MASSACHUSETTS WATER RESOURCES AUTHORITY
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BOARD OF DIRECTORS' MEETING

To be Held on Wednesday, October 20, 2021

Time: 1:00pm

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

WebEx Meeting Link for Attendees (Registration Required):

https://mwra.webex.com/mwra/onstage/g.php?MTID=ee1f204ac27b2d06aa5f177a431267752

Event number: 2340 148 8486 **Event password:** 102021

REVISED AGENDA (1)

I. APPROVAL OF MINUTES

II. REPORT OF THE CHAIR

III. REPORT OF THE EXECUTIVE DIRECTOR

IV. PERSONNEL & COMPENSATION

A. Approvals

1. PCR Amendments – October 2021
2. Appointment of Senior Program Manager, Community Support
3. Appointment of Director, Metropolitan Operations
4. Appointment of Manager, Occupational Health & Safety
5. Appointment of Technical Operations Manager, Administration

V. ADMINISTRATION, FINANCE & AUDIT

A. Information

1. Internal Audit Department Activities Report – FY2021
2. Delegated Authority Report – September 2021
3. FY22 Financial Update and Summary as of September 2021

V. ADMINISTRATION, FINANCE & AUDIT (CONTINUED)

B. Approvals

1. Approval of the Eighty-Fourth Supplemental Resolution

C. Contract Awards

1. Automated Vehicle Locator Tracking System: GPS Insight, LLC, Bid WRA-5027, State Contract VEH106

VI. WASTEWATER POLICY & OVERSIGHT

A. Information

1. 2020 Outfall Monitoring Overview
2. MWRA Industrial Waste Report No. 37: Industrial Pretreatment Program Annual Report to EPA for FY2021

B. Contract Amendments/Change Orders

1. Prison Point CSO Facility Improvements: Arcadis, U.S., Inc., Contract 7359, Amendment 5
2. Deer Island Combined Heat and Power Study: Black & Veatch Corporation: Contract 6963A, Amendment 3
3. Deer Island Treatment Plant Clarifier Rehabilitation, Phase II, Design/Engineering Services during Construction: CDM Smith, Contract 7394, Amendment 3

VII. WATER POLICY & OVERSIGHT

A. Information

1. Metropolitan Water Tunnel Program Update

B. Approvals

1. Memorandum of Agreement with the Town of Lexington: Northern Extra High Pressure Zone Improvements, CP1 - Section 63 Extension, Contract 6522

C. Contract Awards

1. Supply and Delivery of Soda Ash, Carroll Water Treatment Plant: Tata Chemicals Soda Ash Partners, Purchase Order Contract WRA-5003
2. Rehabilitation of Sections 23, 24 and 47 Water Mains, Boston and Newton: Albanese D&S, Contract 6392

VII. WATER POLICY & OVERSIGHT (Continued)

D. Contract Amendments/Change Orders

1. Rehabilitation of Sections 23, 24 and 47 Water Mains: Green International Affiliates, Inc., Contract 6385, Amendment 1
2. SCADA System Improvements, Carroll Water Treatment Plant: Arcadis U.S. Inc., Contract 7581, Amendment 2

VIII. CORRESPONDENCE TO THE BOARD

IX. OTHER BUSINESS

X. EXECUTIVE SESSION

i. Approval of September 15, 2021 Executive Session Minutes

A. Real Estate

1. Watershed Land Acquisition

B. Security

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

XI. ADJOURNMENT

MASSACHUSETTS WATER RESOURCES AUTHORITY
Meeting of the Board of Directors
September 15, 2021

A meeting of the Massachusetts Water Resources Authority ("MWRA") Board of Directors was held on September 15, 2021. The meeting was conducted virtually, pursuant to Chapter 20 of the Acts of 2021, An Act Relative to Extending Certain COVID-19 Measures Adopted During the State of Emergency. Chair Theoharides presided via remote participation. Present remotely from the Board, in addition to the Chair, were Messrs. Carroll, Flanagan, Foti, Pappastergion, Vitale, and P. Walsh. Ms. Wolowicz and Messrs. Cook, Peña, J. Walsh were absent.

MWRA staff in attendance virtually included Frederick Laskey, Executive Director; Carolyn Francisco Murphy, General Counsel; David Coppes, Chief Operating Officer; Carolyn Fiore, Deputy Chief Operating Officer; Thomas Durkin, Director of Finance; Michele Gillen, Director of Administration; Kathy Murtagh, Director, Tunnel Redundancy; Valerie Moran, Director, Waterworks; Andrea Murphy, Director, Human Resources; Matthew Horan, Deputy Director, Finance/Treasurer; David Duest, Director, Deer Island Treatment Plant; Douglas Rice, Director, Procurement; Brian Kubaska, Assistant Director, Engineering; Marty McGowan, Construction Coordinator; Steve Rhode, Director, Laboratory Services; and, Assistant Secretaries Ria Convery and Kristin MacDougall. Vandana Rao, EEA, and Joseph Favaloro, MWRA Advisory Board, were also in attendance virtually.

