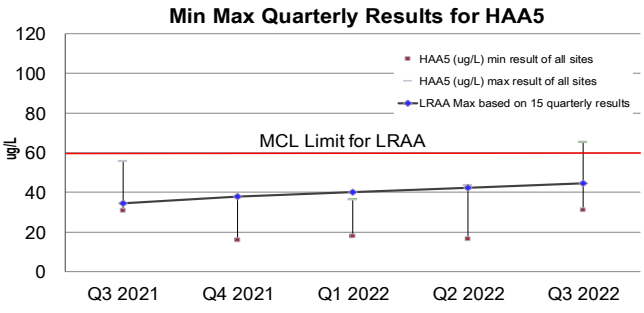
MetroBoston Disinfection By-Products





CVA Disinfection By-Products (Combined Results)





Water Supply and Source Water Management

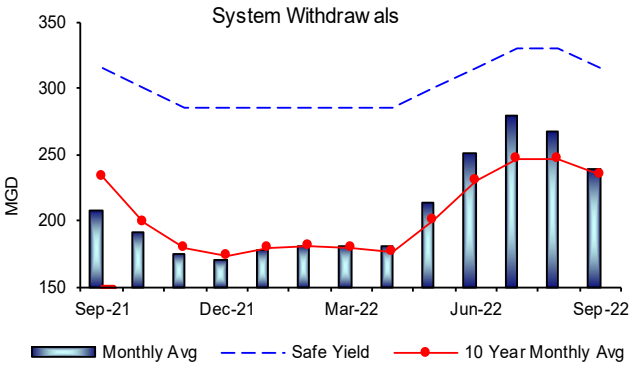
1st Quarter – FY23

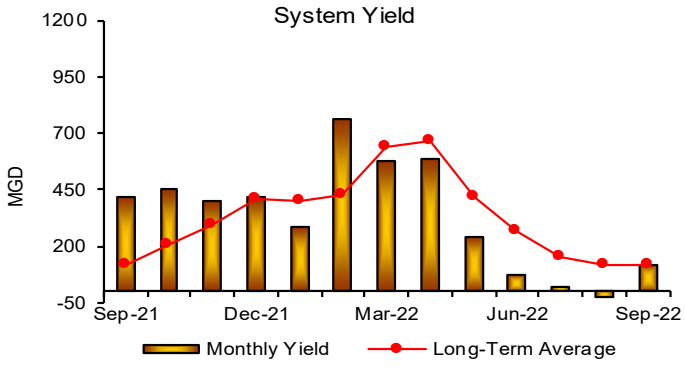
Background

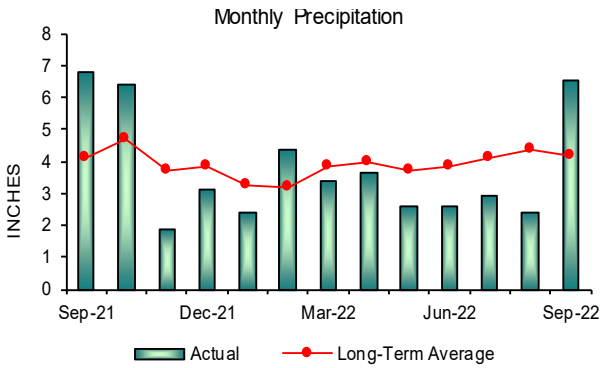
A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir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

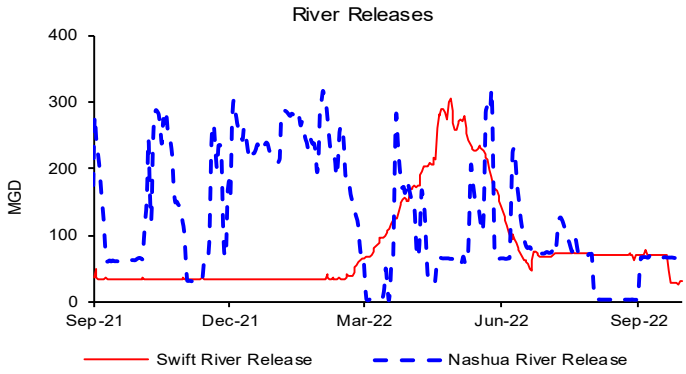
Outcome

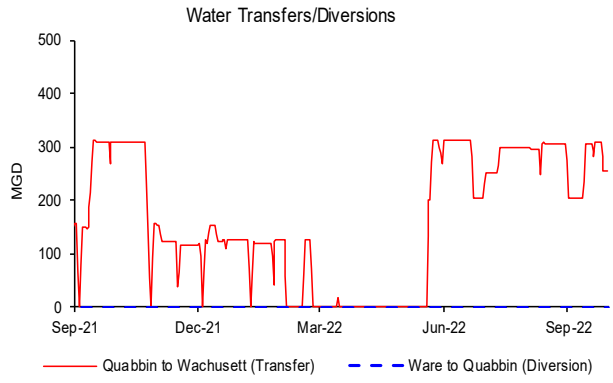
The volume of the Quabbin Reservoir was at 88.8% as of September 30, 2022; a 7.6 % decrease for the quarter, which represents a loss of more than 31 billion gallons of storage and a decrease in elevation of 4.15'. System withdrawal, precipitation and yield were below their long term quarterly averages. Quabbin is in Normal Operating Range for this time of year.

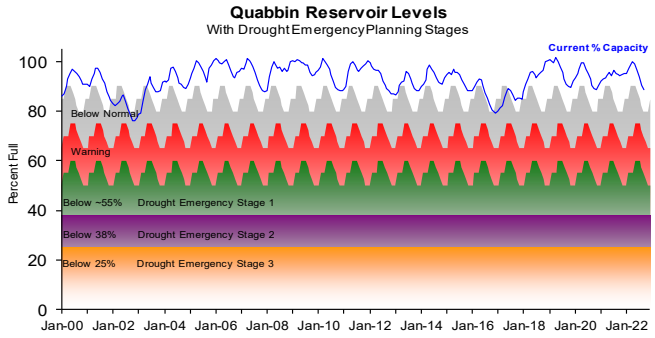












WASTEWATER QUALITY

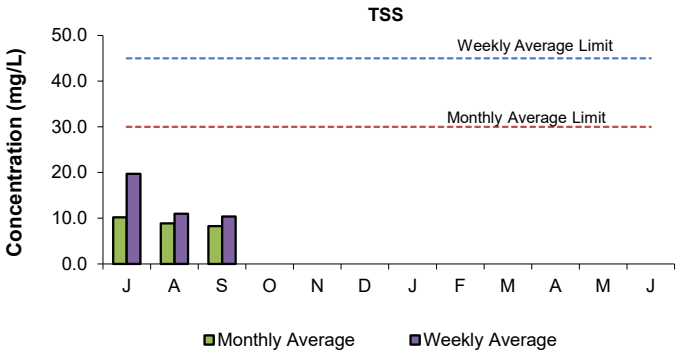
NPDES Permit Compliance: Deer Island Treatment Plant

1st Quarter - FY23

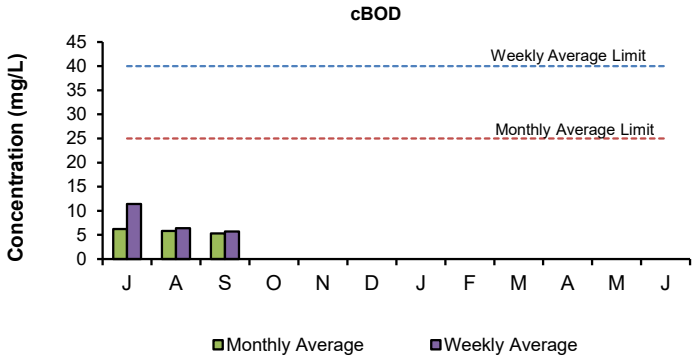
NPDES Permit Limits

Effluent Characteristics		*Units*	*Limits*	*July*	*August*	*September*	*1st Quarter Violations*	*FY23 YTD Violations*
Dry Day Flow (365 Day Average):		mgd	436	282.7	272.0	262.8	0	0
cBOD:	Monthly Average	mg/L	25	6.2	5.8	5.3	0	0
	Weekly Average	mg/L	40	11.4	6.4	5.7	0	0
TSS:	Monthly Average	mg/L	30	10.2	8.9	8.3	0	0
	Weekly Average	mg/L	45	19.7	11.0	10.4	0	0
TCR:	Monthly Average	ug/L	456	0.4	0.0	0.0	0	0
	Daily Maximum	ug/L	631	13.3	0.0	0.0	0	0
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	13	14	33	0	0
	Weekly Geometric Mean	col/100mL	14000	7	6	8	0	0
	% of Samples >14000	%	10	0	0	0	0	0
	Consecutive Samples >14000	#	3	0	0	0	0	0
pH:		SU	6.0-9.0	6.5-7	6.5-6.9	6.5-6.9	0	0
PCB, Aroclors:	Monthly Average	ug/L	0.000045	UNDETECTED			0	0
Acute Toxicity:	Mysid Shrimp	%	≥50	>100	>100	>100	0	0
	Inland Silverside	%	≥50	>100	>100	>100	0	0
Chronic Toxicity:	Sea Urchin	%	≥1.5	100	100	50	0	0
	Inland Silverside	%	≥1.5	50	25	50	0	0

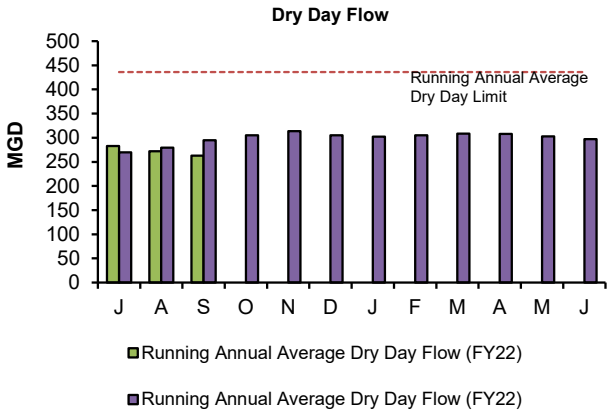
There have been no permit violations in FY23 to date at the Deer Island Treatment Plant (DITP).



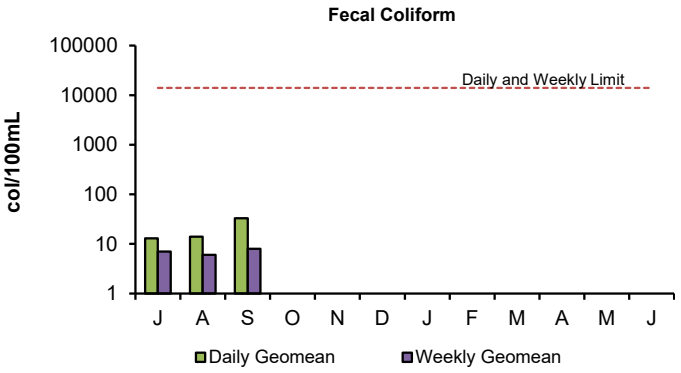
Total Suspended Solids (TSS) in the effluent is a measure of the amount of solids that remain suspended after treatment. All TSS measurements for the 1st Quarter were within permit limits.



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



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



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

NPDES Permit Compliance: Clinton Wastewater Treatment Plant

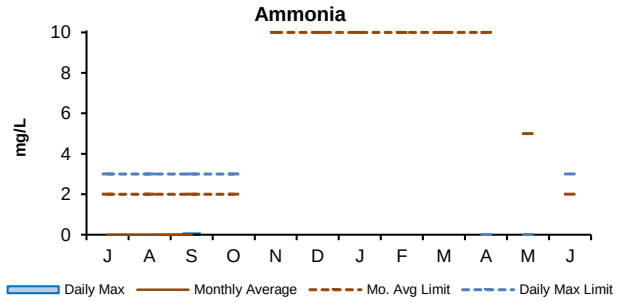
1st Quarter - FY23

NPDES Permit Limits

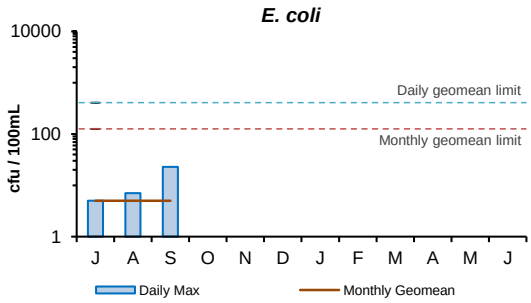
Effluent Characteristics		*Units*	*Limits*	*July*	*August*	*September*	*1st Quarter Violations*	*FY23 YTD Violations*
Flow:	12-month Rolling Average:	mgd	3.01	3.02	2.90	2.69	1	1
BOD:	Monthly Average:	mg/L	20	1.50	1.40	1.30	0	0
	Weekly Average:	mg/L	20	1.90	1.60	1.60	0	0
TSS:	Monthly Average:	mg/L	20	1.20	1.50	1.50	0	0
	Weekly Average:	mg/L	20	1.80	2.40	1.70	0	0
pH:		SU	6.5-8.3	7.3-7.8	7.2-7.8	7.3-7.8	0	0
Dissolved Oxygen:	Daily Average Minimum:	mg/L	6	8.10	8.10	8.30	0	0
E. Coli:	Monthly Geometric Mean:	cfu/100mL	126	5	5	5	0	0
	Daily Geometric Mean:	cfu/100mL	409	5	7	23	0	0
TCR:	Monthly Average:	ug/L	17.6	0.13	0.11	0.00	0	0
	Daily Maximum:	ug/L	30.4	4.00	3.33	0.00	0	0
Copper:	Monthly Average:	ug/L	11.6	12.45	12.25	9.82	2	2
	Daily Maximum:	ug/L	14.0	12.70	12.30	10.70	0	0
Total Ammonia Nitrogen:	Monthly Average:	mg/L	2.0	0.00	0.00	0.01	0	0
June 1st - October 31st	Daily Maximum:	mg/L	3.0	0.00	0.00	0.07	0	0
Total Phosphorus:	Monthly Average:	ug/L	150	97	71	49	0	0
April 1st - October 31st	Daily Maximum:	ug/L	RPT	173	183	150	0	0
Acute Toxicity+:	Daily Minimum:	%	≥100	N/A	N/A	>100	0	0
Chronic Toxicity+:	Daily Minimum:	%	≥62.5	N/A	N/A	12.5	1	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%.

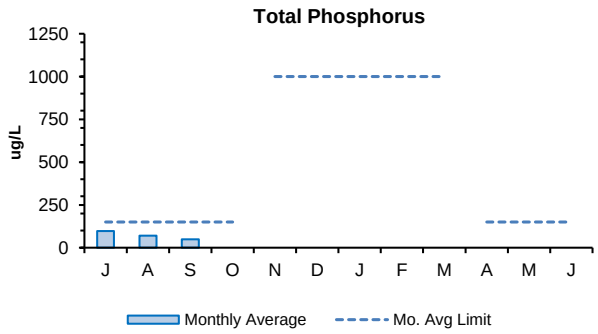
+ Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



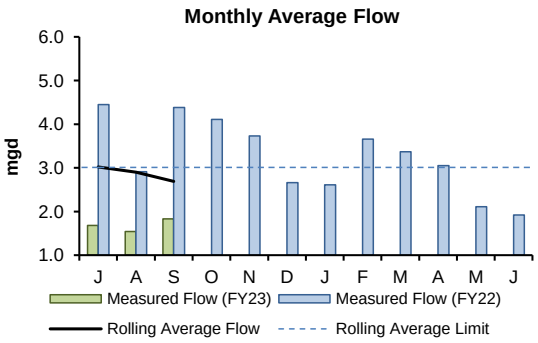
The 4th Quarter's monthly average and daily maximum concentrations of ammonia were below the permit limits. The monthly average and daily maximum limits for the 4th Quarter are 2.0 and 3.0 mg/L respectively. The permit limits are most stringent from June to October when warm weather conditions are most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



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



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

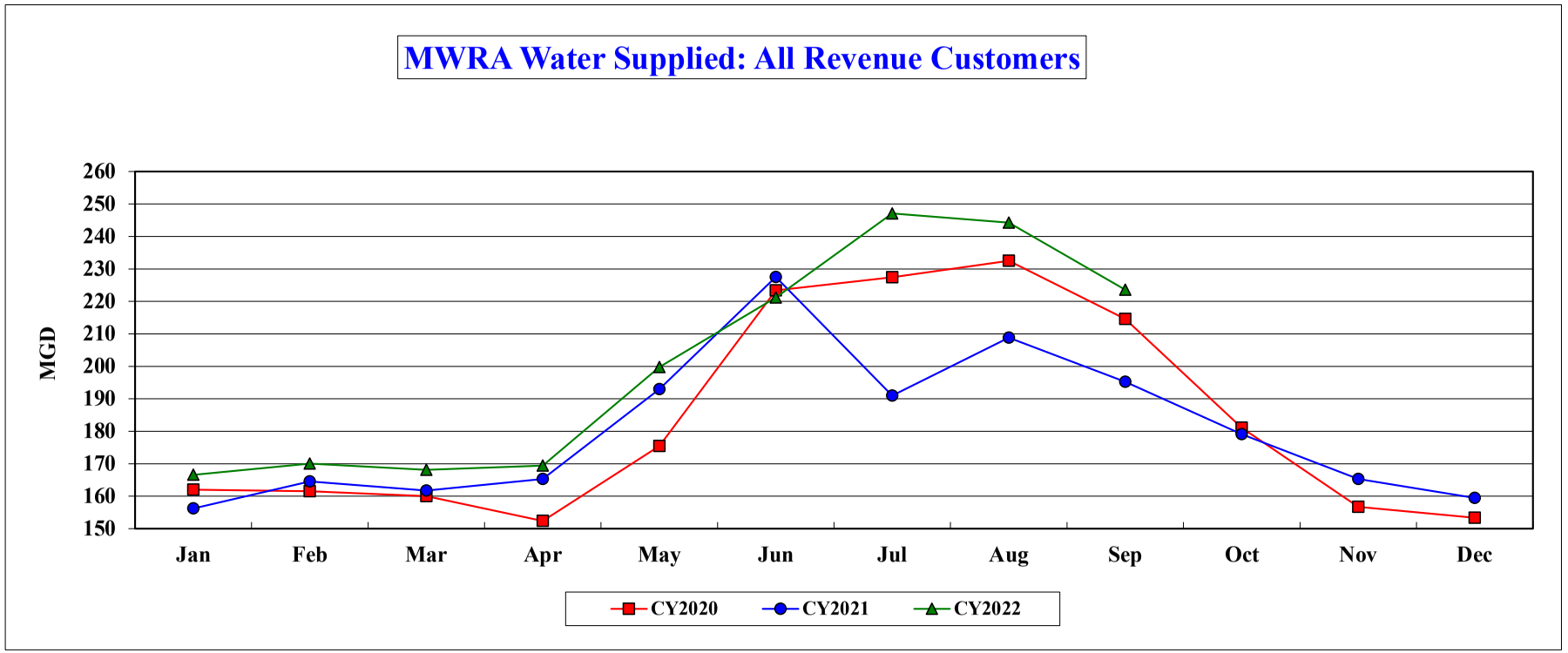


The graph depicts the rolling annual average monthly flow, measured in million gallons per day, exiting the plant.
The 12-month rolling average flows during the 4th Quarter were below the permit limit.

COMMUNITY FLOWS AND PROGRAMS

Customer Water Use

1st Quarter - FY23



MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2020	162.016	161.551	160.018	152.368	175.435	223.405	227.454	232.496	214.617	181.110	156.727	153.367	190.061	183.462
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	184.907	180.641
CY2022	166.570	170.056	168.107	169.415	199.769	221.149	247.087	244.267	223.603	-	-	-	201.415	201.415

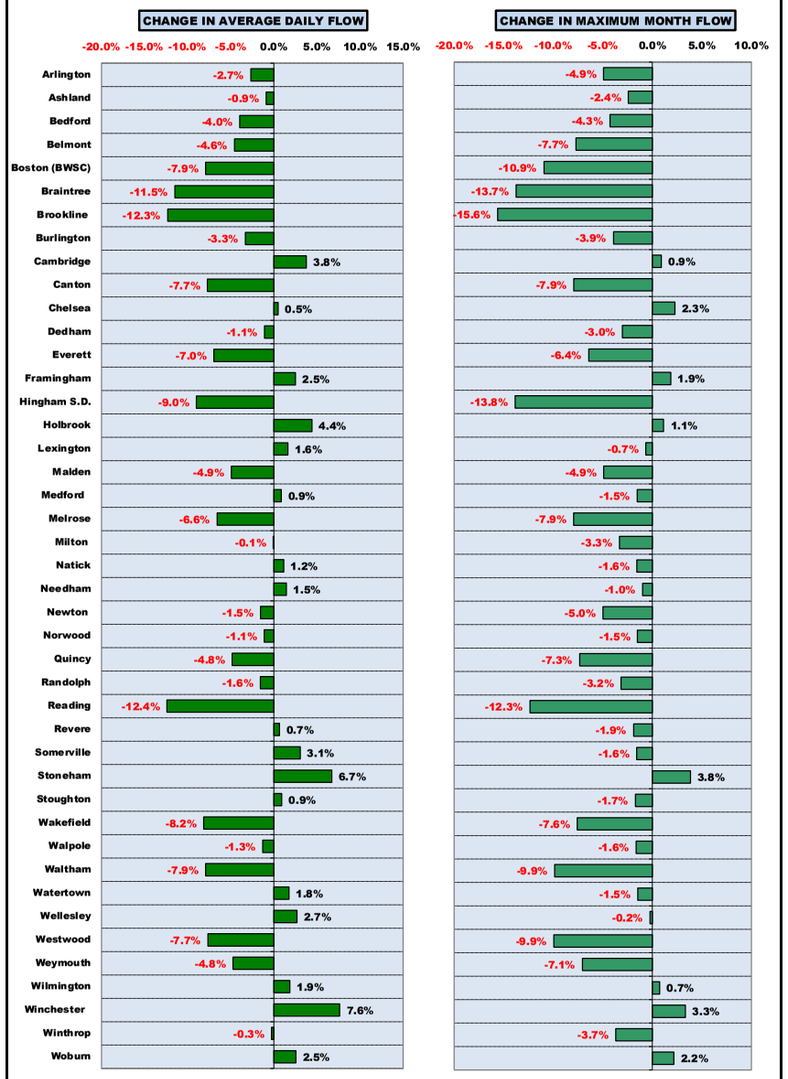
MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Total	Annual Total
CY2020	5,022.510	4,684.968	4,960.567	4,571.025	5,438.470	6,702.146	7,051.078	7,207.384	6,438.520	5,614.399	4,701.821	4,754.375	52,076.668	67,147.263
CY2021	4,842.593	4,607.873	5,012.608	4,958.533	5,982.944	6,825.661	5,919.300	6,473.120	5,856.857	5,552.611	4,959.064	4,942.705	50,479.491	65,933.870
CY2022	5,163.682	4,761.563	5,211.326	5,082.449	6,192.845	6,634.472	7,659.688	7,572.270	6,708.080	-	-	-	54,986.375	54,986.375

The September 2022 Community Water Use Report was recently distributed to communities served by the MWRA Metropolitan and Chicopee Valley waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2022 water use will be used to allocate the FY2024 water utility rate revenue requirement.

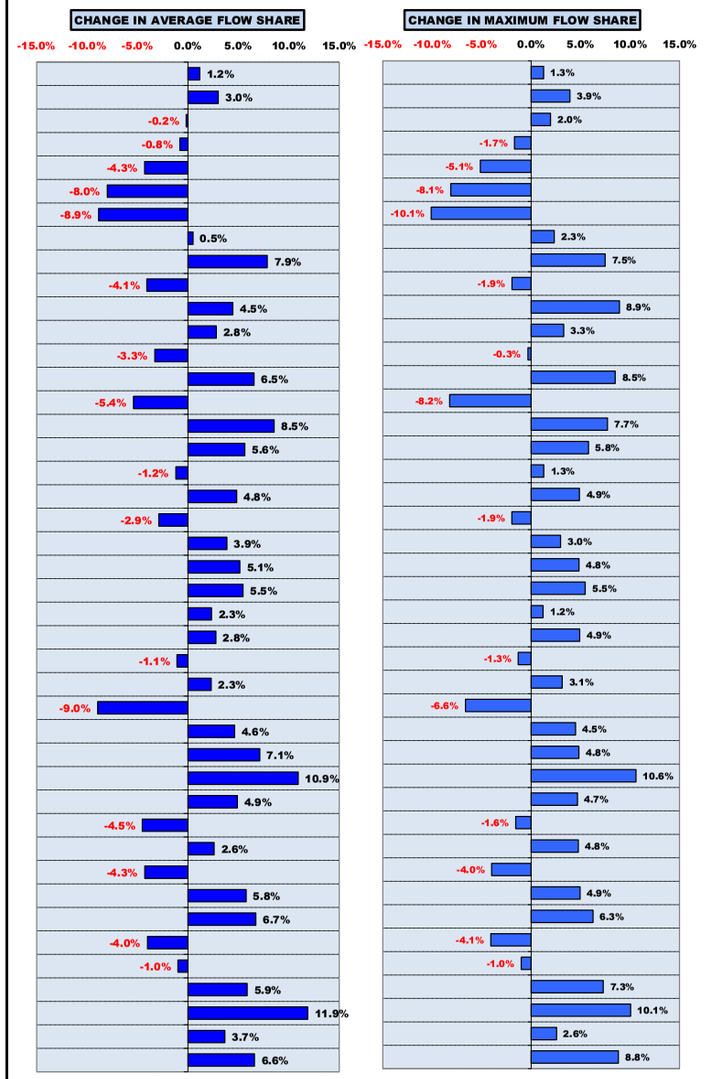
MWRA customers used an average of 238.48 mgd in the 1st quarter (Jul-Sep 2022) of FY2023. This is an increase of 26.81 mgd or 12.7% compared to the average of the 1st quarters in FY2020 and FY2021. The City of Cambridge used 438.31 million gallons in the first quarter, and averaged 13.96 mgd in September.

How CY2020-22 Community Wastewater Flows Could Effect FY2024 Sewer Assessments [1,2,3]

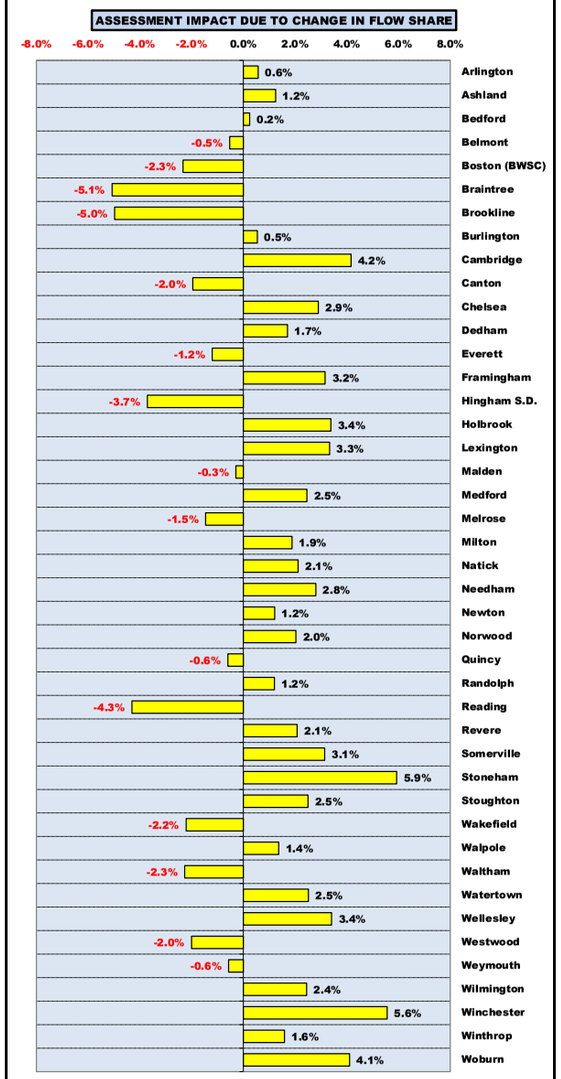
The flow components of FY2024 sewer assessments will be calculated using a 3-year average of CY2020 to CY2022 wastewater flows compared to FY2023 assessments that will use a 3-year average of CY2019 to CY2021 wastewater flows.



But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the RELATIVE change in CY2020 to CY2022 flow share compared to CY2019 to CY2021 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 2019 and 2022 (through June), and January to March, and June to December 2020. April & May 2020 based on the average of three prior years, adjusted for 2020 water use. January to December 2021 estimated based on the average of the three prior years.

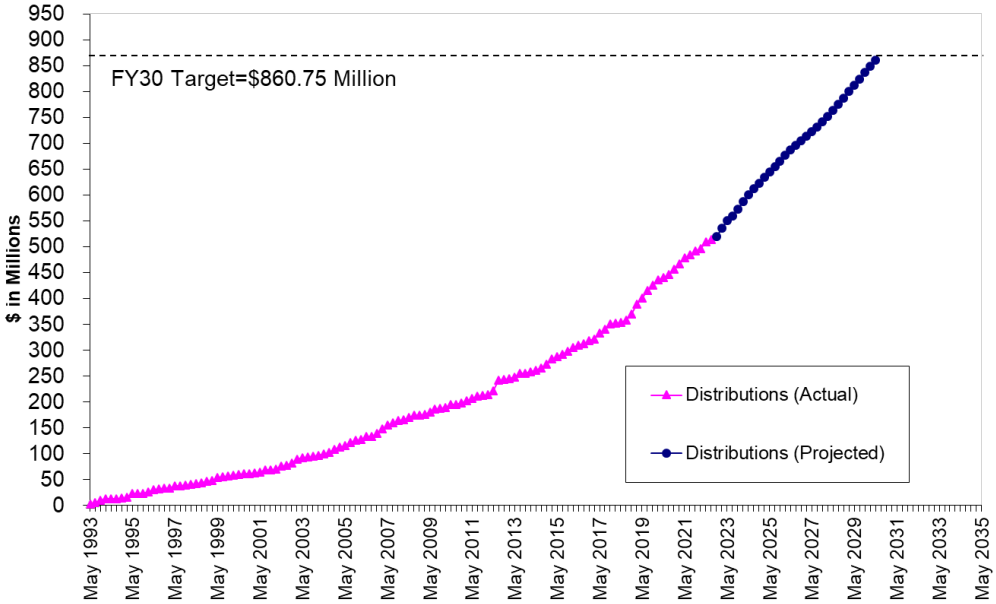
[3] Flow data is preliminary and subject to change pending additional MWRA and community review.

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

Infiltration/Inflow Local Financial Assistance Program

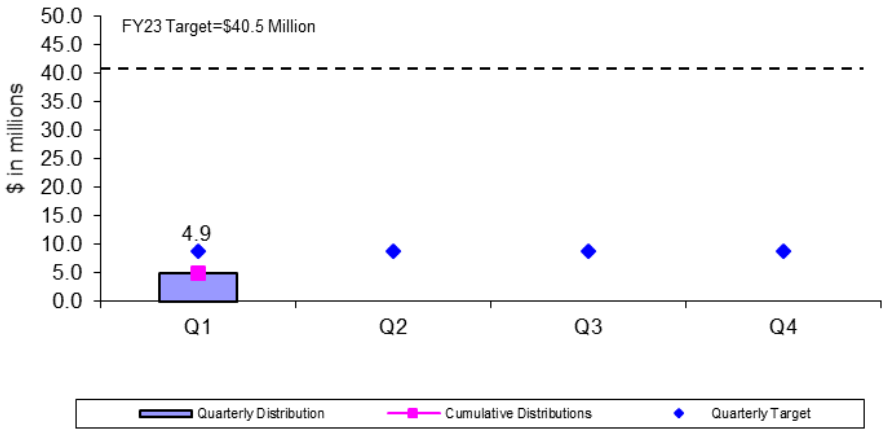
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides $860.75 million in grants and interest-free loans (average of about $22 million per year from FY93 through FY30) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned 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 1st Quarter of FY23, $4.9 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Holbrook, Quincy, Revere and Weymouth. Total grant/loan distribution to date for FY23 is $4.9 million. From FY93 through 1st Quarter of FY23, all 43 member sewer communities have participated in the program and $515 million has been distributed to fund 648 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

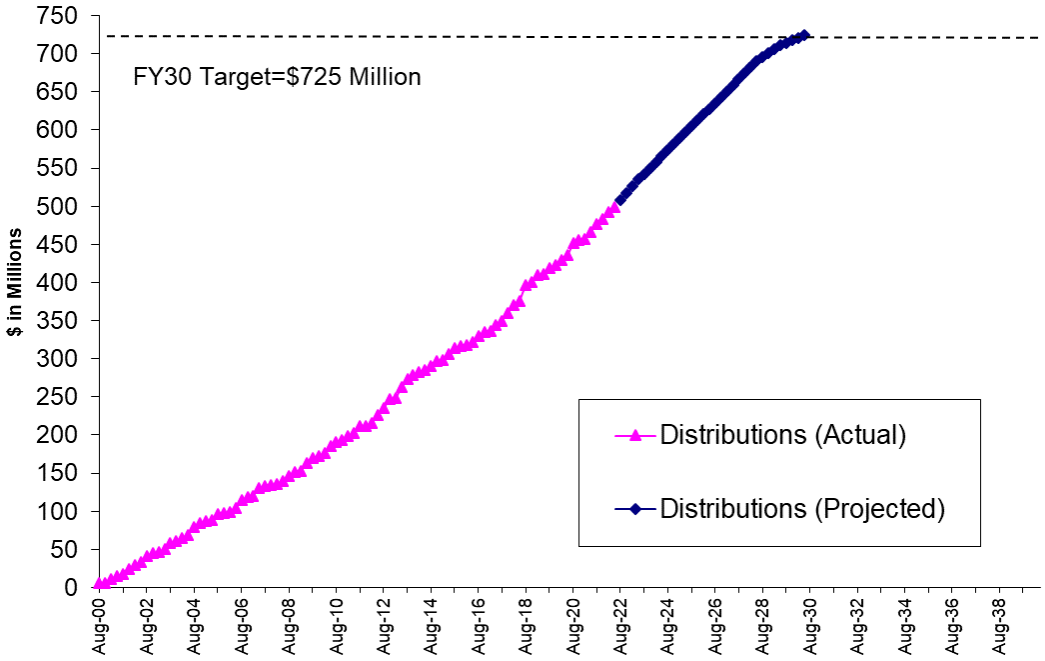


Community Support Programs
1st Quarter – FY23

Local Water System Assistance Program

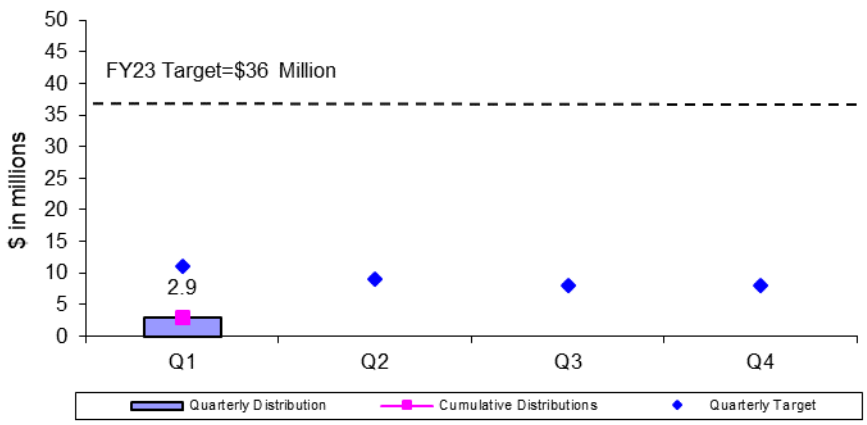
MWRA's Local Water System Assistance Programs (LWSAP) provides $725 million in interest-free loans (an average of about $24 million per year from FY01 through FY30) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. There have been 3 phases: Phase 1 at $222 Million, Phase 2 at $210 Million, and Phase 3 at $293 Million. Eligible project costs include: water main cleaning/lining, replacement of unlined water mains, lead service replacements, valve, hydrant, water meter, tank work, engineering design, engineering services during construction, etc. MWRA partially-supplied communities receive pro-rated funding allocations based on their percentage use of MWRA water. Interest-free loans are repaid to MWRA over a ten-year period beginning one year after distribution of the funds. The Phase 1 water loan program concluded in FY13 with $222 million in loan distributions. The Phase 2 - LWSAP continues distributions through FY25. The Phase 3 Water Loan Program is authorized for distributions FY18 through FY30.

Local Water System Assistance Program Distribution FY01-FY30



During the 1st Quarter of FY23, $2.9 million in interest-free loans was distributed to fund local water projects in Belmont, Norwood, Stoughton, and Watertown. Total loan distribution to date for FY23 is $2.9 million. From FY01 through the 1st Quarter of FY23, $502 million has been distributed to fund 505 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

1st 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.

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.

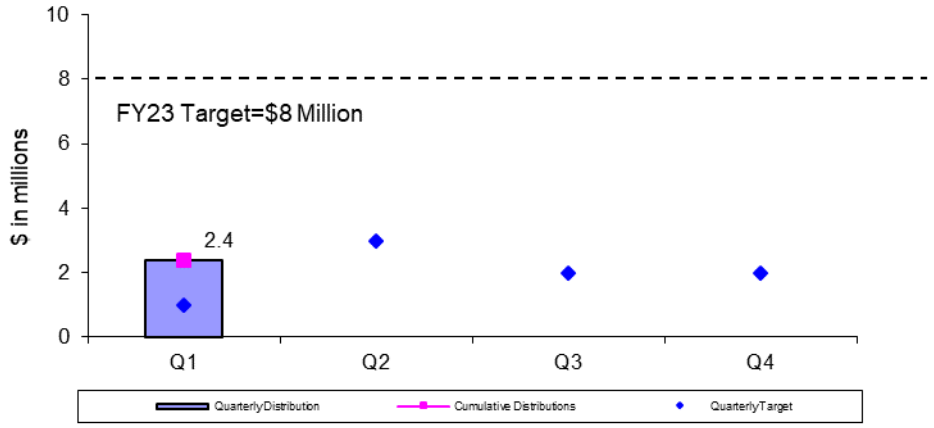
FY22 is the sixth year of the Lead Loan Program – MWRA made six Lead Loans.

FY23 is the seventh year in the Lead Loan Program – MWRA made three Lead Loans in the first quarter.

Summary of Lead Loans:

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	Winchester in FY17	$0.5 Million
Boston in FY21	$2.6 Million	TOTAL	$34 Million
Winthrop in FY21	$0.8 Million		
Chelsea in FY21	$0.3 Million		
Winchester in FY21	$0.6 Million		
Everett in FY20	$0.5 Million		
Marlborough in FY20	$1.0 Million		
Winchester in FY20	$0.6 Million		
Winthrop in FY20	$0.7 Million		
Weston in FY20	$0.2 Million		
Everett in FY20	$1.0 Million		
Somerville in FY20	$0.9 Million		
Chelsea in FY20	$0.3 Million		

FY23 Quarterly Distributions of Lead Service Line Replacement Loans

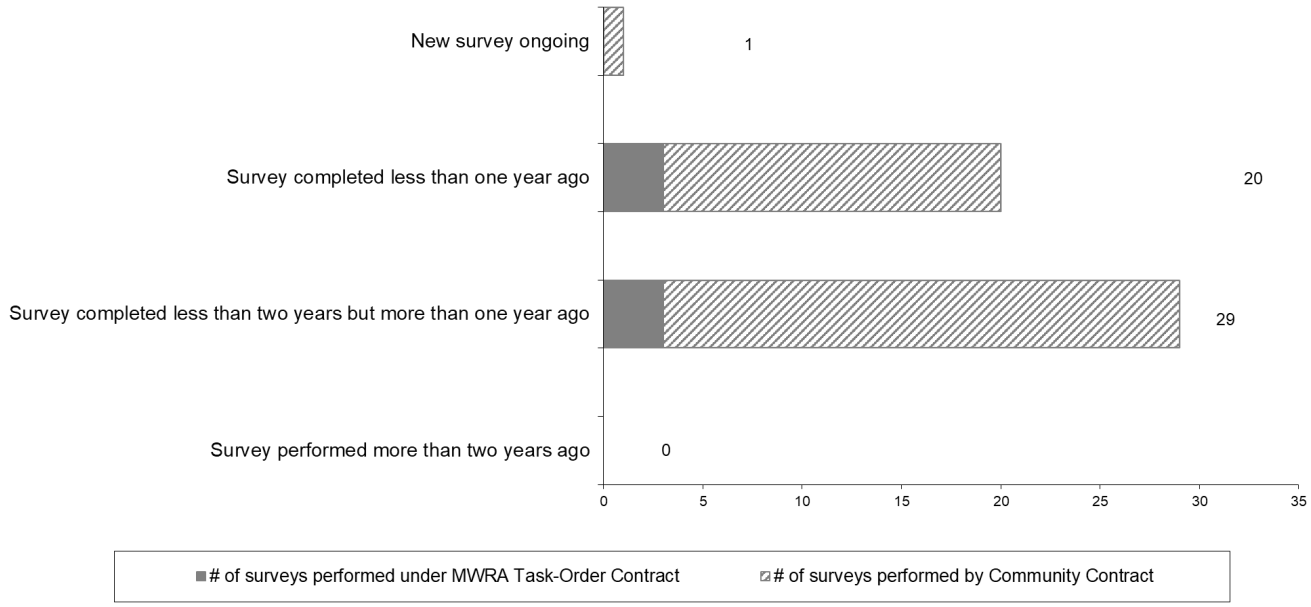


Community Support Programs

1st 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 1st 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	9,985				9,985
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	2,302				2,302
Toilet Leak Detection Dye Tablets	_____	1,151				1.151

BUSINESS SERVICES

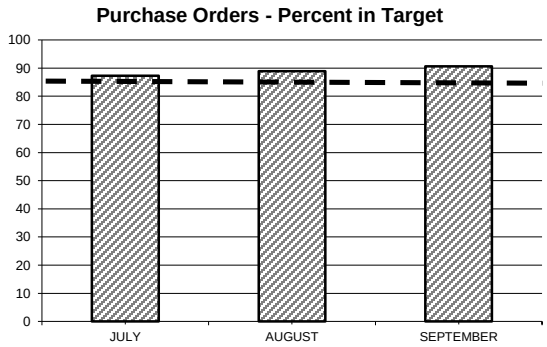
Procurement: Purchasing and Contracts

1st Quarter - FY23

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

Outcome: Processed 91% of purchase orders within target; Average Processing Time was 5.66 days vs. 4.75 days in Qtr 1 of FY22. Processed 11% (1 of 9) of contracts within target timeframes; Average Processing Time was 264 days vs. 207 days in Qtr 1 of FY22.

Purchasing



	No.	TARGET	PERCENT IN TARGET
$0 - $500	448	3 DAYS	85.0%
$500 - $2K	537	7 DAYS	95.7%
$2K - $5K	515	10 DAYS	94.9%
$5K - $10K	51	25 DAYS	78.4%
$10K - $25K	64	30 DAYS	75.0%
$25K - $50K	14	60 DAYS	85.7%
Over $50K	33	90 DAYS	84.8%

The Purchasing Unit processed 1662 purchase orders, 35 less than the 1697 processed in Qtr 1 of FY22 for a total value of $20,155,610 versus a dollar value of $14,524,801 in Qtr 1 of FY22 .

The purchase order processing target was not met for the $5K - $10K category due to vendor registration requirements and end user confirmations and the $10K - $25K category due to end user confirmations, specification development and vendor response delays.

Contracts, Change Orders and Amendments

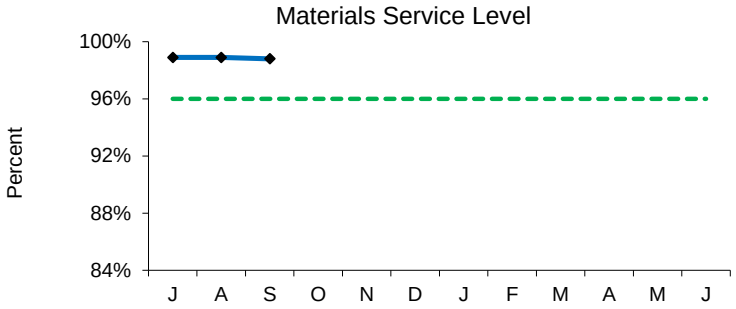
Procurement executed nine contracts with a value of $23,371,557 and three amendments with a value of $250,000. Eleven change orders were executed during the period. The dollar value of all non-credit change orders during Qtr 1 of FY23 was $159,993 and the value of credit change orders was ($470,442).

Eight contracts were not executed within the target timeframes. Two contracts were delayed due to additional procurement requirements necessary for insurance services. Insurance for all categories of coverage was obtained timely and according to schedule. Another contract was delayed due to the need for a bid review with the contractor in addition to negotiations with the local municipality regarding scope and funding. A fourth contract was delayed due to specification review which took longer than anticipated.
Several contracts were delayed due to reduced staffing due to retirement, and consultant proposed contract language changes for one of the contracts. Another contract was delayed due to a longer than anticipated sub bid and general bid qualification process. The final contract was delayed due to changes in scope and cost, and contractor questions that led to a bid date extension.

Staff reviewed 29 proposed change orders and 11 draft change orders.

Materials Management

1st Quarter - FY23



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 6,116 (98.8%) of the 6,190 items requested in Q1 from the inventory locations for a total dollar value of $1,450,218.

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 FY22 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 – gloves, hardhats, lamps, inspection tags, equipment labels for Safety; o-rings and gear reducers for Maintenance; valves, transformer contact kit, valves and pressure switches for Electrical; pull handles and rotating hasps for Facilities.
- Chelsea – equipment labels, inspection tags and equipment tags for Safety; PH sensors for SCADA; Degreaser for Work Coordination; pipe saw blades Operations & Maintenance.
- Southboro – hardhats and headlamps for Safety; valve rebuild kits for Plumbers; gloves for Operations & Maintenance.

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Property Pass Program:

- Nine audits were conducted during Q1.
- Scrap revenue received for Q1 amounted to $7,876. Year to date revenue received amounted to $7,876.
- Revenue received from online auctions held during Q1 amounted to $106,251. Year to date revenue received amounted to $106,251.

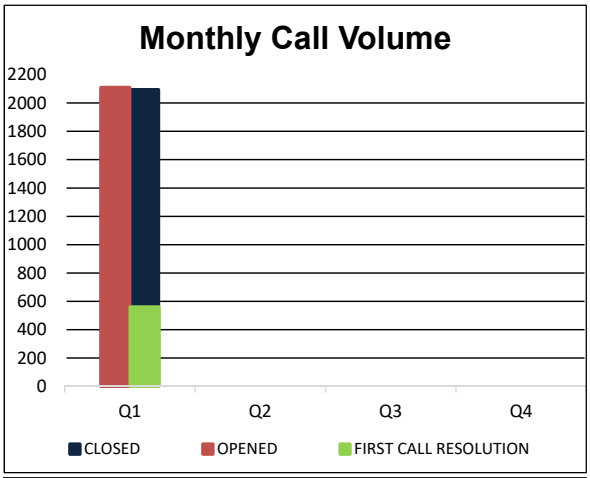
Items	Base Value July-22	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	8,371,867	8,259,525	-112,342
Spare Parts	9,447,310	9,559,332	112,022
Total	17,819,177	17,818,857	-320

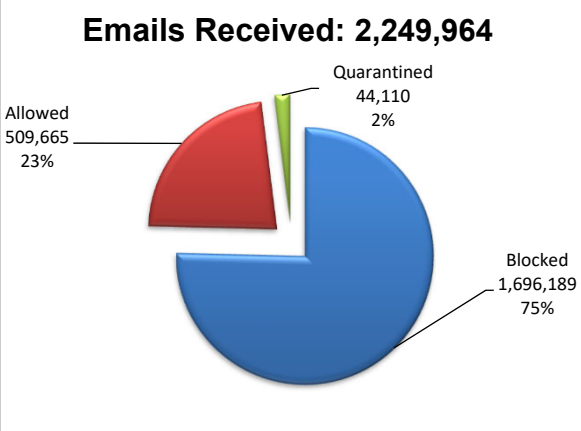
Note: New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

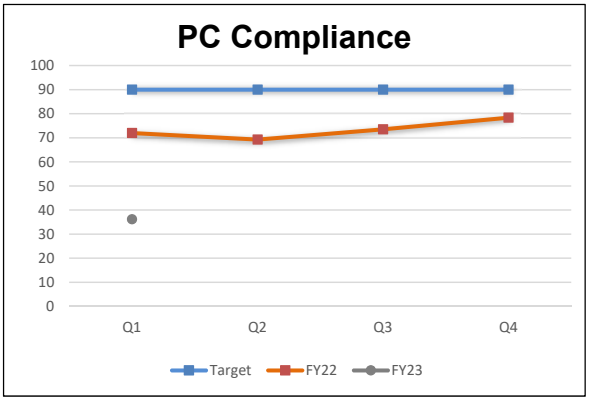
MIS Program

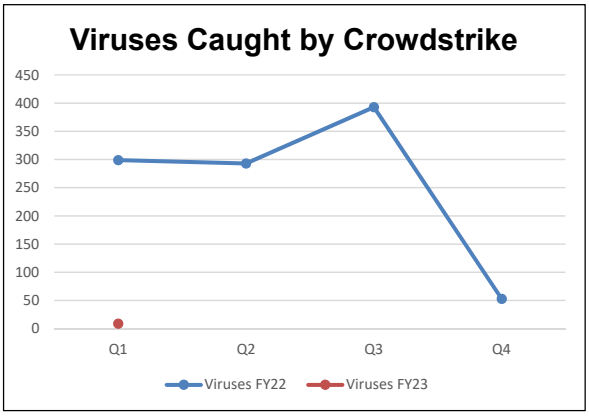
1st Quarter – FY23

Numbers & Statistics









Project Updates

Infrastructure & Security

Managed Security Services Contract: The new contract was awarded in September to NWN Carousel. NTP & go-live are on schedule to complete during Q2.

Firewall Replacement: New Fortinet firewalls are in place in Chelsea, and their rules have been reviewed, edited, and optimized after conversion. Firewalls for Deer Island and remote sites are being configured and will be rolled out during Q2.

Identity and Access Management: Okta's multi-factor authentication (MFA) solution was implemented authority wide, replacing the less secure DUO MFA.

Forticlient VPN Solution: Fortinet VPN has been implemented. MIS began migrating all users and vendors to the new Fortinet solution. This process will continue into Q2. New, larger VPN devices have been ordered and received to accommodate the increased number of total VPN users, as we transition away from Citrix. Upgrade to the new devices to complete in Q2.

PBX (Telephone System Upgrade): VOIP phones roll-out, which started in Q4 of FY22, have been completed (with the exception of DITP). Cabling and other required infrastructure upgrades that started during FY22 will continue through 2023.

Expansion of Wi-Fi Networking: Wireless is now available at Chelsea, Charlestown, Southboro, NI conference room, Clinton (front offices & conf. room), CWTP conference room, DITP RT building (Admin/lab 1 & 2 to be completed with construction) and Belchertown.

Other Software & Custom Applications

Learning Management System: The LMS went live in August, and is fully rolled out for all MWRA employees. The project moved from the Infor implementation team to their support team.

ECM/Electronic Document Management: Cadence and Subject Matter Experts met and determined that more work will be needed to configure the functionality required. Significant effort was put into this re-configuration and testing, and we expect this phase to wrap up in October or November. Continued to work on data preparation for full data migration.

BOE Upgrade: The vendor Qlarion completed upgrading the Business Objects Enterprise development and production servers to version 4.3 and worked with the ENQUAL department to prioritize the Oracle Discoverer reports to be migrated to the new BOE Webi environment.

Maximo/Lawson Interface: The vendor Starboard Consulting completed working with staff to re-write the business rules of the Lawson-Maximo interface to reduce the number of failed transactions that currently must be resolved manually by the Maximo administrator.

Lawson ERP Upgrade: MIS continues to work on drafting the upgrade RFQP and has help multiple discovery sessions with Workday, another ERP vendor, during this quarter.

Library, Record Center, & Training

Library: Undertook 15 research requests, supplied 21 books for circulation, provided 14 new books and 10 new standards. The MWRA Library Portal supported 726 end user searches, including: Ashland MA original sewage system, Frederick Stearns/damming of the Nashua River (1880s), history of chlorination in the metropolitan water system..

Record Center (RC): The Record Center added 276 new boxes, handled 489 total boxes, and shredded (36) 65 gallon bins and (8) 96 gallon bins of confidential documentation on-site. It performed 117 database/physical box searches for multiple departments on various topics, including administrative info, law cases, and project docs for Engineering.

Training: In Q1, 52 online IT lessons were taken, by 20 employees, spanning 75 hours (75 YTD). 0 standard class lessons were taken. 0 outside certifications were earned.

PROJECT ASSISTANCE

Real Estate, Contract, Environmental and Other Support:

- **8(m) Permits and License Agreements:** Reviewed one hundred (100) 8(m) permits. Drafted one-day license for Nut Island. Reviewed Direct Connect Permit. Finalized draft amendment 1 to the Town of Northborough public access 8(m) permit. Reviewed New Cingular wireless renewal agreement for Walnut Hill water tank.

- **Real Property**: Drafted lease for Core Storage Facility for Tunnel Redundancy. Drafted and finalized first amendment to Walpole records center lease. Completed review of DCR watershed acquisition package for W-001236 in Petersham and Barre, MA. Drafted and finalized license from UMass to MWRA allowing for geophysical survey in support of Tunnel Redundancy Program. Reviewed land acquisition needs for MWRA Contract 6224 - Siphon and Junction Structure Rehabilitation. Reviewed lease terms with respect to requirements for permanent fixtures and business fixtures upon termination of lease. Prepared response with respect to the removal of certain security equipment at termination of lease. Reviewed property rights for parcel(s) in Southborough and in Newton, MA. Drafted and finalized Memorandum of Agreement between MWRA and the Town of Ludlow regarding construction and ownership of an antenna tower at Nash Hill Reservoir for communication equipment. Researched Clinton WTP property rights for tree plantings. Drafted notice letter for access over private property concerning boring work in Newton pursuant to statutory right of entry. Reviewed property rights for parcels of interest for Tunnel Redundancy Program. Researched Article 97 restrictions for two separate MWRA projects.

- **Energy:** Prepared a summary of recent Commonwealth energy legislation, Chapter 179 of the Acts of 2022, *An Act Driving Clean Energy and Offshore Wind*, including items relevant to MWRA operations. Assisted energy team with Site Host Agreement with local electrical utility regarding electric vehicle charging infrastructure at MWRA facility. Provided ongoing legal support the energy group regarding updates to the Cosgrove and Oakdale Hydro facilities' Interconnection Services Agreements with National Grid and associated interconnection processes. Review of HEEC information request filings in D.P.U. 22-56, *Petition of Harbor Electric Energy Company for approval by the Department of Public Utilities of its Capacity and Support Charge True-Up Adjustment for 2021*.

- **Environmental/NPDES:** Assisted TRAC with preparation of various documents, , and permitting templates. Assisted TRAC/Lab with response to request for data. Reviewed a Memorandum of Agreement with the Massachusetts Historical Commission. Provided legal support for Medium Wastewater Treatment Facility General NPDES Permit related to MWRA's Clinton Wastewater Treatment Facility and for Deer Island Wastewater Treatment Plant's NPDES permit renewal.

- **Miscellaneous:** Reviewed documents for submission to Records Conservation Board for disposal. Updated commonly used codes for reference guide using the current edition of the Massachusetts Statewide Records Retention Schedule. Drafted memorandum on archiving, scanning and purging records in compliance with the Massachusetts Statewide Records Retention Schedule. Finalized Professional Services Agreement for use in procuring

consultant services. Drafted professional Rules of Conduct memorandum. Reviewed bills SB3074 and HB4250 for completeness. Reviewed legislation related to certain easements at Hingham Pump Station and legislation related to release of sewer access easement at 777 Dedham Street in Canton. Further advised on certain prevailing wage law issues. Review of procurement documents for Metropolitan Water Tunnel Program lease for core storage facility. Reviewed MWRA Enabling Act Section 8(k) and drafted correspondence for use in securing electrical inspection for Chelsea Facility by DPS. Reviewed agreements for Deer Island Treatment Plant's demand response program, and terms of MWRA Contract numbers S590 and S594 concerning request for release of parental guarantee. Assisted with revisions to OP.10, *Admission of New Community to MWRA Water System*, regarding water supply entrance fees.

- **Public Records Requests:** During the 1st Quarter of FY23, MWRA received and responded to one hundred fifty-seven (157) public records requests.

LABOR, EMPLOYMENT AND ADMINISTRATIVE

New Matters

Unemployment appeal involving a former employee who alleges he resigned due to a medical condition.

Matters Concluded

Received an arbitrator's decision in favor of the MWRA following a hearing regarding a grievance alleging that it violated a collective bargaining agreement when employee was working out of title.

Received an arbitrator's decision in favor of the MWRA following a hearing regarding a grievance alleging that it violated a collective bargaining agreement when employee was not selected for promotion.

Received an arbitrator's decision in favor of the Union following a hearing regarding a grievance alleging that the MWRA violated a collective bargaining agreement when employee was suspended for three days.

Received an arbitrator's decision in favor of the Union following a hearing regarding a grievance alleging that the MWRA violated a collective bargaining agreement by reclassifying a position without bargaining over the pay rate.

A Union withdrew a demand for arbitration regarding a grievance alleging that MWRA violated a collective bargaining agreement when an employee was demoted.

A Union withdrew a charge of prohibited practice at the Massachusetts Department of Labor Relations alleging the MWRA violated Chapter 150E when it announced it would not bargain over the decision to make changes to job descriptions.

A Union withdrew a petition for mediation and fact-finding filed at Massachusetts Department of Labor Relations after parties reached agreement on a successor Collective Bargaining Agreement.
Received an MCAD dismissal due to complainant withdrawing charge.

LITIGATION/CLAIMS

New Lawsuits/Claims: There are no new Lawsuits to report for the First Quarter FY 2023.

Significant Developments: Conservation Law Foundation (CLF) v. MWRA, D. Mass.,Case No. 1:22-cv-10626-AK**:** On September 23, 2022, MWRA filed a motion to dismiss CLF's complaint.

Closed Cases: GEICO v. MWRA, Suffolk Superior Court C.A. No. 2184CV02107: A subrogation action arising out of a motor vehicle accident between the plaintiff's insured and an MWRA driver/vehicle was resolved by way of settlement. A Stipulation of Dismissal was filed with the court in August.

MWRA v. Saba Development LLC, et al, Suffolk Superior Court C.A. No. 2283CV00968: MWRA filed a complaint for declaratory judgment and injunctive relief against the defendants to stop unpermitted construction activities on a portion of the Sudbury Aqueduct abutting their residential property. A Notice of Voluntary Dismissal was filed with the court on August 26, 2022 after defendants' subsequent remediation of the site.

Closed Claims: There are no closed claims to report.

Subpoenas: During First Quarter FY 2023, no subpoenas were received and one subpoena was closed.

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

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of Sept 2022	As of June 2021	As of March 2021
Construction/Contract/Bid Protest (other than BHP)	0	0	0
Tort/Labor/Employment	1	3	4
Environmental/Regulatory/Other	4	4	3
Eminent Domain/Real Estate	0	0	0
Total	**5**	**7**	**7**
Other Litigation matters (restraining orders, etc.)	0	2	2
Total – all pending lawsuits	**5**	**9**	**9**
Claims not in suit:	0	0	0
Bankruptcy	2	2	1

Wage Garnishment	2	2	2
TRAC/Adjudicatory Appeals	0	0	0
Subpoenas	0	0	0
TOTAL – ALL LITIGATION MATTERS	**9**	**13**	**13**

TRAC/MISC.

New Appeals: There were no new appeals in the 1st Quarter FY 2023.

Settlement by Agreement of Parties There were no Settlements by Agreement of Parties in the 1st Quarter FY 2023.

Stipulation of Dismissal No Stipulations of Dismissal were filed in 1st Quarter FY 2023.

Notice of Dismissal Fine paid in full No Notices of Dismissal for Fines Paid in Full were filed in the 1st Quarter FY 2023.

Tentative Decision No Tentative Decisions were issued in the 1st Quarter FY 2023.

Final Decisions No Final Decisions were issued in the 1st Quarter FY 2023.

INTERNAL AUDIT AND CONTRACT AUDIT ACTIVITIES
1st Quarter - FY23

Highlights

During the 1st quarter FY23, Internal Audit (IA) commenced a fleet physical inventory of all plated vehicles and equipment in coordination with management. An updated Mandatory Confined Space Entry Training report aligned with the recently implemented Learning Management System is nearing completion. An internal review of water and wastewater license and certifications and an internal review of MIS assets are progressing.

Internal Audit completed 2 incurred cost audits (JCK Underground and Corrosion Probe Inc.). Internal Audit completed 4 labor burden reviews. IA also issued 10 indirect cost rate letters to consultants following a review of their consultant disclosure statements.

Management advisory services included support on the MWRA's leases. Internal Audit also participated in the managed cyber security services selection process.

Internal Audit also supported the issuance of 4 new policies while a few more are in process.

Status of Recommendations

During FY23, 1 recommendation was 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)	0	15	15
Total Recommendations	*0*	*15*	*15*

Note: The Compliance Status of Employees' Mandatory Confined Space Entry Training report issued on 6/30/21 has been retracted. An amended report will be issued in the 2nd[t] quarter FY23.

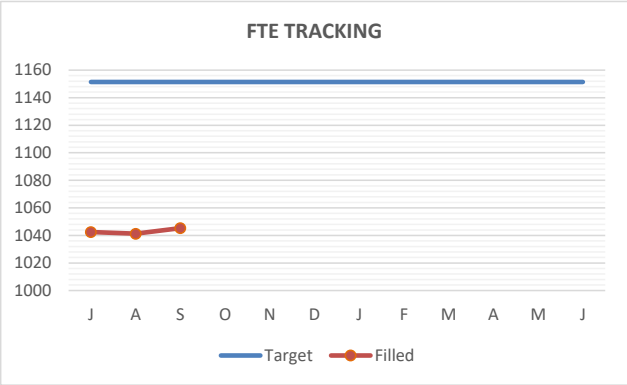
Cost Savings

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 Q1	TOTALS
Consultants	$262,384	$643,845	$563,525	$39,938	$103,088	$1,612,780
Contractors & Vendors	$3,152,884	$2,097,729	$1,547,223	$1,714,614	$733,130	$9,245,580
Internal Audits	$210,063	$212,517	$214,458	$222,554	$54,287	$913,879
Total	**$3,625,331**	**$2,954,091**	**$2,325,206**	**$1,977,106**	**$890,505**	**$11,772,240**

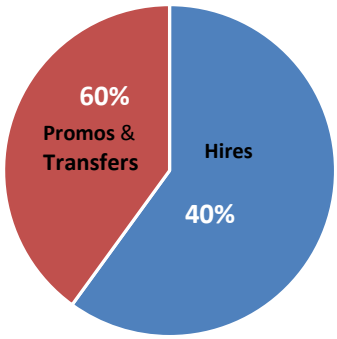
OTHER MANAGEMENT

Workforce Management
1st Quarter - FY23

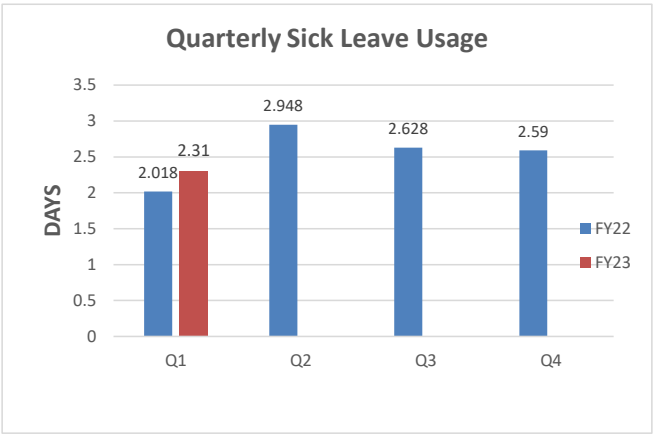


FY23 Target for FTE's = 1151.4
FTE's as of September 2022= 1045.3
Tunnel Redundancy as of Sept 2022 = 10

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	42 (60%)	28 (40%)	70



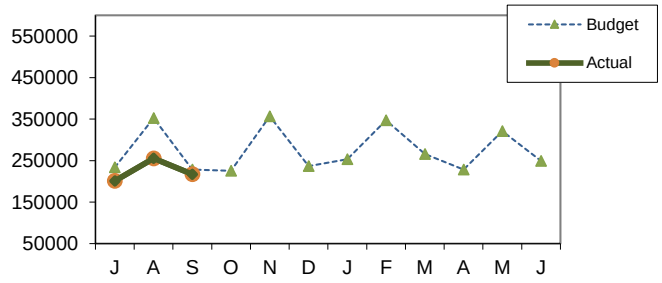
Average quarter;u sick leave for the 1st Quarter of FY23 has increase as compared to the 1st Quarter of FY22 (2.31 from 2.018)

Sick Leave and FMLA Usage by Division

	Number of Employees	YTD (usage to date)	Annualized Total	Annual FMLA %	FY22
Admin	131	2.64	10.55	36.4%	7.57
Aff. Action	5	1.85	7.40	0.0%	8.73
Executive	3	0.49	1.96	0.0%	3.11
Finance	46	1.48	5.91	18.2%	6.21
Int. Audit	4	2.16	8.63	0.0%	1.47
Law	12	1.97	7.87	31.1%	12.27
OEP	4	4.82	19.27	33.5%	5.56
Operations	835	2.33	9.33	16.4%	10.87
Tunnel Red	10	1.77	7.07	65.3%	3.94
Pub. Affs.	9	0.58	2.33	8.9%	11.41
MWRA Avg	**1059**	**2.31**	**9.24**	**19.6%**	**10.16**

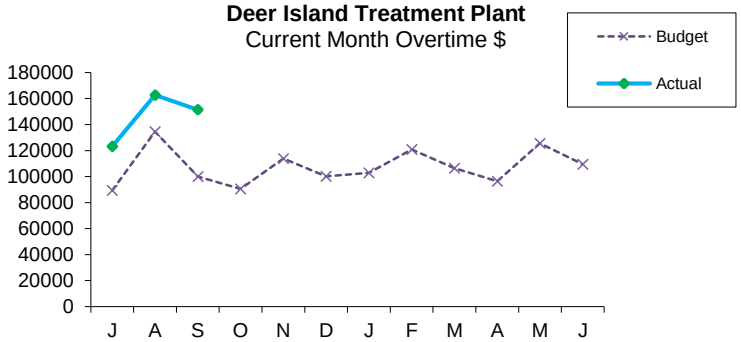
Percent of sick leave usage for FY23, attributable to Family and Medical Leave Act (FMLA) is 19.6 .

Field Operations
Current Month Overtime $



Total Overtime for Field Operations for first quarter was $657k which is $166k, or 19.7% under budget. Emergency overtime was $234k, which was only $316 under budget. Rain event emergencies were minimal due to drought in early part of 1st quarter (July & August). Coverage overtime was $256k, which is $62k, or 32% over budget, due to the shift coverage requirements of numerous vacancies. Planned overtime was $167k, under budget $30K, or 15.3%, due to a shortage of available fully complimented work crews.

Deer Island Treatment Plant
Current Month Overtime $

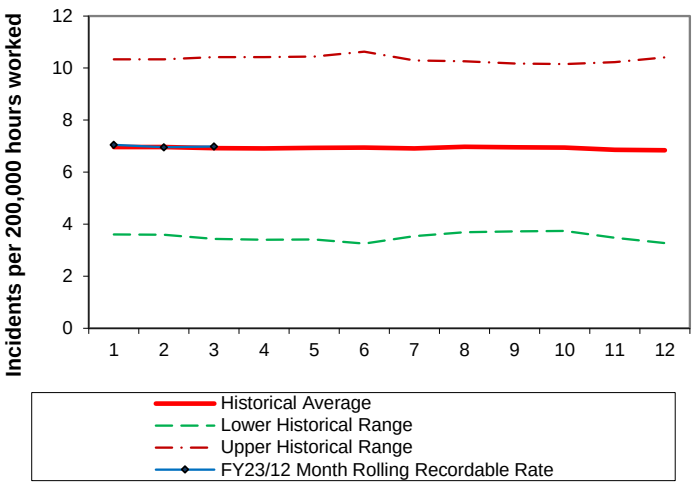


Deer Island's total overtime expenditure first quarter was $437K, which is $87K or 24.9% over budget due to higher than anticipated shift coverage of $78K and planned/unplanned overtime of $24K. This is offset by lower than anticipated storm coverage of ($15K).

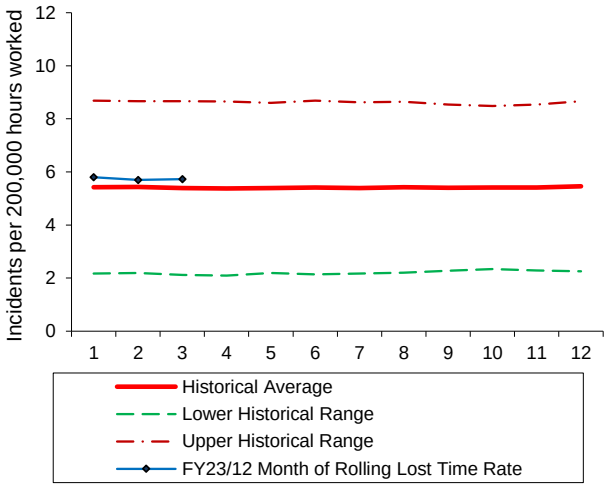
Workplace Safety

1st 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. The "Upper" and "Lower Historical Ranges" are computed using these same data – adding and subtracting two standard deviations respectively.

4 With Changes in state law, in February 1, 2019, MWRA began record keeping and reporting according to Federal OSHA standards for injury and illness record keeping. Strictly adhering to the federal OSHA reporting regulation has caused an increase in recorded injuries and illnesses. This increase is causing both the Recordable injury and illness Rate and the Lost TIme Injury and Illness rate to trend higher than in past years but does not necessarily mean there is an increase in injuries or illnesses. OSHA injuries and illnesses, and lost time are recorded differently than the Massachusetts Workers' Compensation standards and could result in an increase in the OSHA rate while the Workers' Compensation claims are decreasing. Over time, the rise on the charts should stabilize as new data replaces the older data..

WORKERS COMPENSATION HIGHLIGHTS

	1st Quarter Information		
	New	Closed	Open Claims
Lost Time	9	7	67
Medical Only	14	15	14
Report Only	17	17	
	QYTD		FYTD
Regular Duty Returns	9		9
Light Duty Returns	0		0
Indemnity payments as of September 2022 included in open claims listed			17

COMMENTS:

Regular Duty Returns

July	3	Employees returned to full duty/no restrictions
Aug	3	Employees returned to full duty/no restrictions
Sept	3	Employees returned to full duty/no restrictions

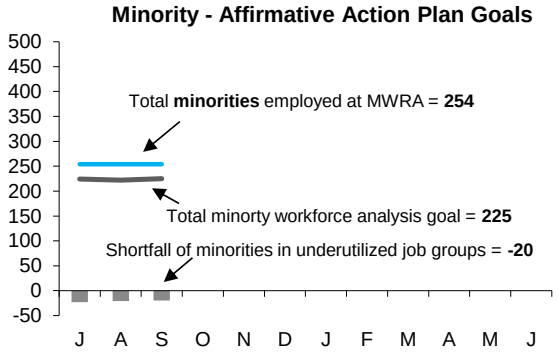
Light Duty Returns

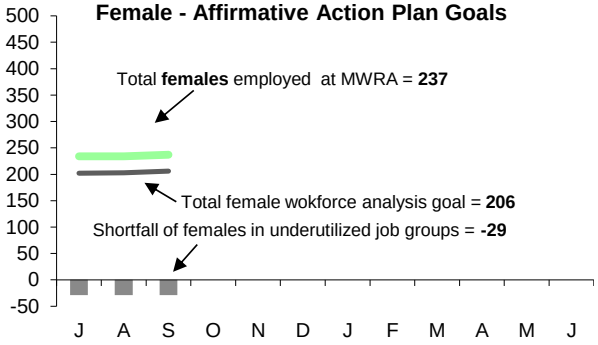
July	N/A
Aug	N/A
Sept	N/A

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

MWRA Job Group Representation

1st Quarter - FY23





Highlights:

At the end of Q1 FY23, 4 job groups or a total of 20 positions are underutilized by minorities as compared to 5 job groups for a total of 21 positions at the end of Q1 FY22; for females 8 job groups or a total of 29 positions are underutilized by females as compared to 5 job groups or a total of 16 positions at the end of Q1 FY22. During Q1, 3 minorities and 8 females were hired. During this same period 6 minorities and 5 females were terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 9/30/2022	Minorities as of 9/30/2022	Achievement Level	Minority Over or Under Underutilized	Females As of 9/30/2022	Achievement Level	Female Over or Under Underutilized
Administrator A	26	4	3	1	13	7	6
Administrator B	24	2	5	-3	6	6	0
Clerical A	23	8	3	5	19	17	2
Clerical B	23	7	6	1	3	11	-8
Engineer A	79	20	19	1	20	14	6
Engineer B	61	20	15	5	13	15	-2
Craft A	108	15	20	-5	0	5	-5
Craft B	122	21	23	-2	1	6	-5
Laborer	56	17	13	4	3	2	1
Management A	86	18	17	1	32	24	8
Management B	37	11	7	4	6	9	-3
Operator A	61	4	14	-10	2	4	-2
Operator B	64	19	6	13	3	1	2
Professional A	29	7	7	0	17	11	6
Professional B	148	44	44	0	67	38	29
Para Professional	48	16	10	6	24	25	-1
Technical A	55	18	11	7	6	9	-3
Technical B	8	3	2	1	2	2	0
Total	**1058**	**254**	**225**	**49/-20**	**237**	**206**	**60/-29**

AACU Candidate Referrals for Underutilized Positions

Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions/Transfers	AACU Ref. External	Position Status
Administrator B	Deputy Director, DIWWTP	1	Int./Ext.	1	0	PROMO = WM
Clerical B	Warehouse Materials Handler	1	Ext.	0	0	NH = WM
Engineer B	Staff Engineer	1	Ext.	0	0	NH = WM
Engineer B	Project Mnager, Process Control	1	Int.	1	0	TRANS = WM
Engineer B	Project Manager, Proc Eng & Ctrl	1	Int.	1	0	PROMO = WF
Engineer B	Assistant Civil Engineer	1	Int.	1	0	PROMO = WM
Craft A	Sr Med Volt Elect Specialist	1	Int.	0	0	NH = WM
Craft A	Fencing Foreman	1	Int.	1	0	PROMO = WM
Craft A	Unit Supervisor, Machinist	1	Int.	1	0	PROMO = WM
Craft A	Trades Foreman	1	Int.	1	0	PROMO = WM
Craft A	Med Volatage Elect Specialist	1	Int.	1	0	PROMO = WM
Craft B	Facilities Specialist	2	Int./Ext.	1	0	NH=WM PROMO=WM
Craft B	Electrician	1	Ext.	0	0	NH = WM
Craft B	Instrument Technician	2	Int./Ext.	2	0	PROMO = 1HM, 1WM
Operator A	Area Supervisor	2	Int.	2	0	PROMO = 2WM
Operator A	Transmission & Treatment Operator	2	Int./Ext.	2	0	PROMO = 2WM
Para Professional	Records Center Specialist	1	Ext.	0	0	NH = WF
Para Professional	Administrative Systems Coord	1	Ext.	0	1	NH = WF
Technical A	Systems Admin III (Systems)	1	Ext.	0	0	NH = BM
Technical A	Sr. Prog. Manager, Applicaton Group	1	Int./Ext.	1	0	PROMO = WM
Technical A	Communication & Control Tech	1	Int./Ext.	1	0	PROMO = HM
Technical A	Sr. Instrument Technician	2	Int.	2	0	PROMO = 1BM, 1WM

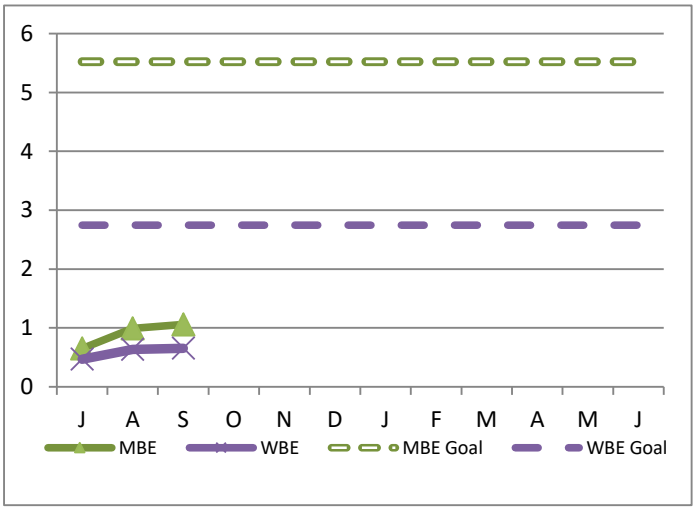
MBE/WBE Expenditures

1st Quarter - FY23

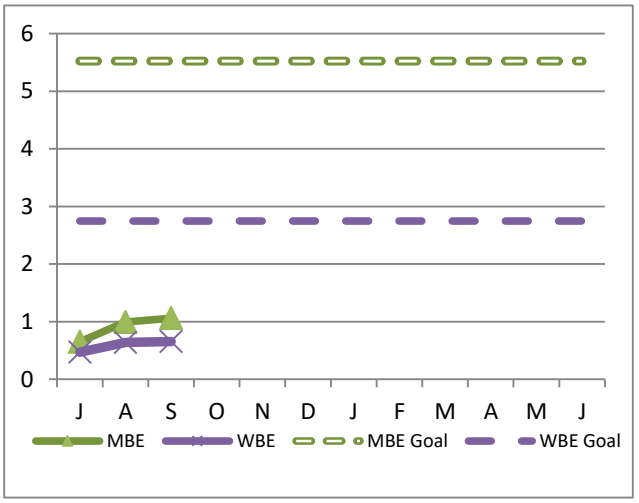
MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. The goals for FY23 are based on 85% of the total construction and 75% of the total professional projected spending for the year. Certain projects have been excluded from the goals as they have no MBE/WBE spending goals.

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

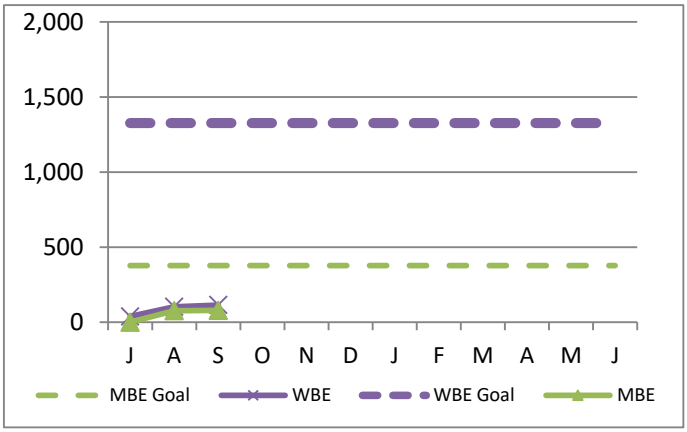
Construction



Professional Services



Goods/Services



FY22 spending and percentage of goals achieved, as well as FY21 performance are as follows:

MBE					WBE			
FY23 YTD		FY22			FY23 YTD		FY22	
Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent
124,073	1.5%	3,102,188	56.2%	Construction	134,334	3.3%	1,276,049	46.5%
1,055,496	36.0%	3,156,867	147.1%	Prof Svcs	342,431	14.5%	1,737,850	100.8%
14,124	3.4%	387,120	102.7%	Goods/Svcs	62,122	4.8%	365,393	27.6%
1,193,693	10.4%	6,646,175	82.6%	**Totals**	538,887	7.0%	3,379,292	58.3%

FY22 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

MWRA FY22 CEB Expenses through 1st Quarter – FY23

As of September 2022, total expenses are $192.4 million, $6.7 million or 3.3% lower than budget, and total revenue is $210.3 million, $1.1 million or 0.5% over budget, for a net variance of $7.7 million.

Expenses –

Direct Expenses are $61.0 million, $4.9 million or 7.5% under budget.

- **Wages & Salaries** are $2.9 million under budget or 10.7%. Regular pay is $3.0 million under budget, due primarily to lower head count, and timing of backfilling positions. YTD through September, the average Full Time Equivalent (FTE) positions was 1,053, one hundred and fourteen fewer than the 1,167 FTE's budgeted.
- **Ongoing Maintenance** is $2.3 million under budget or 23.5%. The variance reflects the actual timing of projects and in this case the biggest driver of the underspending is the delayed start of the Norumbega Tank cleaning project ($1.3 million).
- **Other Services** expenses are $344k under budget or 4.7%, primarily due to by lower Sludge Pelletization expense of $274k and by telecommunication costs of $202k, partially offset by higher spending of $334k on Memberships, Dues, and Subscriptions due to timing.
- **Workers Compensation** expenses are $238k under budget or 37.8%, primarily due to lower spending for Compensation Payments of $165k and Medical Payments of $60k.
- **Fringe Benefits** expenses are $199k under budget or 3.4%, primarily due to lower health insurance expense, reflecting the lower headcount.
- **Utilities** expenses are $651k over budget or 10.2%, due to higher electricity spending of $686k. Higher electricity prices are due to higher real time energy costs. This reflects higher spending for electricity at Deer Island of $558k due to lower than budgeted on-site generation which resulted in a 4.1% increase in purchased power.
- **Chemicals** are $308k over budget or 7.3% due to higher spending for Sodium Hypochlorite, $372k over budget, reflecting higher contract price at Carroll Water Treatment Plant and greater usage at DI due to lower flows and greater need for odor control.
- **Other Materials** expenses are $178k over budget or 15.9%, as vehicle purchases were $264k over budget due to timing of those purchases, partially offset by delayed computer software purchases which are $80k under budget.

Indirect Expenses are $20.1 million, $154k or 0.8% under budget due to lower Watershed Reimbursement.

Capital Finance Expenses totaled $111.2 million, $1.6 million or 1.4% under budget, reflecting lower than budgeted variable interest expense.

Revenue and Income –

Total Revenue and Income is $210.3 million, or $1.0 million over budget. Investment income was the driver at $1.1 million over budget, reflecting higher than budget interest rates.

	Sep 2022 Year-to-Date			
	Period 3 YTD Budget	Period 3 YTD Actual	Period 3 YTD Variance	%
EXPENSES				
WAGES AND SALARIES	$ 27,275,738	$ 24,369,145	$ (2,906,593)	-10.7%
OVERTIME	1,340,698	1,227,717	(112,981)	-8.4%
FRINGE BENEFITS	5,878,843	5,679,767	(199,076)	-3.4%
WORKERS' COMPENSATION	629,938	392,086	(237,852)	-37.8%
CHEMICALS	4,210,951	4,518,863	307,912	7.3%
ENERGY AND UTILITIES	6,408,929	7,059,772	650,843	10.2%
MAINTENANCE	9,667,385	7,397,249	(2,270,136)	-23.5%
TRAINING AND MEETINGS	118,685	53,970	(64,715)	-54.5%
PROFESSIONAL SERVICES	1,979,888	2,063,894	84,006	4.2%
OTHER MATERIALS	1,123,654	1,302,053	178,399	15.9%
OTHER SERVICES	7,315,384	6,971,362	(344,022)	-4.7%
TOTAL DIRECT EXPENSES	**$ 65,950,093**	**$ 61,035,878**	**$ (4,914,215)**	**-7.5%**
INSURANCE	$ 979,001	$ 993,831	$ 14,830	1.5%
WATERSHED/PILOT	4,112,924	3,944,177	(168,747)	-4.1%
HEEC PAYMENT	1,583,031	1,583,031	-	0.0%
MITIGATION	433,924	433,924	-	0.0%
ADDITIONS TO RESERVES	604,613	604,613	-	0.0%
RETIREMENT FUND	12,555,203	12,555,203	-	0.0%
POST EMPLOYEE BENEFITS	-	-	-	---
TOTAL INDIRECT EXPENSES	**$ 20,268,696**	**$ 20,114,778**	**$ (153,917)**	**-0.8%**
STATE REVOLVING FUND	$ 21,896,288	$ 21,896,288	$ -	0.0%
SENIOR DEBT	72,379,983	72,379,983	-	0.0%
DEBT SERVICE ASSISTANCE	(1,182,494)	(1,182,494)	-	0.0%
CURRENT REVENUE/CAPITAL	-	-	-	---
SUBORDINATE MWRA DEBT	18,941,471	18,941,471	-	0.0%
LOCAL WATER PIPELINE CP	-	-	-	---
CAPITAL LEASE	804,265	804,265	-	0.0%
VARIABLE DEBT	-	(1,596,318)	(1,596,318)	---
DEFEASANCE ACCOUNT	-	-	-	---
DEBT PREPAYMENT	-	-	-	---
TOTAL CAPITAL FINANCE EXPENSE	**$ 112,839,514**	**$ 111,243,196**	**$ (1,596,318)**	**-1.4%**
TOTAL EXPENSES	**$ 199,058,303**	**$ 192,393,852**	**$ (6,664,450)**	**-3.3%**
REVENUE & INCOME				
RATE REVENUE	$ 203,662,000	$ 203,662,000	$ -	0.0%
OTHER USER CHARGES	2,694,427	2,662,567	(31,860)	-1.2%
OTHER REVENUE	800,490	811,144	10,654	1.3%
RATE STABILIZATION	245,000	245,000	-	0.0%
INVESTMENT INCOME	1,846,458	2,924,676	1,078,218	58.4%
TOTAL REVENUE & INCOME	**$ 209,248,375**	**$ 210,305,387**	**$ 1,057,012**	**0.5%**

Cost of Debt
1st Quarter – FY23

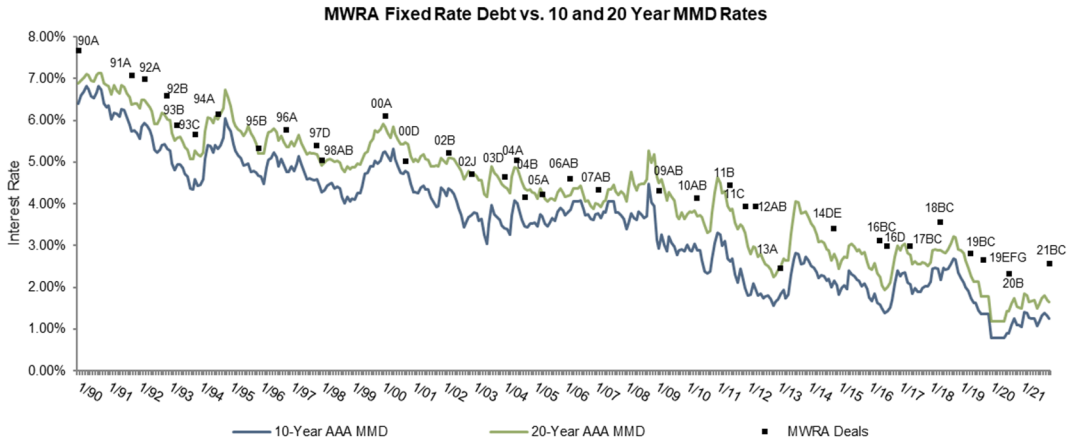
MWRA borrowing costs are a function of the fixed and variable tax exempt interest rate environment, the level of MWRA's variable interest rate exposure and the perceived creditworthiness of MWRA. Each of these factors has contributed to decreased MWRA borrowing costs since 1990.