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

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

APPROVAL OF JULY 21, 2021 MINUTES

A motion was duly made and seconded to approve the minutes of the Board of Directors' meeting of July 21, 2021. Chair Theoharides called for any questions, discussion or objections. Hearing none, the Chair referred the motion to an omnibus roll call vote. (ref. I)

REPORT OF THE CHAIR

Chair Theoharides congratulated Mr. Laskey for receiving Boston Harbor Now's award in recognition of The Boston Harbor Islands Partnership's 25th anniversary. She commended Mr. Laskey for his leadership in the clean-up of Boston Harbor and promoting public access. Next,

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the Chair reported on drought conditions in Massachusetts; she announced that she had declared Level Zero drought conditions for all Massachusetts regions except for Cape Cod, which was at Level One. Chair Theoharides described above-average precipitation levels across the state. She noted that she had recently testified from a CSO outfall in Lawrence regarding Governor Baker's American Rescue Plan Act (ARPA) proposal. The Chair added that the Administration had been working diligently to allocate ARPA funds toward improving CSO control and other water infrastructure. Finally, Chair Theoharides described the Baker-Polito Administration's COVID-19 vaccination mandate for Commonwealth employees. She strongly encouraged all Massachusetts quasi-public agencies to adopt this mandate to protect employees, their families and the Massachusetts workforce. (ref. II)

REPORT OF THE EXECUTIVE DIRECTOR

Mr. Laskey updated Board Members on MWRA's ongoing efforts to comply with the Baker-Polito Administration's COVID-19 vaccination mandate by October 17, 2021. He added that COVID-19 vaccination requirements were under discussion with MWRA unions, and that MWRA had reinstated indoor mask requirements for all employees. Next, Mr. Laskey announced that MWRA had won the American Water Works Association's 16th annual "Best of the Best" national drinking water taste test award. He explained that the award was made possible through the work of MWRA employees and partner agencies, including the Department of Conservation and Recreation. Mr. Laskey then updated Board members on continued high rainfall levels across the MWRA service area. He commended MWRA employees for their commitment and professionalism in responding to the storms. Next, Mr. Laskey reported that approximately 40 MWRA employees had recently applied for retirement. He highlighted the contributions of some retirees, including Sharon Ward, AACU; Carl Leone, Community Support; Robert Donnelly, Human Resources; and William Lane, Wastewater Operations. Finally, Mr. Laskey reported that staff would review the Delegated Authority policy and present recommended revisions at a future Board meeting. Chair Theoharides expressed support for Delegated Authority policy review, noting that more streamlined Board agendas could allow for deeper discussion of big picture issues and challenges. (ref. III)

WATER POLICY AND OVERSIGHT

Contract Amendments/Change Orders

John J. Carroll Water Treatment Plant SCADA System Improvements Design, Engineering Services During Construction and Resident Engineering Services: Arcadis U.S., Inc., Contract 7581, Amendment 2

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

MWRA Director of Waterworks Valerie Moran summarized the reasons for the proposed amendment, including changes in the procurement approach, a modified project approach,

increased resident engineering/resident inspection (RE/RI) qualification requirements and COVID-19 related equipment procurement delays. MWRA Chief Operating Officer David Coppes added that the project had grown in complexity and duration, and therefore required more experienced RE/RI staff than originally anticipated.

The Board questioned the basis for the proposed increase from the original contract amount and expressed concerns regarding the change in experience requirements for the RE/RI services. The Board requested additional information about the initial contract's scope, the procurement process and the proposed amendment. It was suggested that MWRA staff provide a revised presentation at a future meeting.

A motion was duly made and seconded to postpone this agenda item until the next Board Meeting.

Mr. Laskey noted that staff would review the presentation materials and return to the Board with additional information at the next Board Meeting. Chair Theoharides asked if postponing this agenda item would have a negative impact on the project's timeline. Mr. Coppes responded that project consultants could continue work while MWRA staff prepared the updated presentation.

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

PERSONEL AND COMPENSATION
Approvals
PCR Amendments – September 2021
A motion was duly made and seconded to approve the amendments to the Position Control Register (PCR) as presented and filed with the records of this meeting.

MWRA Human Resources Director Andrea Murphy summarized proposed amendments, which included two proposed title and grade changes and one proposed title change in Operations Division.

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

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

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

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

Appointment of Manager, Transmission and Treatment

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

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

A Board Member asked if the appointee was related to a recent retiree, also named Mark Johnson. Ms. Murphy said that there was no relation.

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

Appointment of Senior Program Manager, Environmental Monitoring

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

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

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

Appointment of Materials Coordination Manager

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

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

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

ADMINISTRATION, FINANCE AND AUDIT

Information

FY21 Fourth Quarter Orange Notebook

Mr. Coppes verbally presented highlights of the final Orange Notebook report for Fiscal Year 2021. He noted key performance indicators, including the resolution of a discrepancy in Deer Island Treatment Plant sludge output, which staff found was caused by a meter error, and MWRA's ongoing challenges in maintaining performance indicators due to staff turnover, retirements and region-wide COVID-19 related staff shortages. He added that these staffing challenges were expected to impact MWRA's performance indicators into the next fiscal year.

Mr. Laskey thanked MWRA Advisory Board staff for their roles in monitoring the sludge output discrepancy.