Average Cost of MWRA Debt FYTD

Fixed Debt ($3.20 billion)	3.28%
Variable Debt ($269.01million)	1.84%
SRF Debt ($758.6 million)	1.67%
Weighted Average Debt Cost ($4.22 billion)	2.90%

Most Recent Senior Fixed Debt Issue
December 2021

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

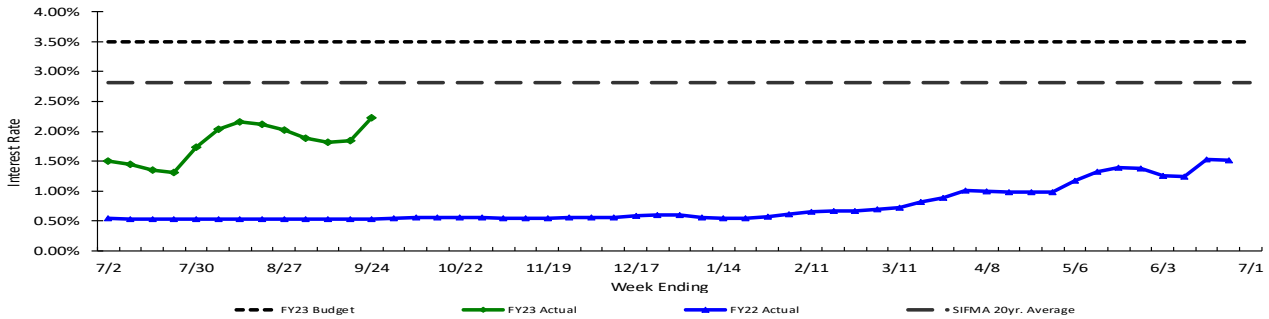


Bond Deal	1996A	1997D	1998AB	2000A	2000D	2002B	2002J	2003D	2004A	2004B	2005A	2006AB	2007AB	2009AB
Rate	5.78%	5.40%	5.04%	6.11%	5.03%	5.23%	4.71%	4.64%	5.05%	4.17%	4.22%	4.61%	4.34%	4.32%
Avg Life	19.5 yrs	21.6 yrs	24.4 yrs	26.3 yrs	9.8 yrs	19.9 yrs	19.6 yrs	18.4 yrs	19.6 yrs	13.5 yrs	18.4 yrs	25.9 yrs	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	18.8yrs	11.2 yrs	11.7yrs	11.9yrs	9.73 yrs.	15.6 yrs	12.2 yrs

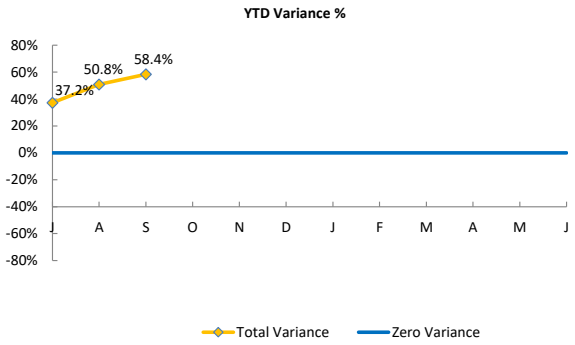
Weekly Average Variable Interest Rates vs. Budget

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 September, the SIFMA rate ranged from a high of 1.96% to a low of 1.3% for the month. MWRA's issuance of variable rate debt, although consistently less expensive in recent years, results in exposure to additional interest rate risk as compared to fixed rate debt.



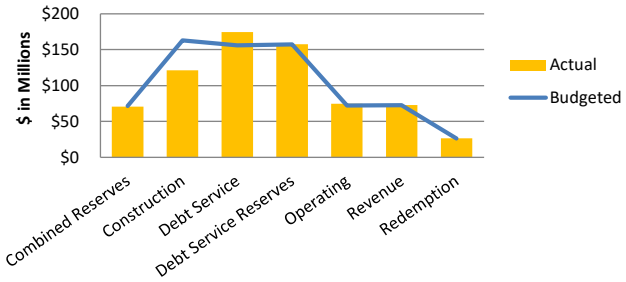
Investment Income
1st Quarter – FY23

Year To Date

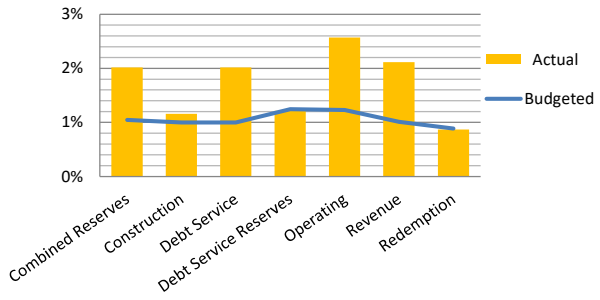


	YTD BUDGET VARIANCE ($000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	($2)	$101	99	81.7%
Construction	($188)	$181	(6)	24.2%
Debt Service	$43	$287	330	101.7%
Debt Service Reserves	$0	($7)	(7)	-2.2%
Operating	$8	$108	116	74.7%
Revenue	$0	$90	90	74.7%
Redemption	$0	($1)	(1)	-2.0%
Total Variance	($139)	$760	$621	58.4%

YTD Average Balances Budgeted vs. Actual

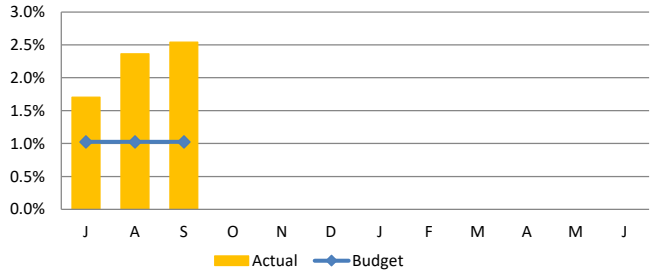


YTD Average Interest Rate Budgeted vs. Actual

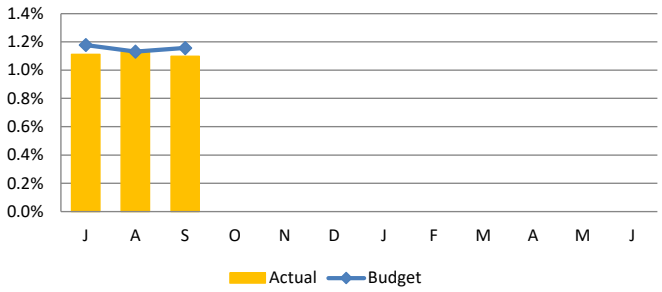


Monthly

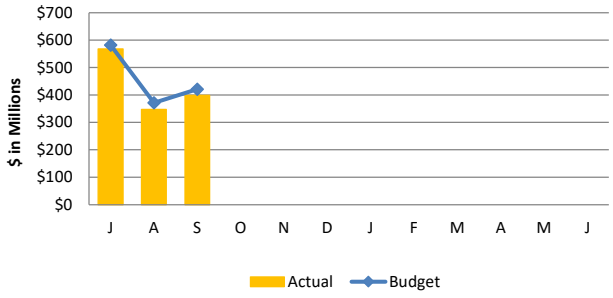
Short -Term Interest Rates



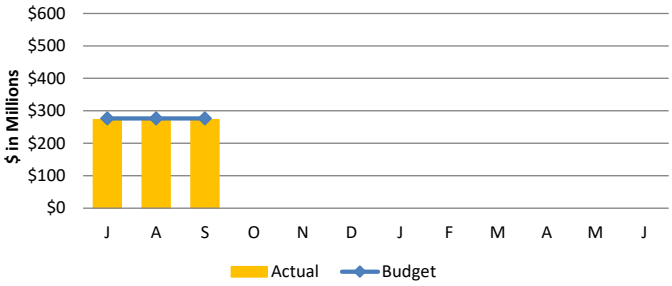
Long -Term Interest Rates



Short-Term Average Balances



Long-Term Average Balances



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: FY21-FY25 Strategic Business Plan: Annual Update for FY22

COMMITTEE: Administration, Finance and Audit

__X__ INFORMATION
____VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Denise Breiteneicher, Program Manager, Energy and Environmental Management
Preparer/Title

David W. Coppes, P.E
Chief Operating Officer

The MWRA's five-year Business Plan, covering FY21 through FY25, was presented to the Board in December 2020. The plan described MWRA's mission, identified values, and outlined six key strategic priorities and 20 goals, as well as specific initiatives associated with these goals, which provide a framework for MWRA's business initiatives over the five-year period. This staff summary presents a review of the second year of the current five-year business plan, including accomplishments and progress made on initiatives.

RECOMMENDATION:

For information only.

DISCUSSION:

The FY21-FY25 MWRA Business Plan is a strategic blueprint that articulates the mission statement, values, and goals of the agency as well as specific initiatives associated with these goals to be achieved or evaluated over the five-year period. The document was developed as a tool to guide staff in prioritizing projects and programs within the broader framework of MWRA goals and mandates, and to evaluate system-wide performance.

Six strategic themes integral to MWRA's mission form the basis of the Plan, and are as follows:

I. Drinking Water Quality and System Performance;
II. Wastewater Management and System Performance;
III. Infrastructure Management and Resilience ;
IV. Finance and Management;
V. Diversity, Equity, Inclusion, and Workforce Development; and
VI. Environmental Sustainability.

MWRA identified a series of goals to help it achieve its stated priorities, as well as Core Initiatives and Special Initiatives that described the specific projects and direction MWRA plans to undertake over this five-year period. Core Initiatives address the activities that MWRA must do to meet its performance goals, regulatory requirements and financial commitments. Special Initiatives

address activities, projects and emerging issues that staff will be assessing or undertaking in order to improve MWRA's performance of its core responsibilities. For example, existing reporting mechanisms, such as the Orange and Yellow Notebooks, continue to be used to track monthly and quarterly performance.

The annual update allows MWRA to assess progress toward achievement of its goals as well as to assess progress made on individual projects within Core Initiatives and on Special Initiatives. It also provides an opportunity for managers to review projects at a high level and decide whether the priority status of the project has changed since the development of the current Business Plan, and whether the level of resources devoted to the project should remain the same or be increased or reduced.

The attached document presents all the goals by priority areas with the associated initiatives. Symbols included show progress made in FY22, and an associated list of highlights for each initiative. Completed items are identified. Arrows identify many initiatives related to ongoing requirements.

Some of the highlights for FY22 listed by strategic theme are:

Drinking Water Quality and System Performance

- In May 2022, MassDEP presented MWRA with a large public water system award for noteworthy public service delivered during 2021.
- Staff conducted outreach and training on lead service line replacement, including a joint training session with the MWRA Advisory Board in May 2022.
- In FY22, the Annual Water Quality Report was publicized on Twitter and in other news outlets. The monthly water quality reports were posted regularly and sent directly to subscribers through the Everbridge application.

Wastewater Management and System Performance

- MWRA received the Platinum award for the Deer Island Treatment Plant from the National Association of Clean Water Agencies for 15 consecutive years without a NPDES violation.
- In December 2021, MWRA submitted the Final CSO Post Construction Monitoring Program and Performance Assessment Report. The performance assessment documented 70 of the 86 original CSOs that have met, or materially met, the goals established. However, 16 CSOs fell short of the required activation frequency and/or volume goals. Projects are in design or construction to improve CSO performance at 10 of the 16 locations. Investigations continue on the remaining six particularly challenging sites.
- The Nut Island Headworks Odor Control and HVAC Systems Improvements construction contract is 78% complete, with substantial completion expected in summer 2023.
- In FY22, an additional $31.1 million in MWRA grants and interest-free loans were distributed to member sewer communities to implement projects

Construction at Nut Island

to reduce inflow and infiltration. In total, more than $515 million in grants and loans have been distributed to fund 648 local projects. All 43 sewer communities are participating.

Infrastructure Management, Resilience, and Redundancy

- Staff continued to implement measures to protect MWRA's assets from cyber attacks, including improving the SCADA network architecture to enhance security and continuing training for all staff in cybersecurity awareness, as well as advanced technical cyber security topics for Informational and Operational Technology staff.
- Construction began on several water pipeline sections, including replacement of sections 89 and 29 of the Northern Intermediate High and rehabilitiation of Sections 23, 24 and 47, which will provide redundancy to Boston and Watertown when complete.
- The new wastewater meter system was installed and tested on schedule by the end of Q2 FY22. The new meters are now being used for billing of communities as of January 2022.
- Preparation of the Draft Environmental Impact Report for the Metropolitan Water Tunnel Program was initiated in FY22.

New Wastewater Meter in Sewer

Financial and Management

- Work began in FY22 on the process of upgrading the office space in Chelsea and Deer Island to accommodate the CNY staff that will be relocating by the end of FY23.
- Several MIS applications were implemented to allow more team communication and collaboration across a distributed workforce, including WebEx virtual meetings and call capabilities. With the implementation of the new phone system, unified communications in the form of calling, instant messaging, and virtual meetings are being consolidated to one application.

Diversity, Equity, Inclusion and Workforce Development

- MWRA launched a new public facing Environmental Justice web page. This page includes a variety of resources, including links to other MWRA web pages, such as the construction project summary pages and the job posting page.
- MWRA partnered with Vocational Technical Schools, successfully placing two Massachusetts high school students into co-op positions. Staff are looking to expand the program and place more students.
- MWRA expanded use of social media and other online recruitment tools to increase access to diverse pools of candidates, adding the American Society for Civil Engineers and the Black Boston social media platforms in FY22.

Environmental Sustainability

- Staff continued efforts to reduce MWRA's greenhouse gas emissions in compliance with the Governor's Executive Order through the following activities:

  - An additional fiv3 all-electric Chevy Bolts and six Level II and four Level III chargers were purchased. There are now a total of 15 Bolts and three Volts in MWRA's fleet.
  - Energy efficient LED lighting upgrades at both the Clinton and the Carroll treatment plants were completed in FY22. Additional LED lighting upgrades were completed at Nut Island.
  - Staff continued to incorporate energy efficiency components in all facility rehabilitations.

New LED Lights at Clinton Treatment Plant

- Staff applied for and received grant funding from the Massachusetts Clean Energy Center for an assessment of the hydro turbines at Deer Island. The feasibility study, which will look at replacing or refurbishing the existing two 1.1 MW hydro turbines to optimize their generation, will begin in late FY23.
- Staff initiated two water system expansion studies in FY22, one for the South Shore and another for the Ipswich River Basin communities.

BUDGET/FISCAL IMPACT:

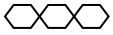
Any budgetary impacts of the initiatives in the Business Plan are accounted for in the CEB and CIP.

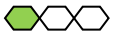
ATTACHMENTS:

Attachment 1: MWRA Five Year Strategic Business Plan, FY21-FY25 (link below)
https://www.mwra.com/publications/businessplan/2021-2025finalmwrabp.pdf

Attachment 2: Review of MWRA Five Year Strategic Business Plan, FY21-FY25, with FY22 updates

KEY:

Not started 

Initiated 

In progress 

Achieved 

On-going Core Activities ⟶

I. Drinking Water Quality and System Performance

Goal #1: Maintain drinking water quality to protect public health, and continue to ensure that MWRA water meets all applicable regulations.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Optimize operation of water treatment facilities to produce high quality, safe drinking water while maximizing water aesthetics (e.g. taste, clarity, and odor).	⟶	• MWRA met all regulatory requirements for safe drinking water. • In May, 2022 MassDEP awarded MWRA with a large public water system award for noteworthy public service delivered during 2021. • Updated standard operating procedures and reporting for assessing disinfectant dosing at Brutsch and Carroll water treatment plants. • Developed a response plan for a loss of disinfection in the CVA system. • Participated in expert panel discussions for corrosion control and distribution system water quality topics. • Developed a bulk chemical inventory emergency action plan. Communicated details to senior managers. Kept consistent communications with bulk chemical vendors to ensure adherence to inventories and delivery schedules.
B. Monitor drinking water quality in collaboration with member communities and the Department of Conservation and Recreation (DCR) in order to	⟶	• MWRA continues to coordinate monitoring efforts with DCR for both routine algae and algal toxin monitoring as well as reservoir emergency response planning. . Staff from both organizations participated in a reservoir

verify high quality water and provide guidance for operating decisions.		response sampling event during a June, 2022 drill. • MWRA continued weekly inspections to monitor for cyanobacteria blooms in standby and active reservoirs during May-September using a GIS Environmental Systems Research Institute application. • MWRA continued to coordinate field and laboratory resources to aid local water departments and in-house staff in resolution of water quality complaints, low chlorine residuals or coliform detections, and water storage tank cleaning projects or activations. In FY22, staff assisted communities with sampling on 22 occasions and with water quality complaint sampling on 3 occasions. Staff assisted with offline pipeline or tank clearance sampling on 28 occasions. • Distributed data regarding key water quality parameters and reservoir conditions (during summer months) electronically every morning. • Continued MWRA research work with UMass Amherst under new Interdepartmental Service Agreement to investigate strategies to minimize contaminants of concern such as disinfection by-products, algae and algal toxins in MWRA's finished water. • Continue to assist communities with sampling plan updates, level assessments, water quality complaint reporting, MWRA's ERP training sessions, and data requests. • Performed training in various capacities including, six training sessions for drinking water sampling. Commenced development of training presentation modules for source reservoir spill contamination response.
C. Ensure reliability of data presented in required regulatory compliance reports.	→	• Increased the number of processes that are currently automated.

		• First draft of the CCR automation script has been completed. • Automation of the weekly Water Quality report complete. Currently the automated reports are being tested against legacy-generated reports for any issues that needs to be addressed before being released.
D. Work cooperatively with DCR on various water quality initiatives including chloride, nutrients, algae and disinfection byproduct precursor monitoring programs. Jointly develop operational response plans for nuisance and harmful algal blooms, algal toxin detections, and taste and odor events.	→	• Staff reviewed and commented on the update of the Quabbin, Ware and Wachusett Watersheds Protection Plans. • Staff met with DCR and UMass Amherst to review seasonal increases in total coliform counts in the Quabbin Reservoir. Investigative research studies to determine cause of seasonal coliform bloom were initiated under DCR's existing Interdepartmental Service Agreement with UMass Amherst. • Staff participated in an MWRA/DCR work group to help both agencies work together on monitoring programs. MWRA staff also met with an algal treatment vendor to assess copper-based treatment efficacy on *Chrysosphaerella* algae for use at Quabbin.
E. Continue to encourage DCR to meet its obligations under its Watershed Protection Plan overseen by the Water Supply Protection Trust, and monitor progress toward achieving those obligations.	→	• Conducted regular senior manager coordination, reservoir operations, and water quality monitoring/laboratory meetings. • Facilitated annual DEP inspection visits under the filtration avoidance determination. • Continued active involvement on DCR Land Acquisition processes, and presented proposed acquisitions to MWRA Board. From MWRA's creation in 1985 through 2022, a total of 27,454 acres have been protected at a total cost of $143.7 million. This amount includes MWRA's commitment of $29.0 million to date for watershed land acquisitions, of which $27.4 million has been spent through September 2022. Furthermore, MWRA has proposed another

		$5M (or $1M/year) in the next 5-year CIP cap.
F. Operate the reservoir system to optimize both quality and quantity of water available for water supply purposes and to meet statutory and regulatory requirements for downstream releases.	→	• Met all statutory requirements for downstream releases. • MWRA achieves exceptional raw water quality through effective water transfer between the Quabbin and the Wachusett Reservoirs, based on amount and timing of transfers. • MWRA completed annual standby reservoir monitoring during annual water quality sonde profiling and grab sample analysis. • Installed new YSI nitrate sensor on the Quabbin reservoir buoy. • Sudbury Reservoir, Foss Reservoir, Chestnut Hill Reservoir, Fells Reservoir, and Spot Pond are all kept within their normal operating ranges. Level control has been maintained through the removal of excess water when the elevation has been above the normal operating range.
G. Implement database management systems for handling data, and incorporating web-based technologies for reporting near real time water quality metrics and provide easy access to data to the MWRA community.		• In FY22, staff developed automated applications accessible on the Data Management Group's internal web site. Staff continue web page development with links to reports, applications, SOPs, regulations and administrative content. • Working with MIS and a contract vendor, staff facilitated the upgrade of Aquarius 3.10 to Aquarius NG for regulatory disinfection compliance reporting.
H. Enhance the safety and security of the water supply and watershed system against accidental or intentional threats and hazards.	→	• Continued implementation of consequence management practices to guide alarm response at contaminant monitoring locations. In FY22, twenty seven actionable alarm events were responded to across MWRA contaminant monitoring system locations.

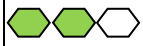
		• Conducted demonstration testing of next generation online contaminant monitoring systems at Carroll Water Treatment Plant. • Continued seasonal deployment of water quality profiling buoys and sondes for monitoring source water quality and collecting profiling data in Wachusett and Quabbin Reservoirs. Three buoys were deployed in Wachusett Reservoir at Basin South, Basin North and the intake locations and one buoy was deployed in Quabbin Reservoir near the intake. Data is processed in real-time, and can be viewed through Buoy App found at DMG Homepage as well as from the daily emails sent from DMG.
I. Maintain water quality sampling from treatment to throughout the distribution system, including monitoring for emerging contaminants.		• MWRA received a MassDEP waiver for additional monitoring for PFAS components in drinking water for both Quabbin & Wachusett systems. • Purchased instrumentation to add the capability to monitor PFAS in-house in FY21 and were certified by MA DEP to do drinking water testing in FY22; we expect to start performing wastewater testing for PFAS in FY23. • Began coordination with communities in preparation for UCMR5.
J. Identify and evaluate the impact of different treatment strategies and scenarios on the mitigation of transportation related contaminants into the source water. COMPLETED		• Completed UMass Amherst research project to evaluate strategies for minimizing impacts of an oil spill and cyanotoxins in Wachusett Reservoir using treatment scenarios at the Carroll Water Treatment Plant on December 2020. Findings from the final report were presented to MWRA and DCR staff at the Reservoir Operations meeting.
K. Evaluate new water quality monitoring equipment and testing techniques to monitor and maintain high quality water all the way to the ends of the community systems.		• Completed the purchase of a water quality profiling buoy for Quabbin Reservoir. Buoy was successfully installed in FY22. • In FY21/22, staff developed a draft report for multi-year review of water quality data for all standby reservoirs. Draft will be finalized and ready for dissemination in FY23. Purchased three new total chlorine

		residual monitors in FY22; will begin lending them to communities in FY23.
L. Participate with other water utilities nationwide in Water Research Foundation studies, specifically researching opportunities pertaining to algae monitoring and mitigation strategies in source water		• In FY22, participated in Water Research Foundation studies on PFAS, Lead Pipe Rig design, Legionella, and other distribution system water quality issues. • Continued collaboration with NYC on watershed programs, following publication of National Academies of Science review.
M. Collaborate with CVA communities to modify chlorine dosing strategy to minimize the formation of disinfection byproducts. COMPLETED		• New chlorine dosing strategy and residual targets continues to be implemented in BWTF-CVA system in collaboration with CVA community Superintendents to minimize disinfection by-products.
N. Evaluate data from UCMR4 2018-2020 monitoring and compare against nationwide occurrence data. COMPLETED		• Completed UCMR4 monitoring on behalf of the communities and posted all data on MWRA's website, responded to public questions on the data, and used the data to demonstrate MWRA's excellent source water quality.
O. Advocate for responsible and reasonable new and revised state and federal drinking water regulations, and provide training and technical support to communities for new regulations.		• MWRA staff continue to be active in state and federal review of the Lead and Copper Rule, and Unregulated Contaminant Monitoring Rule 5, as well as other proposed rule and guidance changes. Participated in DEP/EPA work group on lead public notice and public education templates, and DEP/DPH work group on Disinfection Byproducts public notice template. • MWRA staff are closely tracking EPA's efforts to regulate PFAS. In June 2022, EPA issued new Health Advisories (HAs) for four PFAS compounds, including new HAs for PFOS (perfluorooctanesulfonic acid) and (perfluorooctanoic acid) PFOA. The HAs for PFOS and PFOA are significantly lower than previous and are lower than the detection limits for current EPA approved analytical methods. New proposed Maximum Contaminant Limits (MCLs) for PFOS and PFOA will likely be issued in late 2022.

		• Conducted training session on Lead and Copper Rule revisions for all MWRA communities.

Goal #2: Continue to effectively report and communicate water quality information to our customers and public officials.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Distribute the federally required annual water quality report, the Consumer Confidence Report (CCR), to all households.	→	• Completed Annual Water Quality report in June and distributed to homes, as well as posted on MWRA website. Additional focus in FY22 was on MWRA's robust monitoring programs and lead-related issues.
B. Maintain and improve water quality and public health information on MWRA's web page, www.MWRA.com, and through widely distributed weekly and monthly reports.	→	• During FY22, MWRA continued to update and add water quality information to its website. • In FY22, the Annual Water Quality Report was prominently featured at the top of the home page and was publicized through Twitter and other news outlets. The monthly water quality reports were posted regularly and sent directly to subscribers through the Everbridge application. • MWRA again participated in AMWA's "Imagine A Day Without Water" in October 2021 and AWWA's "Drinking Water Week" in May 2022 with relevant postings on MWRA.com and Twitter.
C. Regularly communicate routine TCR monitoring data to Water Departments and assist with water quality sampling or training, as needed	→	• Developed and distributed monthly reports to member communities with data from their Total Coliform Rule sampling events. • Installed, developed and uploaded monitoring data in Excel and Microsoft Access databases. This is an ongoing project. Automation of CCR and Weekly report completed. • In coordination with MIS, developing a community-OMMS web-portal to enable community access to latest water quality data.
D. Continue to strengthen planning and emergency response documents for Boil Water Order (BWO) events. Create, disseminate and train staff on	→	• An SOP and training materials have been developed for use in training volunteers staffing a public information call center.

materials that can be used during a BWO event or at a public information call center.		
Goal #3: Assist member communities to improve local water distribution systems through ongoing financial, technical and operational support programs to maximize long-term water quality benefits.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Provide technical and operational support through training, on-call contracts, and targeted assistance, as needed.	→	• During FY22, MWRA's lab completed 1,416 tests from 96 schools and childcare facilities in 34 communities. Since 2016, MWRA's Laboratory has conducted over 40,000 tests from 538 schools and daycares in 44 communities. We have also completed over 700 home lead tests under the DPH sampling program since 2017. • Provided technical and sampling assistance to communities during water quality events and water main breaks, covering 21 events. • Provided assistance to 19 communities for leak detection and 11 communities for valve operations. • Conducted virtual MWRA community Emergency Response Plan Training sessions and discussed various water quality subjects including coliform, PFAS, pandemic response, cyber security and changes to the lead rules. • MWRA continues to provide drinking water sampler training. This endeavor has now switched to online video-based training. Staff continue to train newly hired samplers upon community request or in response to coliform events. Staff held six training events in FY22.
B. Promote and manage MWRA's Local Water System Assistance Program to help facilitate improvements in local community infrastructure.	→	• In FY22, an additional $32.4 million in MWRA interest-free loans were distributed to member water communities. In total, more than $499 million in loans have been distributed to fund 500 local projects to 43 of 45 eligible water communities participating. Since 1998, 593 miles of local water main have been replaced or cleaned and lined (about 9% of the regional system)

		via projects funded by MWRA financial assistance. In FY17, $100 million lead service line replacement loan program began; in FY22, an additional $6.3 million was distributed to member water communities in this program. In total, $31.4 million in loans targeting full removal of lead water services have been distributed. • Conducted significant outreach associated with the addition of the lead service line replacement program, as well as additional outreach on other local lead issues.
C. Enhance outreach and technical assistance within the existing Lead Service Line Replacement program to support communities as they respond to EPA's revisions to the Lead and Copper Rule.		• Coordination with the Advisory Board on development of Phase 3 Local Water System Assistance Program was completed in FY17. Beginning with the Final FY18 CIP, a new $293 million Phase 3 of the community water loan program was approved by the Board of Directors and has been made available to member communities. As of FY22, some communities have little or no funds available. Staff and the Advisory Board will evaluate the timing and scale of funding in the coming year for the next phase. • Conducted outreach and training on lead service line replacement, including a joint training session with the MWRA Advisory Board in May 2022.
D. Develop the capability to evaluate potential changes to corrosion control treatment using a pipe loop system constructed using "harvested" lead service lines.		• Continued to work with a stakeholder panel of national lead corrosion experts, community and regulatory staff to provide guidance on the set up and operation of a lead pipe rig to evaluate corrosion control options. • Continuing in FY22, staff conducted biweekly sampling from a lead pipe rig system at CWTP as the system continued to acclimate. This project involves multiple departments across the agency.

II. Wastewater Quality and System Performance

Goal #4: Meet or surpass environmental compliance standards at both MWRA treatment facilities and throughout the wastewater collection system.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Continue to carry out the Pretreatment Program to protect receiving water quality, maximize the beneficial reuse of wastewater residuals, and protect workers, MWRA's wastewater treatment plants, and receiving waters.	→	• Conducted a total of 1,439 industrial waste inspections (SIUs and non-SIUs), 544 gas/oil separator inspections, and 118 septage and septage hauler inspections. • Responded to all discharge violations for both Significant Industrial Users (SIUs) and Non-Significant Industrial Users (NON-SIUs) by taking the appropriate action in accordance with its EPA approved Enforcement Response Plan (ERP) and federal regulations. TRAC issued a total of 224 Notices of Violations and 14 higher-level enforcement actions (13 Notices of Noncompliance, and 1 Penalty Assessment Notice) to industrial and commercial facilities. Link to the Pretreatment Program's annual report: https://www.mwra.com/annual/tracindustrialwastereport/iwr-2022.pdf • Conducted a total of 2,751 sampling events for the following activities: ○ 1,452 industrial ○ 246 NPDES permit related ○ 14 for emergency response ○ 258 for local limits ○ 794 for special projects • Sampled 159 permitted Significant Industrial Users (SIU) with a discharge at least once in FY22. • Issued or renewed 349 permits.
B. Continue to monitor DITP processes to ensure high quality treated effluent optimizing plant performance to ensure all applicable NPDES permit limits continue to be attained.	→	• Deer Island was awarded a Platinum award from the National Association of Clean Water Agencies (NACWA) for 15 consecutive years without a NPDES permit violation.
C. Operate the enhanced phosphorus control system at the Clinton Wastewater Treatment Plant to ensure compliance with its NPDES permit.	→	• The seasonal effluent phosphorus limit of 150 ug/L and 3.8 pounds per day loading limit became effective starting April 1, 2019. The effluent through the end of the fiscal year has met these limits.

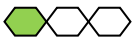
Goal #5: Continue to initiate plans and studies to prepare for regulatory changes; identify opportunities to refine monitoring requirements; and improve effluent quality.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Prepare updated Local Limits Studies for Clinton and Deer Island in accordance with EPA guidelines to confirm appropriate discharge limits from industries.		• Clinton Local Limits process for the 2017 NPDES permit completed in FY20. Collection of data for Local Limits study for the next Clinton permit began in June 2020. Staff submitted the Clinton permit renewal application containing at least 15 samples for local limits parameters collected over the course of one full year, as required. • Awaiting EPA's issuance of new NPDES permit for DITP. Clinton's new NPDES permit will be issued during FY23 under the Medium Wastewater Treatment Facility general permits. Final permit expected in FY22 Q3.
B. Continue to review all Ambient Monitoring Plan questions and conduct evaluations to ensure they address MWRA needs and public concerns		• Minor modifications to the monitoring plan resulting from 2018-2020 discussions by the Outfall Monitoring Science Advisory Panel (OMSAP) were approved by regulatory agencies in January 2021. Meetings of OMSAP and its subcommittees continued in FY22 to review monitoring questions and recommend next steps. This process will continue in FY23 but may be affected by the issuance of a draft DITP NPDES permit.
C. Continue to closely follow developing permit issues such as the impact of changes in bacterial and nutrient water quality standards, effluent loading limits, emerging contaminants and PFAS regulations, stormwater permitting, endangered species designations, co-permittees, and phosphorus and PFAS in biosolids.		• Key issues in FY22 were emerging contaminants including PFAS compounds and pharmaceuticals, rapid notification of CSO discharges, industrial stormwater permitting, microplastics; and nitrogen limits. In FY22, MWRA provided comments on draft NPDES permits in the region including Chicopee and the Medium WWTF General Permit that will apply to Clinton. DEP issued, and EPA approved, water quality standards updates. • In FY22, EPA issued new draft PFAS health advisories for four PFAS compounds. • A new Multi-Sector General Permit for Storm Water for Deer Island went into effect July 2021. A new requirement of this permit is to analyze each of the ten discharge points each quarter for pH, total suspended solids and oxygen demand, as well as performing the previously required assessments of the sample for visual and odor quality. • A new Approval of Suitability (AOS) permit for the beneficial use of the biosolids pellets for the Biosolids Processing Facility went into effect November 2020. This AOS requires the pellets to be tested on a quarterly basis for 16 perfluorinated compounds.

D. Develop a plan to address emerging contaminants (e.g. PFAS and microplastics) as they are identified and frame an approach to respond to the public's concerns about these constituents.		• In FY22, MWRA continued to provide support to two Water Research Foundation projects to study Poly- and Perfluoroalkyl (PFAS) compounds in wastewater and biosolids from US Wastewater Treatment Plants. • MWRA also provided effluent samples for a study with URI/WHO/NOAA to measure the presence of PFAS and other contaminants of emerging concern, in wastewater and the ambient Massachusetts Bay receiving waters. The data analysis phase of this project has begun, but was suspended due to COVID-19-19. Completion of the report has experienced significant delays. • MWRA is supporting academic researchers from Woods Hole Oceanographic Institute on a research project investigating microplastics in wastewater influent, effluent, and Massachusetts Bay receiving waters. The first field sampling was carried out in FY22 (after delays due to COVID-19-19 were resolved) with the researchers hosted on a routine MWRA oceanographic survey of the bay. Several sampling surveys have been conducted at DITP with samples collected at various wastewater treatment locations. The researcher provided a presentation of his findings at the HOM Annual Technical Meeting held in April 2022. Additional sampling surveys are planned for the future. • Conducted a total of 86 sampling events for PFAS at industrial users to better understand where PFAS are coming into the system.
E. Assess thresholds for annual nitrogen loading, including evaluating the existing thresholds and the environmental impact of nitrogen, as well as, whether these thresholds developed over 20 years ago are valid or should be modified.		• In FY22, MWRA used the updated Bays Eutrophication Model to confirm earlier simulation results that showed potential environmental impacts of effluent nitrogen are small. Recent low-oxygen events in Cape Cod Bay – likely affected by warming ocean waters - have brought increased scientific and public attention to this issue, and MWRA participated in a workshop held in FY22 convened by the Massachusetts Bays Partnership (National Estuary Program) to investigate possible causes. The consensus of the participants in the Partnership was that the bloom was a nuisance species and not related to MWRA's outfall.
F. Review new waste treatment technologies, as they arise, to continuously improve treatment performance and efficiency.		• In FY22 Enqual and DITP Process Control collaborated to document evaluations of an expanded list of technologies for nitrogen removal and update the design criteria used for evaluating nitrogen removal technologies at Deer Island, should it be required.

G. Continue to work with researchers investigating the use of wastewater as an indicator of the presence of the COVID-19-19 virus.		• MWRA continues to support wastewater based epidemiology (WBE) research for tracking the spread of COVID-19-19. MWRA has provided in-kind samples to research groups from MIT, Northeastern, Tufts and UMASS-Amherst as well as the national program run by the Department of Health and Human Services (HHS). MWRA continued the wastewater monitoring throughout FY22 by submitting samples from DITP to Biobot Analytics, Inc. for the analysis of the genetic signal for the SARS-CoV-2 virus that causes COVID-19-19. The results of these analyses are shared with the state COVID-19-19 Command Center as they are received and shared with the public on MWRA.com.
Goal #6: Move forward with design and construction of major wastewater infrastructure rehabilitation and renewal projects.		
Objective	**FY2022**	**Highlights/Progress Updates**
A. Continue to design and implement facility rehabilitation projects for various pump stations, headworks, CSO facilities and the Deer Island Treatment Plant.		• A major facility rehabilitation and equipment upgrade construction project was completed at Chelsea Creek Headworks and work to replace the odor control and HVAC systems at Nut Island Headworks is well underway. Specific rehabilitation projects include: ○ Design of Prison Point CSO Facility Improvements, Contract 7462 to upgrade, replace and add major facility components (gates, screens, conveyors, pump engines, mixers etc.) was completed, competitively bid and awarded. However, construction was terminated shortly after starting due to contract disagreements. Staff are carving out a few project components which require more immediate attention (discharge header rehabilitation, installing a manual transfer switch) for bid and will work to advance the full facility rehabilitation in future procurements. ○ Nut Island Headworks Odor Control & HVAC Systems Improvements construction contract, #7548, is underway and 78% complete with substantial completion expected in Summer 2023. ○ Braintree-Weymouth Pump Station improvements Design Contract 7435 was completed. Construction contact #7366 was awarded in July 2022. A construction NTP is expected in September 2022. ○ Ward Street & Columbus Park Headworks Design (Design/ESDC Contract 7429) began in Jan 2021. Incorporating lessons learned from the Chelsea Headworks Construction project, the will include a

		new above-grade structure on both sites instead of rehabilitating the existing facility superstructures. Final design is expected to be complete in Jan 2024. ○ A design contract for the rehab of Hayes Pump Station is well underway, with 90% design expected in fall of 2022. ○ Phase 1 of the Siphon Headhouse rehabilitation project is near design completion. The project will improve flood protection, site access, structural conditions, operational requirements, and odor control at 41 structures throughout the MWRA's service area. The anticipate construction NTP is scheduled for late 2022. ○ Various wastewater facility improvements are underway through in-house and consultant Technical Assistance task order design efforts to support facility and system reliability, including but not limited to: Nut Island Fire Pump Replacement, Phase 2 & 3 Fuel Tank Replacements, BWIPS Transformer Replacement, Somerville Tide Gate Replacement, CCHW Microwave Radio Link, Cottage Farm CSO Engine Silencers Replacement, Belle Isle Sandcatcher Rehab, Phase 3 Duct Cleaning. ○ Deer Island Odor Control Damper Replacement Contract 7913 was approved by the Executive Director in FY22. ○ Clarifier rehabilitation Phase II design contract completed in FY22. Construction contract to be initiated in FY23 focusing on tank concrete and coating systems, gate replacements and other critical work within the primary and secondary treatment sections of the DITP (construction contract 7395).
B. Continue to implement an ongoing program to review, prioritize and accelerate interceptor renewal projects.	→	• Evaluated wastewater interceptors and prioritized them for rehabilitation. • The Dorchester Interceptor Renewal project (sections 240, 241, and 242) was successfully complete in FY22 • The design of Interceptor Renewal No. 7 (Malden/Melrose) sections 41/42/49/54/65), to line 26,400 linear feet of sewer was awarded in June 2020. Completion of design is expected by the end of CY2022.

Goal #7: Complete all CSO milestones by 2024 and demonstrate that the CSO Plan meets its performance objectives.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Implement CSO performance assessment through ongoing contract with AECOM that will culminate in a report to DEP/EPA in December 2021 and a supplemental report in December 2024 verifying whether the approved long-term CSO control plan goals are attained.		• In December 2021 MWRA submitted the Final CSO Post Construction Monitoring Program and Performance Assessment Report. MWRA has completed the last of seven Semiannual reports documenting the progress of the performance assessment. • The performance assessment results indicated that although substantial improvements were made, 16 of the 84 CSOs fell short of meeting the Long Term Control Plan (LTCP) volume and/or activation goals. The report further defined the limited impact remaining CSOs have on water quality. The MWRA and the court parties have agreed and the court has approved a 3-year extension to the court order, for MWRA to implement additional identified projects and perform additional investigations to determine what can be done to further reduce CSO at the 16 sites. A supplemental report will be submitted in December 2024, documenting final performance and conclusion for the 16 outfalls. • MWRA will continue to advance projects it believes, once completed, will allow 6 of the 16 overflows to meet LTCP goals. This includes: Sewer Separation Work in East Boston partially funded through FAA with BWSC (Project under construction with SC expected in June 2023); Installation of connection relief for CHE008 (Design Complete, Construction NTP Fall 2022); and installation of a New Pipe Connection upstream of Somerville Marginal CSO (in design with construction NTP expected summer 2023). • Through further hydraulic model investigations, MWRA has identified BWSC system modifications that are expected to move 4 of the 16 outfalls towards their LTCP goals. MWRA has worked with BSWC to develop an MOU/FAA for BWSC to design and construct these additional system modifications. • MWRA continues to investigate alternatives and develop costs for possible projects to address CSO compliance issues for the remaining 6 of 16 difficult sites and will document its findings and recommendation in the supplemental performance assessment report to be submitted in December 2024.

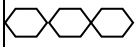
B. Comply with the CSO Variances for the Alewife Brook/Upper Mystic River Basin and the Lower Charles River/Charles Basin issued to MWRA and CSO communities for the term of 9/1/19 through 8/31/24		• MWRA continues to use the CSO public notification system implemented in July 2020 to make required notifications to regulatory agencies, boards of health, and subscribers. • AECOM developed and calibrated receiving water quality models for the two variance waters. The Final Model Calibration report was submitted in November 2020. The calibrated models have since be used to assess the individual impacts of pollutant sources entering the variance waters, which has been reported in the Final Water Quality Assessment report submitted to DEP/EPA and the Watershed associations in December 2021. • Staff have commenced and completed project evaluations required by the CSO variances, including completion of the Alewife Pump Station optimization evaluation in April 2021 and the Somerville-Marginal Facility CSO reduction project and study in December 2021. Further studies to ensure the CSO regulators that contribute CSO to the variance waters is underway with a completion expected before years end. • A significant variance requirement includes the development of an Updated CSO Control Plan for MWRA's discharges to the Variance Waters. Work towards complying with this requirement has included the development and DEP/EPA approval of a scope of services, work towards development of a new Typical Year, and close coordination with Cambridge and Somerville in obtaining public and watershed input, and developing a unified hydraulic model for each entity's use in analyzing alternatives. Further efforts will include Alternative development and evaluation, preparation of an affordability analysis, and development of draft and final Updated CSO Control Plans. • Staff continue to comply with all other variance conditions to minimize CSO impacts. • Variance-required monitoring of receiving waters continued throughout FY22 while complying with COVID-19-19 safety protocols. The monitoring results were used to prepare the annual water quality report as required by the variances.
C. Conduct an evaluation of the CSO treatment processes to determine potential opportunities to		• As part of the scope of the CSO performance assessment noted above, staff and the consultant are investigating site-specific measures that can further reduce CSO discharges where needed to help meet the CSO LTCP.

better meet permit limits. Confirm or reassess treatment processes as part of the CSO facility rehabilitation projects.		
D. Implement a subscriber based CSO Public Notification Program. Provide notification of a CSO overflow within four hours of the start of a discharge. COMPLETED		• As of August 2022, notifications are being sent to over 150 external subscribers within two hours of the start of a CSO discharge, including the required notifications to regulatory agencies and boards of health. • The new Sewage Notification Law and the implementing regulation 314 CMR 16.00 required extensive modifications to the system during FY22, for example notifying within 2 hours rather than the 4 hours required by the CSO Variances, adding notifications of blending and SSOs, and expanding the information that is provided. In FY22 Enqual participated in stakeholder meetings convened by DEP to prepare for implementation of the law. The MWRA's Preliminary Notification Plan was submitted on May 2, 2022 as required. Extensive coordination efforts with metropolitan Boston CSO communities and regional Boards of Health were initiated in FY22 and continue into FY23. MWRA was prepared to issue the required expanded public notifications starting in July 2022.
E. Implement a near real-time SSO reporting system to provide public information and ensure reporting timeframes meet regulatory requirements. COMPLETED		• In 2015, MWRA began posting SSOs to its web site soon after they occurred. The new Sewage Notification regulation 314 CMR 16.00 requires notification of some SSOs. Expansion of the existing system was completed in FY22 and MWRA was prepared to issue public notifications as required starting in July 2022. • MWRA continues to improve its ability to rapidly gather data on SSOs, which happen very infrequently in MWRA's collection system. FY22 saw a number of unusually large storms that caused SSOs. Standard operating procedures were developed and updated to allow effective communication and training for future staff in case of the next very large storms.
Goal #8: Assist member communities to improve their wastewater collection systems through ongoing technical, financial, and operational support programs.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Provide technical and operational support including TV inspections, fieldwork assistance, or other targeted assistance, as needed.		• Staff routinely provide technical assistance when requested. In FY22, no requests were submitted by the communities for TV inspections.