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

Delegated Authority Report – July and August 2021

Committee Chair Vitale invited questions or comments from Board Members. Hearing none, he proceeded to the next agenda item. (ref. VI A.2)

FY21 Year-End Financial Update and Summary

MWRA Director of Finance Thomas Durkin summarized financial results and variance highlights for Fiscal Year 2021 (FY21). He reported that the total year-end variance for FY21 was $14.7 million, after $25.6 million defeasance, due to lower direct expenses, lower debt service costs and higher revenues. Mr. Durkin explained that FY21 direct expenses were driven mostly by lower spending for wages and salaries, utilities, maintenance. He then noted that indirect expenses were $1.7 million over budget, primarily from accruals in preparation for anticipated Eversource and Harbor Electric Energy Company (HEEC) related costs. Next, Mr. Durkin reported that MWRA was closing FY21 with $1.9 million in capital financing as a surplus primarily due to the timing of issuance and low interest rates on variable rate debt. Finally, he reported that revenue was $1.8 million over budget and noted that staff would recommend that $12.7 million of the surplus be used for defeasance in agenda item VI B.1.

There was discussion about potential impacts of inflation and supply chain issues on MWRA's Fiscal Year 2022 budgets.

Committee Chair Vitale invited questions or comments from Board Members. Hearing none, he proceeded to the next agenda item. (ref. VI A.3)

Fiscal Year 2021 Year-End Capital Improvement Program Spending Report

Mr. Durkin summarized highlights of FY21 Capital Improvement Program (CIP) accomplishments and variances during FY21. He reported 44.2% in underspending, adding that this figure was partly due to lower than anticipated rates of payment deferrals from communities that participated in MWRA's Infiltration/Inflow and Local Pipeline Assistance Program loan and grant programs.

Mr. Durkin also noted that some planned MIS expenses had been deferred as the department's priorities had shifted toward addressing COVID-19 related operational needs.

Mr. Coppes added that large MWRA projects contributed to the overall spending variance. Examples he cited included the deferral of the Prison Point CSO Facility Improvements; Deer Island Clarifier Phase Two Construction bid and award delays; Northern Intermediate High Section 89 permitting delays due to COVID-19; and, the impacts of natural gas regulatory requirements on the Section 23, 24 and 47 project's schedule.

There was general discussion about the benefits and costs of various models of electric, hybrid and other zero emissions fleet vehicles, and the Authority's plans for future purchases of electric vehicles. Director of Administration Michele Gillen noted that the Authority has 26 hybrid and 12 electric vehicles in its fleet, and plans to purchase 4 to 6 electric vehicles per year to satisfy the state's carbon emissions requirements. Secretary Theoharides noted that Governor Baker had updated the Leading by Example Executive Order in spring 2021, and that all state fleets were required to be 100% ZEV, or zero emissions, by 2040. She added that replacing older internal combustion vehicles with ZEV vehicles was a priority, and encouraged Board Members and MWRA staff to share findings on their fleets' ZEV vehicles.

Committee Chair Vitale invited questions or comments from Board Members. Hearing none, he proceeded to the next agenda item. (ref. VI A.4)

Approvals

Bond Defeasance of Future Debt Service

A motion was duly made and seconded to authorize the Executive Director or his designee, on behalf of the Authority, to enter into, execute and deliver all necessary agreements and other instruments and to take such other actions necessary to effectuate the redemption and defeasance of an aggregate principal amount of $11,375,000 of outstanding MWRA senior bonds including to cause the escrow of cash and/or securities in an amount necessary to fund such redemption and defeasance, in order to reduce the debt service requirement by $13,151,250 in the FY23 through FY26 timeframe.

Mr. Durkin and MWRA Deputy Director of Finance/Treasurer Matt Horan summarized the proposed plan to execute an approximately $12.7 million defeasance, funded through part of the FY21 budget surplus, to reduce future year rate increases. Mr. Horan noted that since the defeasance program started, MWRA had seen $36.2 million in avoided interest costs by paying debt off early using surplus funds. He added that there were ten different defeasances starting in 2015, contributing a $79 million total reduction to the FY22 debt service requirement, and that defeasances had allowed MWRA to curb rate increases. Finally, Mr. Horan noted that staff plans to continue to use this defeasance to smooth out peak debt service years and to manage overall rate structure.

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There was general discussion about potential savings from tax exempt advance refunding. There was also discussion about the hypothetical effects of potential tax increases on investments, the stock market, pensions and Other Post-Employment Benefits (OPEB) trusts.

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

Delegation of Board's Authority to Make Determinations on Ethics Disclosures by the Executive Director

A motion was duly made and seconded to delegate to the Chair of the Board, the Board of Directors' authority to make determinations in response to ethics disclosures, made by the Executive Director, on behalf of the Board in accordance with 930 CMR Section 5.04(a) and to ratify past practice, with a copy of such determinations by the Chair provided to the Board of Directors in accordance with said regulation.

MWRA General Counsel Francisco Murphy summarized the reasons for proposing the vote to delegate the Board's authority to make determinations on ethics disclosures by the Executive Director to the Board Chair, who would make determinations of the Board's behalf. She explained that the delegation of authority would be consistent with ethics regulations and MWRA practice, and would also streamline the determination process so that there would be no delay in taking any action on a particular matter. Ms. Francisco Murphy added that a copy of all such determinations would be provided to the Board.

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

WASTEWATER POLICY AND OVERSIGHT

Contract Awards

Supply and Delivery of Ferric Chloride to Deer Island: Kemira Water Solutions, Inc., Bid WRA-4995

A motion was duly made and seconded to approve the award of Purchase Order Contract WRA-4995 for the supply and delivery of ferric chloride to the Deer Island Treatment Plant to the lowest responsive bidder, Kemira Water Solutions, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $2,320,000 for a period of one year, from December 1, 2021 through November 30, 2022.