B. Promote and manage MWRA's Inflow/Infiltration (I/I) Local Financial Assistance Program to facilitate reduced I/I in local community infrastructure.	→	• In FY22, an additional $31.1 million in MWRA grants and interest-free loans were distributed to member sewer communities. In total, more than $515 million in grants and loans have been distributed to fund 648 local projects. All 43 sewer communities are participating. Since 1989, average annual wastewater flow to DITP has been reduced by about 64 mgd, a 16% reduction. (See more information in the Annual NPDES I/I Reduction Report). https://www.mwra.com/harbor/pdf/infinf.pdf).

III. Infrastructure Management and Resilience

Goal #9: Maintain and enhance water and wastewater system assets over the long term at the lowest possible life cycle cost and acceptable risk, consistent with customer, community, and regulatory support service levels.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Continue to ensure proper operations and maintenance of the water and wastewater systems and minimize system downtime by performing Preventative, Predictive, and Corrective maintenance on equipment and linear assets, water system leak surveys, valve inspections and exercise, and performing inspections and cleaning of wastewater pipelines, structures, water storage tanks, and inverted siphons inspections, and cleaning.	→	• Replaced 7 water blow-off retrofits and 21 main line valves, entailing excavating and isolating the main from the valve, cutting out the old valve and installing a new one. • Inspected 206.13 miles of MWRA water mains and repaired 16 leaks. • Performed independent water meter testing to confirm the accuracy of the meters supplying the municipalities in MWRA Service Area. • Inspected 30.69 miles of MWRA wastewater interceptors and 814 sewer manholes and other sewer structures such as diversion chambers, tidegates, etc. • Cleaned approximately 38 miles of wastewater interceptors and 47 siphon barrels. • Replaced 84 wastewater manhole frames and covers and repaired 47 sewer manhole structures.
B. Inspect, maintain, and improve the dams, dikes, and other facilities constituting the infrastructure of the reservoir system through ongoing maintenance and an adequate multi-year capital improvement program in order to ensure dams' regulatory compliance, long-term operational viability and spillway operation and maintenance to limit potential flood hazards.	→	• Since 2005, over $25M has been invested in capital and major maintenance of source and distribution water supply dams across the system, with over $7M committed in current CIP projects. • Contracts underway for needed dam repairs design, bid document production and ESDC for Sudbury Dam spillway masonry and vent repairs, Wachusett North Dike earthen berm restoration, Foss Dam overtopping protection. FY23 Award of most recent dam safety inspection contract and instrumentation design underway with the calendar 2023 biennial Phase 1 Dam Safety

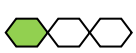
		Inspections imminent with additional dam instrumentation design and repair efforts. Chapter 30 construction on the Chestnut Hill Reservoir Dam and Weston Reservoir Dam instrumentation imminent.
C. Expand Condition Monitoring techniques to provide earlier indication of asset degradation. COMPLETED		• Condition Monitoring techniques continue to be utilized in normal business practices at DITP. Deer Island is now expanding its lube oil program. Staff are able to perform basic oil testing in lieu of sending samples out. This provides immediate results about MWRA's assets and reduces downtime. • Condition Monitoring techniques continue to be utilized in normal business practices in FOD, including all the headworks, pump stations, and CSO facilities. Actions include oil sampling to determine the remaining life expectancy of the oil, ultrasonic testing of the grit pipes in the headworks, and vibration analysis. Staff continue to implement infrared thermography and utilize laser alignment of pumps and fans. Initial staff training has been completed, and training will continue with new staff when brought on board, specifically on vibration analysis and laser alignment.
D. Conduct an updated benchmarking analysis in order to identify gaps and sustain the goal of maximizing asset protection while potentially identifying new best practices in the industry.		• No work on this initiative to date.
E. Update the wastewater metering system and evaluate new technologies to ensure continued accurate flow accounting and to enhance its usefulness for operational purposes. COMPLETED		• The new wastewater meter system was installed and tested on schedule by the end of CY2021. The new meters are now being used for billing of communities as of January 2022.
F. Continue to research and develop Key Performance Indicators (KPI) to compare our performance internally and against the industry.		• The MAXIMO upgrade was completed in FY19. The updated MAXIMO continues assisting MWRA in making KPI's easy to track, display and compare with other public utilities.

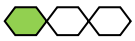
G. Enhance and monitor water pipeline protection to maximize pipeline lifetime.		• In FY16, MWRA began the process of replacing old cathodic protection on MWRA water mains. In FY22, this work continued in force, with the following activities: ○ Capital program has added design and construction phases to replace and upgrade cathodic protection systems based upon testing results. ○ Designed eleven replacement cathodic protection systems for Section 57, an 80 year old 48-inch diameter steel water main in the northern low service area. In-house construction staff are working to replace these systems. Nine of these systems were completed in FY17-FY18, and work continues on the remaining two. ○ Replaced the cathodic protection system at Shaft 5 of the City Tunnel. ○ Replaced the cathodic protection system at Shafts E and L of the MWWST. Additional work was identified at these sites upon completion of the work, thus additional improvements are being designed under Contract 7691. ○ Task orders are being developed for the evaluation/replacement of a number of cathodic protection test stations through the metro water system.
H. Expand integration between MWRA's Authority-wide Enterprise Asset Management System (MAXIMO) with Lawson, Process Information (PI) and Automated Vehicle Location systems to expand the use of predicative Management tasks increasing functionality, asset tracking and improved workflow to reduce equipment and		• Maximo now tracks life-cycle costs for Clinton, DITP, FOD, IT and Lab assets. End of Life asset values are now captured in the Property Pass site. • Maximo Spatial (GIS) interface updates the mapping features giving staff easier access to buried assets history for the Water Distribution and Wastewater Collection systems.

downtime ad control budget spikes. Utilize updated MAXIMO to increase opportunities for more paperless work. COMPLETED		• Maximo Anywhere (mobile solution) allows staff to receive work and update work orders and asset history in the field.
I. Continue to upgrade and improve upon the Supervisory Control and Data Acquisition (SCADA) hardware and software to meet the current industry standard and to address cyber security concerns.		• PLC upgrade was completed at Comm. Ave West Pump Station; Comm. Ave East has been upgraded under the recent redundancy project. A new PLC Panel was designed, purchased and installed at BWTF, with the system programmed in-house. A design contract for the JJCWTP SCADA Improvement was finalized in January 2019 and construction began in September 2021 with substantial completion anticipated in September 2025. PLC upgrades for BOS019 and Framingham PS are have been initiated but will be postponed until the work at JJCWTP is completed due to staffing constraints. Additional PLC replacements are being performed as part of facility rehabilitation projects (Chelsea Creek Headworks, NI Headworks, Wachusett Dam LGH, Braintree-Weymouth, and Water Tank Improvements, etc.), and will be developed in future PLC upgrade projects for water and wastewater facilities. • Standards templates and guidelines were developed for MWRA Human Machine Interface (HMI) Graphics. New graphics will be implemented to improve operator situational awareness through ongoing design and construction projects and MWRA staff implementation. • Continued to improve the SCADA network architecture to enhance security. • Established internal committees to review MWRA's physical resilience, and identify deficiencies and subsequently safety systems to provide multiple levels of protection from cyber attacks on MWRA's assets.
Goal #10: Prepare for catastrophic events that could affect the water and wastewater delivery systems.		

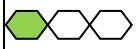
Objective	FY2022	Highlights/ Progress Updates
A. Continue to improve and incorporate redundancy and operational flexibility within the water system to ensure uninterrupted service.	→	• Northern Intermediate High, Sections 89/29 Replacement was awarded in June 2021 with an NTP issued in August 2021 and an anticipated construction completion date of August 2025. • Sections 23, 24, and 47 Rehabilitation Construction Contract 6392 NTP was issued in November 2021 with an anticipated substantial completion date in May 2024. When constructed, it will provide redundancy to Boston and Watertown. • Sections 50 and 57 Rehabilitation Design Contract 7540 is at 100% design. This project has been delayed due to NGRID gas relocations and potential community impacts. • Intermediate High Improvements Design Contract 6955 was awarded January 2019 and will, when complete, interconnect two Intermediate High Service Areas to provide redundancy and operational flexibility in the event of pipe failures.
B. Design and implement projects including those that eliminate or mitigate single points of failure within MWRA's water transmission and distribution.	→	• Design Contract 6539 for the replacement of WASM3 was awarded in 2013 and amended in 2018 for rehabilitation only. Construction contract #6544, for sections W11, W12, W16/51 in Medford, Somerville, and Arlington was approved by the Board at the September 2020 Board meeting. Work is expected to be completed by August 2024, however, construction is currently progressing ahead of schedule. • CP1 Construction Contract 6544 NTP was issued in October 2020 and includes rehabilitation of approximately 13,800 feet of 56-inch and 60-inch diameter water main in Arlington, Somerville and Medford. Construction substantial completion is anticipated in August 2024. CP2 Construction Contract 6543 is currently in design and construction scheduled to start in 2023.

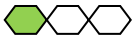
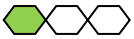
		• Low Service Pressure Reducing Valve Improvements Construction Contract 7563 was awarded May 2021 and will provide additional operational flexibility to provide water service during emergencies. A construction NTP was issued in July 2021 with substantial completion anticipated in July 2023. • Improvements to the top of shafts are being implemented to provide strengthening of pipes directly connected to the tunnel system, waterproofing of underground vaults and replacement of nuts on valve connections. Performing interim improvements at the top of shafts consists of three Construction Packages (CP). CP1 - Top of Shafts 6, 8 and 9A (construction achieved substantial completion in April 2022); CP2 - Top of Shafts 5 (in design); and CP3 - Top of Shafts 7, 7B, 7C & 7D (future). • Waltham Water Pipeline Design, Technical Allowance Contract 7692 Task Order 3, includes a new water main extension to provide redundancy for the Lexington Street Pump Station. Construction Contract 7457 had an NTP in July 2022 with an anticipated substantial completion date of summer 2024.
C. Continue to train staff on various potential emergency scenarios and participate in broader Massachusetts Emergency Management Agency (MEMA) and other training exercises.	→	• Staff participated in externally hosted training, including an EPA sponsored multi-agency national exercise on radiological contamination; and a DCR/MWRA sponsored multi-agency drill on a railroad spill. Internal trainings and exercises included the following: site characterization, unmanned aerial systems training, Deer Island emergency response team drills, boom deployment, terrestrial spills, severe weather response, mobile disinfection, communications, tunnel incident response, and community Emergency Response Plan training. A number of community coordination/training sessions were held relating to work on Section 89.

		• All MWRA staff continued training in cybersecurity awareness; and IT and OT staff continued training in advanced technical cyber security topics.
D. Work with Departments throughout MWRA to continue to implement a comprehensive security and emergency preparedness program including an analysis of lessons learned (ongoing) during the COVID-19-19 State of Emergency.	→	• Lessons learned during the COVID-19 State of Emergency was compiled into a preliminary "after-action" report on MWRA's response and recovery efforts to COVID-19. Staff continue to work on a more comprehensive report in FY22 which will also include recommended corrective actions to address goals and areas of need. • Facility Emergency Action Plans are updated annually. • Staff continue to upgrade and expand the MWRA security system components and cameras were updated and /or replaced. • The MWRA has invested in an enterprise-class Video Management System that is integrated with the access-control and intrusion detection system to drastically improve responsiveness to critical alarms in the water distribution infrastructure in both staffed and remote locations (i.e. NCST tank and the West Boylston RR). • New Wachusett Reservoir Railroad crossing security camera was installed in August 2021 to monitor rail transit across the reservoir via the MWRA Security Office in Chelsea. • Our efforts to improve our technology and security program have greatly improved our relationships between Security and Emergency response agencies across the Commonwealth of Massachusetts.
E. Develop and implement an Information Security Plan (ISP) to increase the resiliency and sustainability of the MWRA's data security practices.		• MWRA's ISP includes both approved and drafted cybersecurity policies, standards, and procedures. These drafts continue to be revised to correspond with the latest version of the NIST Cyber Security Framework and to be integrated into both MWRA Information Technology ("IT" – *i.e.* MIS) and Operational Technology ("OT" -- *i.e.* SCADA, PICS, I&C,

		and Physical Security) areas. Approved policies are reviewed on an annual basis. • Staff continue to apply current cyber security standards, controls, and best practices when appropriate to MWRA computer systems and network.
F. Redesign Cyber Security Network perimeter defense in-depth strategy to mitigate the new and evolving threats by taking advantage of next generation technologies.		• MWRA initiated a cybersecurity planning effort that will encompass the next 5 years and will inform the scope of the next Managed Security Services contract. • The Managed Security Services Contract (MWRA No. 7499), which began on July 1, 2016, was extended to July 21, 2022. • MWRA staff continue remediation of identified vulnerabilities from the risk and resiliency assessment of key IT network components required by the America's Water Infrastructure Improvement Act (AWIA). • Staff continue to update the internal cyber security incident response plan.
G. Develop and implement an updated Physical Security Plan including Crime Prevention Through Design (CPTED) to decrease vulnerabilities and increase capacities so that threats are reduced, thereby reducing risk.		• Staff are working on drafting a Physical Security Plan and are receiving training on CPTED components that will be included in the Plan. Staff are working to develop a set of CPTED standards that will be implemented Authority-wide.

H. Assess current communication technology and implement communication redundancies where needed within the security network.		• Staff continue to upgrade and expand the MWRA security system. The security team identifies perceived areas of exposure to the MWRA's critical water distribution infrastructure and plan ways of executing improvements and advancements to our existing system. The MWRA is currently using some of the highest rated cameras in the industry that are able to withstand the environmental and communication challenges facing MWRA facilities. Our network is limited by strict security protocols and is not internet facing. The security program includes standard operating procedures that are updated annually and specifically include daily tests of both our alarm and video system for response time, clarity and quality of video and alarm response. • As cameras age in our system we assess new products and look for cameras that provide the best technology currently available. Thirteen cameras were installed in FY22.

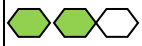
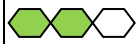
I. Complete the Preliminary Design and Environmental Impact Report for the Metropolitan Water Tunnel Program and initiate final design.		• In May 2020, a contract was awarded for Preliminary Design, Geotechnical Investigation and Environmental Impact Report. • In March 2021, an Environmental Notification Form for the Metropolitan Water Tunnel Program was submitted to the MEPA office to initiate the public environmental review process. • A certificate from the Secretary of Energy and Environmental Affairs on the ENF was received in May 2021. The Environmental Impact Report was developed in FY22 and is expected to be filed with the Secretary in October 2022. • In June 2021, a geotechnical field investigation program was initiated to support the preliminary design of the proposed tunnels. A second phase geotechnical field investigation program was initiated in June 2022. • Property for construction of a connection shaft was purchased in Waltham in September 2021. • Preliminary design work has been initiated as well as preparation of the Draft Environmental Impact Report. • Outreach to key communities, property owners, relevant state agencies, and key stakeholders has been initiated and is ongoing.
J. Update MWRA's earthquake preparedness to bring our facilities up to current standards, as they are rehabilitated. COMPLETED		• As part of the review under the American Water Infrastructure Act of 2018 (AWIA), staff developed an assessment of each water facility's earthquake design standard and created an SOP to ensure earthquake stability is included in all rehabilitation projects.

K. Move forward with Wastewater Facility Emergency Response Planning to identify potential measures to minimize disruptions from failures of facilities, including development of a comprehensive Emergency Response Plan for each facility.		• A team of staff have developed an approach to conduct these reviews, but implementation is on hold awaiting hiring of MWRA's new emergency planner.
L. Create and implement a predetermined schedule of review for facility risk assessments.		• The AWIA process will require a regular 5-year cycle for review of all water facilities. Staff are working on a similar process for wastewater facilities, but this planning process is on hold until MWRA's new emergency planner is on board.
M. Participate in Lower Mystic Resiliency Planning as an abutter to the Lower Mystic.		• MWRA staff co-chaired a major resiliency exercise for all lower Mystic communities and infrastructure agencies. Activities in FY22 included developing lessons learned from the exercise and working with communities on specific capital projects for grant proposals.

IV. Finance and Management

Goal #11: Ensure Financial Sustainability, Integrity, and Transparency.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Continue the long-term strategic budgeting practice to ensure sustainable and predictable sewer and water assessments to our member communities.	→	• Community Assessments increased by 2.95% for FY22, a reduction from the proposed 3.6% in response to the financial challenges facing member communities due in part to the pandemic. Assessments are projected to increase no more than 3.5% annually through FY2026. Assessments for the Water and Sewer utilities continue to be "smoothed" reducing the volatility of year-to-year assessment changes thereby improving the sustainability and predictability for member communities. The unusually high rate of inflation in the later part of FY22 caused budgetary challenges. In response, staff continually tracked new contract prices to monitor and report the budgetary impacts.
B. Continue to implement MWRA's approach to rate increases while accounting for the pandemic's effects on its communities' revenue.	→	• MWRA offered to allow communities to restructure their Community Loan repayments, due in FY20-FY22, to mitigate the impact of COVID-19-19. Five communities have restructured their loans.
C. Manage debt and investment portfolios to maximize savings/returns in compliance with all applicable rules and regulations.	→	• Staff took advantage of the low interest rate environment and sold $748.0 million of bonds comprised of $687.4 million in taxable refunding bonds and $60.6 million in tax-exempt new money bonds. The refunding resulted in $65.9 million in present value debt service savings. The All-In True Interest Cost for the transaction was 2.59%, which is notable since 92% of the bonds were federally taxable, which typically carries a higher interest cost. • Staff continue to explore opportunities for refunding for interest rate savings.
D. Continue diversification strategy to insulate against overexposure and promote resiliency to changing market conditions.	→	• Staff continue to seek prudent diversification.
E. Maintain a system of internal controls to best protect the organization's resources.	→	• Staff continue to review and monitor key controls and limit physical and electronic access to assets.

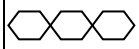
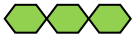
F. Continue to employ budget and expense control practices to manage expenses.		• Continued to drive cost improvement and containment measures throughout FY22 that allowed MWRA to set a 2.95% rate of increase to the combined Rate Revenue Requirement and a 2.85% for FY23.
G. Identify and pursue optimization in all aspects of MWRA financial operations		• Continued the effort of reducing the use of paper by publishing documents on-line. Staff are actively evaluating the electronic financial system's existing and possible additional software modules to optimize operations. • MWRA received the Distinguished Budget Presentation Award from the Government Finance Officers Association for FY22 and plan to apply again for FY23. MWRA has submitted the paperwork for the Government Finance Officers Association Certificate for Achievement in Financial Reporting for FY21 and is awaiting receipt of the award. Additionally, MWRA is preparing the paperwork for FY22. • The Budget Department continues to explore a software solution to replace existing obsolete software. • Staff continue to work on the pilot project to scan accounts payable voucher documents to reduce physical paper storage and improve electronic/remote access to the information. The Accounts Payable and Payroll units of the Controllers department have removed all paper from the processing. By employing an additional monitor to assist in data entry, paper is replaced by electronic files archived securely on the network.
H. Continue to conduct strategic energy procurements.		• Continued to procure electricity based on competitive bid process and took advantage of electricity rebates from utilities pertaining to installation of more efficient equipment.
I. Continue to fund the pension fund at the annual required contribution level and to develop strategies to address the growing Other Post- Employment Benefits (OPEB).		• The pension fund increased its funding ratio from 88.23% to 89.05% in the Actuarial Valuation Study as of 1/1/2022. The cost of living adjustment (COLA) base increased to $17K from $15K.

		• The Retirement Board further increased the COLA calculation base from $15K to $17K adding some additional pressure on the annual Required Contribution. Staff will explore possible ways to minimize the amortization of the Unfunded Liability • The June 30, 2022 OPEB Trust balance (Net position) was $63.9 million up from $61.8 million for the prior year reflecting a Net OPEB Liability of 56.2% up from 45.1% for the prior year. The annual funding practice has been and is projected to be half the annual determined contribution. Retiree health Insurance premiums are paid from the MWRA Current Expense Budget. This practice will be evaluated annually and may be changed according to overall budgetary conditions.
Goal #12: Promote Effective Business Operations and Resource Management.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Maintain and expand MWRA-wide recycling efforts.		• As of July 1, 2021, the MWRA implemented a single stream recycling program at the Chelsea Facility in conjunction with existing paper, cardboard, and metal recycling efforts.
B. Pursue, and administer any Federal and or State infrastructure, stimulus or COVID-19 related grants.		• Staff are actively monitoring the various COVID-19 related stimulus and/or grants that might be available. Staff have applied for reimbursement from the Federal Emergency Management Agency for costs incurred during the disaster. MWRA will be receiving American Rescue Plan Act (ARPA) funding from the Massachusetts Clean Water Trust as part of its next borrowing. • MWRA received $247,100 from the Commonwealth for the FY22 costs associated with the Biobot Sampling. The FY21 and FY22 payments from the Commonwealth totaling $689,765 fully reimbursed MWRA for all of the Biobot costs.
C. Evaluate office footprint and needs in light of pandemic lessons learned. Make changes where practical.		• Staff, with the assistance of a Consultant, determined that there is enough room at the Chelsea and Deer Island facilities to house Charlestown Navy Yard (CNY) staff. At the

		June 22, 2022 Board of Directors' meeting, the Board approved a contract with a general contractor to upgrade the office space at both Deer Island and Chelsea to accommodate hybrid work spaces, including updates to office spaces, the electrical system and MIS services. It is anticipated the project will be completed prior to the expiration of the CNY lease in May 2023.
Goal #13: Leverage Information Technology to Improve Organizational Effectiveness.		
Objective	**FY2022**	**Highlights/Progress Updates**
A. Deliver secure Information Technology (IT) services and solutions efficiently and effectively.	→	• Migrated to Crowdstrike for endpoint protection and response with managed services for all workstations and mobile devices. • Completed engagement with design consultant for the evaluation and gap analysis used to assist in the development of the scope for the next Managed Security Services Contract. Scope of Work for RFQ/P underway. • Implemented Single Sign-on solution and migrated five applications to it. • Additional highlights under specific initiatives below.
B. Provide Information Technology solutions to streamline work processes while ensuring the security and integrity of MWRA data by leveraging the use of existing or emerging technologies.	→	• Expanded use of secure remote access technologies in support of teleworkers due to the COVID-19-19 pandemic. • Expanded use of WebEx app for collaboration and virtual meetings in support of teleworking. • Implemented a Visitor Management system to automate administration of visits by external parties to MWRA facilities. • Expanded wireless network within Deer Island Treatment Plant. • Website Re-design: Scope of work under review for re-design and build of new mwra.com website.

		• Records Management: Initiated a scanning initiative to digitize active records and potentially records to be archived in support of the workplace consolidation.
C. Obtain feedback from users on satisfaction levels and desired new services and implement changes accordingly.		• Continued monthly meeting with ENQUAL and Lab Services.
D. Maintain current technology hardware, software, and network infrastructure.		• Deployed over 2000 updates to existing hardware and software throughout the year to ensure currency and mitigate vulnerabilities. • Upgraded Vmware infrastructure supporting over 400 virtual servers. • Upgraded circuit bandwidth at five locations in support of Unified Communications implementation. • Upgrade of all SQL and Oracle databases was started.
E. Enhance Information Technology workforce capabilities through new certification and license requirements.		• Training for the IT Department staff was online/virtual during FY22 due to COVID-19. Twenty eight specific IT topic courses were held, 11 students participated in an offering, and 10 certifications were earned by various staff. • MIS delivered 28 courses attended by 94 staff
F. Implement an Application Improvement Program that will continue MWRA's efforts to update and enhance the multitude of applications used in the MWRA to improve efficiencies of business processes, mobile devices, and effectiveness of staff.		The following is a list of applications that were either updated or had functionality changes throughout FY22: ○ SAP Business Objects**:** The system supports reporting functions for Maximo. Following a successful proof of concept migrating Discoverer reports, the remaining Discoverer reports are being migrated to SAP Business ○ Community OMMS**:** MWRA started upgrade of existing community OMMS application. Two towns were selected for pilot and have been submitted for User Acceptance Testing based on initial scope.

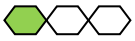
		○ Harbor and Outfall Monitoring Loading (HOML): Used by contracted labs to submit sample data. ○ Pretreatment Information Management System (PIMS): Used in the management of the pretreatment program. Implementation of dental fees and first round of invoicing was processed, WebSMR CROMERR implementation completed along with system updates. ○ ESRI GIS**:** Upgraded and integrated with single sign-on.
G. Implement an archive and purge system that will provide an automated and integrated solution for archiving electronic content that will allow the Authority to intelligently store, manage and discover e-mail and all critical business information sources, while providing easy and intuitive access for end users.		• Began implementation of an archiving solution as an add-on to existing backup technology. Testing of solution has started.
H. Execute a Technology Infrastructure Improvement Program that will assess and implement consolidated and optimized versions of MWRA's core IT infrastructure elements and improve data management practices.		• With the implementation of the new phone system, Unified Communications in the form of calling, instant messaging, virtual meetings and presence will be consolidated to one application. • Exploring new technologies to provide redundancy, resiliency and network traffic optimizations.
I. Upgrade and enhance MWRA's Enterprise Resource Planning system leveraging out-of-the-box functionality while striving to eliminate customizations and adoption of technology standards.		• Learning Management System (LMS)<u>:</u> Implementation of a new Infor/Lawson product for managing all training including on-line training developed in house and from 3rd parties including LinkedIn LEARNING. Installation and configuration is underway. • Migration of check printing software to MHC completed.

		• Legacy Contract Management System Contracts*:* All Open contracts were migrated to Infor Lawson. Reporting capabilities are being developed for closed contracts what will not be migrated to Infor Lawson. • Lawson Maximo Integration**:** Project underway to enhance existing interfaces to improve data flow between Lawson and Maximo systems.
J. Implement Enterprise Content Management for e-Construction, e-Engineering and Records Management.		• The Enterprise Content Management System will initially support selected Construction and Engineering processes, replace the legacy document/records management system and provide the infrastructure for expansion and integrations with other systems. • Infrastructure has been built out and software installation completed. Configuration and testing are in process. Data migration analysis for the unsupported InfoStar records management system is underway as well.
K. Implement a unified communication (UC) collaboration platform to improve business processes, team communication and collaboration and distributed work force.		• Implementation and configuration of new Unified Communications (UC) VOIP phone system began. A pilot group and three small locations migrated to UC VOIP platform. The UC system will integrate with WebEx virtual meetings and provide call capabilities to teleworking staff. • Cabling and circuit upgrades started in support of new UC system. • Implemented digital message boards at three facilities to provide unified messaging and improved communications to all staff.
L. Move towards the use of AI and Machine Learning technology to address computational and process problems.		• No progress on this objective in FY22.
M. COVID-19 Employee Reporting Systems COMPLETED		• COVID-19 Self Certification Applications: Two applications were implemented to allow staff to self-certify they do not have

		COVID-19 symptoms prior to coming to work. One is an in-house developed web application with COVID-19 screening questions and the other is a telephone call in number. Both systems write to the same database for HR and management reporting. • Employee Availability Tracking Application: Tested, updated and activated an existing in-house developed employee availability application designed for managing staff availability in emergencies such as pandemic outbreaks. • Completed custom application developed for employee vaccination attestation.

V. Diversity, Equity, Inclusion & Workforce Development

Goal #14: Foster and Sustain an Excellent Workforce **Objective**	**FY2022**	**Highlights/ Progress Updates**
A. Prioritize Succession Planning in anticipation of critical retirements over the next five years.	→	• Continue to identify succession planning initiatives including training programs, leadership program, and expedited replacement hiring processes in advance of critical retirements. • The comprehensive exit procedure developed in FY19 for use when employees leave the MWRA, documenting knowledge and information on projects, contacts, and location of files, continued to be implemented.
B. Provide effective training necessary for employees to obtain and maintain required licenses and certifications to ensure a highly skilled workforce.	→	• Wastewater and Water license prep courses as well as collection system certification classes provided at least twice per year on a virtual platform, or at approved vendor locations. • Employees may be sent to approved vendor locations for training throughout the year for prep to obtain Water Distribution or Treatment licenses. Virtual classes are regularly offered to employees to meet continuing education requirements for license renewals and required hours. • Training staff have worked to redesign all in-house training to a virtual format in response to COVID-19. Training is now a combination of on-line and in-person training.
C. Continue MWRA's in-house job shadowing, career development training programs and explore a pilot program for job rotation of certain titles.	→	• Continued the on-the-job training programs on an as-needed basis. DITP continued with its M&O shadowing program. This has been an on-going program for several years. • Continued to offer supervisory development programs.
D. Continue to improve MWRA's teleworking capabilities and productivity incorporating	⬡⬡⬡	• Staff have negotiated a new, more permanent Telework Policy with the unions which includes a new performance evaluation process to ensure productivity.

lessons learned during the COVID-19 pandemic.		
E. Institute programs with a focus on professional and leadership development.		• Due to COVID-19, the Leadership Development Program for non-union managers through Bentley University was put on hold in FY21, but will begin again in CY2023. • Several employees participated in an Emerging Leaders training offered through NACWA.
F. Expand intern initiative.		• Continued the summer intern program in 2022. As of June 2022 we had 23 interns.
G. Continue to ensure compliance with new state and federal regulations and labor.		• Staff reviewed all non-union and bargaining unit positions and the incumbents as required by the Massachusetts Equal Pay Act. • The benefits for bonding and medical leave begin January 1, 2021 and benefits for family leave began July 1, 2021. Some staff have taken advantage of this benefit and staff process claims, as needed.
Goal #15: Foster a diverse and inclusive workplace.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Cultivate a safe work environment for all employees that is free from harassment and encourages respect.		• Staff have completed a procurement for Harassment Prevention training that was delivered in FY22. • Staff are working on a procurement for Respect in the Workplace training to be delivered at the end of FY23.
B. Provide training to all employees on diversity, inclusion, equity, respect, and harassment prevention in the workplace.		• Completed the procurement for a mandatory on-line course on diversity, equity, inclusion and respect in the workplace. Training began in the first quarter of FY22.

C. Continue MWRA's efforts to develop new recruitment and retention strategies to foster diversity, including traditionally underrepresented categories, people with disabilities, and veterans.	→	• Staff attended job fairs including Recruit Military and Boston's Diversity Day. • Staff continue to expand social media and other online recruitment efforts to increase access to diverse pools of candidates. Job postings continue to be sent to numerous web-based sites and professional associations. As part of the DEI efforts, staff have added additional recruitment sites which include the American Society for Civil Engineers, and Black Boston social media platform for FY22. • Staff continue to conduct outreach and foster networking partnerships with Mass Hire Central Mass, City of Cambridge Workforce Development Program, X-Cel Education, Community Teamwork in Lowell and Boston Veteran Collaborative. • Continued the use of The Local Job Network, a web-based recruiting site where entry, mid-level and senior level positions are posted to expand outreach to diverse protected classes. • Continued to add to the existing 258 recruitment sources for minorities, women, individuals with disabilities, and veterans in addition to its existing 53 recruitment sources identified in the Affirmative Action Plan. • Due to COVID-19. Staff participation in employment training program with local job readiness program was limited. Staff are researching alternative programs held online. • Hired 65 new employees including 14 (21.5%) females and 16 (24.6%) minorities. • Promoted 138 employees including 32 (23.2%) females and 15 (15.9 %) minorities in FY22.

		• Staff continue to partner with Vocational Technical Schools and have successfully placed two Massachusetts high school students into co-op positions. Staff are looking to expand the program and place more students.
D. Develop leadership skills at every level to increase opportunities for staff advancement and ownership.	→	• Staff are working with Core Consulting to implement a mentoring program in FY23.
E. Pursue an inclusive leadership approach that considers innovation and diverse points of view to respond to the evolving needs of the Authority.	→	• No progress on this objective was made in FY22.
F. Create and maintain a work group whose mission is to improve diversity, inclusion, equity and respect in the workplace. Implement workgroup recommendations with measurable goals.	→	○ The DEI workgroup was established in FY21. The purpose of the MWRA Diversity, Equity and Inclusion Workgroup is to ensure that the MWRA creates an inclusive environment that promotes equity in the workplace. This leads to a culture that leverages diversity to its fullest potential so that every employee can have a sense of belonging regardless of his or her background. ○ The DEI workgroup progress in FY22 toward achieving our goals include the following: ○ The DEI workgroup continues to celebrate and embrace the diversity of our staff which is routinely highlighted on the DEI page on Pipeline. ○ Introduced the growing importance in our diversity and inclusion efforts about the use of gender pronouns in the workplace. Staff celebrated LGBTQ+ pride month by hosting a voluntary Pride walk and luncheon ○ Based on employee interest in the FY21 Diversity, Equity and Inclusion Survey, the DEI Workgroup conducted a web-based staff survey about

		creating a mentoring program in FY22 ○ The Diversity, Equity and Inclusion Workgroup conducted a web based staff survey to provide feedback to MWRA senior leadership about organizational equity, inclusion and culture. The survey response rate was very high, and employees highlighted positive responses regarding, MWRA's practices, polices, and programs on workplace diversity, training programs and creating a work environment free of harassment.
G. Implement an Environmental Justice Strategy (EJ) which outlines MWRA's actions and visions for promoting EJ considerations across MWRAs programs, policies and activities.		• Deliver services equitably across a diverse service area. • The Executive Office of Energy & Environmental Affairs (EEA) 2017 Environmental Justice Policy (EJ) has directed all EEA agencies to develop their own EJ Strategies. The MWRA is committed to this mission articulated in Article 97 of the Massachusetts Constitution for all residents of the Commonwealth and has joined the EEA's Environmental Justice (EJ) Task Force. Tomeka Cribb-Jones, Associate Special Assistant, Affirmative Action and Compliance serves as the EJ point of contact representing MWRA. • Progress on the following objectives were made in FY22: ○ To Promote Public Awareness of Sewage Pollution of any combined sewer overflows (CSOs) or certain sanitary sewer overflows (SSOs) MWRA is using Google Translate to translate all notifications into 14 identified EJ languages, and is issuing notices through email and text via Everbridge. ○ MWRA launched a new public facing EJ web page. This new page includes a variety of

		resources, including linking to other MWRA web pages, such as the construction project summary pages and the job posting page.
Goal #16: Ensure a safe and healthful work place for all employees, contractors and visitors free of recognized hazards		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Continue to identify hazards and assess associated risks. Provide training on programs and procedures to prevent or control incidents and ensure employee safety.		• Continued to develop the Occupational Health and Safety Department including program and policy review and development, facility audits and by participating in training classes. Safety software was utilized to aid in reducing workplace injuries and preparing OSHA regulatory reports. • Initiated PPE safety training for employees. Maintenance and line groups were the focus during the year. Training continues in new FY. • Continued to improve safety culture through communication and leading by example. • Continued to assess the risks associated with tasks and provide the appropriate training, procedures and equipment to eliminate the risks. Worked with training department to identify safety training deficiencies and establish a training matrix for Authority job classifications.
B. Continue to review and implement best safety practices during the COVID-19-19 pandemic to protect the safety of all employees and ensure continuity of critical services.		• Continued to implement and update COVID-19 safety protocols, procedures and rules in order to maintain a safe environment and to assure compliance with regulations, mandates and guidance from OSHA, CDC and Public Health.

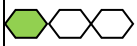
C. Maintain compliance with Massachusetts' Occupational Safety and Health for State Workers regulation (454 CMR 25.00) by meeting the requirements set forth under the Occupational Safety and Health Act (OSHA) of 1970.	→	• Safety and training staff continue certificate training in safety disciplines, which improves the overall safety knowledge of the Authority as it relates to OSHA regulations. • Safety utilized the Safety Reports application to perform OSHA inspections of facilities using checklists based on OSHA regulations. Staff was able to create reports of findings and provide them to stakeholders. • Filled one Safety position to maintain safety support to all areas of the Authority.
D. Maintain records concerning occupational injuries, illnesses, deaths, and exposure to toxic materials in compliance with regulations.	→	• All injuries are reported to the Safety Department and reviewed per OSHA recordkeeping regulations to determine if the injury is recorded. Injuries that meet the recordkeeping requirements are recorded on the OSHA 300 and 300A log. Injured employees complete the OSHA 301 form at the time of injury.

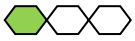
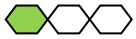
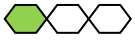
VI. Environmental Sustainability

Goal #17: Continue to maximize energy efficiency of MWRA operations, renewable energy production, and revenue generation opportunities using MWRA's energy assets.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Assist the Commonwealth in meeting its Greenhouse Reductions Goals set forth in the Global Warming Solutions Act.	→	• Through implementation of energy efficiency projects, use of renewable energy sources, and low emission technologies, such as electric vehicles, MWRA continues to reduce its GHG emissions. From 2006 through 2019, MWRA has reduced its GHG emissions by about 37%. Staff is currently working on the update to the GHG report through 2021. • Staff continue to follow Governor Baker's Executive Order 594, "Decarbonizing and Minimizing Environmental Impacts of State Government" signed Earth Day 2021 – which provides goals and guidelines to reduce fossil fuel use.
B. Continue to conduct energy audits at all facilities as needed.	→	• Complete facility lighting upgrade to LED lights completed at both Clinton and Carroll in FY22. An LED lighting upgrade at Nut Island was also completed in FY22. • Conducted an energy audit at Clinton in FY20 that resulted in a series of recommendations for the operations building. Work began on planning for influent pumping upgrade and adding VFDs to the screw pumps at Clinton. This work is expected to be completed in FY23. • A significant number of energy efficient LED wall pack lighting was installed on the exterior of the North Main Pump Station and Thermal Power Plant at Deer Island in FY22, following an Eversource lighting audit in FY21. The lighting replacement is being done by Deer Island electrical staff and will be completed in FY23.
C. Optimize processes to save energy.	→	• Work continues on identifying processes that can be optimized to save energy. Internal studies examined the efficiency of the two hydro turbines and the ten North Main Pump station pumps at Deer Island as a first step in

		reducing their energy use. Staff implemented new control/operational strategies to help operate North Main Pump station pumps at more efficient levels. • Staff completed the installation of three single-speed 50-HP water booster pumps replaced at Deer Island with energy-efficient variable speed pumps in FY22.
D. Continue to incorporate cost efficient energy efficiency, non-fossil fuel heating, EV charging capabilities, and renewable energy projects into new construction, rehabilitation projects, and equipment replacement.	→	• Chelsea Creek Headworks upgrade, Contract 7161, was completed in August 2021 and contains several energy efficiency components including LED lighting, occupancy sensors, a building energy management system, and VFDs on the odor control fans, HVAC, and hot water pumps. • The rehabilitation of the odor control and HVAC at Nut Island which contains several energy efficient components, began construction in February 2020 and is scheduled to be completed in August 2023. • Commonwealth Ave. Pumping Station Improvements included LED lights in Control Room and restrooms, premium efficiency motors, higher efficiency HVAC equipment and a building automation system, began construction in February 2020 and achieved substantial completion in March 2021. • Braintree-Weymouth Pump Station improvements Design Contract is complete with a construction NTP issued in September 2022. This project includes several energy efficiency components including jockey pumps for increased pumping efficiency, ventilation setbacks, and LED lighting.
E. Continue to invest in new stand-alone renewable energy projects at MWRA facilities.	→	• Staff received bids in FY20 for a 1 to 2 MW solar canopy with energy storage at Deer Island. The winning bidder was unable to comply with provisions in the proposed contract for a power purchase agreement leading to delay in project implementation. Staff expect to rebid this project in FY23.

		• Staff are also working through the approval process for solar arrays over underground water storage tanks. Preliminary approvals have been given by MADEP. If allowed, the work would most likely begin in FY24.
F. Continue to maximize revenue from generation assets including additional Demand Response opportunities.	→	• In FY22, all green assets, with the exception of hydro and wind were in operation greater than 95% of the time. Deer Island hydro assets were in operation 79.2% of the year, while FOD hydro assets were in operation between 92% and 100% of the time, with the exception of Loring Road, which was in operation 83% of the time due to maintenance and operational issues over a two month span. Deer Island wind was available for operation 81.4% of the time and Charlestown wind was available 100% of the time. • Deer Island and the Carroll Water Treatment Plant used backup generators in FY22 to: 1) Participate in Independent Systems Operator – New England (ISO-NE) and Eversource Demand Response programs, cutting load when dispatched, with Deer Island earning over $1 million and Carroll earning over $119,000 in incentives; and 2) Reduce load during ISO-NE system–wide one-hour peak to avoid installed capacity charges of over $1 million per year. • Staff applied for and received grant funding from the Mass. Clean Energy Center for an assessment of the hydro turbines at Deer Island. The feasibility study which will look at replacing or refurbishing the existing two 1.1 MW hydro turbine to optimize their generation, will begin in late FY23.
G. Take full advantage of utility energy efficiency rebate opportunities.	→	• Signed 3-year memoranda of understanding (MOUs) with NGRID and Eversource in FY19. This is the first MOU with NGRID and the second with Eversource. The MOUs are non-binding, but commit MWRA to continue to implement energy efficiency projects, while obtaining a higher incentive amount from the utilities. For example, replacement of three single-speed 50-HP water booster

		pumps with energy-efficient variable speed pumps at DITP resulted in qualifying for $70,000 in Eversource incentives at the higher than typical rate of $0.325/kWh. Staff will be implementing another round of MOUs in conjunction with Eversource and NGRID in FY23. • Participating in an Eversource Demand Reduction project that utilizes battery storage technology to reduce electricity demand costs at Brattle Ct. Pumping Station and the Chelsea Admin. Building in which Eversource provided the batteries at no cost to the MWRA. Batteries began operating in February/March of CY21. Demand savings from the batteries in FY22 totaled $19,256. The batteries will be enrolled in the Eversource Targeted Demand Dispatch program in FY23 resulting in both demand savings and direct payments from Eversource for discharging the batteries at peak load times. • In FY22, Deer Island staff applied for Eversource incentives for new screw pumps to be installed at Clinton.
H. Incorporate employee education on energy efficiency in MWRA training outlets, e.g. tool box talks and HR training classes.		• Staff developed an outline of tool box talks for Metro and Western Ops staff. They had been scheduled for FY20, but they were postponed due to the pandemic. Staff are planning on outreach to staff on several energy topics in FY23.
I. Design new gas turbine combined heat and power equipment to take advantage of the higher power and thermal efficiencies of new equipment, maximizing the production of additional electric power for on-site use at Deer Island as well as cost savings while reducing maintenance spending on aging equipment.		• A project to evaluate DITP's comprehensive energy programs relative to Heat and Power was completed in FY21. Staff are developing specs for a design project for a new CHP system and expect to bid in FY23.

J. Evaluate and implement, where feasible, combined heat and power technology in plant operations to improve energy efficiency (e.g. pellet plant, Clinton). COMPLETE		• Staff completed Combined Heat and Power (CHP) evaluations for the Pellet Plant and Clinton Treatment Plants. Currently these technologies are not recommended for these facilities given unfavorable life cycle cost analyses.
K. Continue to develop the battery storage projects and work with the utility and its contractor to optimize demand savings. Evaluate opportunities for future battery storage projects.		• In FY21, staff discussed possible large scale battery projects at Deer Island and property on the Mystic River with vendors and state representatives and examined potential revenue streams. Staff applied for grant funding from the Lead by Example Program under MA Dept. of Energy Resources for the Deer Island project. Staff expect to hear in October 2022 if the grant is awarded.
L. Explore community solar opportunities that will stimulate large-scale remote solar installations and save money on MWRA's electric bills. COMPLETE		• Staff investigated the possibility of MWRA's participation in community solar and after much discussion determined that at this time, MWRA is best positioned to focus on developing its own solar arrays though may be interested in community solar or other opportunities to support large-scale renewable energy.
M. Expand our fleet of electric vehicles and charging stations.		• In FY22, staff purchased an additional 5 all-electric Chevy Bolts and six Level II and four level III chargers. There are now a total of 15 Bolts and three Volts in MWRA's fleet. • Eversource also approved MWRA's application to its EV Make Ready program that would provide MWRA with electric vehicle charging infrastructure free of charge. This work is expected to be completed in CY 2023, pending approval by the D.P.U.
N. Explore a new MWRA-wide building/plant information management system that includes a comprehensive energy management system.		• In FY21, staff began to examine artificial intelligence/ machine learning platforms to optimize plant operations and save energy at Deer Island. This effort is on-going.
O. Explore and implement building electrification to reduce MWRA's reliance on fuel oil for heating. NEW		• Staff have incorporated the requirement to review the feasibility of using heat pumps into the designs of new construction or facility rehabs.

		• Staff applied for a grant from MA DEP Clean Energy Program to do a pilot installation of heat pumps at two pump stations, one water and one wastewater. This comes after an evaluation was done of these facilities to determine the feasibility of using heat pumps instead of boilers using fuel oil. Staff expect to hear back on the grant in November 2022.
Goal #18: Continue to monitor climate change research and move forward with plans to reduce impacts of projected sea level rise and storm surge events on MWRA infrastructure.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Continue to incorporate design modifications into facility renovations and maintenance activities to address sea level rise and storm surge.		• Continued to update flood elevations as the Federal Emergency Management Agency (FEMA) revised its projections. Now regularly including these design parameters in all renovation and new construction projects.
B. Plan and install flood protection barriers at water and wastewater sites which fall below expected elevations of flood waters under condition of a FEMA 100 year storm plus 2 ½ feet to minimize damage and still provide service.		• Flood protection barriers have been installed at Chelsea Administration Building, Chelsea Maintenance Building, South Boston CSO, Squantum Pump Station, Quincy Pump Station, Braintree Weymouth Relief Pump Station and Chelsea Screen House. An update to flood protection at Hough's Neck Pump Station is being scheduled. Staff have developed Standard Operating Procedures and are in the process of performing installation drills. Flood protection procedures have been developed utilizing sand bags for the former pump station facility at Alford Street and for the Delauri Pump Station. • A final design to provide flood protection at another 41 siphon structures was completed in the first half of FY22 with a construction NTP in Spring of 2022. • Flood protection was incorporated into the rehabilitation of the Chelsea Headworks. Flood protection is being incorporated in the rehabilitation of the Columbus Park Headworks. As facility rehabilitation projects arise, flood protection will be included if the facility is located in an identified flood zone.

C. Work with State and regional organizations and academic institutions to identify how MWRA's existing long-term environmental data sets can be used to help assess and project impacts of climate change.		• Distinguishing climate change impacts from potential effects of MWRA's outfall in Massachusetts Bay, and how to best leverage the long-term environmental monitoring data set, is the subject of ongoing discussion with the Outfall Monitoring Science Advisory Panel. • Recent low-oxygen events in Cape Cod Bay are likely affected by warming ocean waters. MWRA participated in an October 2022 workshop convened by the Massachusetts Bays Partnership (National Estuary Program) to investigate possible causes.
Goal #19: Advance reasonable water system expansion.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Continue to provide assistance to communities seeking admission to the MWRA's water system or seeking emergency withdrawals.		• Provided guidance on the Water System Admission process to prospective communities and developments including: Hopkinton, the Former Naval Air Station, Lynnfield Center Water District, Walpole, Wayland, and Weymouth. • Initiated two system expansion studies, one for the South Shore and one for the Ipswich River Basin Communities. These studies will be completed in early FY23. • In FY23, work will start on a third system expansion study for 14 Metro West communities.
B. Work with prospective communities to inform them of the benefits of admission.		• Work continues on this initiative through outreach to communities, watershed groups, and associations and through requests from consultants representing the communities. • Additional, proactive outreach will begin in FY23 following the completion of the System Expansion Studies.
C. Work with MWRA's Advisory Board on legislative initiatives to pursue funding for connection assistance for new communities connecting to the water system.		• In September 2022, the MWRA Board of Directors voted to approve a recommendation by the MWRA Advisory Board to waive the Entrance Fee. To be eligible for the Entrance Fee waiver, new communities seeking admission to MWRA must show that they have water quality issues, water quantity issues, or are unable

		to meet existing or future demands due to potential economic development opportunities. This waiver only applies to the first 20 mgd of water sold to new communities, and any community wishing to claim the waiver must be approved for admission to MWRA's water system by the MWRA Advisory Board and Board of Directors by the end of December 2027. • MWRA staff will continue to work with the MWRA Advisory Board to seek additional sources of funding to cover the infrastructure costs associated with connecting to MWRA's water system.
Goal #20: Continue to recognize the environmental, cultural, historical, and recreational importance of the watershed lands, the aqueduct system, and the unique location on Boston Harbor of the Deer Island Treatment Plant and Nut Island Headworks, to the citizens of the Commonwealth.		
Objective	**FY2022**	**Highlights/ Progress Updates**
A. Continue to work cooperatively with DCR and cities and towns to ensure that these lands are available for appropriate public access.	→	• Staff have participated in the DCR Land Acquisition Panel (LAP) offering guidance since 1995. The MWRA Board has had approval oversight of watershed land purchases under the CIP since FY07. Staff continue to be active in the LAP attending quarterly meetings and offering MWRA viewpoints on land purchases, preservation restrictions and disposition. *This update also supports Goal #1, assisting MWRA to maintain drinking water quality.* The Executive Director is chairing the Boston Harbor Islands Partnership, a federally sanctioned group that maintains stewardship responsibilities of the Harbor Island National Park. • MWRA staff actively participated in the highly successful Anniversary Year designed to celebrate the creation of the Boston Harbor Islands State Park (50 years) and National Park (25 years) to highlight the resources and increase exposure to communities that typically aren't represented in the users of these amenities.
B. Continue to work with cities and towns to implement the Public	→	• The MWRA Aqueduct Trails Program is an innovative initiative that has opened up new

Access Initiative on the Wachusett, Weston, Sudbury, and Cochituate Aqueducts. This program creates a partnership between MWRA and communities that host each piece of infrastructure, granting access to applicant communities to use MWRA controlled aqueduct right-of-ways of the Cochituate, Sudbury, Wachusett, and Weston Aqueducts, along with the lands surrounding the Weston and Norumbega distribution reservoirs.		recreational opportunities in communities across Metro West on appropriate MWRA aqueduct infrastructure. • Since 2011, MWRA staff have been working with aqueduct communities to provide technical assistance through the 8(m) permit process and have had great success opening access to these resources for the first time. • To date, MWRA staff have issued many Section 8 (m) Permits as part of the Aqueducts Trails Program authorizing approximately 30 miles of Aqueduct Trails. MWRA estimates that approximately 23 miles are currently open to the public.
C. Continue to provide public access to Boston Harbor at Deer and Nut Islands, while ensuring appropriate security for MWRA's operations.	→	• MWRA, state and local officials, and fishing advocates cut the ribbon on the new Deer Island Recreational Fishing Pier on June 24, 2021 for its official grand opening. The fishing pier was constructed by the Division of Marine Fisheries (DMF) and the MWRA. The unofficial opening of the fishing pier took place on November 25, 2020 when the public was able to begin using the pier and parking lot.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Delegated Authority Report – October 2022

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

Michele S. Gillen
Director, Administration

Barbara O'Connor, Admin. Systems Coordinator
Barbara Aylward, Administrator A & F
Preparer/Title

Rita C. Mercado
Acting Director of Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period October 1 – October 31, 2022.

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 OCTOBER 1- 31, 2022

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	10/06/22	**CHESTNUT HILL AND WESTON RESERVOIR DAMS INSTRUMENTATION (PIEZOMETERS) INSTALLATION** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR THE CHESTNUT HILL AND WESTON RESERVOIR DAMS INSTRUMENTATION (PIEZOMETERS) INSTALLATION FOR A TERM OF 120 CALENDAR DAYS.	W343	AWARD	NEW HAMPSHIRE BORING, INC.	$214,692.50
C-2.	10/11/22	**LOW SERVICE PRESSURE REDUCING VALVE IMPROVEMENTS - BOSTON/MEDFORD** TEMPORARILY DEMOBILIZE FOR THE SUMMER W16 VAULT IN MEDFORD; FURNISH AND INSTALL ADDITIONAL SELECTOR SWITCHES AND INDICATOR LIGHT ON THE SCADA ENCLOSURES AT THE W14 AND W 16 CONTROL CABINETS.	7563	1	RJV CONSTRUCTION CORP.	$254,859.21
C-3.	10/20/22	**HYDRAULIC EQUIPMENT SERVICE** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR ANNUAL MAINTENANCE, INSPECTION, NON-EMERGENCY AND EMERGENCY REPAIR SERVICES FOR HYDRAULIC SYSTEMS WITHIN MWRA'S SERVICE AREA FOR A TERM OF 1,095 CALENDAR DAYS.	OP-445	AWARD	R. ZOPPO CORP.	$347,000.00
C-4.	10/20/22	**CHE008 PIPE REPLACEMENT PROJECT** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR REPLACEMENT OF EXISTING 30-INCH DUCTILE IRON CEMENT LINED PIPE WITH A NEW 48-INCH PIPE IN THE CITY OF CHELSEA FOR A TERM OF 300 CALENDAR DAYS. THIS WILL INCREASE CSO CONVEYANCE CAPACITY TO THE MWRA SYSTEM BEFORE CSO OVERTOPS A WEIR WALL AND DISCHARGES TO THE CHE008 ALONG THE SHORE OF CHELSEA CREEK.	7915	AWARD	D'ALLESSANDRO CORP.	$1,570,000.00
C-5.	10/25/22	**DAM SAFETY COMPLIANCE AND CONSULTING SERVICES** AWARD OF A CONTRACT TO THE HIGHEST RANKED PROPOSER FOR DAM SAFETY AND COMPLIANCE CONSULTING SERVICES FOR A TERM OF 36 MONTHS.	W345	AWARD	GZA GEOENVIRONMENTAL, INC.	$191,403.73
C-6.	10/31/22	**COMMONWEALTH AVENUE PUMPING STATION IMPROVEMENTS** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS: REQUIREMENT TO FURNISH AN AIS COMPLIANT 60-INCH MECHANICAL JOINT RESTRAINT DEVICE MANUFACTURED BY EBAA IN LIEU OF THE MECHANICAL JOINT RESTRAINT DEVICE MANUFACTURED BY SIGMA; TEST, REMOVE, HANDLE, TRANSPORT AND DISPOSE GROUP 1A EXCAVATED MATERIALS; PERFORM TEST PITS, FURNISH AND INSTALL TWO 24-INCH INSERTION VALVES WITH CHAMBERS INCLUDING SUPPORT OF EXCAVATION, DEWATERING, REINFORCED CONCRETE THRUST BLOCKS AND RESTRAINT DEVICES, BACKFILL AND SITE RESTORATION; POLICE DETAIL ALLOWANCE; FIRE WATCH SERVICES ALLOWANCE; COVID-19 GUIDELINES AND PROCEDURES ALLOWANCE.	7524	14	WES CONSTRUCTION CORP.	($49,059.48)
C-7.	10/31/22	**HVAC SYSTEMS MAINTENANCE** INCREASE UNSPECIFIED MAINTENANCE/REPAIR SERVICES, REPLACEMENT PARTS ALLOWANCE AND FACTORY AUTHORIZED SERVICE REPRESENTATIVES ALLOWANCE TO PERFORM EXTENSIVE REPAIRS ON ONE OF THE DESSICANT DEHUMIDIFIERS IN THE POST TREATMENT BUILDING AT THE CARROLL PLANT.	OP-436	1	N.B. KENNEY COMPANY, INC.	$111,750.00

PURCHASING DELEGATED AUTHORITY ITEMS OCTOBER 1 - 31, 2022

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	
P-1	10/05/22	**PREVENTIVE AND CORRECTIVE MAINTENANCE FOR TEN AGILENT INSTRUMENTS** AWARD OF A THREE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE PREVENTATIVE AND CORRECTIVE MAINTENANCE FOR TEN AGILENT INSTRUMENTS. THE AGILENT INSTRUMENTS PROVIDE CRITICAL INFORMATION IN DOCUMENTING MWRA'S COMPLIANCE REQUIREMENTS AND LIMITS FOR BOTH DRINKING WATER AND WASTEWATER, AS WELL AS ENSURING COMPLIANCE OF INDUSTRIAL USERS WHOSE SAMPLES ARE MONITORED BY TRAC.	WRA-5173		ELECTRONIC RISKS CONSULTANTS, INC.	$159,660.00
P-2	10/05/22	**TEMPORARY FLOW MONITORING AND DATA COLLECTION** AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE TEMPORARY FLOW MONITORING AND DATA COLLECTION.	WRA-5184		EST ASSOCIATES, INC.	$164,275.00
P-3	10/05/22	**TESTING OF CHEMICAL CONTAMINANTS IN DRINKING WATER SAMPLES** AWARD OF A THREE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE TESTING OF CHEMICAL CONTAMINANTS IN DRINKING WATER SAMPLES LISTED IN THE FIFTH UNREGULATED CONTAMINANT MONITORING RULE (UCMR). THE CONTRACT INCLUDES THE ANALYSIS OF UNREGULATED CONTAMINANTS (PFAS AND LITHIUM) BY EPA-APPROVED METHODS.	WRA-5191		PACE ANALYTICAL SERVICES, LLC	$200,000.00
P-4	10/05/22	**SUPPLY AND DELIVERY OF FERRIC CHLORIDE** AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF FERRIC CHLORIDE TO THE CLINTON WASTEWATER TREATMENT PLANT. FERRIC CHLORIDE IS USED FOR PHOSPHORUS REDUCTION IN EFFLUENT.	WRA-5190		KEMIRA WATER SOLUTIONS, INC.	$219,450.00
P-5	10/13/22	**PURCHASE AND SUPPLY OF ELECTRIC POWER AND VOLUNTARY RENEWABLE ENERGY CERTIFICATES FOR THE MWRA PROFILE ACCOUNTS** AWARD OF TWO CONTRACTS FOR THE PURCHASE OF ELECTRICAL ENERGY AND VOLUNTARY REC SUPPLY FOR A 12-MONTH TERM FOLLOWING A TWO-STAGE PROCUREMENT PROCESS FOR THE MWRA PROFILE ACCOUNTS. MWRA WILL ONLY PAY FOR ELECTRICITY USED.	OP-446A OP-446B		EDF ENERGY SERVICES, LLC	$845,000.00 $21.03/REC
P-6	10/24/22	**ROCKWELL AUTOMATION PLC TRAINING** AWARD OF A SOLE SOURCE PURCHASE ORDER FOR A ONE-YEAR SUBSCRIPTION OF UNLIMITED ACCESS TO ROCKWELL'S LEARNING LIBRARY FOR TEN STAFF MEMBERS. THIS SUBSCRIPTION WILL ALLOW THE SCADA ENGINEERING DEPARTMENT TO RECEIVE TRAINING ON PLC PROGRAMMING.			NORTHEAST ELECTRICAL DISTRIBUTERS, INC.	$37,300.00
P-7	10/25/22	**MAINTENANCE AND SUPPORT OF SAP BUSINESS OBJECTS' BUSINESS INTELLIGENCE SUITE** AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR MAINTENANCE AND SUPPORT OF SAP BUSINESS OBJECTS' BUSINESS INTELLIGENCE SUITE. THIS SUITE SERVES AS A STANDARD AND AD-HOC REPORTING TOOL FOR LAWSON, MAXIMO, AND OTHER PLANT AND LABORATORY MANAGEMENT SYSTEMS.	WRA-5203Q		CARAHSOFT TECHNOLOGY CORP.	$45,213.89
P-8	10/25/22	**COMMERCIAL DRIVERS LICENSE TRAINING** AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR COMMERCIAL DRIVERS LICENSE (CDL) TRAINING FOR MWRA EMPLOYEES . THIS PURCHASE ORDER INCLUDES FIVE (5) CLASS A SESSIONS (VEHICLES OVER 26,000 LB) AND FIFTEEN (15) CLASS B SESSIONS (VEHICLES UP TO 26,000 LBS).	WRA-5196		CMSC TRUCKING, LLC	$118,500.00
P-9	10/25/22	**SUPPLY AND DELIVERY OF HYDROGEN PEROXIDE TO THE DEER ISLAND TREATMENT PLANT** AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF HYDROGEN PEROXIDE TO DEER ISLAND. HYDROGEN PEROXIDE IS USED TO CONTROL HYDROGEN SULFIDE LEVELS IN INFLUENT AND REDUCES THE NEED FOR ADDITIONAL ODOR CONTROL CHEMICALS.	WRA-5193		BRENNTAG NORTHEAST, LLC	$1,245,000.00
P-10	10/25/22	**SUPPLY AND DELIVERY OF 400,000 GALLONS OF ULTRA-LOW SULFUR #2 DIESEL FUEL** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE THE SUPPLY AND DELIVERY OF 400,000 GALLONS OF ULTRA-LOW SULFUR #2 DIESEL FUEL FOR THE DEER ISLAND TREATMENT PLANT. THE FUEL IS BURNED AS SUPPLEMENTAL FUEL TO DIGESTER GAS IN TWO HIGH-PRESSURE STEAM BOILERS AND AS PRIMARY FUEL FOR TWO COMBUSTION TURBINE GENERATORS.	WRA-5207		GLOBAL MONTELLO GROUP CORP.	$1,452,240.00

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: FY23 Financial Update and Summary through October 2022

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

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

Thomas J. Durkin
Director, Finance

RECOMMENDATION:

For information only. This staff summary provides the financial results and variance highlights for Fiscal Year 2023 through October 2022, comparing actual spending to the budget.

DISCUSSION:

The total Year-to-Date variance for the FY23 CEB is $12.5 million, due to lower direct expenses of $6.3 million, indirect expenses of $0.6 million, and debt service costs of $1.8 million, and higher revenue of $3.8 million.

FY23 Current Expense Budget

The CEB expense variances through October 2022 by major budget category were:

- Lower Direct Expenses of $6.3 million or 7.1% under budget. Spending was lower for Wages & Salaries, Other Services, Maintenance, Utilities, Workers Compensation, Fringe Benefits, Overtime, Professional Services, and Training & Meetings. Spending was higher than budget for Chemicals and Other Materials.

- Lower Indirect Expenses of $0.6 million or 2.6% under budget due primarily to lower Watershed Reimbursements.

- Debt Service expenses were $1.8 million or 1.2% under budget driven by lower than budgeted variable interest expense.

- Revenue was $3.8 million or 1.4% over budget driven by Investment Income of $1.7 million due to higher than budgeted interest rates, and Other User Charges of $2.0 million for water usage by the City of Cambridge.

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

	FY23 Budget	FY23 Actual	$ Variance	% Variance
Direct Expenses	$88.7	$82.4	-$6.3	-7.1%
Indirect Expenses	$22.7	$22.2	-$0.6	-2.6%
Capital Financing	$149.3	$147.5	-$1.8	-1.2%
Total	**$260.8**	**$252.1**	**-$8.7**	**-3.3%**

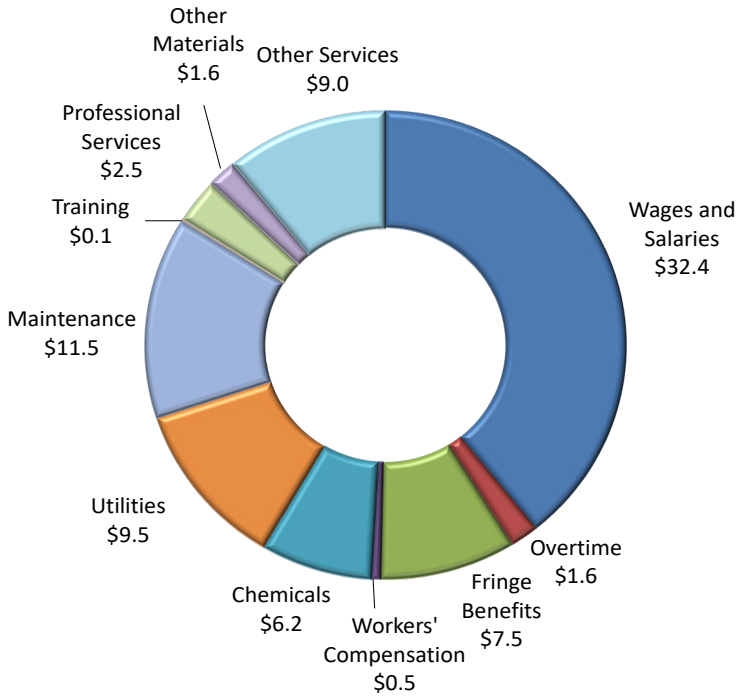
Totals may not add due to rounding

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

Direct Expenses

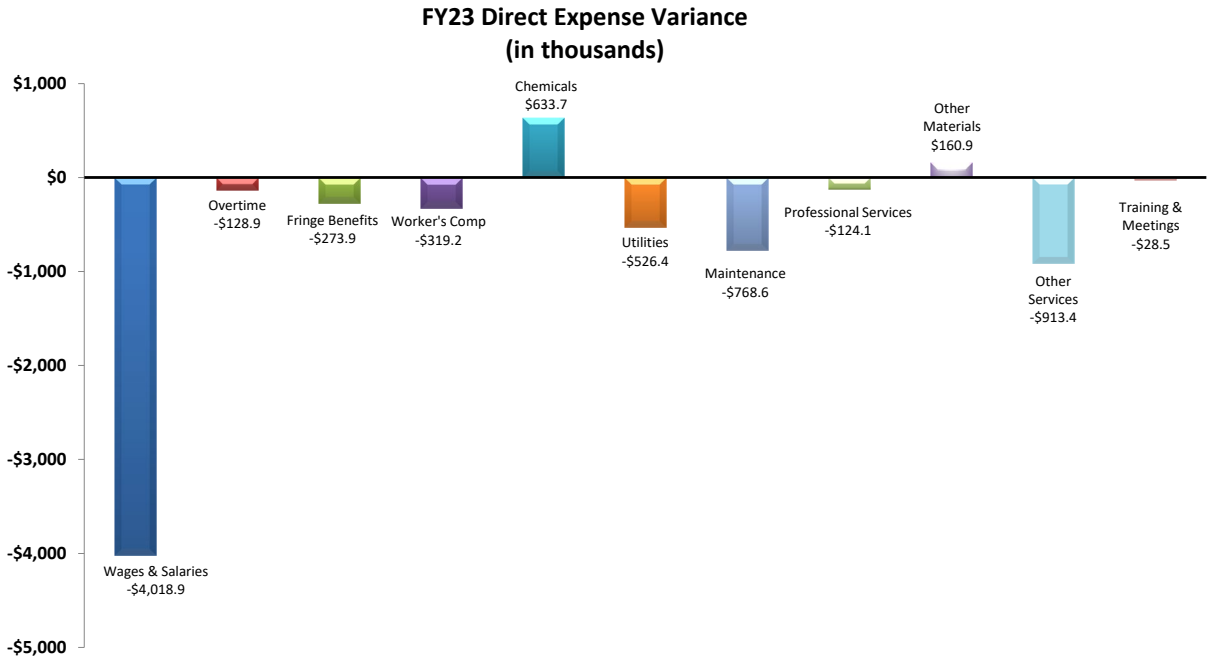
FY23 direct expenses through October totaled $82.4 million, which was $6.3 million or 7.1% less than budgeted.

FY23 Direct Expenses
(in millions)



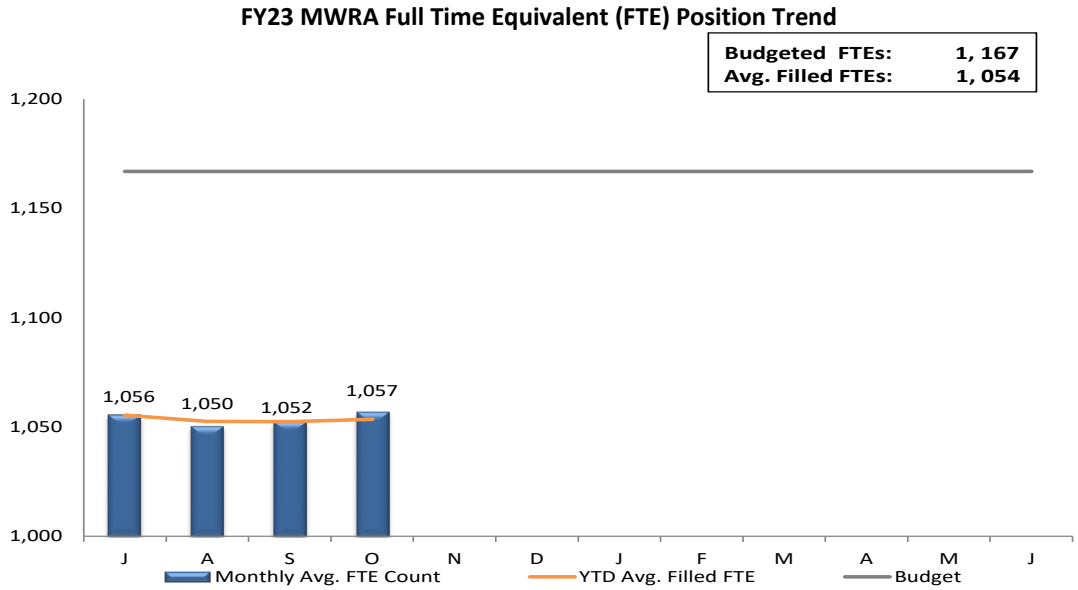
Lower than budgeted spending for Wages & Salaries, Other Services, Maintenance, Utilities, Workers Compensation, Fringe Benefits, Overtime, Professional Services, and Training &

Meetings. These were partially offset by higher than budgeted spending for Chemicals and Other Materials.



Wages and Salaries

Wages and Salaries was under budget by $4.0 million or 11.0%. Through October, there were 113 fewer average FTEs (1,054 versus 1,167 budget) or 9.7% and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions also contributed to Regular Pay being under budget.



Other Services

Other Services was less than budget by $913,000 or 9.2% due to lower Telecommunication costs of $283,000, Sludge Pelletization of $270,000 due to lower quantities, and Grit and Screenings Removal of $85,000 due to lower quantities.

Maintenance

Maintenance was less than budget by $769,000 or 6.3%, largely driven by the timing of projects. Maintenance Services are under budget by $1.2 million driven by Building and Grounds Services of $940,000 due to timing including the Eastern Ave Traffic Light, the Shaft 8 Retaining Wall, and Floating Dock Repair at Deer Island. In addition, lower Plant & Machinery Services of $294,000 is primarily due to the timing of service contracts and work including the Norumbega Tank Cleaning and Piexometer Installation at Weston and Chestnut Hill Dams, and lower spending on Pipe Cleaning at Deer Island. Maintenance Materials are over budget by $412,000, driven by Electrical Materials of $136,000, Special Equipment Materials of $123,000, and HVAC Materials of $96,000.

Utilities

Utilities were less than budget by $526,000 or 5.3%. Underspending on Diesel Fuel of $1.4 million was due to the timing of the delivery at DITP (started 11/7/22). This is partially offset by higher spending on Electricity of $857,000 driven by Deer Island ($732,000) due to higher real time pricing as well as higher usage, and Field Operations of $143,000 primarily due to Transmission and Distribution and Generation costs being greater than budget.

Worker's Compensation

Worker's Compensation expenses were lower than budget by $319,000 or 38.0%. The lower expenses were due to favorable variances in Compensation Payments of $246,000, Medical Payments of $54,000, and Administrative Expenses $19,000. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.

Fringe Benefits

Fringe Benefit spending was lower than budget by $274,000 or 3.5%. This was primarily driven by lower than budgeted Health Insurance of $223,000 due to fewer than budgeted participants in health insurance plans, the 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.

Overtime

Overtime expenses were less than budget by $129,000 or 7.5%. Lower spending mainly in Field Operations of $211,000 primarily for less planned overtime and emergency overtime. This is partially offset by higher spending at Deer Island of $110,000 and Clinton of $12,000, both for shift coverage. In addition, vacancies for Deer Island Operations continue to drive higher overtime costs than anticipated.

Professional Services

Professional Services was less than budget by $124,000 or 4.6% driven by Security Services of $70,000, Computer Systems Consultant of $46,000 due to timing, and Engineering of $46,000 due to lower than projected task order work. These are partially offset by higher Lab and Testing Analysis of $70,000 primarily due to responding to the Red Tide alert.

Training and Meetings

Training and Meetings expenses were lower than budget by $28,000 or 21.9% driven by the timing of spending.

Chemicals

Chemicals were greater than budget by $633,000 or 11.4%. Higher than budget spending on Sodium Hypochlorite of $394,000 was driven by Deer Island of $260,000 due to additional usage for disinfection and odor control due to lower flows, $79,000 at the Carroll Plant mostly due to higher contract pricing, and $50,000 in Wastewater Operations primarily at Nut Island Headworks, Activated Carbon of $180,000 is driven by Deer Island due to timing of replacements, and Ferric Chloride of $104,000 is driven by Deer Island due to higher than usual secondary waste sludge. Deer Island flows are 15.3% lower than the budget and Deer Island preliminary flows are 8.5% greater than the budget through October. It is important to note that Chemical variances are also based on deliveries, which in general reflect the usage patterns; however, the timing of deliveries is an important factor.

Other Materials

Other Materials were higher than budget by $161,000 or 11.2% driven by Vehicle Purchase/Replacements of $264,000 due to timing of purchases, partially offset by Computer Software of $80,000 also due to timing.

Indirect Expenses

Indirect Expenses totaled $22.2 million, which is $582,000 or 2.6% lower than budget. The variance is driven by lower Watershed reimbursements.

Based on FY23 operating activity only, the Watershed Division is $866,000 or 15.9% under budget. Lower spending on Wages and Salaries and Fringe Benefits are slightly offset by higher spending on Maintenance and Equipment due to timing. When factoring in the FY22 balance forward of $273,000 which was paid during Q1 of FY23, Watershed Reimbursement is $593,000 or 10.9% below budget through October 2022.

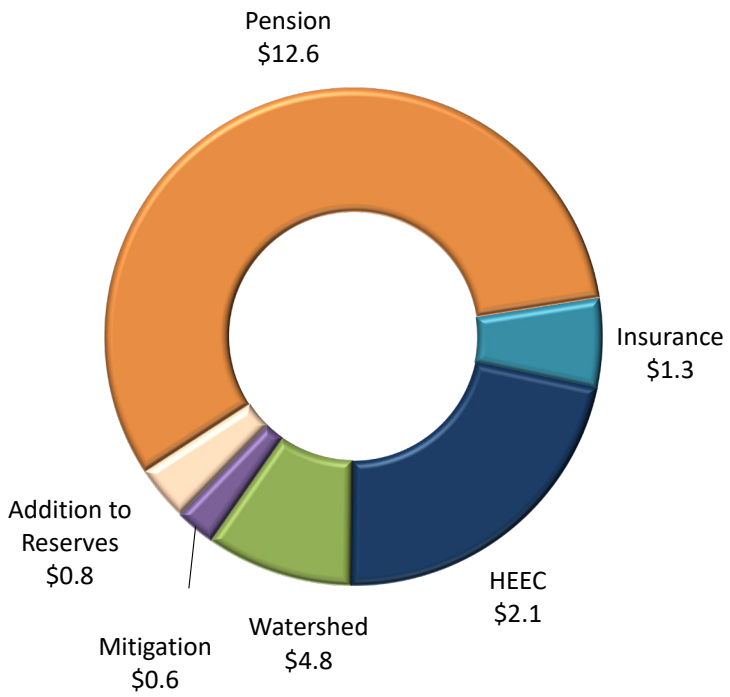
FY23 Watershed Protection Variance

$ in millions	YTD Budget	YTD Actual	YTD $ Variance	YTD % Variance
Operating Expenses	5.8	5.5	-0.3	-5.5%
Operating Revenues - Offset	0.4	0.9	0.5	137.9%
FY23 Operating Totals	**5.4**	**4.6**	**-0.9**	**-15.9%**
DCR Balance Forward (FY22 year-end accrual true-up)	0.0	0.3	0.3	
FY23 Adjusted Operating Totals	**5.4**	**4.8**	**-0.6**	**-10.9%**
PILOT	0.0	0.0	0.0	0.0%
Total Watershed Reimbursement	**5.4**	**4.8**	**-0.6**	**-10.9%**

Totals may not add due to rounding

MWRA reimburses the Commonwealth of Massachusetts Department of Conservation (DCR) and Recreation - Division of Water Supply Protection – Office of Watershed Management for expenses. The reimbursements are presented for payment monthly in arears. Accruals are being made monthly based on estimated expenses provided by DCR and trued-up monthly based on the monthly invoice. MWRA's budget is based on the annual Fiscal Year Work Plan approved by the Massachusetts Water Supply Protection Trust (with a vacancy adjustment applied). The FTE count at the end of October was 144 (and 141 on a year-to-date basis) vs. a budget of 150.

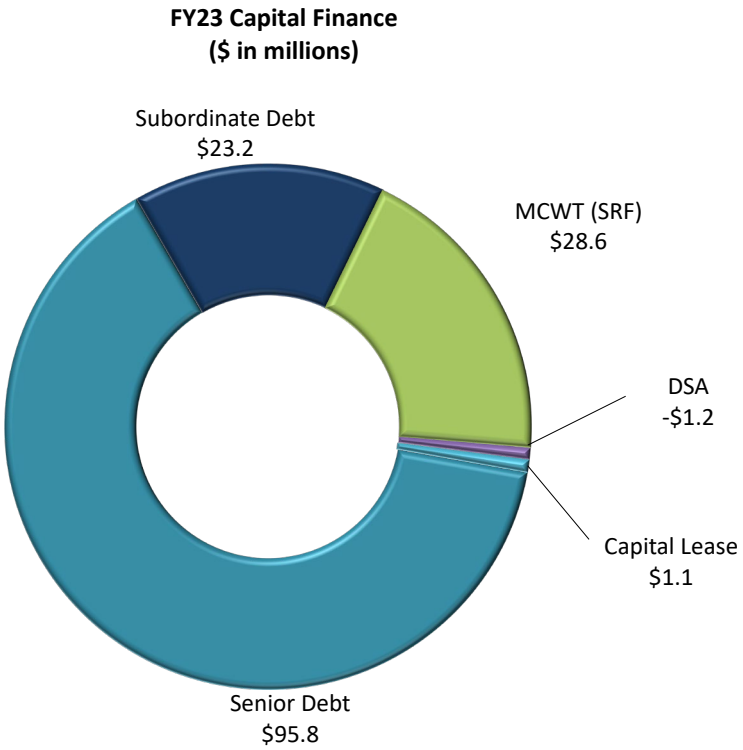
FY23 Indirect Expenses
(in millions)



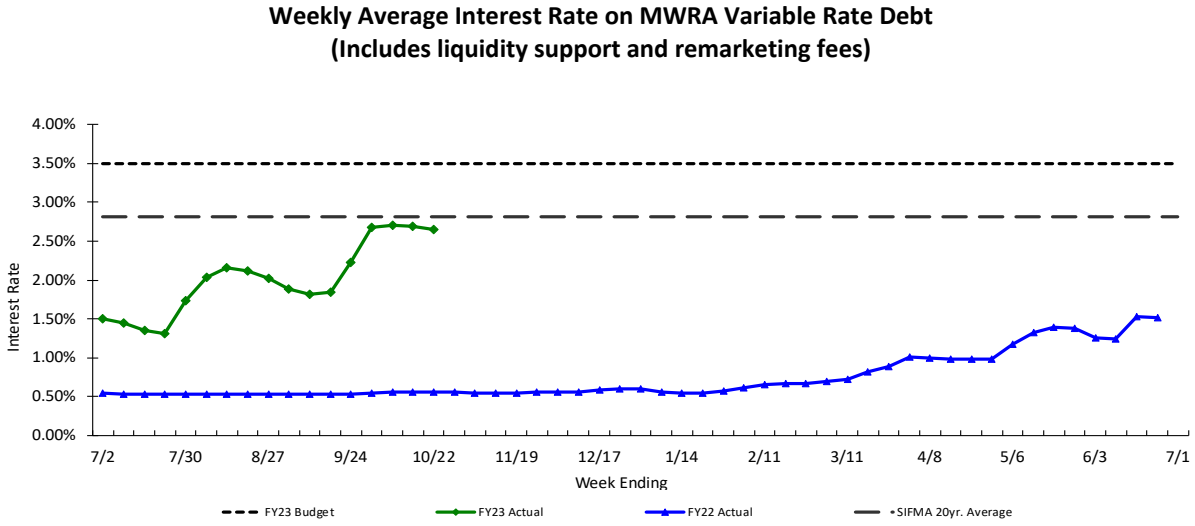
Capital Financing

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 October totaled $147.5 million, which is $1.8 million less than budget or 1.2%. This favorable variance is the result of lower than budgeted variable interest rates.



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



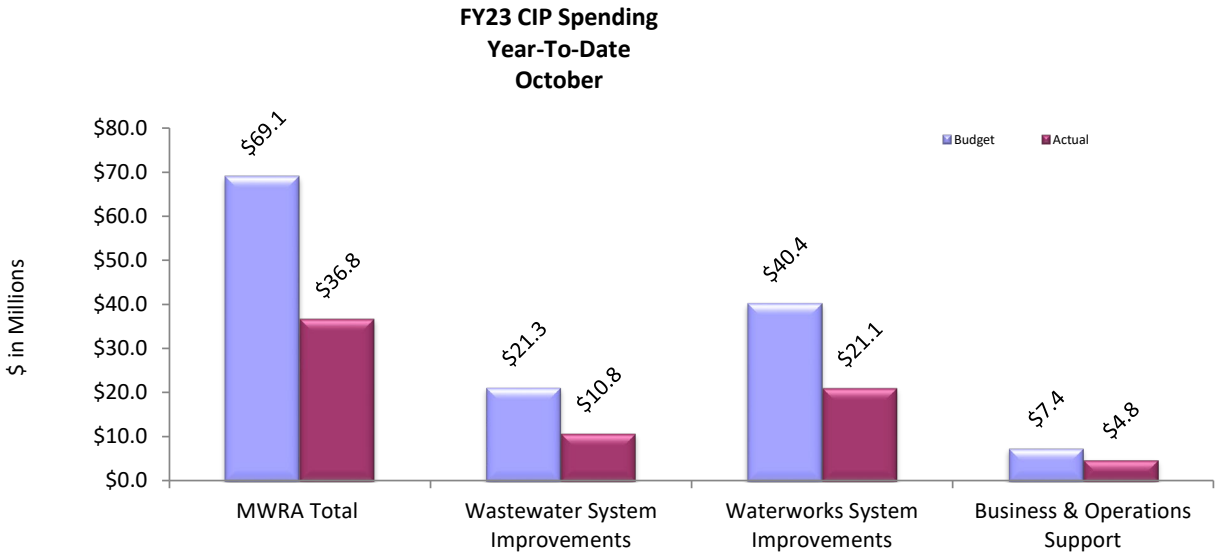
Revenue and Income

Revenues of $278.6 million were $3.8 million or 1.4% over budget. Other User Charges were $2.0 million over budget primarily due to water usage by the City of Cambridge. Investment Income was $1.7 million over budget due to higher than budgeted interest rates.

FY23 Capital Improvement Program

Capital expenditures in Fiscal Year 2023 through October total $36.8 million, $32.3 million or 46.8% under budget.

After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) grant/loan program, the Local Water System Assistance loan program, and the community managed Combined Sewer Overflow (CSOs) projects, capital spending totaled $38.3 million, $17.3 million or 31.1% under budget.



Overall, CIP spending reflects the underspending in Wastewater Improvements ($10.4 million), Waterworks ($19.3 million) and Business and Operations Support ($2.6 million). Major variances in Wastewater are primarily due to timing of community grants and loans for the I/I Local Financial Assistance Program, contractor behind schedule on Nut Island Odor Control and HVAC Improvements, completion of some design and inspection tasks later than anticipated for the Ward Street and Columbus Park Headworks Upgrades Design/ESDC, timing of work for CWTP SCADA Upgrades and Wastewater Meter System Equipment Replacement contracts, and lower than projected task order work on Deer Island As-needed Design contracts. This was partially offset by earlier than anticipated start-up for Braintree/Weymouth Improvements.

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, timing of contractors work for WASM/SPSM West PRV and WASM 3 Rehabilitation, less than anticipated

progress for CP-1 NEH Improvements. This was partially offset by contractor progress for Section 89/29 Replacement.

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

$ in Millions	Budget	Actuals	$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	11.4	6.7	(4.7)	-41.1%
Treatment	0.9	0.1	(0.8)	-85.6%
Residuals	0.0	0.0	0.0	0.0%
CSO	0.4	0.4	0.0	5.7%
Other	8.5	3.6	(5.0)	-58.3%
Total Wastewater System Improvements	**$21.3**	**$10.8**	**($10.4)**	**-49.1%**
Waterworks System Improvements				
Drinking Water Quality Improvements	1.1	0.7	(0.4)	-40.0%
Transmission	16.7	8.9	(7.7)	-46.4%
Distribution & Pumping	13.7	13.4	(0.3)	-1.9%
Other	8.9	(1.9)	(10.8)	-121.5%
Total Waterworks System Improvements	**$40.4**	**$21.1**	**($19.3)**	**-47.7%**
Business & Operations Support	**$7.4**	**$4.8**	**($2.6)**	**-35.3%**
Total MWRA	**$69.1**	**$36.8**	**($32.3)**	**-46.8%**

Totals may not add due to rounding

FY23 Spending by Program:

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

Other Waterworks: Net underspending of $10.8 million

- $10.1 million for Local Financial Assistance due to timing of community loan distributions.
- $0.7 million for CWTP SCADA Upgrades due to timing of work.

Waterworks Transmission: Net underspending of $7.7 million

- $ 5.2 million for Waltham Water Pipeline due to long lead time for piping material.
- $1.0 million for WASM/Spot Pond Supply Main Pressure Reducing Valves Improvements and $0.7 million for WASM 3 Rehabilitation due to timing of contractors work.
- $0.3 million for Watershed Land due to timing of purchases.
- This underspending was partially offset by overspending of $0.4 million for rehabilitation of Wachusett Bastion due to contractor progress, and $0.4 million for Preliminary Design and MEPA Review due to timing of consultant work.