MWRA Deer Island Treatment Plant Director Dave Duest briefly described the proposed contract for a one-year supply of ferric chloride.

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

Supply and Delivery of Sodium Hypochlorite to Deer Island: Borden & Remington Corporation, Bid WRA-4996

A motion was duly made and seconded to approve the award of Purchase Order Contract WRA-4996 for the supply and delivery of sodium hypochlorite to the Deer Island Treatment Plant to the lowest responsive bidder, Borden & Remington Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $1,849,260.26 for a period of one year from November 17, 2021 through November 16, 2022.

Mr. Duest described the proposed contract for a one-year supply of sodium hypochlorite, which is used as a disinfectant at MWRA's Deer Island Treatment Plant in compliance with permit requirements.

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

Supply, Delivery, and Disposal of Regenerated Activated Carbon for the Deer Island Treatment Plant: Carbon Activated Corporation, Bid WRA-5002

A motion was duly made and seconded to approve the award of Purchase Order Contract WRA-5002, a three-year contract for the supply, delivery and disposal of regenerated activated carbon for the Deer Island Treatment Plant, to the lowest responsive bidder, Carbon Activated Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $1,222,125 for a period of three years, from December 11, 2021 through December 10, 2024.

Mr. Duest described the proposed three-year contract for the supply, delivery and disposal of regenerated activated carbon, used principally for Title V air permit compliance for hydrogen sulfide and non-methane hydrocarbon.

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

Deer Island Treatment Plant South System Pump Station Improvements – Preliminary Design, Final Design, Bidding, Engineering Services During Construction, and Resident Engineering/Inspection Services: AECOM. Contract 7126

A motion was duly made and seconded to rescind the approval granted on April 15, 2021, authorizing the award of Contract 7126 to Hazen and Sawyer, P.C. and the execution of said contract with Hazen and Sawyer, P.C. by the Executive Director; Further, to approve the recommendation of the Consultant Selection Committee to award Contract 7126, Deer Island Treatment Plant South System Pump Station Improvements – Preliminary Design, Final Design, Bidding, Engineering Services During Construction, and Resident Engineering/Inspection Services, to AECOM, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed $8,297,068.70, for a contract term of 80 months from the Notice to Proceed

Mr. Duest summarized the reasons for the proposed recession of the award of Contract 7216 to Hazen and Sawyer, PC on April 15, 2021. He explained that Hazen and Sawyer's staff discovered a miscalculation of approximately $1.26 million in their proposal while preparing documents in advance of the Notice to Proceed. Mr. Duest noted that Hazen and Sawyer staff had voluntarily disclosed the underbid error to MWRA staff, and that discussions followed. He added that MWRA staff had ultimately determined that it would be in the Authority's best interest to rescind the award to Hazen and Sawyer, P.C. and recommend award to the second ranked proposer, AECOM.

There was discussion and questions about the difference in the proposal prices, the bid price discrepancy, eligibility for future contracts and whether there was any impropriety. The Board was advised by Mr. Duest that Hazen and Sawyer offered to hold their original price, and by MWRA Director of Procurement Douglas Rice that staff believed the discrepancy was an honest error and the firm was forthcoming and transparent about the mistake.

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

Prison Point CSO Facility Improvements: Barletta Heavy Division, Inc., Contract 7462

A motion was duly made and seconded to approve the award of Contract 7462, Prison Point CSO Facility Improvements, to the lowest responsible and eligible bidder, Barletta Heavy Division, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $39,479,000, for a contract term of 730 calendar days from the Notice to Proceed.

MWRA Assistant Director of Engineering Brian Kubaska made a presentation that provided an overview and description of the Prison Point CSO Facility's function and capacity. He also provided a summary of the proposed project, including replacing or enhancing aging equipment, such as its pumps, generator, catenary bar screens and conveyor system, moving the electrical room for the sequencing of construction activities, upgrading the chemical facility and replacing the roof. Mr. Kubaska noted the receipt of three bids for the project, and provided a brief overview of MWRA's plan to sequence the work to maximize efficiency and reduce the amount of time when the facility would need to operate at reduced capacity. Finally, he added that the facility's discharge header would be relined and that this task could only take place during dry conditions; an access hatch would be installed to facilitate work coordination.

Chair Theoharides asked if this project would maintain or improve the facility's capacity. Mr. Laskey responded that the project would ensure continuity of operations at current capacity.

There was brief discussion about wet weather impacts on construction project schedules.

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

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CONTRACT AMENDMENTS/CHANGE ORDERS

Chelsea Creek Headworks Upgrade – Resident Engineering/Resident Inspection Services: CDM Smith Inc., Contract 6802, Amendment 2

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract 6802, Chelsea Creek Headworks Upgrade – Resident Engineering/Resident Inspection Services, with CDM Smith Inc., to extend the contract term by six months, from August 5, 2021 to February 4, 2022, with no increase in the contract amount.

MWRA Construction Coordinator Marty McGowan summarized the reasons for the proposed no cost, six month time extension for the contract, which expired due to staff oversight. Mr. McGowan described the work to be performed during the extension, including site coverage, resident engineering services, reporting, site coordination, warranty management and punch list management.

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

Nut Island Headworks Odor Control and HVAC Improvements: Walsh Construction Company II, LLC Contract 7548, Change Order 6

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Change Order 6 to Contract 7548, Nut Island Headworks Odor Control and HVAC Improvements, with Walsh Construction Company II, LLC, for a not-to-exceed amount of $222,179.61, increasing the contract amount from $58,319,282.01, to $58,541,461.62, with no increase in contract term; and further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7548 in an amount not to exceed the aggregate of $250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

Mr. McGowan gave a presentation that provided an overview of the project and the reasons for the proposed change order, including odor control fan and recirculation pump equipment pad replacement; installation of air handling unit variable frequency drive (VFD) bypass circuits; and, the resolution of odor control fan VFD conflicts, including drip pans and leak detection. Mr. McGowan concluded the presentation with a project progress update.

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

Wastewater Monitoring for COVID-19: Biobot Analytics, Inc., OP-420, Amendment 1

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to Contract OP-420, Wastewater Monitoring for COVID-19, with Biobot Analytics, Inc., increasing the contract amount by an amount not to exceed $170,000, from $206,200 to $376,200, and extending the contract term 189 calendar days, from December 24, 2021 to July 1, 2022.

MWRA Director of Laboratory Services Steve Rhode made a presentation that described the need for the proposed amendment. He provided an overview of the monitoring program and the contract history. He then shared a slide that illustrated Biobot test results since the program began and pointed out trends in testing frequency and case counts.

Chair Theoharides commended Mr. Rhode and the Biobot team for putting the program into motion. She asked whether COVID-19 wastewater monitoring had begun before the Commonwealth's March, 2020 shutdown. Mr. Rhode explained that pre-shutdown wastewater samples were sent to Biobot for retroactive analysis in April 2020. Chair Theoharides inquired about recent fluctuations in detection levels. Mr. Rhode responded that the fluctuations were possibly due to the effect of very high rainfall on wastewater flows.

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

OMNIBUS ROLL CALL VOTE

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

Yes	No	Abstain
Theoharides		
Carroll		
Flanagan		
Foti		
Pappastergion		
Vitale		
P. Walsh		

Voted: to approve the minutes of the Board of Directors' meeting of July 21, 2021. (ref. I);

Further, voted: to postpone agenda item IV A.1 until the next Board meeting. (ref. IV A.1);

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

Further, voted: to approve the appointment of Mr. Robert McDonald to the position of Superintendent at the Clinton Advanced Wastewater Treatment Plant (Non-Union, Grade 14), at an annual salary of $133,000, commencing on a date to be determined by the Executive Director. (ref. V A.2);

Further, voted: to approve the appointment of Mr. Mark R. Johnson to the position of Manager, Transmission and Treatment, Western Operations (Non-Union, Grade 14) in the Operations Division at the recommended annual salary of $145,000 commencing on a date to be determined by the Executive Director. (ref. V A.3);

Further, voted: to approve the appointment of Mr. David Wu to the position of Senior Program Manager, Environmental Monitoring, (Unit 9, Grade 30) at an annual salary of $134,318.33, commencing on a date to be determined by the Executive Director. (ref. V A.4);

Further, voted: to approve the appointment of Mr. Stephen Feeley to the position of Materials Coordination Manager (Unit 6, Grade 12), in the Facility Management Program, at an annual salary of $101,651.86, commencing on a date to be determined by the Executive Director. (ref. V A.5);

Further, voted: to authorize the Executive Director or his designee, on behalf of the Authority, to enter into, execute and deliver all necessary agreements and other instruments and to take such other actions necessary to effectuate the redemption and defeasance of an aggregate principal amount of $11,375,000 of outstanding MWRA senior bonds including to cause the escrow of cash and/or securities in an amount necessary to fund such redemption and defeasance, in order to reduce the debt service requirement by $13,151,250 in the FY23 through FY26 timeframe. (ref. VI B.1); and,

Further, voted: to delegate to the Chair of the Board, the Board of Directors' authority to make determinations in response to ethics disclosures, made by the Executive Director, on behalf of the Board in accordance with 930 CMR Section 5.04(a) and to ratify past practice, with a copy of such determinations by the Chair provided to the Board of Directors in accordance with said regulation. (ref. VI B.2);

Further, voted: to approve the award of Purchase Order Contract WRA-4995 for the supply and delivery of ferric chloride to the Deer Island Treatment Plant to the lowest responsive bidder, Kemira Water Solutions, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $2,320,000 for a period of one year, from December 1, 2021 through November 30, 2022. (ref. VII A.1);

Further, voted: to approve the award of Purchase Order Contract WRA-4996 for the supply and delivery of sodium hypochlorite to the Deer Island Treatment Plant to the lowest responsive bidder, Borden & Remington Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $1,849,260.26 for a period of one year from November 17, 2021 through November 16, 2022. (ref. VII A.2);

Further, voted: to approve the award of Purchase Order Contract WRA-5002, a three-year contract for the supply, delivery and disposal of regenerated activated carbon for the Deer Island Treatment Plant, to the lowest responsive bidder, Carbon Activated Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $1,222,125 for a period of three years, from December 11, 2021 through December 10, 2024. (ref. VII A.3);