Other Wastewater: Net underspending of $5.0 million

- $5.0 million for Community I/I due to timing of community distributions of grants and loans.

Interception & Pumping: Net underspending of $4.7 million

- $3.7 million for Nut Island Odor Control & HVAC Improvements Phase 2 – Construction due to contractor behind schedule.
- $1.1 million for Ward Street & Columbus Park Headworks - Design/CA due to completion of some design and inspection tasks later than anticipated.
- This underspending was partially offset by overspending of $0.7 million for Braintree/Weymouth Improvements – Construction due to earlier than anticipated start-up.

Business & Operations Support: Net underspending of $2.6 million

- $0.8 million for Oracle Database Appliance due to timing of work.
- $0.5 million for FY19-23 Vehicle Purchases due to timing of purchases and supply chain issues.
- $0.4 million for Security Equipment & Installation due to timing of security initiatives.
- This underspending was partially offset by $0.4 million for Edge Switches, $0.3 million for As-Needed Design Contracts, and $0.2 million for HOML due to timing of work.

Wastewater Treatment: Net underspending of $0.8 million

- $0.3 million for As-needed Design due to lower than projected task order work.
- $0.3 million for Deer Island Roofing Replacement due to schedule change.

Drinking Water Quality Improvements: Net underspending of $0.4 million

- $0.3 million for Marlborough Pumping Station Construction due to timing of work.

Water Distribution and Pumping: Net underspending of $0.3 million

- $0.7 million for CP-1 NEH Improvements due to less than anticipated progress.
- $0.7 million for CP3-Sections 23, 24, 47 Rehabilitation due to timing of work.
- $0.4 million for Cathodic Protection Shafts N & W due to scope changes.
- $0.4 million for Section 56 Replacement/Saugus River - Design/CA: $371k due to permitting delays.
- This underspending was partially offset by overspending of $1.4 million for Section 89/29 Replacement - Construction due to contractor progress, $0.6 million for Sections 25, 75, 24, 47, 59 & 60 - Design/CA due to design tasks scheduled for FY22 performed in FY23, and $0.3 million for NEH Improvements Design – ESDC due to timing of consultant work.

Construction Fund Balance

The construction fund balance was $150 million as of the end of October. Commercial Paper/Revolving Loan available capacity was $110 million.

ATTACHMENTS:

Attachment 1 – Variance Summary October 2022
Attachment 2 – Current Expense Variance Explanations
Attachment 3 – Capital Improvement Program Variance Explanations

ATTACHMENT 1
FY23 Actuals vs. FY23 Budget

	Oct 2022 Year-to-Date				
	Period 4 YTD Budget	Period 4 YTD Actual	Period 4 YTD Variance	%	FY23 Approved
EXPENSES					
WAGES AND SALARIES	$ 36,373,437	$ 32,354,506	$ (4,018,931)	-11.0%	$ 118,980,689
OVERTIME	1,721,819	1,592,892	(128,927)	-7.5%	5,337,896
FRINGE BENEFITS	7,781,964	7,508,023	(273,941)	-3.5%	23,961,641
WORKERS' COMPENSATION	839,917	520,736	(319,181)	-38.0%	2,519,751
CHEMICALS	5,565,118	6,198,818	633,700	11.4%	14,994,036
ENERGY AND UTILITIES	10,010,094	9,483,680	(526,414)	-5.3%	30,896,365
MAINTENANCE	12,285,782	11,517,179	(768,603)	-6.3%	33,241,023
TRAINING AND MEETINGS	130,372	101,883	(28,489)	-21.9%	492,197
PROFESSIONAL SERVICES	2,673,664	2,549,574	(124,090)	-4.6%	8,197,575
OTHER MATERIALS	1,437,270	1,598,145	160,875	11.2%	6,728,862
OTHER SERVICES	9,908,060	8,994,676	(913,384)	-9.2%	28,372,237
TOTAL DIRECT EXPENSES	**$ 88,727,497**	**$ 82,420,112**	**$ (6,307,385)**	**-7.1%**	**$ 273,722,272**
INSURANCE	$ 1,280,231	$ 1,290,443	$ 10,212	0.8%	$ 3,916,002
WATERSHED/PILOT	5,436,170	4,843,635	(592,535)	-10.9%	28,890,762
HEEC PAYMENT	2,110,708	2,110,708	-	0.0%	6,225,566
MITIGATION	567,438	567,438	-	0.0%	1,735,694
ADDITIONS TO RESERVES	790,648	790,648	-	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	**$ 22,740,398**	**$ 22,158,075**	**$ (582,323)**	**-2.6%**	**$ 60,495,741**
STATE REVOLVING FUND	$ 28,633,607	$ 28,633,607	$ -	0.0%	$ 96,342,495
SENIOR DEBT	95,778,954	95,778,954	-	0.0%	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	25,043,992	25,043,992	-	0.0%	75,491,975
LOCAL WATER PIPELINE CP	-	-	-	---	6,233,882
CAPITAL LEASE	1,051,731	1,051,731	-	0.0%	3,217,060
VARIABLE DEBT	-	(1,807,114)	(1,807,114)	---	-
DEFEASANCE ACCOUNT	-	-	-	---	-
DEBT PREPAYMENT	-	-	-	---	5,500,000
TOTAL CAPITAL FINANCE EXPENSE	**$ 149,325,790**	**$ 147,518,676**	**$ (1,807,114)**	**-1.2%**	**$ 505,972,858**
TOTAL EXPENSES	**$ 260,793,685**	**$ 252,096,863**	**$ (8,696,822)**	**-3.3%**	**$ 840,190,871**
REVENUE & INCOME					
RATE REVENUE	$ 266,327,230	$ 266,327,230	$ -	0.0%	$ 814,648,000
OTHER USER CHARGES	4,379,053	6,370,714	1,991,661	45.5%	9,836,507
OTHER REVENUE	1,117,509	1,147,341	29,832	2.7%	6,139,104
RATE STABILIZATION	320,385	320,385	-	0.0%	980,000
INVESTMENT INCOME	2,642,619	4,388,902	1,746,283	66.1%	8,587,260
TOTAL REVENUE & INCOME	**$ 274,786,796**	**$ 278,554,573**	**$ 3,767,776**	**1.4%**	**$ 840,190,871**

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY23 Budget YTD October	FY23 Actuals October	FY23 YTD Actual vs. FY23 Budget		Explanations
			$	%	
Direct Expenses					
Wages & Salaries	36,373,437	32,354,506	(4,018,931)	-11.0%	Wages and Salaries are under budget by $4.0 million. Year to date, there have been 113 fewer average FTEs (1,054 versus 1,167 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions.
Overtime	1,721,819	1,592,892	(128,927)	-7.5%	Overtime expenses were less than budget by $129,000 or 7.5%. Lower spending mainly in Field Operations of $211,000 primarily for planned overtime due to vacancies and emergency overtime being under budget, Engineering & Construction of $43,000, are partially offset by higher spending at Deer Island of $110,000 and Clinton of $12,000 for shift coverage. In addition, vacancies for DITP Operations continue to drive higher overtime costs than anticipated.
Fringe Benefits	7,781,964	7,508,023	(273,941)	-3.5%	Fringe Benefit spending was lower than budget by $0.3 million or 3.5%. Lower than budget in **Health Insurance** of $223,000, 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.
Worker's Compensation	839,917	520,736	(319,181)	-38.0%	Worker's Compensation expenses were lower than budget by $0.3 million or 38.0%. The lower expenses were due to favorable variances in **Compensation Payments** of $246,000, **Medical Payments** of $54,000, and **Administrative Expenses** of $19,000. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.
Chemicals	5,565,118	6,198,818	633,700	11.4%	Chemicals were greater than budget by $0.6 million or 11.4%. Higher than budget spending on **Sodium Hypochlorit**e of $394,000 driven by DITP of $260,000 due to additional usage for disinfection and odor control due to lower flows, $79,000 at JCWTP mostly due to higher contract price, and $50,000 in Wastewater Operations primarily at Nut Island Headworks, **Activated Carbon** of $180,000 driven by DITP of $123,000 and $57,000 in Wastewater Operations due to timing of replacements, **Ferric Chloride** of $104,000 driven by DITP due to higher than ususual secondary waste sludge, **Carbon Dioxide** of $51,000 due to increased dosing due to higher flows at CWTP, partially offset by **Sodium Bisulfite** of $73,000 primarily in Wastewater Operations due to the lower flows, and **Soda Ash** of $45,000 primarily in Water Operations due to lower dosing. DITP flows are 15.3% lower than the budget and CWTP preliminary flows are 8.5% greater than the budget through October. It is important to note that Chemical variances are also based on deliveries which in general reflect the usage patterns. However, the timing of deliveries is an important factor.
Utilities	10,010,094	9,483,680	(526,414)	-5.3%	Utilities were less than budget by $0.5 million or 5.3%. Underspending in Diesel Fuel of $1.4 million due to timing of delivery at DITP (started 11/7/22). Overspending in Electricity of $857,000 primarily at DITP of $0.7 million driven by higher real time pricing as well as higher usage. Also, Field Operations of $0.1 million is over budget primarily due to T&D and Generation costs were greater than budget.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY23 Budget YTD October	FY23 Actuals October	FY23 YTD Actual vs. FY23 Budget		Explanations
			$	%	
Maintenance	12,285,782	11,517,179	(768,603)	-6.3%	Maintenance was less than budget by $0.8 million or 6.3%, largely driven by the timing of projects. *Maintenance Services* are under budget by $1.2 million driven by **Building & Grounds Services** of ($940,000) due to timing including Eastern Ave Traffic Light and Shaft 8 Retaining Wall work, timing of floating dock repair at DITP, **Plant & Machinery Services** of ($294,000) primarily due to timing of service contracts and work including the Norumbega Tank cleaning and Piexometer Installation at Weston and Chestnut Hill Dams, lower spending on pipe cleaning at DITP, **Computer Services** of ($175,000), **Special Equipment Services** of ($156,000) due to timing, partially offset by higher spending for **Computer Software Licenses** of $294,000 due to timing and OKTA support renewal that wasn't budgeted. *Maintenance Materials* are over budget by $0.4 million, driven by **Inventory** of $334,000, **Electrical Materials** of $136,000, **Special Equipment Materials** of $123,000, and **HVAC Materials** of $96,000, partially offset by **Plant and Machine Materials** ($142,000) primarily due to timing.
Training & Meetings	130,372	101,883	(28,489)	-21.9%	Training & Meetings was lower than budget by $28,000 or 21.9% is primarily due to timing driven by MIS ($29,000), Engineering & Construction ($9,000), Procurement ($8,000), partially offset by higher spending in Operations of $21,000.
Professional Services	2,673,664	2,549,574	(124,090)	-4.6%	Professional Services was less than budget by $124,000 or 4.6% driven by **Computer Systems Consultant** of ($46,000) due to timing and **Engineering** of $46,000 due to lower than projected task order work, partially offset by **Lab & Testing Analysis** of $70,000 primarily due to timing and the Red Tide alert.
Other Materials	1,437,270	1,598,145	160,875	11.2%	Other Materials were higher than budget by $161,000 or 11.2% driven by **Vehicle Purchase/Replacements** of $264,000 due to timing of purchases, partially offset by **Computer Software** of $80,000 also due to timing.
Other Services	9,908,060	8,994,676	(913,384)	-9.2%	Other Services was less than budget by $913,000 or 9.2% for **Sludge Pelletization** of $270,000 and **Grit & Screenings Removal** $85,000 due to lower quantities, **Telecommunications** of $283,000, **Memberships/Dues/Subscriptions** of $53,000 primarily due to timing. Also, **Police Details** of $40,000 due to less than anticipated as-needed details, partially offset by **Computer Hardware** of $61,000 primarily due to timing.
Total Direct Expenses	**88,727,497**	**82,420,112**	**(6,307,385)**	**-7.1%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY23 Budget YTD October	FY23 Actuals October	FY23 YTD Actual vs. FY23 Budget		Explanations
			$	%	
Indirect Expenses					
Insurance	1,280,231	1,290,443	10,212	0.8%	Lower Payments/Claims of $21,000 and higher Premiums of $31,000 than budgeted.
Watershed/PILOT	5,436,170	4,843,635	(592,535)	-10.9%	Lower Watershed Reimbursement of $0.6 million favorable variance to budget driven by lower spending on Wages & Salaries and Fringe Benefits.
HEEC Payment	2,110,708	2,110,708	-	0.0%	
Mitigation	567,438	567,438	-	0.0%	
Addition to Reserves	790,648	790,648	-	0.0%	
Pension Expense	12,555,203	12,555,203	-	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	**22,740,398**	**22,158,075**	**(582,323)**	**-2.6%**	
Debt Service					
Debt Service	149,325,790	147,518,676	(1,807,114)	-1.2%	Debt service is $1.8 million under budget due to lower than budgeted variable interest rates.
Debt Service Assistance	-	-	-		
Total Debt Service Expenses	**149,325,790**	**147,518,676**	**(1,807,114)**	**-1.2%**	
Total Expenses	**260,793,685**	**252,096,863**	**(8,696,821)**	**-3.3%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY23 Budget YTD October	FY23 Actuals October	FY23 YTD Actual vs. FY23 Budget		Explanations
			$	%	
Revenue & Income					
Rate Revenue	266,327,230	266,327,231	1	0.0%	
Other User Charges	4,379,053	6,370,714	1,991,661	45.5%	Water usage by the City of Cambridge.
Other Revenue	1,117,509	1,147,341	29,832	2.7%	Other Revenue was $29,000 or 2.7% over budget due to **Energy Rebates** of $84,000, **Miscellaneous Revenue** of $51,000, **Permit Fees** of $39,000, and **Penalties** of $20,000 primarily due to timing, partially offset by **Energy Revenue** of $161,000 due to less than anticipated revenue.
Rate Stabilization	320,385	320,385	-	0.0%	HEEC Reserve.
Investment Income	2,642,619	4,388,902	1,746,283	66.1%	Investment Income is over budget due to higher than budgeted interest rates.
Total Revenue	**274,786,796**	**278,554,573**	**3,767,777**	**1.4%**	
Net Revenue in Excess of Expenses	**13,993,111**	**26,457,710**	**12,464,598**		

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

	FY23 Budget YTD October	FY23 Actuals YTD October	YTD Actuals vs. Budget		Explanations
			$	%	
Wastewater					
Interception & Pumping (I&P)	$11,395	$6,714	($4,681)	-41.1%	Underspending Nut Island Odor Control & HVAC Improvements Phase 2 - Construction: $3.7M (contractor behind schedule) Ward Street & Columbus Park Headworks Upgrades - Design/CA: $1.1M (completed some design and inspection tasks later than anticipated) Wastewater Meter System Equipment Replacement: $371k (timing of work) Remote Headworks Shaft Access Improvements - Construction: $267k (slower than anticipated start up) Offset Overspending Braintree/Weymouth Improvements - Construction: $680k (earlier than anticipated start-up)
Treatment	$937	$135	($802)	-85.6%	Underspending As-needed Design: $311k (lower than projected task order work) DITP Roofing Replacement: $250k (schedule change)
Residuals					
CSO	$392	$414	$22	5.7%	
Other Wastewater	$8,544	$3,566	($4,978)	-58.3%	Underspending I/I Local Financial Assistance: $5.0M (timing of community distributions of grants and loans) CWTP SCADA Upgrades: $731k (timing of work)
Total Wastewater	**$21,268**	**$10,829**	**($10,438)**	**-49.1%**	

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

	FY23 Budget YTD October	FY23 Actuals YTD October	YTD Actuals vs. Budget		Explanations
			$	%	
Waterworks					
Drinking Water Quality Improvements	$1,113	$667	($446)	-40.0%	Underspending Marlboro Pump Station Construction: $273k (timing of work)
Transmission	$16,661	$8,927	($7,734)	-46.4%	Underspending Waltham Water Pipeline - Construction: $5.2M (long lead time for piping material) WASM/SPSM West PRV - Construction: $1.0M, and WASM 3 Rehabilitation, CP-1 : $680k (timing of contractors work) Preliminary Design & MEPA Review: $364k, and Program Support Services: $210k (timing of consultants work) Watershed Land: $315k (timing of purchases) Offset Overspending Rehabilitate Wachusett Bastion - Construction: $387k (contractor progress)
Distribution & Pumping	$13,700	$13,444	($257)	-1.9%	Underspending CP-1 NEH Improvements: $745k (less than anticipated progress) CP3-Sections 23, 24, 47 Rehabilitation and CA/RI: $721k (timing of work) Cathodic Protection Shafts N & W: $400k (scope changes) Section 56 Replacement/Saugus River - Design/CA: $371k (permitting delays) Offset Overspending Section 89/29 Replacement - Construction: $1.4M (contractor progress) Sections 25, 75, 24, 47, 59 & 60 - Design/CA: $560k (Design tasks scheduled for FY22 performed in FY23) NEH Improvements Design - ESDC: $281k (timing of consultant work)
Other Waterworks	$8,923	($1,920)	($10,843)		Underspending Local Water Pipeline Financial Assistance Program: $10.1M (timing of community distributions) CWTP SCADA Upgrades: $731k (timing of work)
Total Waterworks	**$40,397**	**$21,118**	**($19,280)**	**-47.7%**	

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

	FY23 Budget YTD October	FY23 Actuals YTD October	YTD Actuals vs. Budget		Explanations
			$	%	
Business & Operations Support					
Total Business & Operations Support	**$7,448**	**$4,821**	**($2,627)**	**-35.3%**	Underspending Oracle Database Appliance: $775k, Cabling: $667k (timing of work) FY19-23 Vehicle Purchases: $450k (timing of purchases and supply chain issues) Security Equipment & Installation: $438k (timing of security initiatives) Offset Overspending Edge Switches: $435k, As-Needed Design Contracts: $250k, and HOML: $217k (timing of work)
Total MWRA	**$69,113**	**$36,768**	**($32,345)**	**-46.8%**	

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Pilot Program for Use of Statewide Professional Services Contracts

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COMMITTEE: Administration, Finance & Audit

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director, Administration

Rita C. Mercado, Acting Director of Procurement
Preparer/Title

Carolyn Francisco Murphy
General Counsel

RECOMMENDATION:

To authorize a one-year pilot program to allow the Authority to utilize Statewide Professional Services Contracts managed by the Commonwealth of Massachusetts' Operational Services Division for the procurement of professional services within the Executive Director's Delegated Authority.

DISCUSSION:

In July 1985, the Board adopted a set of Management Procedures (MWRA Policy #ADM.01 Management Policies of the Board of Directors) designed to regulate the day-to-day responsibilities of the Authority. This policy set forth specific delegations of authority for certain staff to purchase materials, award contracts, and execute amendments and change orders up to certain values, which were most recently amended by the Board's vote on February 16, 2022. This policy also includes a Management Policy on Professional Services Contracts as Appendix B that was adopted by the Board on March 22, 1989 (Professional Services Policy). The purpose of the Professional Services Policy is to set forth the principles that the Authority shall follow in procuring professional services, and the procurement process required for four cost categories:

Cost Category 1 – All Professional Services for Amounts up to $2,500;
Cost Category 2 – All Contracts for Amounts more than $2,500 and up to $10,000;
Cost Category 3 – All Contracts for Amounts more than $10,000 and up to $25,000; and
Cost Category 4 – All Professional Services Contracts for Amounts more than $25,000.

Similar to the Board's vote on February 16, 2022, which increased certain Procurement Delegated Authority thresholds for the Executive Director to reflect inflationary increases since the Policy was established, staff are currently exploring what, if any, increases to the Professional Services Policy's Cost Category would be appropriate, and any other Policy updates to promote the procurement of professional services in a fair and cost-effective manner.

In the interim, staff are recommending a one-year pilot program to allow the Authority to utilize statewide professional services contracts managed by the Commonwealth's Operational Services Division (OSD). OSD's Strategic Sourcing Services is responsible for establishing and managing the Commonwealth's statewide contracts. These contracts enable public entities to efficiently procure goods and services at a best value from diverse businesses that are awarded contracts through an open, fair and competitive bidding process. Each year, public entities spend billions of dollars to acquire goods and services through OSD's statewide contracts. With this purchasing power, statewide contracts are leveraged to achieve best value for public entities.

The Enabling Act permits MWRA to enter into agreements under the statewide collective purchasing program, which the Authority has successfully utilized for the procurement of certain goods and services. However, the current Board-approved Professional Services Policy specifies the method of procurement for professional services that does not include use of OSD statewide contracts. This pilot program, if approved, would allow the Authority to assess if any future changes to the Professional Services Policy should be implemented to permit use of OSD statewide contracts for professional services.

In the pilot program, potential future professional services that could be procured under an existing OSD statewide contract for professional services include, but are not limited to, the following:

- facilities engineering services;
- energy, climate action, and facility advisory services;
- management consultants, program coordinators and planner services; and
- professional environmental and consulting services.

This pilot program would further be conducted in accordance with the OSD's Contract User Guide, and be limited to professional services contracts within the Executive Director's Delegated Authority.

Based on the reasons above, staff request authorization for a one-year pilot program to allow the Authority to utilize Statewide Professional Services Contracts managed by the Commonwealth's Operational Services Division for projects within the Executive Director's Delegated Authority. Staff will report back to the Board after the conclusion of the pilot program to review findings and conclusions.

BUDGET/FISCAL IMPACT:

The pilot program discussed in this staff summary will have no budgetary impacts.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Data Analyst Consultant
Clovity Inc.
Bid WRA-5126Q, State Contract ITS77 Category 1A and 1B, Amendment 1

COMMITTEE: Administration, Finance & Audit

____ INFORMATION
__X__ VOTE

Paula Weadick, MIS Director
Rita C. Mercado, Acting Director, Procurement
Preparer/Title

Michele S. Gillen
Director, Administration

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to Purchase Order Contract WRA-5126Q, Data Analyst Consultant, with Clovity, Inc., increasing the contract amount by $165,750, from $82,875 to an amount not-to-exceed $248,625, and extending the contract term by twelve months, from November 30, 2022 to November 30, 2023.

DISCUSSION:

In December 2021, the MWRA Business Systems Analyst performing the data analysis for the Enterprise Content Management (ECM) implementation project was promoted. In July 2022, MIS posted a position to hire a permanent Business Systems Analyst to assist in the support and analysis of InfoStar data migration to the new ECM system. This position was re-posted twice. To date there have been only eight applicants and none have met the minimum qualifications of the position. While the search process for filling this vacancy is ongoing, due to the timing of the critical migration phase of the project, MIS needs to ensure continued support of the implementation of the ECM. Therefore, a Data Analyst consultant was hired to assist with the following MIS initiatives:

- analysis of current legacy data sources;
- analysis of future state data requirements;
- using SQL to query existing data sources;
- mapping existing source data elements to target data elements;
- transforming legacy reference data into its future state;
- populating legacy and transformed data into customized future state templates for subsequent ingestion into the target application;
- scripting data migration processes so such are repeatable;
- quality assuring, reconciling and ensuring data migration tasks and completeness;
- providing recommendations related to data quality issues and the efficient migration of data; and
- providing related documentation as required.

This Amendment

The Data Analyst consultant has been working with the ECM project team performing the data migration tasks that move legacy data into the new application. The data migration tasks are expected to continue through 2023. This resource is needed to ensure that the data migration tasks are completed within the expected timeframe. The existing consultant possesses excellent skills and has performed well in the role displaying an understanding of the migration requirements, source data and target data formats. Therefore, extending the existing contract will ensure that the project timeline is maintained and services continue to be provided without disruption.

This amendment, if approved, would increase the purchase order amount by $165,750 and extend the contract term by 12 months, resulting in an amended contract amount not-to-exceed $248,625 and an extended term of 18 months to expire on November 30, 2023. The increase reflects an additional 1,950 hours at the original bid price of $85 per hour. The not-to-exceed amount of the contract is not a firm commitment of cost; MWRA will utilize the hours, as needed, until the business systems analyst position is filled.

CONTRACT SUMMARY:

	Amount	Time	Dated
Original Contract:	$82,875	6 Months	6/1/2022
Amendment 1	$165,750	12 Months	Pending
Amended Contract:	$248,625	18 Months	

BUDGET/FISCAL IMPACT:

There are sufficient funds for the amendment included in the FY23 Current Expense Budget.

MBE/WBE PARTICIPATION:

Clovity Inc. is not a certified Minority-Qwned or Woman-Owned business.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Security Guard Services for Various MWRA Facilities
Universal Protection Service, LLC d/b/a
Allied Universal Security Services
Contract EXE-041, Amendment 2

COMMITTEE: Administration, Finance & Audit

____ INFORMATION
_X_ VOTE

Kathryn White, Mgr., Security Services
Preparer/Title

Gary Cacace
Director, Security

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to execute Amendment No. 2 to Contract EXE-041, Security Guard Service for Various MWRA Facilities, with Universal Protection Service, LLC d/b/a Allied Universal Security Services, exercising the second and final option to renew, increasing the total contract price by $2,583,482.24, from $8,964,328.20 to an amount not to exceed $11,547,810.44, and extending the contract term by 365 calendar days, from February 6, 2023 to February 6, 2024.

DISCUSSION:

On December 19, 2018, the Board of Directors approved the award of Contract EXE-041 for an amount not to exceed $6,849,216.00 for security guard services. Since February 5, 2019, Allied United Security Services has provided around-the-clock guard security, including video and alarm monitoring, gate access and mobile patrols, to MWRA major facilities: Charlestown Headquarters, Deer Island Treatment Plant, Chelsea Facility, Carroll Water Treatment Plant, and other remote locations. This Contract was for a three-year term and included two, one-year renewal options. On December 15, 2021, the Board of Directors approved Amendment 1, which extended the contract term by one year, increasing the contract amount by $2,115,112.20 for a total not to exceed amount of $8,964,328.20.

This Amendment

Amendment 2 is for the second and final one-year extension option. Security considerations and Allied Universal's performance support this recommendation. Allied Universal's current security force continues to perform at a high level. Moreover, Allied Universal's familiarity with the MWRA's facilities and operations, as well as the technology that MWRA employs, will most effectively ensure continuity of security at this time. Allied Universal's security team performed beyond expectations during the COVID-19 pandemic, fulfilling all of their responsibilities and lending themselves to support the MWRA in unconventional ways when administrative buildings went unstaffed.

The prior SEIU Collective Bargaining Agreement (CBA) expired on July 30, 2022. The new guard-billing rate in the proposed Amendment 2 includes salary rate increases from August 1, 2022 to January 1, 2026 required under the current CBA. The rate increase also includes additional costs to cover sick days required by Massachusetts law and increases in health insurance premiums. Allied Universal has agreed to maintain its same percentage mark-up of 15% for its fee during the option year. Staff have determined that the rate increases are reasonable.

The proposed sum of Amendment 2 (the fifth year) is $2,583,482.24, which includes the above rate increases, as well as an increase in the bid item allowance to be spent by Task Order if authorized by the Authority's Department Director on items listed as allowable in the Technical Specifications, including a major breach of security; a terrorist- related event; or any event that would require 24/7 security staffing that is unforeseen, including shortfalls of hours for above items.

The contract summary is as follows:

	Amount	**Time**	**Date**
Original Contract	$6,849,216.00	36 Months	February 6, 2018
Amendment No. 1	$2,115, 112.20	12 Months	February 6, 2022
Amendment No. 2	$2,583,482.24	12 Months	February 6, 2023
Total	$11,547, 810.40		

For the reasons set forth above, staff recommend the Board's approval of Amendment No. 2 to Contract EXE-041.

BUDGET/FISCAL IMPACTS:

The not-to-exceed cost of this one-year extension to Contract EXE-041 is $2,583,482.24. The FY23 CEB includes $2,366,804 for security related expenses, and adequate funds will be included in the FY24 CEB to fund remainder of this contract.

MBE/WBE PARTICIPATION:

Due to the specialized nature of this contract and the limited opportunities for subcontracting, no MBE or WBE participation requirements were established for this contract.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Clinton Wastewater Treatment Plant Reissued National Pollutant Discharge Elimination Permit (NPDES) Permit

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COMMITTEE: Wastewater Policy & Oversight

__X__ INFORMATION
_____ VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Wendy S. Leo, Sr. Program Manager, NPDES
Betsy Reilley, Director, Environmental Quality
Preparer/Title

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

RECOMMENDATION:

For information only.

DISCUSSION:

MWRA's Clinton Wastewater Treatment Plant requires a National Pollutant Discharge Elimination System (NPDES) permit to discharge into the South Branch of the Nashua River. The permit currently in effect was issued in December 2016 and has been administratively continued since its February 2022 expiration date. Effective on June 20, 2020, U.S. Environmental Protection Agency Region 1 (EPA) terminated its longstanding joint NPDES permitting agreement with the Massachusetts Department of Environmental Protection (MassDEP). Prior to the termination, these permits were jointly issued by EPA and MassDEP. While the process is collaborative, following the termination each regulatory agency is responsible for issuing a permit to the discharger. In February 2022, EPA and MassDEP each issued a draft "Medium Wastewater Treatment Facility General Permit" to cover all Massachusetts sewage treatment plants with design flows between one and five million gallons per day (MGD) and with no combined sewer overflows; this includes the Clinton Wastewater Treatment Plant. MWRA submitted comments to both EPA and MassDEP during the public comment period. EPA and MassDEP have now issued Final Medium Wastewater Treatment Facility General Permits. The Clinton Plant is eligible for coverage under the General Permits. The existing Clinton Plant NPDES permit remains in effect until EPA and MassDEP issue an authorization, which will include the start date of the new permits.

General Permits

In order to reduce the permitting backlog and provide more standardization of permit terms between permittees, EPA has recently increased its use of "general permits." Such permits cover multiple permittees, with similar characteristics and applying the same or similar permit limits and conditions. Some of the other NPDES general permits that apply to MWRA facilities include:

- Dewatering and Remediation General Permit;
- Pesticide General Permit;
- Industrial Stormwater Multi-Sector General Permit;

- Noncontact Cooling Water General Permit; and
- Hydroelectric Generating Facilities General Permit

Permit limits can vary somewhat between permittees with discharges covered by a general permit, but other conditions are generally the same. The public review process occurs during development of the general permit. Once the final permit is issued, rather than an individual permit application, the permittee may submit a "Notice of Intent" form with basic information about its discharge, and authorization is issued by EPA and MassDEP.

The Medium Wastewater Treatment Facility General Permits have large amounts of variation between permittees in terms of permit limits. Of importance, these permits are intended to replace individual permits, but keep the same requirements as would have been included in reissued individual permits. This complies with "antibacksliding" regulations that require that permit limits cannot become less strict.

MWRA may request to have the Clinton Plant discharge permitted under an individual permit instead of the general permit. However, individual permit limits may be stricter than those in the general permit.

Co-permittees

The General Permits include co-permittees (as applicable to MWRA, co-permittee status is designated for Clinton and Lancaster) for certain requirements primarily relating to collection system Operation and Maintenance. The inclusion of co-permittees was the subject of MWRA and MWRA Advisory Board comment and objection. The permits have specific requirements with which the co-permittees must comply, even though they have not applied for a permit. Included in the permit sections applicable to Clinton and Lancaster are reporting requirements for unauthorized discharges from the town collection systems (which include Sanitary Sewer

Overflows); and O&M requirements for their respective collection systems, including provisions for infiltration/inflow (I/I) reduction programs and for updating existing O&M plans.

The co-permittee language in the final Medium Wastewater Treatment Facility General Permits is similar to that in the existing Clinton Plant NPDES permit. EPA and MassDEP have attempted to clarify the roles and responsibilities of MWRA, Clinton, and Lancaster as co-permittees. For example, the EPA General Permit now states:

> The Permittee and Co-permittee are severally liable for their own activities under Parts II.C [Unauthorized Discharges], III.A [Operation and Maintenance of the Sewer System] and III.B [Alternate Power Source] and required reporting under Part V with respect to the portions of the collection system that they own or operate. They are not liable for violations of Parts II.C, III.A and III.B committed by others relative to the portions of the collection system owned and operated by others. Nor are they responsible for any reporting under Part V that is required of other Permittees under Parts II.C, III.A and III.B.

Co-permittees are newly responsible for ensuring backup power for their collection systems (*e.g.* pump stations), and for some new reporting requirements for unauthorized discharges (*e.g.* sanitary sewer overflows).

Other permit provisions

Other changes in the permits include:

- stricter ammonia limits, due to changes in state water quality standards. Staff do not anticipate any problem meeting the new limits, as the Clinton Plant provides nitrification, which transforms ammonia nitrogen to less-toxic nitrate nitrogen;
- new monitoring requirements for PFAS in influent, effluent, sludge, and industries;
- new monitoring requirements for nitrogen (TKN and nitrate+nitrite). Required reporting of average monthly total nitrogen load;
- new receiving water monitoring for phosphorus, dissolved organic carbon, pH, and temperature;
- reduced frequency of monitoring for some parameters;
- changes in how some values are calculated for reporting;
- new requirement for rapid reporting of sanitary sewer overflows and upsets (applies to co-permittees as well); and
- co-permittees are required to provide back-up power for their collection system facilities.

Consistent with the previous permit, MWRA must review its local limits and other aspects of its pretreatment program and propose revisions to EPA and MassDEP, as necessary. Staff will inform the Board if significant changes to its program are required.

The new permits retain a limit on flow (12-month rolling average) that the plant occasionally exceeds during normal weather conditions. EPA and MassDEP set the limit at the daily average design flow of 3.01 MGD. The peak hydraulic capacity of the plant is 12.0 MGD and the plant can effectively treat the full plant flow during wet weather events. MWRA had requested an increase in the flow limit. EPA and MassDEP rejected MWRA's analysis due to the lowest weekly flow observed in the Nashua River, and MWRA's regulatory requirement of 1.7 MGD releases to the river.

The new permits also carry forward the existing limitations on BOD, TSS, pH, dissolved oxygen, total chlorine residual, ammonia, total phosphorus, and bacteria (*E. coli*), which the plant consistently meets, and whole effluent toxicity and copper, which are usually met. Monitoring requirements and changes are summarized in Appendix A.

Operation and Maintenance of the MWRA and Community-Owned Sewer Systems

Requirements for adequate operation and maintenance staffing, I/I reduction to prevent high-flow-related unauthorized discharges from the collection system, preventive maintenance, and alternative power sources are much more detailed than what is in the existing permit. The requirements apply to MWRA as well as to the towns (as co-permittees.) Each permittee must develop a collection system Operation and Maintenance Plan, submit them to EPA and MassDEP, and implement them. The Plan must describe staffing, preventative maintenance, funding, I/I program, related work, and annually report on activities carried out under the Plan.

BUDGET/FISCAL IMPACTS:

There will be additional costs for sampling and laboratory analysis of PFAS and ambient monitoring of the receiving water for phosphorus. The most significant cost will be approximately $20,000 per year for PFAS laboratory analysis. Increased monitoring costs will be partly offset by some savings due to reduced monitoring frequency for some parameters, in particular a change from daily sampling to weekday-only sampling.

ATTACHMENT:

Attachment A: Clinton permit limits - Comparison between current (2017) permit and new (2022) permits.

Attachment A
Clinton permit limits - Comparison between current (2017) permit and new (2022) permits

Parameter	2017 Permit Limit	2022 Permit Limit
Flow	3.01 MGD, 12 month rolling average	no change
BOD (Biochemical Oxygen Demand)	20 milligrams/liter average monthly 20 milligrams/liter weekly average 500 lbs/day monthly average 500 lbs/day weekly average 85% removal minimum monthly average	no change
TSS (Total Suspended Solids)	20 milligrams/liter average monthly 20 milligrams/liter weekly average 500 lbs/day monthly average 500 lbs/day weekly average 85% removal minimum monthly average	no change
pH	within range 6.5 - 8.3	no change
Dissolved Oxygen	minimum 6 milligrams/liter	no change
bacterial indicator *E. coli*	126 colonies/100 milliliters monthly average 409 colonies/100 milliliters daily maximum	no change
Total Residual Chlorine	17.6 micrograms/liter monthly average 30.4 micrograms/liter daily maximum	no change
Total phosphorus	April 1 - October 31 150 micrograms/liter monthly average 3.8 lbs/day monthly average	no change
	November 1 - March 31 1,000 micrograms/liter monthly average 25.1 lbs/day monthly average	no change
Total ammonia nitrogen	April 1 - April 30 10 milligrams/liter monthly average	April 1 - April 30 **3.9** milligrams/liter monthly average
	May 1- May 31 5 milligrams/liter monthly average	May 1- May 31 **2.1** milligrams/liter monthly average
	June 1 - October 31 2 milligrams/liter monthly average 3 milligrams/liter daily maximum[2]	no change
	November 1-March 31 10 milligrams/liter monthly average 35.2 milligrams/liter daily maximum	November 1-March 31 **6.6** milligrams/liter monthly average 35 milligrams/liter daily maximum
Total Copper	11.6 micrograms/liter monthly average 14.0 micrograms/liter daily maximum	no change
Whole Effluent Toxicity	Acute toxicity LC50 >100% Chronic toxicity C-NOEC 62.5%	no change

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Agency-Wide Technical Assistance Consulting Services
Hazen and Sawyer, P.C., Contract 7990
Kleinfelder Northeast, Inc., Contract 7991

COMMITTEE: Wastewater Policy & Oversight

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

John P. Colbert, P.E., Chief Engineer
Meredith R. Norton, Program Manager
Preparer/Title

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

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award two separate contracts to provide agency-wide technical consulting services, and to authorize the Executive Director, on behalf of the Authority, to execute Contract 7990 with Hazen and Sawyer, P.C., and Contract 7991 with Kleinfelder Northeast, Inc., each in an amount not to exceed $3,000,000 and for a contract term of 24 months from the Notice to Proceed.

DISCUSSION:

The purpose of technical assistance contracts is to make available, on a continuing, as needed basis, the services of qualified, professional engineering firms and staff to assist staff on engineering study and design initiatives. The contracts may also provide Engineering Services During Construction (ESDC) and Resident Engineering/Inspection (REI) services. The technical assistance contract consultants are required to have expertise in civil, structural, geotechnical, environmental and sanitary, mechanical and process, HVAC, fire protection, electrical, control systems, and chemical engineering as well as architecture, surveying, corrosion and odor control, permitting, security and cost estimating. These agency-wide technical assistance contracts provide professional services on high-priority or unanticipated projects, and smaller priority projects such as roof and fuel oil tank replacements. These contracts provide expertise on short term assignments requiring specialized disciplines that are not cost effective for MWRA to maintain on an in-house basis and ensure that adequate resources are available to quickly respond when emergency or unanticipated situations arise.

Staff require approval from the Chief Engineer for all task orders up to and including $25,000; from the Deputy Chief Operating Officer for task orders greater than $25,000 and up to and including $50,000; from the Chief Operating Officer on any task order greater than $50,000 and up to and including $100,000. In the event that a Task Order greater than $100,000 is needed, the

Chief Operating Officer will confer with the Executive Director prior to approval. Under previous agency-wide technical assistance contracts, MWRA has issued task orders for a wide variety of assessment, design and ESDC initiatives including:

MWRA Office Consolidation - Chelsea Facility

- Top of Shaft 5 Upgrades;
- Top of Shafts 7, 7B, 7C, and 7D Upgrades;
- Shafts N and W Cathodic Protection Replacement;
- Chelsea 008 CSO Outfall Pipe Replacement;
- Cathodic Protection System Improvements at Shafts E and L;
- Somerville Marginal CSO Pipe Connection;
- Gillis, Brattle Court, and Newton Street Roof Replacements;
- Replacement of Existing Facilities Fuel Storage Tanks Barre and Southborough;
- MWRA Office Consolidation;
- Waltham Section 101 Pipeline Design;
- Facility Fuel Storage Tank Replacements for the Caruso, DeLauri, Framingham, New Neponset Pump Stations and Cottage Farm CSO Facility; and
- MWRA System Expansion Studies for the South Shore Basin, Ipswich River Basin and the Metro West System areas.

Gillis Pump Station Roof Replacement

Chelsea 008 CSO Outfall Pipe Replacement

Potential future agency-wide technical assistance task orders include the following:

- Farm Pond Inlet Repair – Design and Bidding Services;
- Sections 35 and 71 Cathodic Protection Evaluation and Replacement – Design and Bidding Services;

- Shaft 8 Catwalk Repair - Design and Bidding Services;
- Winsor Dam Intake Masonry Repairs – REI Services; and
- Phase 3 Fuel Tank Replacements 7637 –ESDC Services.

Procurement Process

On September 7, 2022, MWRA issued a one-step Request for Qualifications Statements/Proposals (RFQ/P) that was publicly advertised in the Central Register, Boston Herald, Banner Publication and El Mundo. In addition, 202 firms received notice of the RFQ/P through the MWRA Supplier Portal. A total of 28 firms requested the RFQ/P and were added to the plan holders list. On September 30, 2022, MWRA received proposals from the following firms: Arcadis U.S., Inc., CDM Smith Inc., Hazen and Sawyer, P.C., Kleinfelder Northeast, Inc., and Stantec Consulting Services Inc. The RFQ/P included the following evaluation criteria and points: Cost - 25 points; Qualifications/Key Personnel - 25 points; Relevant Experience/Past Performance - 25 points; Capacity/Organization and Technical/Management Approach - 22 points; and Minority and Women-Owned Business Participation - 3 points.

Since the exact scope and estimated labor hours that will ultimately be required under the contracts are unknown, staff developed a sample cost exercise designed to compare the costs of the proposers. MWRA provided an approximate total number of hours that may be expended based on the average annual distribution of hours from prior technical assistance contracts, and required the proposers to provide average chargeable hourly rates per labor category, including escalation and multipliers incorporating indirect costs and profit. Proposers' submitted rates were inserted into the formula and the results are as follows:

PROPOSER	SAMPLE COST EXERCISE ESTIMATE
Kleinfelder Northeast, Inc.	$2,036,110.40*
CDM Smith Inc.	$2,170,200.16*
Hazen and Sawyer, P.C.	$2,184,171.52*
Engineer's Estimate	*$2,191,874.00*
Stantec Consulting Services Inc.	$2,237,600.38
Arcadis U.S., Inc.	$2,250,474.62*

*Reflects corrections made due to mathematical errors/rounding.

The proposers' sample cost exercise estimates above are within -7.1% to 2.7% of the Engineer's Estimate. The five voting members on the Selection Committee reviewed, scored and ranked the proposals as follows:

PROPOSER	TOTAL POINTS	ORDER OF PREFERENCE	FINAL RANKING
Hazen and Sawyer, P.C.	**421.45**	**7**	**1**
Kleinfelder Northeast, Inc.	**388.4**	**14**	**2**
Stantec Consulting Services Inc.	384.42	16	3
CDM Smith Inc.	367.6	16	4
Arcadis U.S., Inc.	342.5	22	5

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

Hazen and Sawyer, P.C. was ranked first by the Selection Committee and received the highest number of points. Hazen had the third lowest price in the cost exercise, which was 0.35% less than the Engineer's Estimate with capped Principal and Project Manager direct labor rates, no waivers for direct labor rates greater than $75 per hour and appropriate comprehensive hourly rates. Key personnel have excellent qualifications and experience and extensive relevant experience, including working for MWRA on several technical assistance contracts. Hazen holds one of the two current agency-wide technical assistance consulting services contracts and this proposal includes several of the same key personnel. Hazen's performance on current and past technical assistance on other Authority and non-Authority projects was uniformly highly rated by its references. Hazen has capacity to support the work of this contract and demonstrated a clear understanding of the process, including an evaluation of alternatives, emphasis on communication and efficiency, the importance of quality assurance/quality control and management and execution of short notice assignments.