Further, voted: to rescind the approval granted on April 15, 2021, authorizing the award of Contract 7126 to Hazen and Sawyer, P.C. and the execution of said contract with Hazen and Sawyer, P.C. by the Executive Director; further, voted: to approve the recommendation of the Consultant Selection Committee to award Contract 7126, Deer Island Treatment Plant South System Pump Station Improvements – Preliminary Design, Final Design, Bidding, Engineering Services During Construction, and Resident Engineering/Inspection Services, to AECOM, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed $8,297,068.70, for a contract term of 80 months from the Notice to Proceed. (ref. VII A.4);

Further, voted: to approve the award of Contract 7462, Prison Point CSO Facility Improvements, to the lowest responsible and eligible bidder, Barletta Heavy Division, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid

amount of $39,479,000, for a contract term of 730 calendar days from the Notice to Proceed. (ref. VII A.5);

Further, voted: to authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract 6802, Chelsea Creek Headworks Upgrade – Resident Engineering/Resident Inspection Services, with CDM Smith Inc., to extend the contract term by six months, from August 5, 2021 to February 4, 2022, with no increase in the contract amount. (ref. VII B.1);

Further, voted: to authorize the Executive Director, on behalf of the Authority, to approve Change Order 6 to Contract 7548, Nut Island Headworks Odor Control and HVAC Improvements, with Walsh Construction Company II, LLC, for a not-to-exceed amount of $222,179.61, increasing the contract amount from $58,319,282.01, to $58,541,461.62, with no increase in contract term; further, voted: to authorize the Executive Director to approve additional change orders as may be needed to Contract 7548 in an amount not to exceed the aggregate of $250,000, in accordance with the Management Policies and Procedures of the Board of Directors. (ref. VII B.2); and

Further, voted: to authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to Contract OP-420, Wastewater Monitoring for COVID-19, with Biobot Analytics, Inc., increasing the contract amount by an amount not to exceed $170,000, from $206,200 to $376,200, and extending the contract term 189 calendar days, from December 24, 2021 to July 1, 2022. (ref. VII B.3)

OTHER BUSINESS

There was no Other Business.

EXECUTIVE SESSION

Chair Theoharides announced that the Board would enter Executive Session to discuss real estate and security since discussion in Open Session may have a detrimental effect upon the negotiating position and security of the Authority; and further that the Board would not return to Open Session and would adjourn the meeting from Executive Session.

A motion was duly made and seconded to enter Executive Session for these purposes, and to adjourn the meeting from Executive Session.

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

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

Yes	No	Abstain
Theoharides		

___

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

Yes	No	Abstain
Carroll		
Flanagan		
Foti		
Pappastergion		
Vitale		
P. Walsh		

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

*** EXECUTIVE SESSION ***

The meeting entered Executive Session at 2:43pm and adjourned at 3:18pm.

Approved: October 20, 2021

Attest: _____
Andrew M. Pappastergion, Secretary

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 Director
FROM: Frederick A Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: October PCR Amendments

COMMITTEE: Personnel and Compensation

____ INFORMATION
_X_ VOTE

Andrea Murphy, Director of Human Resources
Preparer/Title

Michele S. Gillen
Director, Administration

RECOMMENDATION:

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

DISCUSSION:

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

October PCR Amendments

There are fifteen PCR Amendments this month.

Organizational Changes:

1. Title change to one vacant position in the Administration Division, MIS Department from Application and System Development Manager, Non-Union Grade 14 to Business Applications Manager, Non-Union Grade 14 to align with job duties and industry terminology.
2. Title change to one vacant position in the Administration Division, MIS Department from Project Manager, MIS Unit 6 Grade 11 to Systems Administrator II, Unit 6 Grade 11 to better reflect job duties.
3. Title and grade change to one vacant position in the Operations Division, Engineering and Construction Department from Project Manager Unit 9 Grade 25 to Program Manager, Structural Engineering, Unit 9 Grade 29 to better meet staffing needs related to 8M permit reviews.

4. Title change to one filled position in the Operations Division, TRAC Department from Regional Manager Unit 9 Grade 29 to Program Manager, Inspection and Permitting, Unit 9 Grade 29 to better reflect job duties.
5. Grade change to one vacant and five filled positions in the Operations Division, Deer Island Thermal Unit from Second Class Engineer, Unit 3 Grade 20 to Second Class Engineer Unit 3 Grade 24 to better reflect level of responsibility and worker shortage.
6. Grade change to one vacant and three filled positions in the Operations Division, Deer Island Thermal Unit from Third Class Engineer, Unit 3 Grade 18 to Third Class Engineer Unit 3 Grade 20 to better reflect level of responsibility and worker shortage.
7. Grade change to one filled position in the Operations Division, Deer Island Thermal Unit from Manager, Power Generation Unit 6F Grade 12 to Manager, Power Generation Unit 6F Grade 12 to better reflect level of responsibility and worker shortage.

Thermal Power Plant Job Upgrades

The Deer Island Thermal/Power Plant provides critical plant-wide facility heat and supplemental electrical power for the operation of the Deer Island Treatment Plant. The total value of the green-energy derived from the operation of the boilers and steam generators is between $18 million and $26 million per year. Staffing is set up in five operating shifts to cover the plant's 24-7 operation. Each shift includes one Third-Class Engineer to operate equipment on the plant floor, and one Second-Class Engineer to operate the equipment from the control room while monitoring boiler emissions in compliance with Deer Island's Title V Air Permit. One licensed First-Class Engineer (Manager, Power Generation), is responsible for the overall operation of the facility as authorized by the Massachusetts Department of Public Safety (DPS). Over the last several years, it has been become increasingly difficult to hire individuals with the appropriate licenses to operate Deer Island's high-pressure steam boilers. A recent survey of DPS licensed Third-Class and Second-Class Engineers shows there are only roughly 550 licensed steam engineers throughout Massachusetts in each license category. This limited candidate pool creates a highly competitive environment for staffing with these licenses. As such, MWRA has found it extremely difficult to hire and retain engineers with the appropriate licenses to continue operating the plant at the current salary structure.