Kleinfelder Northeast, Inc. was ranked second by the Selection Committee and received the second highest number of points. Kleinfelder had the lowest price in the cost exercise, which was 7.1% less than the Engineer's Estimate with the Principal and Project Manager's rates capped at $75 per hour and appropriate comprehensive hourly rates. Kleinfelder's proposed organization and management approach was very good and has been effective on a previous MWRA technical assistance contract. External reference checks for on-call contracts were very good; Kleinfelder has performed similar services for the City of Cambridge since 1998, City of Somerville since 2013, City of Pittsfield since 1998, Greater Lawrence Sanitary District since 2009 and Springfield Water and Sewer Commission since 2006. Kleinfelder has well-qualified subconsultants on their team to provide specialty engineering discipline support.

Stantec Consulting Services Inc. was ranked third by the Selection Committee. Stantec had the second highest price in the cost exercise, which was 2.1% higher than the Engineer's Estimate with higher staff labor rate, higher escalation, and overhead costs. Committee members noted the key personnel are well qualified with extensive experience, but one member noted challenges working with a larger firm. While the internal and external reference checks were generally good, however, there were some challenges on past projects. Although the technical approach was well thought out and the firm has a large presence in the Burlington office, it still was not as strong as the recommended firms.

CDM Smith Inc.'s proposal was ranked fourth by the Selection Committee. CDM had the second lowest price in the cost exercise, which was 1% lower than the Engineer's Estimate. CDM scored high for Relevant Experience/Past Performance criteria based on the previous MWRA agency-

wide technical assistance consulting services contract. However, the Committee noted the proposed Project Manager and several Senior Engineers did not have the required years of experience. CDM also failed to list information regarding the current assignments of key personnel and their percent availability for the underlying contract.

Arcadis U.S., Inc. was ranked fifth by the Selection Committee. Arcadis had the highest price in the cost exercise, which was 2.7% higher than the Engineer's Estimate. While there were some good external references, they were mostly from outside of the New England region with different staff than proposed. Although Arcadis appears to have sufficient capacity to meet the contract requirements, the proposed management and technical approach were only rated as fair because some staff availability was below 40% and the task order timeline meant responsiveness would be based on an emergency nature.

Based on final rankings, and for the reasons set forth above, the Selection Committee recommends the award of Contract 7990 to Hazen and Sawyer, P.C., and Contract 7991 Kleinfelder Northeast, Inc., each in an amount not to exceed $3,000,000 and for a contract term of 24 months from the Notice to Proceed.

To ensure adequate resources and responsiveness at all MWRA facilities, MWRA maintains similar technical assistance contracts for the Deer Island Treatment Plant and the John J. Carroll Water Treatment Plant. Staff are presenting a separate recommendation to award two similar contracts for the Carroll Water Treatment Plant at this Board meeting.

BUDGET/FISCAL IMPACT:

The FY23 Capital Improvement Program includes a budget of $2,000,000 each for agency-wide technical assistance service contracts 7990 and 7991. Any difference will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

Due to the specialized and uncertain nature of this work, no minimum MBE or WBE participation requirements were established for these contracts. However, Hazen and Sawyer, P.C.'s proposal identified its commitment of 1% MBE and 4% WBE participation, and Kleinfelder Northeast, Inc. identified its commitment of 2.5% MBE and 2.5% WBE participation.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Harbor and Outfall Monitoring Contracts
Water Column Monitoring
Battelle Memorial Institute
Contract OP-401A, Amendment 1
Benthic, Fish and Shellfish Monitoring
Normandeau Associates, Inc.
Contract OP-401B, Amendment 1

COMMITTEE: Wastewater Policy & Oversight

_____ INFORMATION
__X__ VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Betsy Reilley, Ph.D., Director, Environmental Quality
David Wu, Sr. Program Manager, Environmental Monitoring
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve separate amendments to the two harbor and outfall monitoring contracts as follows:

Amendment 1 to Contract OP-401A, Harbor and Outfall Monitoring, Water Column Monitoring, with Battelle Memorial Institute, to increase the contract amount by $856,568.79, from $2,389,177.57 to $3,245,746.36 and to increase the contract term by one year from January 2, 2024 to January 2, 2025; and

Amendment 1 to Contract OP-401B, Harbor and Outfall Monitoring, Benthic, Fish and Shellfish Monitoring, with Normandeau Associates, Inc., to increase the contract amount by $541,480.10 from $1,399,332.30 to $1,940,812.40 and to increase the contract term by one year from November 2, 2023 to November 1, 2024.

DISCUSSION:

The Deer Island Treatment Plant's outfall discharges into Massachusetts Bay. Environmental monitoring of the Bay is a component of Deer Island's NPDES discharge permit and is therefore legally required and enforceable. The water column monitoring includes nine surveys per year at 11 stations in Massachusetts Bay measuring all common water quality parameters, as well as collecting nutrient and plankton samples. The benthic, fish and shellfish monitoring includes monitoring seafloor communities in Massachusetts Bay and Boston Harbor, a video survey of the seafloor in the vicinity of the outfall, and collection and testing of flounder, mussels, and lobster from several locations in Boston Harbor and Massachusetts Bay.

In the past, these two contracts have been awarded for three-year terms. Staff initially were going to proceed with a competitive procurement with a three-year term; however, in the summer of 2022, staff learned that EPA was in the final stages of the development of a new NPDES permit for Deer Island.

The current Deer Island NPDES permit has been in place since August 2000, expired in August 2005, and has been administratively continued since that time. All permit requirements, including the monitoring covered under these contracts, remain in force. MWRA's monitoring has answered a number of the original monitoring questions, and has also shown that the outfall has had minimal impact on the environmental health of the Bay. Staff expect a new Deer Island NPDES permit will continue to include environmental monitoring requirements, however, the scope may be different than the current requirements. Because the current permit includes monitoring requirements, the current monitoring program must continue uninterrupted.

Although a new draft permit is expected to be released in early 2023, the timing of its becoming a final permit is uncertain. The process includes a public comment period on the draft permit, time for EPA to respond to all comments in writing, and potential modification of the draft permit by EPA as a result of the public comments. After those steps, the final permit is issued. Given that the environmental monitoring requirements of the new permit are presently unknown, staff recommend extending the current contracts for one year, rather than procuring new contracts for three years with an uncertain scope.

The current contracts were awarded in November 2019. The original scope of the contracts included three years of field data collection (2020, 2021, and 2022), and one "wrap-up" year to conclude data analysis work and report writing (2023). Both contract amendments will add an additional field work year (2023) and move the "wrap-up" year to 2024.

Amendment 1, Contract OP-401A, Water Column Monitoring

Amendment 1 to Contract OP-401A, Harbor and Outfall Monitoring, Water Column Monitoring, with Battelle Memorial Institute is to increase the contract amount by $856,568.79, from $2,389,177.57 to $3,245,746.36 and to increase the contract term by one year, from January 2, 2024 to January 2, 2025. Amendment 1 includes the following items:

Additional Project Management $84,877.77

Amendment 1 requires additional project management that includes setup for the additional work done under the amendment as well as additional monthly progress meetings and quarterly Quality Assurance/Quality Control Reports in 2023 and 2024.

Water Column Surveys and Survey Data Management $471,566.68

The core of Contract OP-401A is the nine monthly surveys each year from February to October. Amendment 1 will add nine surveys for calendar year 2023, along with the requisite funds for testing, data review, and data management. These surveys include full-day cruises collecting samples at the 11 locations in Massachusetts Bay. In addition to the physical sample collection and analysis, the consultant devotes considerable time for data management to ensure the data collected are accurate and reliable.

Task Order Allocation $150,000.00

Contract OP-401A has traditionally included a yearly allocation of funds for task order work. The original contract included $150,000 per year for the field work years (2020-2022) and Amendment 1 continues that funding with $150,000 for 2023. Task order funds are often used to pay for the required *Alexandrium* rapid response surveys if there is a summer *Alexandrium* bloom.

Analysis and Reporting $150,124.34

Contract OP-401A includes several subtasks for writing technical reports for posting on MWRA's website and for submission to EPA and DEP, including the permit-required annual Outfall Monitoring Overview. As Amendment 1 extends sample collection into 2023, reports on 2023 results will occur in 2024. This item also includes an additional annual technical workshop in 2024 where both the water column and benthic, fish and shellfish consultants present information to MWRA, Batelle and Normandeau staff.

Contract OP-401A Summary

	Amount	Time	Dated
Contract Amount:	$2,389,177.57	48 Months	2/27/2020
Proposed Amendment 1:	$856,568.79	12 Months	Pending
Adjusted Contract:	$3,245,746.36	60 Months	

Amendment 1, Contract OP-401B, Benthic, and Fish and Shellfish Monitoring

Amendment 1 to Contract OP-401B, Harbor and Outfall Monitoring, Benthic, Fish and Shellfish Monitoring, with Normandeau Associates, Inc., would increase the contract amount by $541,480.10 from $1,399,332.30 to $1,940,812.40 and increase the contract term by one year from November 2, 2023 to November 1, 2024.

Additional Project Management $53,366.00

Amendment 1 requires additional project management that includes setup for the additional work done under the amendment as well as additional monthly progress meetings and quarterly Quality Assurance/Quality Control Reports in 2023 and 2024.

Benthic, Fish and Shellfish Surveys and Survey Data Management $321,981.10

The core of Contract OP-401B is the benthic and flounder surveys in Boston Harbor and Massachusetts Bay. Additionally, the permit requires a triennial video survey of hard bottom areas near the outfall, which will need to be done in 2023. Amendment 1 will add those surveys for calendar year 2023, along with the requisite time for testing, data review, and data management. Analysis of the samples collected is done by Normandeau Associates, Inc. subcontractors. Management of the collected data is also included in this cost.

Task Order Allocation $75,000.00

Like the water column contract, Contract OP-401B has traditionally included a yearly allocation of funds for task order work. The original contract included $75,000 per year for the field work years, and Amendment 1 continues that funding with $75,000 for 2023.

Analysis and Reporting $91,133.00

Contract OP-401B also includes several subtasks for writing technical reports for posting on MWRA's website and for submission to EPA and DEP. As Amendment 1 extends sample collection into 2023, reports on 2023 data will be written in 2024. Like Contract OP-401A, this sum includes funding for the 2024 annual technical workshop.

Contract OP-401B Summary

	Amount	Time	Dated
Contract Amount:	$1,399,332.30	46 Months	2/10/20
Proposed Amendment 1:	$541,480.10	12 Months	Pending
Adjusted Contract:	$1,940,812.40	58 Months	

BUDGET/FISCAL IMPACTS:

Adequate funding is included in the FY23 Current Expense Budget. Appropriate funding will be included in subsequent CEB requests.

MBE/WBE PARTICIPATION:

AACU established a zero percent MBE or WBE participation requirement for both contracts under this project, and this is unchanged for these amendments.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Nut Island Headworks Odor Control and HVAC Improvements
Walsh Construction Company II, LLC
Contract 7548, Change Order 12

COMMITTEE: Wastewater Policy & Oversight

____ INFORMATION
_X_ VOTE

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

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 12 to Contract 7548, Nut Island Headworks Odor Control and HVAC Improvements, with Walsh Construction Company II, LLC for a lump sum amount of $318,164.42, increasing the contract amount from $59,601,480.20 to $59,919,644.62, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7548 in an amount not to exceed the aggregate of $1,000,000, in accordance with the Management Policies and Procedures of the Board of Directors.

DISCUSSION:

Contract 7548 provides upgrades to the odor control system, heating, ventilation and air conditioning system and other equipment. Most of the equipment is at or near the end of its useful life and replacement is required to ensure the continued reliability of this critical facility. This contract also provides reconfiguration of ductwork serving the odor control system to expand the system's operational flexibility, and will improve surface access into the below-grade odor control room, the need for which was made evident during the January 2016 fire.

Improvements to the odor control system include replacement of the carbon adsorbers, fans, ductwork dampers, and the odor control SCADA system including the programmable logic controller and instrumentation; installation of ductwork to allow bypassing of the wet scrubbers; rehabilitation of the wet scrubbers system, including replacement of chemical tanks, pumps, piping, media and mist eliminators; and installation of roof hatches and a new stairway to improve access into the odor control room.

Improvements to the HVAC system include replacement of the air handling units and unit heaters; replacement of the boilers; replacement of the energy management system; and installation of equipment to provide ventilation setbacks and recirculation to improve energy efficiency, as allowed by code.

Improvements to other equipment include replacement of the underground fuel oil storage tanks serving the standby generator and boilers; replacement of the dewatering system pumps serving the bottom level; and replacement of the emergency spillway isolation sluice gates and stop logs.

This Change Order

Change Order 12 consists of the following three items:

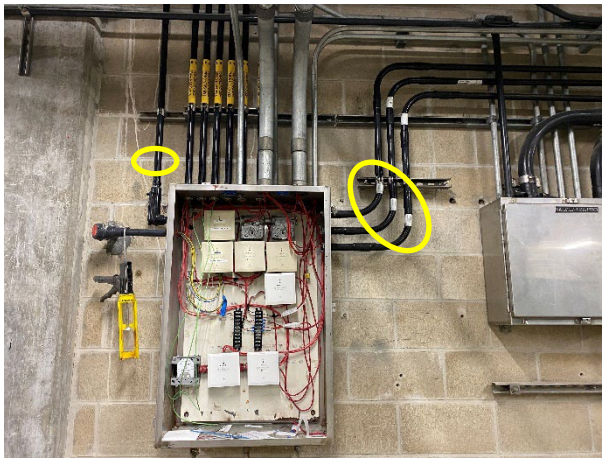
Fire Alarm System Integration $206,117.33

As part of the HVAC system improvements, the Contractor is supplying new HVAC equipment that includes 15 air handling units and ten exhaust fans along with supply and exhaust air ductwork throughout the facility. Smoke detectors are installed in the ductwork and are interlocked with the fans and dampers to prevent the spread of smoke and fire through the ventilation system. Based on the airflow in these duct systems, these duct smoke detectors must also be connected to the facility's fire alarm control panel in accordance with National Fire Prevention Association standards. When smoke is detected, the corresponding fans turn off, dampers close and a fire alarm is initiated.

After commencement of the contract, a number of discrepancies in the contract documents and existing field conditions were identified to integrate the new duct smoke detectors with the existing fire alarm system. The HVAC Subcontractor is required to furnish and install the new duct smoke detectors and the Electrical Subcontractor provides the interconnecting conduit, wiring and controls. The Electrical Subcontractor's scope did not include the required conduit and wiring necessary to comply with NFPA 72 National Fire Alarm and Signaling code. NFPA 72 requires Class A fire alarm circuits be used at the Nut Island Headworks. Class A circuits are redundant circuits that have supply and return loops in separate conduits back to the control panel to provide redundancy in the event there is a broken wire in the circuit. This wiring configuration allows the fire alarm system to remain fully operational, even with an interruption in the circuit. The Electrical Subcontractor's scope only included a single conduit for the new devices, which does not provide the level of redundancy required for Class A circuits. The Electrical Subcontractor must furnish and install additional wiring and conduits to provide a redundant system for the new duct smoke detectors.

There are several fire alarm terminal cabinets located around the facility that are all connected in a looped configuration back to the main control panel. A number of existing cabinets were indicated on the contract drawings as either removed in their entirety or disconnected from the active fire alarm loop. The Electrical Subcontractor must extend the length of the new conduit and wiring to make connections at active cabinets, by-passing cabinets that have been removed or abandoned. Additionally, some of the existing fire alarm conduits that were intended to remain were supported from existing duct being demolished by the HVAC Subcontractor. These segments of conduit were installed after the original construction using electrical metallic tubing and were not properly supported in accordance with the National Electrical Code. The electrical metallic tubing is a lightweight conduit system that is not suitable for the harsh conditions at the Nut Island Headworks. Staff determined this existing conduit could not be salvaged and should be replaced with the specified rigid galvanized steel conduit consistent with the rest of the facility.

Typical duct smoke detector with two conduits for Class A fire alarm circuit



Typical Fire Alarm Terminal Cabinet requiring additional conduits (in yellow) for Class A fire alarm circuit

During design, the field verification by the Design Consultant did not identify these required changes and the contract documents were not updated. To correct these errors, the Electrical Subcontractor must furnish and install additional conduit and wiring for all new duct smoke detectors to provide Class A fire alarm circuits, furnish and install additional conduit and wiring to extend circuits to active fire alarm terminal cabinets, and replace existing fire alarm conduit and wiring supported from ductwork to comply with the requirements of NFPA and the National Electrical Code. This item was identified by MWRA staff as a design error. MWRA staff, the Consultant, and the Contractor have agreed to a lump sum amount of $206,117.33 for this work. The Contractor proceeded with this work at its own risk in order to complete the remainder of the contract work.

Smoke Evacuation Panel per Quincy Fire Department Request $101,520.48

After commencement of the contract and during review of the Contractor's Construction Fire Safety Plan, a site meeting was held with the new Superintendent of the Quincy Fire Department to review the Contractor's scope of work, the construction fire safety program, and emergency response plans. Upon review of the new scope of work, the Superintendent of the Quincy Fire Department noted for the first time that there was no control of the new air handling units from the fire command center, located in the vestibule at the main entrance. The Superintendent stated that Quincy Fire Department will need the ability to override fire alarm shutdowns of air handling units throughout the facility to purge smoke in case there is a fire, or to turn units off as they see fit without having to enter the building. The Superintendent noted this was a concern during the fire event in January 2016. Even though MWRA and the Design Consultant met with Quincy Fire Department during design, this requirement was not identified at that time, so it was not included in the contract documents. Staff agree this added safety feature is necessary and consistent with the project goal of improving fire protection and life safety. To comply with the Quincy Fire Department's recent request, the Contractor will furnish and install conduit, wiring and controls from each of the new air handling units to a new control panel located at the fire command center to provide a means for Quincy Fire Department to evacuate smoke from the facility.

Vestibule at Main Entrance (Fire Command Center)

Smoke Evacuation Control Panel

This item was identified by MWRA staff as an unforeseen condition. MWRA staff, the Consultant, and the Contractor have agreed to a lump sum amount of $101,520.48 for this work. The Contractor proceeded with this work at its own risk in order to complete the remainder of the contract work.

Conduit and Wiring for Fire Alarm Horns and Strobes in Stair 12 $10,526.61

The Contractor is required to construct a new stairwell to provide an additional means of egress from the below grade odor control room to the outdoor ground level to meet the current Massachusetts State Building Code. This new stairwell is being built adjacent to an existing ventilation shaft. The new stairwell includes two fire alarm pull stations, two fire alarm horns and strobes as well as a fire sprinkler protection tamper switch. After commencement of the contract, it was noted that the electrical drawings did not include the interconnecting conduit and wiring for the new horns and strobes in the stairwell to the fire alarm cabinet. To correct this omission, the Contractor will furnish and install conduit and wiring from the two horns and strobes located in the stairwell to the fire alarm terminal cabinets located in the pump and blower room.

This item was identified by MWRA staff as a design omission. MWRA staff, the Consultant, and the Contractor have agreed to a lump sum amount $10,526.61 for this work. The Contractor proceeded with this work at its own risk in order to complete the remainder of the contract work.

CONTRACT SUMMARY:

	Amount	**Time**	**Dated**
Original Contract:	$57,565,399.00	1,034 Days	02/12/20
CHANGE ORDERS			
Change Order 1*	$24,995.58	0 Days	12/08/20
Change Order 2*	$126,224.03	0 Days	01/08/21
Change Order 3	$376,355.91	0 Days	03/10/21
Change Order 4*	$22,320.58	0 Days	03/10/21
Change Order 5*	$203,986.91	0 Days	09/22/21
Change Order 6	$222,179.61	0 Days	09/22/21
Change Order 7*	$23,871.28	0 Days	11/29/21

Change Order 8*	$161,181.94	0 Days	02/25/22
Change Order 9	$187,410.85	0 Days	02/25/22
Change Order 10*	$25,000.00	0 Days	10/06/22
Change Order 11*	$662,554.51	0 Days	Pending
Change Order 12	$318,164.42	0 Days	Pending
Total Change Orders	$2,354,245.62	0 Days	
Adjusted Contract:	$59,919,644.62	1,034 Days	

*Approved under delegated authority

If Change Order 12 is approved, the cumulative value of all change orders will be $2,354,245.62 or 4.09% of the original contract. Work on this contract is 83% complete.

BUDGET/FISCAL IMPACT:

The FY23 Capital Improvement Program includes $60,613,926 for Contract 7548. Including this change order for $318,164.42, the adjusted subphase total will be $59,919,644.62.

MBE/WBE PARTICIPATION:

The MBE/WBE participation requirements for this project were established at 1.1% and 1.2%, respectively. The Contractor has been notified that it is expected to meet these requirements.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Update on Lead and Copper Rule Compliance – Fall 2022

COMMITTEE: Water Policy & Oversight

X INFORMATION
VOTE

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

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

RECOMMENDATION:

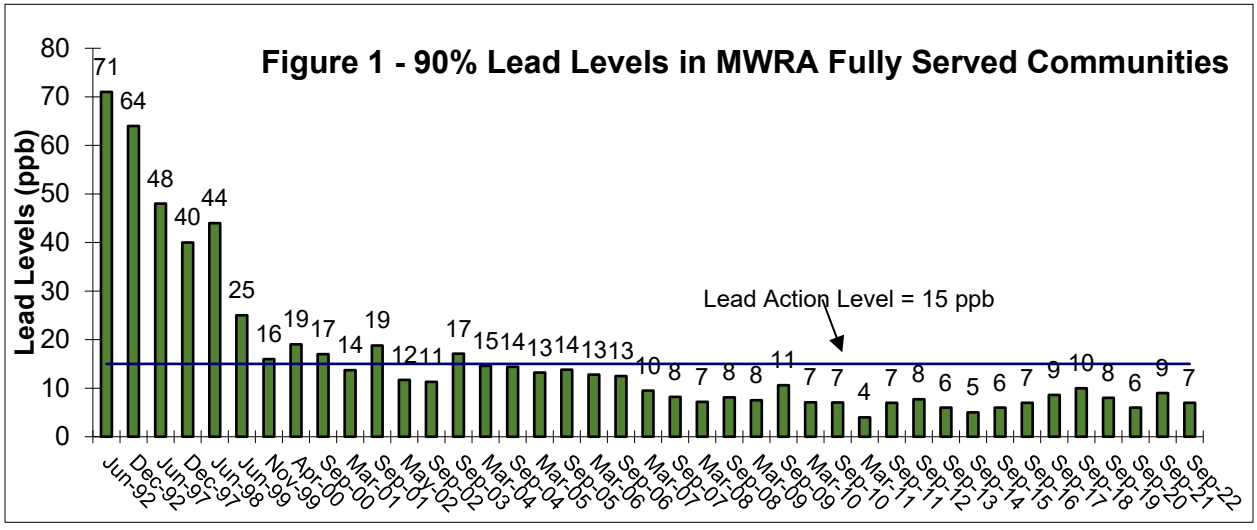
For information only.

DISCUSSION:

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

MWRA and its communities conducted the 2022 LCR sampling round beginning in September 2022. The 90th percentile lead value for the system as a whole was 7.3 parts per billion (ppb). The MWRA system has been below the lead Action Level of 15 ppb in every round since 2004.

In addition to determining how the system performs as a whole, EPA looks at each individual community. Only one community was individually over the lead Action Level: Winthrop.



As discussed below, there were substantial changes in the composition of the sampling pool due to EPA Region 1 changes to MWRA's sampling agreement to accelerate compliance with some aspects of the LCR Revisions, which otherwise would not be effective until October 2024, including more samples taken and more emphasis on testing homes with lead service lines. Nonetheless, results during this round were slightly better overall than recent previous rounds. Only one community was over the Lead Action Level, a result last seen in 2014 after which there was a gradual increase in the fraction of sampled homes with lead service lines. Staff believe the better results are due, at least in part, to the characteristics of our source water during the drought, which consists of more high quality Quabbin water and less "fresh" Wachusett Reservoir tributary water. Given the changes in the sampling pool, evaluating that assumption is difficult.

Staff worked with Winthrop to comply with the new requirement to do a "Tier 1 Public Notice" within 24 hours of exceeding the Lead Action Level. Winthrop proposed, and subsequently had approved, a mix of Reverse 911, signboard, local cable access and web notices, rather than use of television and radio media notices. Winthrop will also need to mail a public education brochure to all customers. MWRA has provided and printed an updated educational brochure, as well as materials for Winthrop's webpage. Additionally, Winthrop will continue to replace approximately 100 of its estimated remaining 400 lead service lines each year.

Under the LCR, each community is also required to collect samples from two schools or childcare facilities. Three schools (out of 56 tested) in three communities had one sample above the Action Level as part of the LCR testing. (As of the time of writing, results of four samples from one community are still not available.) As with residential samples, MWRA staff immediately contact any community that has a school sample above the Action Level. All school data are available on DEP's online school database that includes over 40,000 school test results from MWRA communities. A link to the DEP database is available on the MWRA webpage.

MWRA has formally transmitted these results to MassDEP. The results were also provided to the communities and, through them, to each individual homeowner or school that collected a sample.

School and Childcare Sampling Program

MWRA continues to offer no-cost laboratory analysis services to any of our customer communities that want to sample drinking water taps in schools or childcare facilities. The program is offered in coordination with the MassDEP's similar program. As of the end of September, MWRA's laboratory has conducted over 40,000 tests from 557 schools and childcare facilities in 44 communities.

Revisions to the Lead and Copper Rule

As discussed in a January 2021 staff summary, EPA's long awaited revisions to the Lead and Copper Rule were released in December 2021. Staff provided initial training to communities on its requirements in May 2021 in cooperation with the MWRA Advisory Board and at other training opportunities during the year. Additional training sessions will be offered as EPA issues guidance on aspects of the revised rule in preparation for its October 2024 deadlines. Current priorities include working with communities as they conduct service line inventories and create lead service line replacement plans before October 2024.

EPA has announced that it intends to make additional changes to the recently finalized LCR Revisions, with a draft expected in mid-2023 and a final rule expected before October 2024. One potential change that some stakeholders are urging EPA to make is to reexamine the Action Level of 15 ppb and new Trigger Level of 10 ppb. One option apparently being considered is to reduce the Action Level to 10 ppb (and eliminate the Trigger Level). During this sampling round, seven communities were individually over 10 ppb, and over the past several rounds, between six and 12 were over 10 ppb. The change would potentially mean that those communities would be required to do the 24-hour public notice described above, as well as mandatory lead service line replacement.

In March 2021, staff reported that EPA Region 1 revised MWRA's consecutive system sampling plan, thereby accelerating compliance with parts of the LCR Revisions. MWRA staff worked with MassDEP and EPA Region 1 to work out the details of the requirements, as EPA had not yet issued guidance manuals for the requirements, which otherwise would not be in place until October 2024.

The changes included:

- mandatory 24-hour public notice if a community exceeded the Lead Action Level;
- provision of sample results within three days for any residential site over the Action Level;
- increase in the number of required residential samples by 33%;
- use of only sites with lead service lines, if a community has any; and
- required "find and fix" evaluations of the residence and local distribution system for any residential sample site over the Action Level.

MWRA worked with communities to understand and successfully implement all the requirements for both the March and September sampling rounds. The number of residential samples increased from about 450 to just under 600 for this round of sampling, with many newly added sites with lead service lines.

Over the March and September sampling rounds, around two dozen "find and fix" investigations (another requirement under the Revised LCR that MWRA and communities are being asked to implement in advance of the rule deadlines) were conducted by MWRA and communities. No issues of water quality with community distribution systems have been identified, and in most cases, communities have determined that it is likely that the lead service line serving the home is the cause of the elevated lead levels. Several communities have instituted programs to offer immediate (or relatively quick) lead service line replacement for homes with demonstrated elevated lead levels.

<u>Lead Service Line Replacement Program</u>

In March 2016, the Board made $100 million in 10-year interest-free loans available to communities solely for efforts to fully replace lead service lines (LSLs). Under MWRA's Lead Service Line Replacement Loan Program, each community can develop its own replacement program, tailored to its local circumstances.

During the first six years of the program (through September 2022), MWRA has distributed a total of $34 million in Lead Service Line Replacement Loan Program funds to 14 communities:

- **BWSC**: $2,602,419 in FY21 and $862,500 in FY22 ($3.5 million total);

- **Chelsea**: $100,000 in FY19, $300,000 in FY20, $300,000 in FY21, and $300,000 in FY22 ($1 million total);
- **Everett**: $1.0 million in FY19, $1.0 million in FY20, $500,000 in FY20, $1.5 million in FY21, and $1.5 million in FY22 ($5.5 million total);
- **Marlborough**: $1.0 million in FY18, $1.0 million in FY19, $1.0 million in FY20, and $2.0 million in FY21 ($5.0 million total);
- **Needham**: $1.0 million in FY18;
- **Newton**: $4.0 million in FY17;
- **Quincy**: $1.5 million in FY17;
- **Reading**: $1.5 million in FY23;
- **Revere**: $195,000 in FY18, and $1,300,000 in FY22 ($1.5 million total);
- **Somerville**: $900,000 in FY20 and $1,555,000 in FY22 ($2.5 million total);
- **Watertown**: $600,000 in FY21 and $300,000 in FY23 ($900,000);
- **Weston**: $160,000 in FY20;
- **Winchester**: $500,000 in FY17, $500,000 in FY18, $600,000 in FY20, $600,000 in FY21, and $600,000 in FY23 ($2.8 million total); and
- **Winthrop**: $284,000 in FY18, $487,850 in FY19, $690,000 in FY20, $750,000 in FY21, and $750,000 in FY22 ($2.9 million total).

The MWRA's Lead Service Line Replacement Loan Program has funded the replacement of approximately 3,498 LSLs. Of this total, approximately 593 LSLs were replaced in 2021 and 1,118 LSLs have been replaced in 2022.

Several communities are using the MWRA loans to fully fund replacement of the entire lead service line, while some have developed various incentives for the portion of the line on private property. The Boston Water and Sewer Commission increased its long standing lead service line incentive program and is now providing the first $4,000 toward replacement of lead service lines on private property with zero-interest loans over 60 months for any cost above that.

Review of Corrosion Control Treatment

As staff have reported over the past year, work continues on acclimating the pipe rig system with "harvested" lead service lines to enable future evaluation of possible changes to treatment. An extended period of acclimation and stabilization will help provide a more realistic evaluation of any potential treatment changes.

Evaluating a corrosion control treatment change is a significant undertaking. Any decision to change treatment will require careful consideration of both the level of confidence in the expected

changes in long-term lead levels, as well as the likelihood of significant water quality problems during the treatment transition.

As a key part of this review, staff consulted with a panel of outside experts to provide input into the type of treatment adjustments to be considered and the type of evaluations to be included. Staff from MassDEP and EPA, as well as community and Advisory Board staff, participated in the panel discussions, as has been MWRA's practice for all prior treatment evaluations.

Staff expect to bring a consultant contract to the Board for approval in December or January to provide support during the evaluation of potential corrosion control treatment changes. That contract will also include an external review panel to provide review and validation of the work that staff and our consultant will be undertaking.

BUDGET /FISCAL IMPACT:

MWRA began modern effective corrosion control treatment to reduce lead and copper levels at the tap in 1997. MWRA's corrosion control treatment involves raising the pH and alkalinity in the water to make it stable and non-corrosive, reducing the potential for both lead and copper to leach from customers' home plumbing. The average annual cost for corrosion control is approximately $3.6 million.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: MWRA Water System Expansion Feasibility Studies

COMMITTEE: Water Policy and Oversight

__X__ INFORMATION
_____ VOTE

Rebecca Weidman, Director, Env. and Reg. Affairs
Preparer/Title

David W. Coppes, PE
Chief Operating Officer

RECOMMENDATION:

For information only.

DISCUSSION:

MWRA recently completed two feasibility studies for expanding MWRA's water system to the Ipswich River Basin (Beverly, Danvers, Hamilton, Ipswich, Middleton, Lynn, Lynnfield Center Water District, Peabody, Salem, Topsfield, Wenham, Wilmington) and to the South Shore (Abington, Avon, Brockton, Cohasset, Hanover, Hingham, Norwell, Scituate, Rockland, Weymouth, and the Former Naval Air Station). These studies were initiated at the request of the Baker Administration and in a direct legislative appropriation, respectively. The South Shore feasibility study also looked at expanding MWRA's wastewater system to the South Shore.

A third, ongoing system study is looking at expanding MWRA's water system to communities in the Metro West area. The Metro West study was initiated following a request by several communities in the Metro West area interested in exploring connection options to MWRA's water system. The Metro West study currently includes 15 communities (Acton, Bedford, Chelmsford, Concord, Groton, Holliston, Hopkinton, Lincoln, Littleton, Maynard, Natick, Sudbury, Wayland, Wellesley, and Weston).

As a regional supplier of water in Massachusetts, there are opportunities for MWRA to extend water service to communities within the three study areas. MWRA's high quality source water is a result of our highly protected, forested watersheds. These watersheds act as a buffer against many contaminants, both regulated and unregulated. Additionally, MWRA's water conservation efforts over the last several decades have resulted in an even more resilient water supply system able to withstand drought conditions and recover following a drought. The "Safe Yield" (i.e., the maximum withdrawal that can be made continuously from a water source or sources during a period of extended drought) for the MWRA system is 300 million gallons per day. From 2016 to 2020, the average daily demand for the entire MWRA system ranged from 192 mgd to 208 mgd. Therefore, in any given year, approximately 100 mgd of additional water supply could be withdrawn from MWRA's reservoirs while operating within the safe yield of approximately 300 mgd.

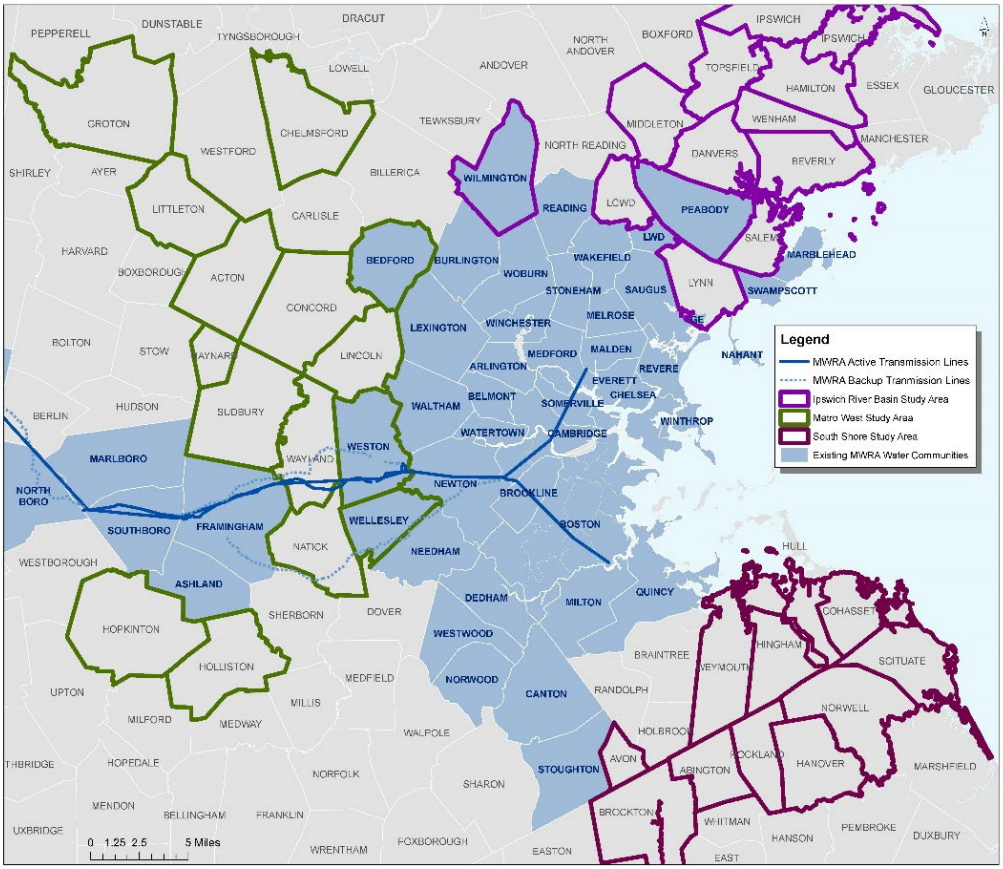


Figure 1. MWRA System Expansion Feasibility Study Areas.

Many cities and towns in the study areas experience challenges meeting current water demands and the growth expectations of their communities. Periodic droughts, water supply capacity limitations, and concerns related to seasonal low flows in local rivers and streams contribute to these challenges. Complicating these issues are emerging drinking water regulations; most recently, the Massachusetts Department of Environmental Protection established drinking water standards for six per- and polyfluoroalkyl substances (PFAS). Water supplies throughout the Commonwealth increasingly require treatment to meet MassDEP's maximum contaminant limit for these six PFAS compounds. The U.S. Environmental Protection Agency is expected to issue draft National Primary Drinking Water Regulations for two PFAS compounds, PFOA and PFOS in late 2022. If the federal regulations for PFOA and PFOS are lower than MassDEP's existing PFAS6 maximum contaminant level, treatment will likely be required for even more water supplies.

These studies are intended to review the feasibility of MWRA providing an alternative source of drinking water to the communities included in the studies. Specifically, these studies:

- quantify MWRA's available water distribution and transmission system capacity to serve study communities in the Ipswich River Basin and South Shore area;
- identify new infrastructure needed to deliver the available capacity to these communities;
- provide planning-level cost estimates for infrastructure needed to serve communities;
- consider the impact on drinking water quality from blending MWRA water with that of communities and highlight the importance for future study prior to any expansion

community connections; and

- identify other factors that would need further study if system expansion discussions proceed, such as required permits and the time necessary for planning, permitting, design, and construction of required infrastructure.

Conclusions: Ipswich River Basin and South Shore Study Areas

Both studies show that, conceptually, MWRA can provide the full demands to both study areas, 40.5 mgd maximum day demand for the South Shore and 42.1 mgd maximum day demand for the Ipswich River Basin communities. In order to fully supply both study areas, large diameter pipelines would need to be built, extending from MWRA's existing metropolitan tunnel system. Partial supplies to both study areas could be provided utilizing MWRA's existing distribution system.

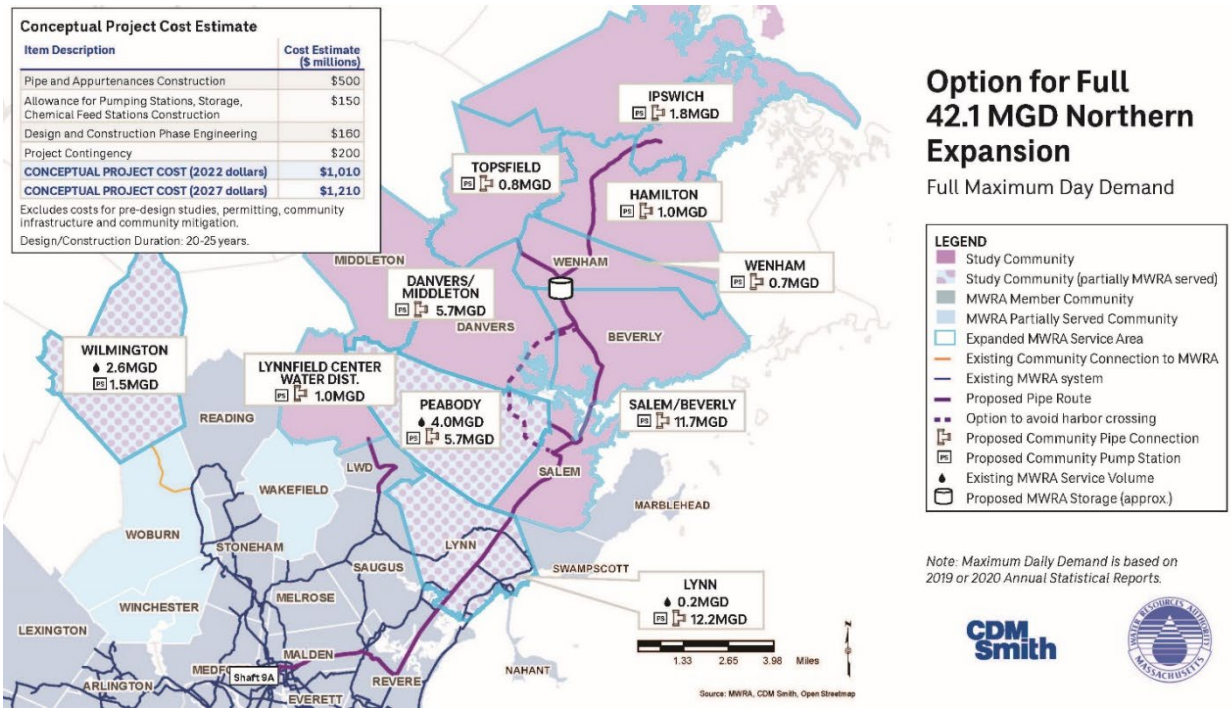


Figure 2. Potential pipeline routes, planning level costs, and an estimated project timeline for MWRA to fully supply the Ipswich River Basin communities

The cost to convey water to the two study areas varies widely depending on the level of service provided; anywhere from $130 million to well over $1 billion. Similarly, the time required to implement a system expansion can vary widely depending on the number of communities served and the geography of the communities relative to transmission main length. All system expansion options require extensive pre-design studies, including water quality evaluations, more detailed pipe routing studies and facility siting studies. Permitting and the MWRA admission process will also take time. Once these efforts are complete, the time necessary for design, construction, and startup of the required infrastructure could range from seven to ten years for more limited expansions, to more than 20 years for larger system expansions.

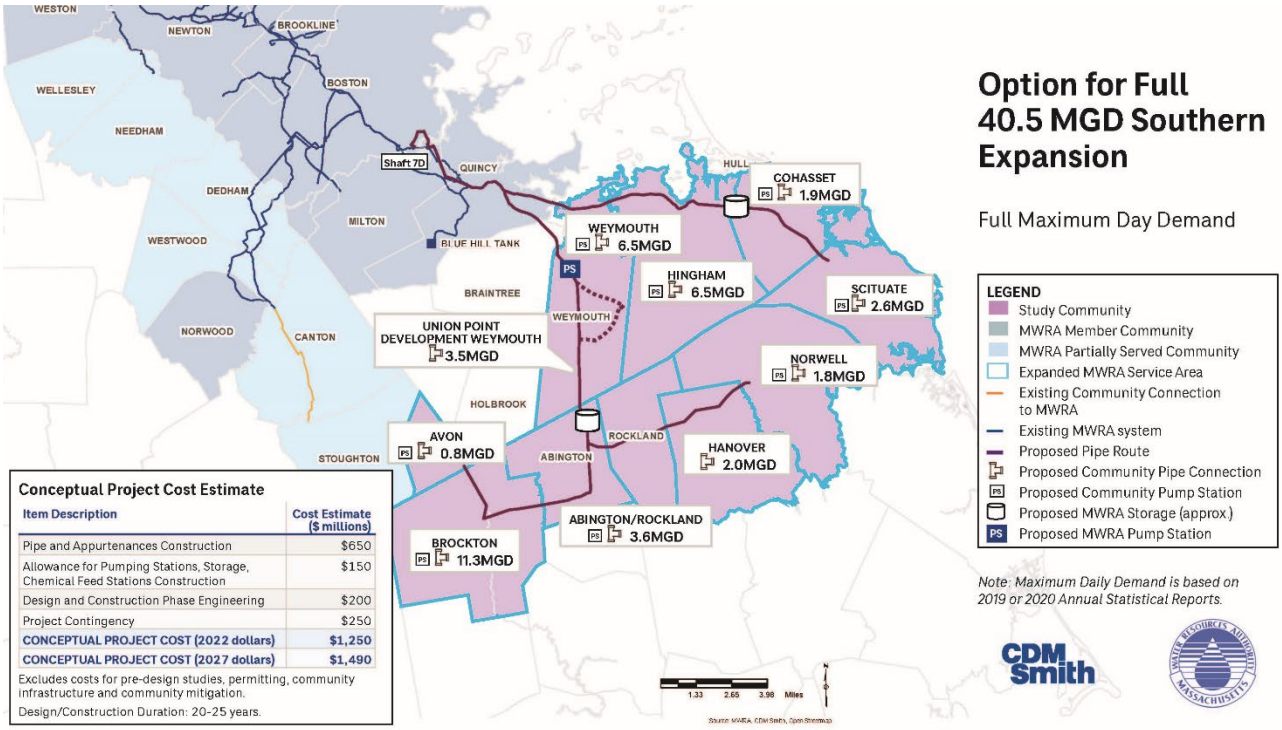


Figure 3. Potential pipeline routes, planning level costs, and an estimated project timeline for MWRA to fully supply the South Shore area communities

Next Steps:

The Metro West area study is currently on-going; no routing options or costs are available at this time. The total new demand for the 15 Metro West area communities is approximately 35 mgd, maximum day demand. The full demands represented by the three study areas are in excess of the total MWRA water supply available; in other words, MWRA is not able to fully supply all three study areas. However, MWRA could supply water to a significant portion of the communities represented in these studies if there is interest. MWRA will continue to work with interested communities to determine the best options for connecting to MWRA's water system. Reports summarizing the findings of the Ipswich River Basin and South Shore area feasibility studies will be posted on MWRA's website. Additional information regarding the Metro West area study will also be posted once that study has been completed.