BUDGET/FISCAL IMPACT:

The annualized budget impact of these PCR amendments will be a maximum cost of $155,374. Staff will ensure that the cost increase associated with this PCR amendment will not result in spending over the approved FY22 Wages and Salaries budget.

ATTACHMENTS:

New Job Descriptions
Old Job Descriptions

MASSACHUSETTS WATER RESOURCES AUTHORITY
POSITION CONTROL REGISTER AMENDMENTS
FISCAL YEAR 2022

PCR AMENDMENTS REQUIRING BOARD APPROVAL - October 20, 2021

Number	Current PCR #	V/F	Type	Current Title	UN	GR	Amended Title	UN	GR	Current/Budget Salary	Estimated New Salary		Estimated Annual $ Impact		Reason For Amendment
B8	MIS Administration 8610033	V	T	Application and System Development Manager	NU	14	Business Applications Manager	NU	14	$150,353	$98,933 - $150,353		$0 - $0		To align with job duties and industry terminology.
B9	MIS Department Administration 8610002	V	T	Project Manager, MIS	6	11	Systems Administrator II	6	11	$106,647	$69,695 - $106,647		$0 - $0		To better reflect job duties.
B10	Engineering & Construction Operations 55250126	V	T,G	Project Manager	9	25	Program Manager, Structural Engineering	9	29	$110,569	$92,358 - $129,959		-$18,211 - $19,390		To better meet staffing needs related to 8M permit reviews.
B11	TRAC Operations 2210048	F	T	Regional Manager	9	29	Program Manager, Inspection and Permitting	9	29	$129,959	$129,959 - $129,959		$0 - $0		To better reflect job duties.
B12	Deer Island Thermal Operations 2931004	F	G	Second Class Engineer	3	20	Second Class Engineer	3	24	$91,397	$108,793 - $108,793		$17,396 - $17,396		To better reflect level of responsibility and worker shortage.
B13	Deer Island Thermal Operations 2931016	F	G	Second Class Engineer	3	20	Second Class Engineer	3	24	$91,397	$108,793 - $108,793		$17,396 - $17,396		To better reflect level of responsibility and worker shortage.
B14	Deer Island Thermal Operations 2931022	F	G	Second Class Engineer	3	20	Second Class Engineer	3	24	$91,397	$108,793 - $108,793		$17,396 - $17,396		To better reflect level of responsibility and worker shortage.
B15	Deer Island Thermal Operations 2931016	F	G	Second Class Engineer	3	20	Second Class Engineer	3	24	$91,397	$108,793 - $108,793		$17,396 - $17,396		To better reflect level of responsibility and worker shortage.
B16	Deer Island Thermal Operations 2931002	F	G	Second Class Engineer	3	20	Second Class Engineer	3	24	$72,934	$76,052 - $76,052		$3,118 - $3,118		To better reflect level of responsibility and worker shortage.
B17	Deer Island Thermal Operations 2931001	V	G	Second Class Engineer	3	20	Second Class Engineer	3	24	$91,397	$108,793 - $108,793		$17,396 - $17,396		To better reflect level of responsibility and worker shortage.
B18	Deer Island Thermal Operations 2931009	F	G	Third Class Engineer	3	18	Third Class Engineer	3	20	$83,409	$91,397 - $91,397		$7,988 - $7,988		To better reflect level of responsibility and worker shortage.
B19	Deer Island Thermal Operations 2931010	F	G	Third Class Engineer	3	18	Third Class Engineer	3	20	$83,409	$91,397 - $91,397		$7,988 - $7,988		To better reflect level of responsibility and worker shortage.
B20	Deer Island Thermal Operations 2931011	F	G	Third Class Engineer	3	18	Third Class Engineer	3	20	$83,409	$91,397 - $91,397		$7,988 - $7,988		To better reflect level of responsibility and worker shortage.
B21	Deer Island Thermal Operations 29310022	V	G	Third Class Engineer	3	18	Third Class Engineer	3	20	$83,409	$91,397 - $91,397		$7,988 - $7,988		To better reflect level of responsibility and worker shortage.
B22	Deer Island Thermal Operations 2931020	F	G	Manager, Power Generation	6F	12	Manager, Power Generation	6F	13	$116,768	$130,702 - $130,702		$13,934 - $13,934		To better reflect level of responsibility and worker shortage. *

BOARD TOTAL= 15 **TOTAL:** $117,773 - $155,374

MWRA
POSITION DESCRIPTION

OLD

POSITION: Application & System Development Manager

DIVISION: Administration

DEPARTMENT: Management Information Systems (MIS)

BASIC PURPOSE:

Plans, directs, and oversees the operations and fiscal health of the Application & System Development Section of the MIS department.

Responsible for all aspects of development and support for internally created or purchased application software, including: the development methodologies, technologies (language, databases, and support tools), development and testing environments, and management of the application development staff and project workload for the Authority.