BUDGET/FISCAL IMPACTS:

The Ipswich River Basin study was funded by the Baker Administration ($250,000). The South Shore area study was funded through a direct appropriation to MWRA ($300,000). MWRA has committed to fund the Metro West area study ($250,000). Additional funding to support future studies or planning projects has not been identified.

A significant investment in infrastructure would be required to provide water to new communities; MWRA may incur some costs associated with regional connections. However, as part of MWRA's analysis of waiving the Entrance Fee, the sales of just an additional five MGD of water over a period of 25 years based on the FY23 rate revenue requirement would provide approximately $204.5 million in revenue from new customers, which would reduce the existing communities' shares of the annual system assessment.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Metropolitan Water Tunnel Program
Lease for Core Storage Facility
IC Needham Gould Portfolio, LL, W344

COMMITTEE: Water Policy and Oversight

_____INFORMATION
__X__VOTE

Vivian Chan, Manager of Geotechnical and Tunneling
Kathleen M. Murtagh, Director, Tunnel Redundancy
Preparer/Title

Michele S. Gillen
Director of Administration

RECOMMENDATION:

To approve the recommendation of the Selection Committee to award lease W344, Metropolitan Water Tunnel Redundancy Program Core Storage Facility, to IC Needham Gould Portfolio LLC and to authorize the Executive Director, on behalf of the Authority, to execute said lease of approximately 19,070 square feet of warehouse and office space for rock core storage at Block 95 (in Block A of the buildings located at 110-116 Gould Street, 95-101 Hampton Avenue, 11 Ellis Street, and 45-55 Kearney Road) in Needham, Massachusetts, for an initial term of ten years from the date of occupancy, for an amount not to exceed the annual rent shown in Attachment A, plus a proportional share of real estate taxes and operational costs, with a five-year option that would be subject to agreement of the parties and further Board approval.

DISCUSSION:

On February 15, 2017, the Board approved the preferred alternative of construction of northern and southern deep rock tunnels from the Hultman Aqueduct and MetroWest Water Supply Tunnel to the Weston Aqueduct Supply Main No. 3 (WASM 3) and to the Southern Spine water mains. These two tunnels and the related work of the Metropolitan Water Tunnel Program (the Program) will provide the needed redundancy for the Metropolitan Tunnel System (which consists of the City Tunnel, the City Tunnel Extension, and the Dorchester Tunnel). The Board also directed staff to proceed with preliminary design, geotechnical investigations, and Massachusetts Environmental Policy Act (MEPA) review of the project.

On May 27, 2020, the Board approved the award of Contract 7159, Metropolitan Tunnel Redundancy Program Preliminary Design, Geotechnical Investigation and Environmental Impact Report (the Preliminary Design Contract). The Preliminary Design Contract includes preliminary geotechnical investigation (deep rock borings), evaluation of preliminary tunnel alignment and shaft site alternatives, preliminary design, preliminary contract packaging, preparation of the required MEPA filings, and development of a comprehensive list of the environmental permits needed.

The Program will include about 14.5 miles of tunnels that will be constructed in rock about 250 to 500 feet deep. Essentially, the infrastructure will be constructed entirely underground. Subsurface investigation on ground conditions is crucial for the design and construction of the Program. Given the length of the tunnels and their depth, a substantial amount of geological samples, including tens of thousands of feet of rock cores, will be collected as part of the Program work. These samples will be examined and recorded in detail and reviewed throughout the Program term by various designers, engineers, consultants and contractors. Since the cores represent the potential ground conditions on which the design and construction will be based, the Program staff must maintain and facilitate access to these samples throughout the design phase and into construction. A similar type of rock core storage facility was established previously at the MWRA Fore River facility in support of the Boston Harbor Project and MetroWest Water Supply Tunnel.

Also, in accordance with the Massachusetts Statewide Records Retention Schedule, all rock cores, rock specimens, cuttings and thin sections are records that are required to be kept permanently. Similar to past tunnel projects, it is anticipated that the samples will be consolidated and moved to an existing MWRA facility for long term storage after the construction is complete and the space is no longer needed.

Since the start of the Preliminary Design Contract in 2020, the Program and design consultant staff have been utilizing approximately 3,000 square feet of the secondary clarifier gallery space at Deer Island Treatment Plant for rock core processing and storage. This space has been adequate at this early stage since the volume of core samples and the scale of the subsurface investigations are still relatively small. The utilization of the existing space at Deer Island has saved costs for the MWRA, as it delayed the need for a dedicated core storage facility for the last three years. However, as the Program progresses into final design and into construction, the need for more dedicated space will grow rapidly. Space for logging, photographing, reviewing, and processing the large amount of data in an accelerated manner will be necessary. Staff estimate that more than five times the amount of rock core samples collected and processed to date will be collected and processed over the next four years. This translates into the need for about 15,000 to 20,000 square feet of warehouse and office space for the Program's Core Storage Facility.

Procurement Process

To observe the best practice of seeking the most cost efficient and appropriate market rates, MWRA staff issued a one-step Request for Proposals (RFP), to lease approximately 15,000 to 20,000 square feet for core storage and limited office space for a ten-year term with one five-year option to extend (a potential of 15 years). The MWRA Program staff sought locations within a defined area that took into account the proposed Program limits and the advancement in the alignment evaluation.

In July 2022, the RFP was publicly advertised in the Central Register, the Boston Herald, Banner Publications, El Mundo, the New England Real Estate Journal, Banker and Tradesman, and the Commonwealth procurement site, CommBuys. In addition, the RFP documents were made available via the MWRA Supplier Portal. With the assistance of the Division of Capital Asset Management and Maintenance, staff also conducted a COSTAR search for all available industrial and flex properties on the market in the relevant areas to develop a list for outreach. Direct solicitations were made to approximately 30 real estate professionals and owner representatives. Those direct solicitations were followed up with direct calls to representatives encouraging them

to review and respond to the RFP. With minimal initial interest, advertisements were ran again in the New England Real Estate Journal and Banker and Tradesman in August 2022. Staff also spent a significant amount of time following up with real estate agents and representatives, and providing support on the use of the MWRA Supplier Portal. The hesitancy and misconception in the real estate industry on government tenants, the anticipation of a boom in biotech real estate needs in certain Massachusetts communities, as well as general market conditions (the lack of the amount of space, type and locations sought at this time), were cited by agents and owner representatives as reasons for the lack of interest and response.

In September 2022, after extending the proposal deadline three times to garner more interest and response, two real estate agents submitted proposals for the Core Storage Facility on behalf of the following owners/landlords:

- IC Needham Gould Portfolio LLC, offering a property known as Block 95 (which consists of several to be connected buildings at 110-116 Gould Street, 95-101 Hampton Avenue, 11 Ellis Street, and 45-55 Kearney Road) in Needham ("Needham location"), and

- Logan Rand Realty Trust, offering part of a property at 137-139 California Street in Newton, MA ("Newton location").

The Selection Committee reviewed and scored the Proposals based on the following criteria set forth in the RFP: Cost (25 points); Location (25 points); Favorability of Lease Provisions (20 points); Quality and Condition of Building (15 points); Site, Building and Premises Characteristics (10 points); and Landlord Capacity (5 Points).

Proposers submitted cost information in different formats and the table below equalizes the information provided as follows:

Proposer and Location	Square Feet Available /Proposed	Base Rent [(1)] as Proposed for First 10 Years	First Year Base Rent [(1)] /sf	Estimated First Year Cost [(2)] /sf
IC Needham Gould Portfolio, LLC 110-116 Gould Street, Needham	19,070	$6,950,000	$32.00	$6.06
Boston Commercial Properties, Inc., 137-139 California Street, Newton	12,359 [(3)]	$4,458,303	$31.47	$4.01

Notes:

1. Base rent: Both proposers presented a base rent for the first ten years and stipulated that rent for any extension term would be based on fair market rent to be determined and agreed upon by the parties to the lease.

2. Estimated cost includes property taxes, common area maintenance and operating costs. Taxes were based on recent taxes. Common area maintenance and operating costs were based on the proposers' current year estimates. Actual common area maintenance and operating costs and taxes would be based on the pro-rata share of those costs.

3. Square footage proposed includes approximate 650 square feet for an interior loading dock, which will not be available for core storage.

Even though the Newton location provided less square footage as requested in the RFP, because of the possibility of hidden potential in the Newton location based on initial review of the proposal form, the Selection Committee opted to conduct site visits to both proposed locations to better understand and review the facilities, and to meet the representatives and owners of the properties. After the site visits, the Selection Committee met to discuss and rank the proposals. All of the scores from the Selection Committee members were totaled to determine the first-ranked proposal and location. The following is a summary of scores and rankings:

Proposer	Total Final Score	Order of Preference Points*	Ranking
IC Needham Gould Portfolio, LLC 110-116 Gould Street, Needham	398	5	1
Boston Commercial Properties, Inc., 137-139 California Street, Newton	340	10	2

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

The Selection Committee unanimously voted to recommend award of the lease to IC Needham Gould Portfolio LLC (Needham Gould) for the Needham location for the following reasons.

- The Needham location provides the required amount of space that the Program staff sought. While the second ranked location could have possibly worked in the near term, as the Program ramps up, the first ranked location provides sufficient space for the full term of the programmatic use as contemplated.

- The location of the Needham facility is ideal for the Program for the following reasons.

  - The premises are centrally located within the Program area and is directly adjacent to interstate highway routes, providing excellent access for core delivery, staff, consultant, and contractor access. This location will save travel time and contract costs related to transporting and accessing the core samples throughout the Program.

  - This location is also very close (less than a quarter mile) to the I-95-Highland Avenue interchange. Subsequent to the issuance of the RFP, this location was identified as the launch site of two of the tunnel segments in the preferred alternative alignment. This area is anticipated to be a main hub of activity where the majority of the construction staff will be located for the anticipated eight or more years of construction work. As a result, the Needham location offers additional value in supporting the MWRA and the Program over time.

- The cost of the facility is within the range of current market rates based on the range of costs from similar properties in the area listed in the COSTAR reports obtained. The per-square-foot rate of rent for the two proposals was similar. However, the proposal for the Needham property base rent includes tenant space improvements valued at just over $286,000 ($15/square foot). This represents a savings for MWRA in tenant fit-out.

- In addition, there are several features and circumstances at this location that make it ideal:

  - Multiple loading docks and at-grade double door entrances on different sides of the premises. This allows for flexibility in layout and use of the warehouse areas, provides easy access for transporting the heavy rock core boxes, and allows different users direct access to relevant work areas.

  - The proposed building has a new roof and windows and doors, will have updated HVAC throughout, and will be a completely renovated space.

  - The property owner has extensive experience managing commercial properties. According to existing tenant references, the property owner is attentive and very proactive in maintaining their facilities.

After the site visit and further review of the proposal for the Newton location, for the following reasons, the Selection Committee ranked this location as second.

- The size of the leasable part of the facility, at 12,359 square feet in total, does not provide the required 15,000 to 20,000 square feet space the Program staff projected would ultimately be needed. The in-door recessed loading dock further takes away the already limited usable storage area by approximately 650 square feet.

- This location does not provide the sought office space and warehouse space. This would put future constraints on Program use and added cost in later years. The lack of space can potentially hinder the execution of the Program if more space had to be procured later.

- The Newton location was outside of the preferred Program area and had more difficult access to interstate highways and routes. Access would have brought Program staff, consultants, contractors, and vehicles through the Newton Center exit from the Mass Pike towards Watertown Square via Galen Street, potentially at high-traffic times of the day.

- The current condition of certain areas within this facility, including the restroom and office, are in poor condition and would need significant renovation. The proposed rent does not include tenant space improvements that would be needed for this property to ultimately meet the Program use goals.

- The site is also located partially within a flood plain.

- In addition, this facility is not currently ADA accessible as required by the RFP, which would further limit its use.

The Selection Committee therefore recommends that the MWRA enter into a lease with IC Needham Gould Portfolio, LLC for the Core Storage Facility.

BUDGET/FISCAL IMPACT:

The FY23 Current Expense Budget includes adequate funding for this lease under Tunnel Redundancy Department budget. The required funding will be included in subsequent budget requests per the executed lease.

MBE/WBE PARTICIPATION:

Due to the specialized nature of these services, there were no MBE/WBE requirements set for this RFP and Lease.

ATTACHMENTS:

Attachment A: Proposed Annual Rent Expense
Attachment B: Site Plan, Rendering, and Whitebox Plan

Attachment A
Proposed Annual Rent Expense

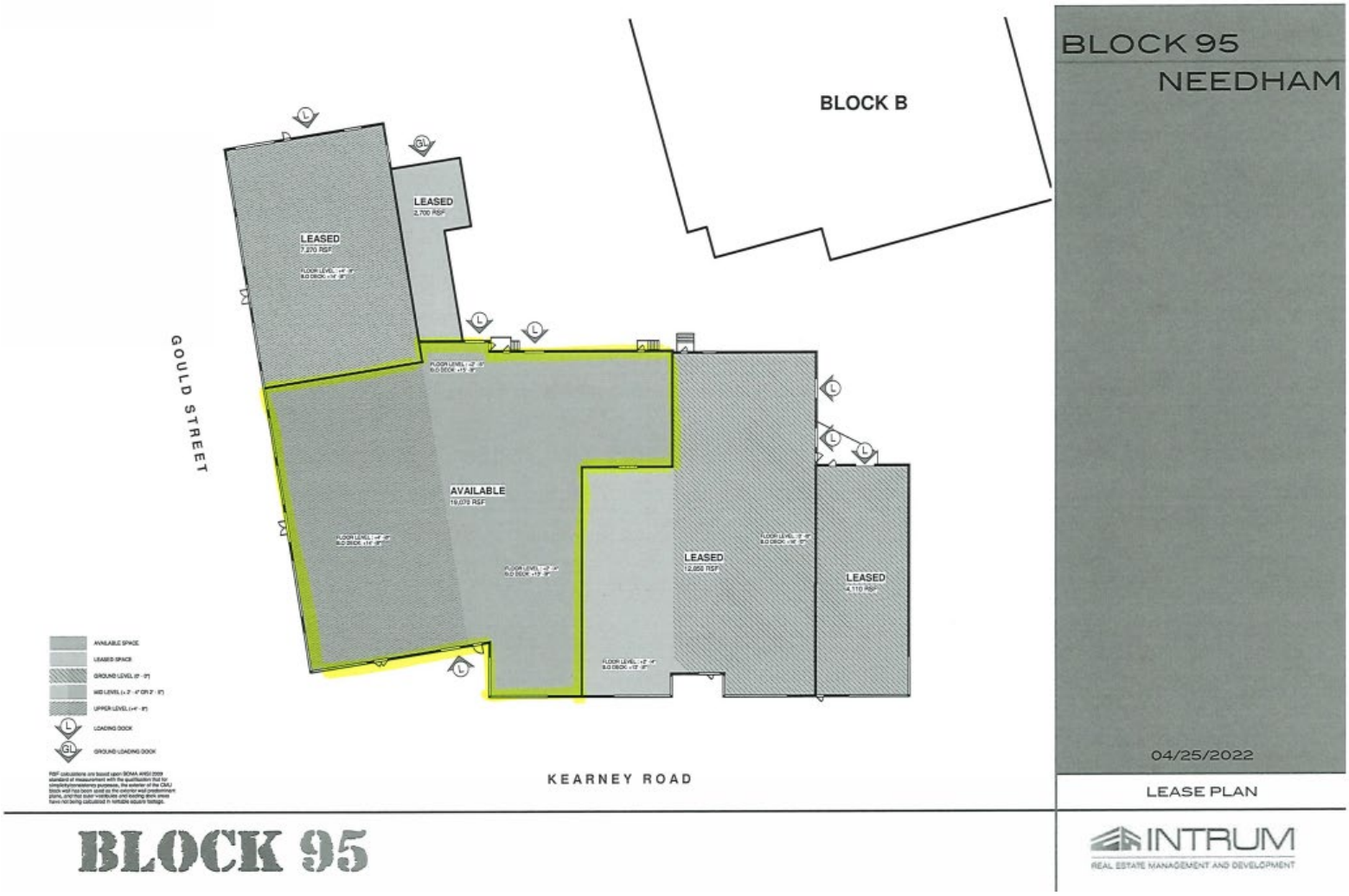
IC Needham Gould Portfolio, LLC
Block 95, Block A
(110-116 Gould Street, 91-101 Hampton Avenue, 11 Ellis Street, 45-55 Kearney Road)
Needham, MA

19,070 sq. ft.

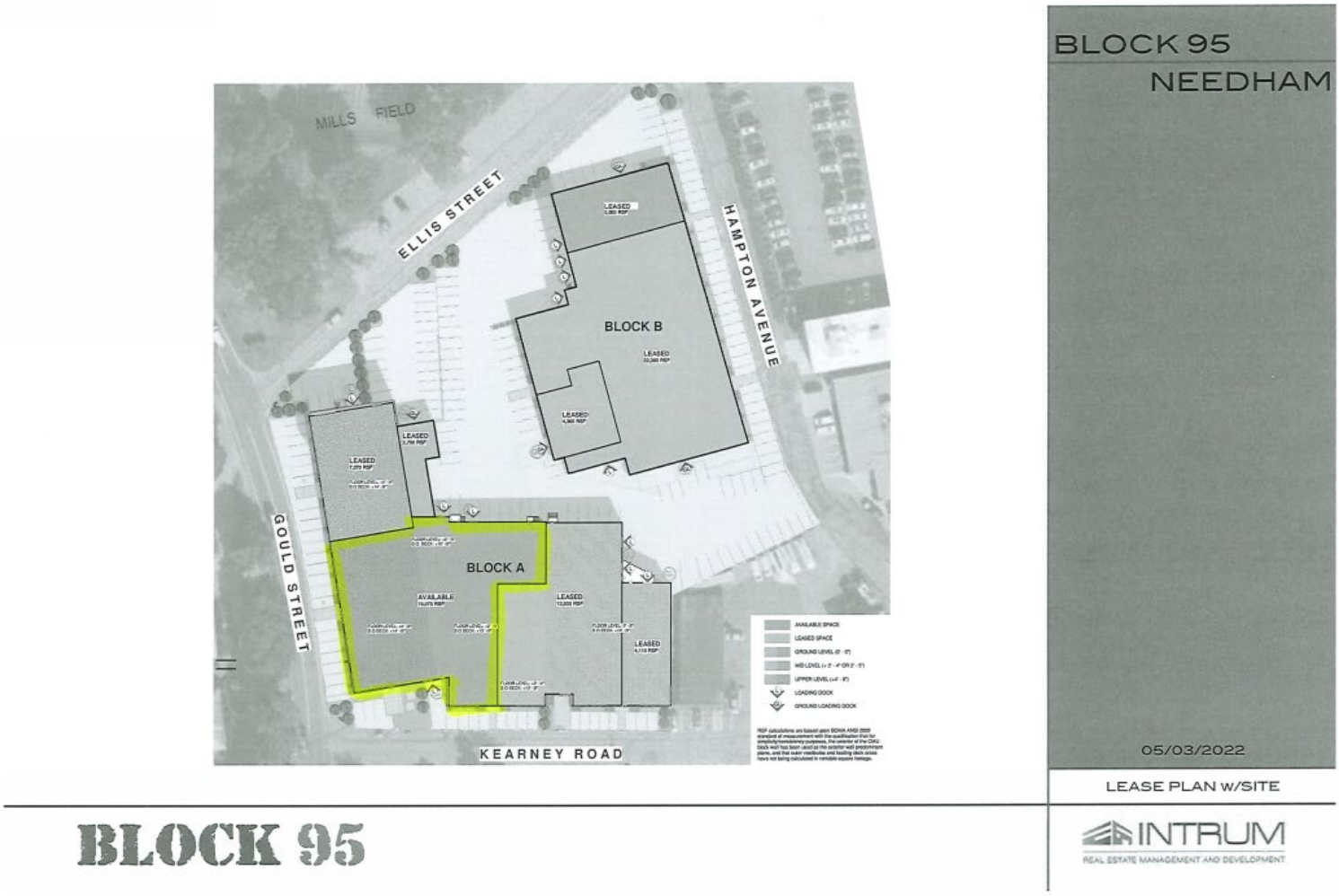
Year	Proposed Annual Base Rent (per square foot)	Proposed Annual Base Rent
1	$32.00	$ 610,240
2	$33.00	$ 629,310
3	$34.00	$ 648,380
4	$35.00	$ 667,450
5	$36.00	$ 686,520
6	$37.00	$ 705,590
7	$38.00	$ 724,660
8	$39.00	$ 743,730
9	$40.00	$ 762,800
10	$41.00	$ 781,870
11 to 15	Fair Market Rent	Fair Market Rent

* Base Rent does not include maintenance and operating costs, real estate taxes, MWRA's own utility costs and operating costs (e.g. janitorial services).

Attachment B
Site Plan, Rendering, and White Box Plan

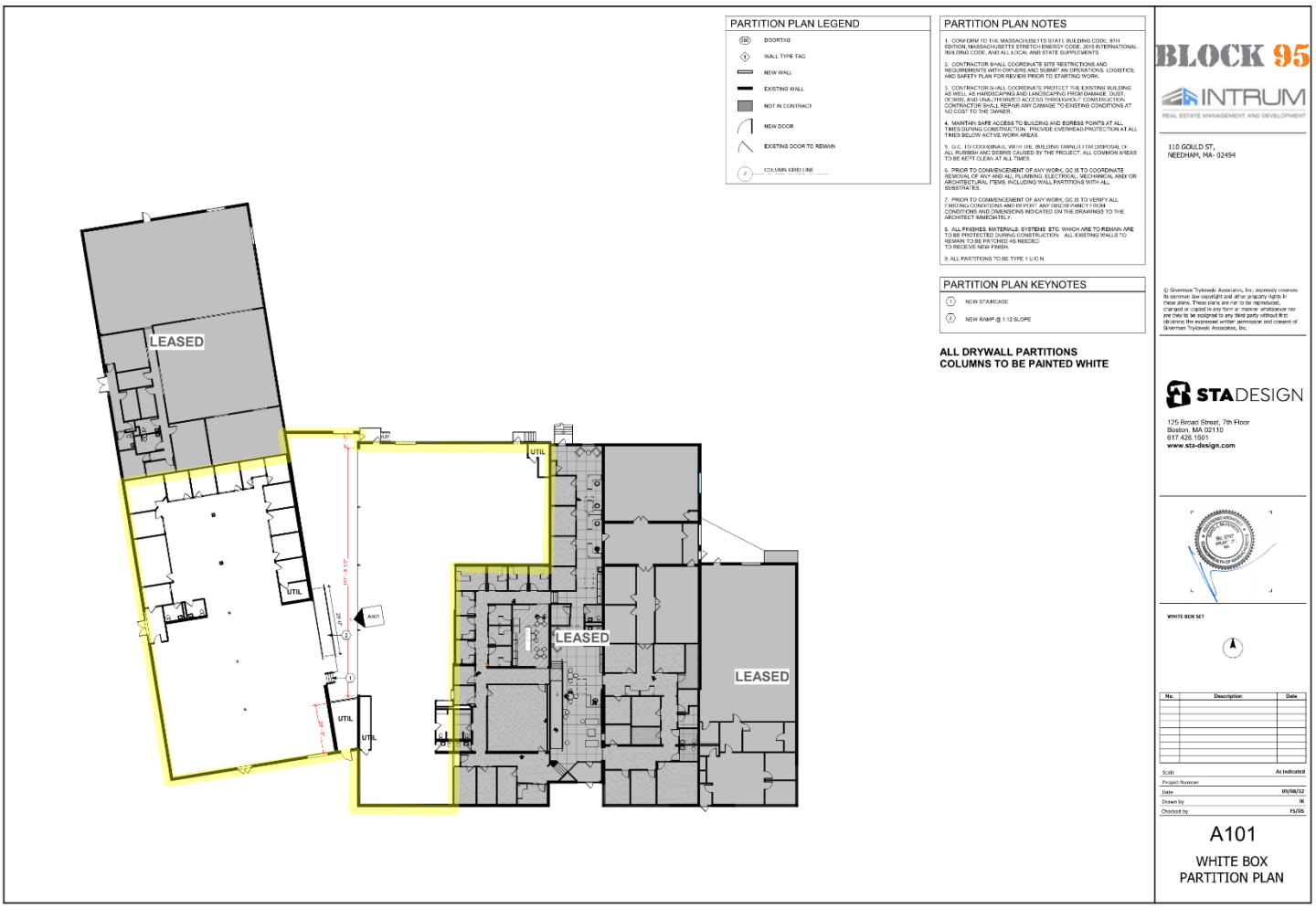


General Site Plan (the Proposed Premises are highlighted)

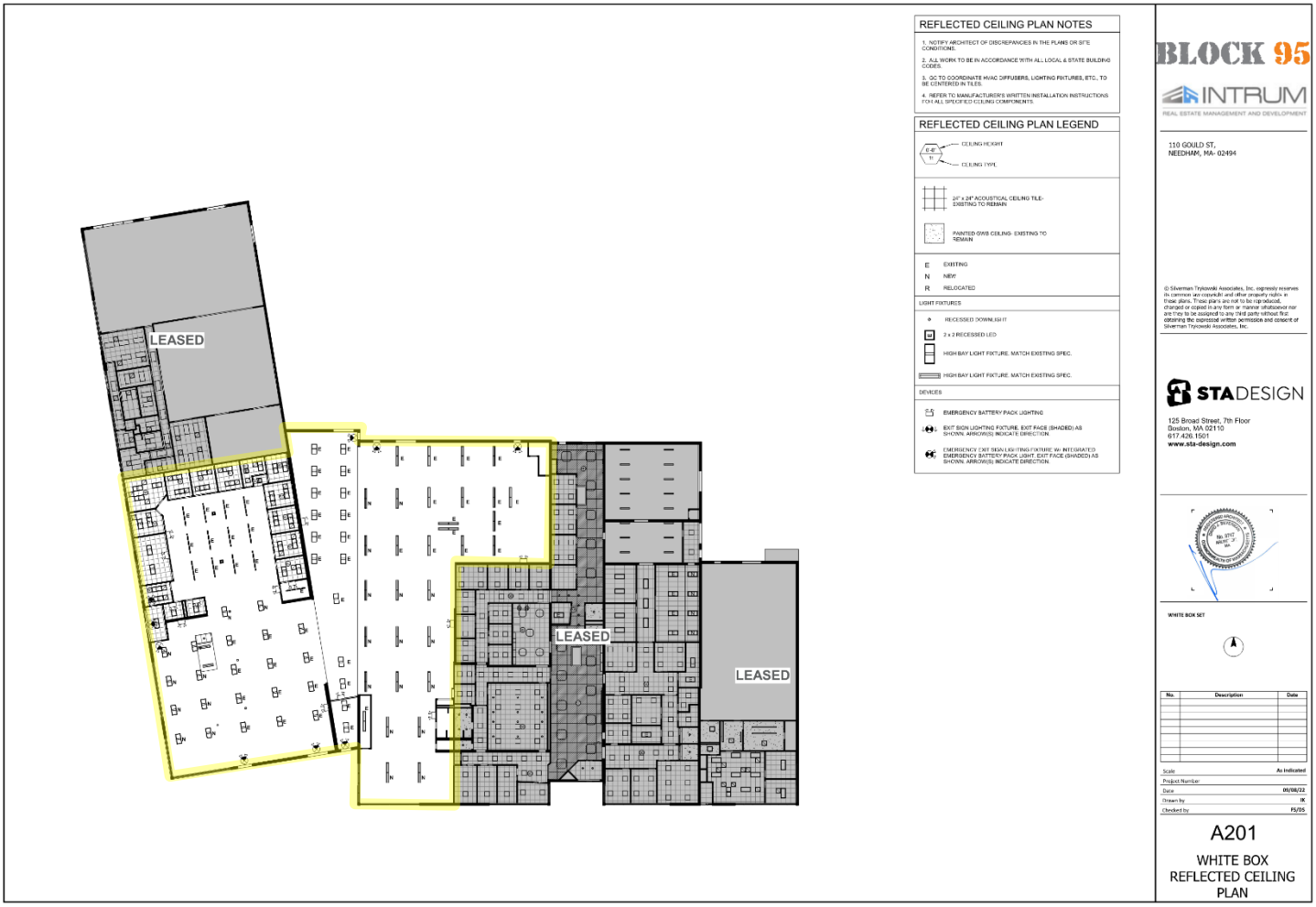


General Building Plan (the Proposed Lease Premises are highlighted)

Rendering of Building



White Box Floor Plan of the Proposed Lease Space
(the Proposed Premises are indicated by the white space and highlighted)



White Box Ceiling Plan of the Proposed Lease Space
(The Proposed Premises are indicated by the white space and highlighted.)

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Wachusett Dam Lower Gatehouse Pipe and Boiler Replacement
J.F. White Contracting Company
Contract 7380

COMMITTEE: Water Policy & Oversight

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

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

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

RECOMMENDATION:

To approve the award of Contract 7380, Wachusett Dam Lower Gatehouse Pipe and Boiler Replacement, to the lowest responsible and eligible bidder, J.F. White Contracting Company, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $19,333,573, with a contract term of 547 calendar days from the Notice to Proceed.

DISCUSSION:

Figure 1: Wachusett Dam Lower Gatehouse and Fountain

The Wachusett Dam Lower Gatehouse releases water from the Wachusett Reservoir to the Wachusett Aqueduct that supplies the John J. Carroll Water Treatment Plant in Marlborough via the Wachusett Aqueduct Pumping Station. The Lower Gatehouse also releases water to the Nashua River via the ten-inch diameter fountain line to meet MWRA's 12 million gallon per week statutory requirement. A sliding sleeve valve in the Lower Gatehouse is used periodically to release up to 100 million gallons per day to the Nashua River to facilitate the transfer of higher quality water from the Quabbin Reservoir.

This contract includes replacement or lining of the original 1905 pipes and valves that remain in the Lower Gatehouse, including the equalizer pipe that failed in 2018. Due to the equalizer pipe failure, the release to the Nashua River has been reduced by 50 percent, impacting the ability to transfer water from the Quabbin Reservoir. In addition, the condition of the pipes causes concerns about releasing large rates of flow down the Wachusett Aqueduct to the new pumping station. The four 48-inch outlet pipes that run through the Wachusett Dam will be lined with carbon fiber reinforced polymer (CFRP).

Figure 2: Failed Equalizer Pipe

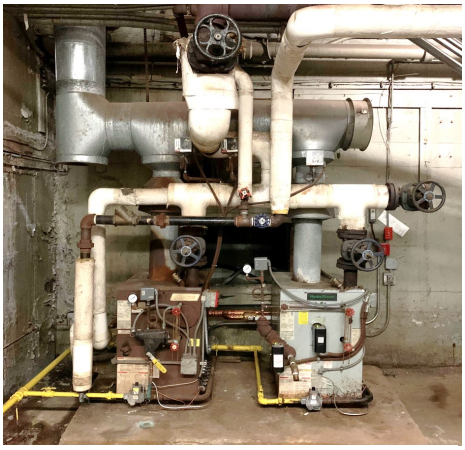


Figure 3: Existing Boiler

This contract also includes replacement of the existing heating system in the Lower Gatehouse. The existing system must be replaced to consistently maintain a minimum temperature of 50° Fahrenheit during the winter to preserve the building envelope and the new windows that are currently being installed under construction Contract 7788. A study was completed to evaluate alternative energy heating systems at this location. Ultimately, replacement with a propane fired boiler was selected given the economics, reliability concerns and the fact that it is an unstaffed facility. Installation of the new boiler system triggered the requirement to provide restroom facilites at the Lower Gatehouse. Therefore, a new restroom will be provided on the first floor of the building.

Figure 4: Peeling Paint

The last major component of this contract includes hazardous material abatement of the lead-based paint in the administration area of the building and on the original non-operational hydro turbines. The abatement will improve safety for MWRA operations staff working in the Lower Gatehouse.

Procurement Process

Contract 7380 was advertised in the Boston Herald, the Central Register, Banner Publications, El Mundo and on COMMBUYS, and bid utilizing MWRA's e-procurement system in accordance with Chapter 149 of the Massachusetts General Laws. A pre-bid conference was held on August 2, 2022. Site visits took place on August 3, 2022 and September 28, 2022. While four general contractors participated in the site visits, only one bid was received and opened on October 21, 2022. Staff sought feedback from the contractors who elected not to submit a bid. One general contractor decided not to bid due to the difficulties associated with the materials rigging required for the work and the second stated unavailability due to existing work for other projects.

The result of the one general bid is presented below.

Bidder	Bid Amount
J.F. White Contracting Company	**$19,333,573**
Engineer's Estimate	*$11,606,000*

The bid from J.F. White Contracting Company is 66.6% higher than the Engineer's Estimate.

MWRA staff reviewed the scope of work with J.F. White and are satisfied that the bid includes all elements of the work for the bid price. The difference between J.F. White's bid and the Engineer's Estimate is a combination of the significant price increases for materials and equipment, and the specialty nature of the CFRP lining work. Recent volatility in material and equipment prices has affected the cost of construction dramatically over the past 24 months, with inflation on some products as high as 100%. J.F. White noted that its bid reflects the difficulties related to rigging pipe, valves and other equipment into and out of the wells on the bottom level of the facility, dewatering of the pipes embedded in the dam so that the liner can be installed when the area is dry and risks associated with installation in the confined space of the more than 100-year-old pipes in the dam.

Internal and external references for J.F. White were checked and found to be very good. J.F. White completed the Winthrop Terminal Variable Frequency Drive and Synchronous Motor Replacement at the Deer Island Wastewater Treatment Plant. Also, J.F. White completed the Cosgrove and Wachusett Intakes Improvement Project, which included the replacement of pipe and valves in the bottom level of the Wachusett Dam Lower Gatehouse. This project was in the same location and similar to this contract's work to rig, remove and install valves and piping in a tight area with a low ceiling. Additionally, J.F. White staff stated their confidence in performing the contract work due to experience gained through its prior construction in the Lower Gatehouse. Furthermore, external reviews for the Charlestown High School Energy Improvements and the Springfield Union Station High Platform C in Springfield, Massachusetts were very good. Both references stated their projects were completed on schedule, and they would hire J.F. White in the future.

Staff conducted a review of the OSHA database and found that J.F. White was issued a citation in 2019 because two employees were observed without personal flotation devices while working on a barge. The two employees were reprimanded and retrained in the safety requirements of the job site. J.F. White updated its daily safety briefing to include reminders to wear personal flotation devices when working on the water. There were no other incidents reflected in the OSHA database.

A review of the DCAMM documentation identified two worker injuries in 2021. One injury was to a worker's leg, which had been trapped under a boom lift tire, and the second injury occurred when a worker fell from a ladder while working on a barge. J.F. White provided additional training to staff to improve safety and to prevent reoccurrence of these events.

Despite the bid price being significantly higher than the Engineer's Estimate, staff recommend proceeding with the award. The completion of this difficult work is necessary to safely release water to the full capacity of the Wachusett Aqueduct. Splitting the work into multiple contracts and rebidding would extend the schedule significantly and the overall cost would likely be higher given current market conditions. Staff have determined that J.F. White possesses the skill, ability, and integrity necessary to perform the work under this contract and is qualified to do so. After review of the scope of work with J.F. White, staff have further determined that the bid price is

reasonable, complete, and incorporates all necessary labor and materials, including the payment of prevailing wages as required. Therefore, staff recommend the award of this contract to J.F. White Contracting Company as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The FY23 CIP includes $5,111,000 for Contract 7380. The contract award is $19,333,573, or $14,222,573 over the CIP amount. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The minimum MBE and WBE participation requirements for this contract are 7.24% and 3.6% respectively. The Affirmative Action and Compliance Unit has reviewed the bids and determined that J.F. White's bid is responsive to these requirements.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 16, 2022
SUBJECT: Technical Assistance Consulting Services for the John J. Carroll Water Treatment Plant
Hazen and Sawyer P.C., Contract 7973
Stantec Consulting Services Inc., Contract 7974

COMMITTEE: Water Policy & Oversight

_____ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

John P. Colbert, P.E., Chief Engineer
William G. Sullivan, P.E., Sr. Program Manager
Preparer/Title

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

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award two separate contracts to provide Technical Assistance Consulting Services for the John J. Carroll Water Treatment Plant and to authorize the Executive Director, on behalf of the Authority, to execute Contract 7973 with Hazen and Sawyer, P.C. and Contract 7974 with Stantec Consulting Services Inc., each in an amount not to exceed $2,000,000, with a contract term of 24 months from the Notice to Proceed.

DISCUSSION:

The purpose of these technical assistance contracts is to make available, on a continuing, as-needed basis, the services of qualified, professional engineering firms to assist MWRA staff with engineering and design initiatives for the John J. Carroll Water Treatment Plant and other western water transmission facilities. These contracts are primarily used for engineering disciplines, such as civil, structural, environmental and sanitary, mechanical, electrical and process engineering, and sometimes for related disciplines including architecture, geotechnical, surveying, fire protection, control systems, permitting, and security. The contracts are used on high priority and unanticipated projects, or projects that are not large enough to warrant the full procurement process of requiring engineering consultants to develop qualifications and cost proposals. These contracts also provide expertise on short-term assignments requiring specialized disciplines that are not cost effective for MWRA to maintain with in-house staff resources. The contracts are written to ensure that adequate resources are available to quickly and comprehensively respond to MWRA's needs, particularly when emergency or unanticipated situations arise.

Staff require approval from the Chief Engineer for all task orders up to and including $25,000; from the Deputy Chief Operating Officer for task orders greater than $25,000 and up to and including $50,000; and from the Chief Operating Officer on any task order greater than $50,000

and up to and including $100,000. In the event that a Task Order greater than $100,000 is needed, the Chief Operating Officer will confer with the Executive Director prior to approval.

Under previous technical assistance contracts, MWRA has issued task orders for a wide variety of work including design of:

- repairs to the top of Shaft 2 of the Quabbin Aqueduct;
- replacement of pipes in the Wachusett Dam Lower Gatehouse;
- modifications to the sodium hypochlorite, fluoride and soda ash feed systems; and
- upgrades to the Southborough Headquarters electrical switchgear.

Sodium Hypochlorite Upgrades

Quabbin Aqueduct Shaft 2 Repair

Potential future technical assistance projects include the design of the following Asset Protection projects:

- liquid oxygen yard piping and equipment redundancy improvements;
- plant HVAC system component replacements;
- improvement of isolation in the plant inlet channel;
- replacement of plant membrane roofs; and
- ozone contactor and storage tank joint repairs.

Procurement Process

On September 7, 2022, 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, El Mundo. In addition, 203 firms received notice of the RFQ/P through the MWRA Supplier Portal. A total of 19 firms requested the RFQ/P and were added to the plan holders list. On October 6, 2022, MWRA received proposals from the following two firms: Hazen and Sawyer, P.C. and Stantec Consulting Services Inc. The RFQ/P included the following evaluation criteria and points: Cost - 25 points; Qualifications/Key Personnel - 25 points; Experience/Past Performance - 25 points; Capacity, Organization, Management and Technical Approach - 22 points; and MBE/WBE Participation - 3 points.

Since the exact scope and estimated labor hours that will ultimately be required under the contracts are unknown, staff developed a sample cost exercise designed to compare the costs of the proposers. MWRA provided an approximate total number of hours that may be expended based on the average annual distribution of hours from prior technical assistance contracts, and required the proposers to provide average chargeable hourly rates per labor category, including escalation and multipliers incorporating indirect costs and profit. Proposers' submitted rates were inserted into the formula and the results are as follows:

PROPOSER	SAMPLE COST EXERCISE ESTIMATE
Hazen and Sawyer, P.C.	$1,655,134
Stantec Consulting Services Inc.	$1,702,395
Engineer's Estimate	$2,000,000

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

PROPOSER	TOTAL POINTS	ORDER OF PREFERENCE *	FINAL RANKING
Hazen and Sawyer, P.C.	436	5	1
Stantec Consulting Services Inc.	415.5	10	2

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

Hazen and Sawyer was ranked first by the Selection Committee. The Selection Committee was in agreement that the personnel listed for Hazen and Sawyer are highly qualified for this type of work. Hazen and Sawyer also demonstrated a wide variety of experience, including extensive experience with water treatment plants. Hazen and Sawyer is the consultant for one of the current Carroll Treatment Plant Technical Assistance contracts and one of the Agency-Wide Technical Assistance contracts. MWRA staff reported that Hazen and Sawyer's performance on the existing and past Technical Assistance contracts has been very good to excellent. Also, this firm had the lowest cost in the cost exercise.

Stantec was ranked second by the Selection Committee. The Selection Committee was in agreement that Stantec's proposed personnel are highly qualified for this type of work. Stantec also demonstrated a wide variety of experience, including good experience with water treatment plants. Of note, Stantec received below average to good internal references for its work on recent technical assistance contracts at the Carroll Treatment Plant. However, Stantec (and previously as Fay, Spofford & Thorndike) received very good internal references for its work under prior Technical Assistance contracts at the Carroll Treatment Plant dating back to December 2005. As one of the two incumbent technical assistance consultants, Stantec is very familiar with the Plant and its team members for this contract are the same as for previous contracts.

Based on the qualifications of the firms and the sample cost exercises submitted, the Selection Committee recommends the award of Contract 7973 to Hazen and Sawyer, P.C. and Contract 7974

to Stantec Consulting Services Inc., each for a not-to-exceed amount of $2,000,000 and a contract term of two years from the Notice to Proceed.

BUDGET/FISCAL IMPACTS:

The FY23 CIP includes $1,200,000 each for the Carroll Water Treatment Plant Technical Assistance Contracts 7973 and 7974. Any difference will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

Due to the specialized and uncertain nature of this work, no minimum MBE or WBE participation were established for these contracts. However, Hazen and Sawyer's proposal identified its commitment to 1% MBE and 4% WBE participation. Stantec's proposal identified its commitment to 8% MBE and 6% WBE participation.