Responsibilities also include planning and maintaining work systems, procedures, and policies that enable and encourage the optimum performance of the staff and other resources within the Application & System Development Section.

SUPERVISION RECEIVED:

Works under the general supervision of the MIS Director.

SUPERVISION EXERCISED:

Manages a group of IT Supervisors, professional, technical and administrative employees assigned to the Application & System Development Section.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

Provides oversight and direction to the employees in the Application & System Development Section, in accordance with the organization's policies and procedures. Identifies needed improvements to work practices and works with the Director of MIS and Labor Relations staff to bring about changes.

Manages the preparation and maintenance of reports necessary to carry out the functions of the section. Prepares periodic reports for management, as necessary or requested, to track strategic goal accomplishments.

Provides final recommendation on staffing levels. Works with Human Resources staff to recruit,

interview, select, hire, and employ an appropriate number of employees.

Mentors and develops staff, including overseeing new employee on-boarding and providing career development planning and opportunities. Encourages employees to take responsibility for their jobs and goals. Delegates responsibility as appropriate and expects accountability and regular feedback.

Fosters a spirit of teamwork that allows for disagreement over ideas, conflict and conflict resolution, as well as the appreciation of diversity. Communicates organizational information through department meetings, one-on-one meetings, and appropriate email, and regular interpersonal communication.

Leads employees using a performance management and development process that provides an overall context and framework to encourage employee contribution and includes goal setting, feedback, and performance development planning. Leads employees to meet the organization's expectations for productivity, quality, and goal accomplishment.

Maintains employee work schedules including assignments, job rotation, training, vacations and approved leaves. Provides coverage for absenteeism, and overtime scheduling as needed.

Assist in maintaining harmonious labor management relations through proper applications of collective bargaining agreement provisions and established personnel policies.

Prepare for and hears Step-One grievances and pre-disciplinary hearings.

Participate in collective bargaining negotiations.

Plans, assigns and directs the activities of professional and technical personnel involved in the design, development and systems analysis functions required to create new computer applications programs or install and implement software purchased from outside vendors.

Reviews and analyzes existing applications programs and programs in development to ensure efficiency and effectiveness of those programs; reviews requests for program changes required to meet needs of Authority departments required by the addition of new Authority programs and changes in regulations.

Assigns and reviews the design layout for programs required for special projects.

Troubleshoots software failures for systems to determine root causes and to implement solutions.

Reviews performance of application programs to ensure efficiency, documentation, and to ensure that output meets the needs of user departments.

Provides technical information required in the preparation of annual budget figures for the

Applications and System Development Section

Serves as backup to the Manager of IT Operation.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A four (4) year college degree program in a computer science, technical education or related field is required. Advance degree preferred; and

(B) Seven (7) to nine (9) years experience in product development and support, of which three (3) years must be in a supervisory capacity; or

(C) Any equivalent combination of education and/or experience.

Necessary Knowledge, Skills and Abilities:

(A) Excellent analytical and technical skills.

(B) Excellent written and verbal communication skills. Exceptional interpersonal skills in areas such as teamwork, facilitation and negotiation.

(C) Excellent planning and organizational skills.

(D) Strong leadership skills.

(E) Knowledge of all components of a technical architecture; understanding of network architecture, service oriented architecture and object-oriented analysis and design.

(F) Skill with CSS, HTML, one or more JavaScript frameworks, and AJAX, Microsoft's DOT.Net Framework

SPECIAL REQUIREMENTS:
A valid Massachusetts Class D Motor Vehicle Operators License.

ITIL Foundations Certification version 3 and at least two from the following list:

IPRC - ITIL Practitioner - Release and Control
MCSE - Microsoft Certified Solution Expert
MCSD - Microsoft Certified Solution Developer
CISM - Certified Information Security Manager
CISSP - Certified Information Systems Security Professional
VCP5-DCV: VMware Certified Professional
PMP - Project Management Professional
CCP - Citrix Certified Professional
Or the ability to obtain within one year.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk and stand.

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

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee works in an office environment. The noise level in the work environment is a moderately quiet office setting.

May 2015

MWRA
POSITION DESCRIPTION

NEW

POSITION: Business Applications Manager

DIVISION: Administration

DEPARTMENT: Management Information Systems (MIS)

BASIC PURPOSE:

Responsible for overseeing the administration of third party and custom-developed Line of Business applications. Ensures that business applications comply with company security policies and meet business goals. Oversees establishment and adherence to protocols and procedures for the administration and support of applications. Leads a team of IT professionals and manages budget and human resources for the Application and Systems Development team.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, MIS.

SUPERVISION EXERCISED:

Manages IT Supervisors, professional, and technical employees.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Develops rollout/release plans for both new applications and upgrades to existing applications.
- Develops feasibility studies and proposals for senior management.
- Develops criteria to evaluate third party vendors and applications.
- Manages all aspects of implementation planning and coordination.
- Adheres to agreed upon service levels (i.e. project schedules, system availability, etc.)
- Sets technical direction for business applications and maintenance initiatives.
- Identifies emerging trends/best practices and ensures proposed solutions optimize business operations and meet Authority goals.

- Develops detailed plans and accurate estimates for the design, build, and implementation of IT projects.

- Manages all aspects of development and support for internally created or purchased application software, including: the development methodologies, technologies (language, databases, and support tools), development and testing environments, and management of the application development staff and project workload for the Authority.

- Plans and maintains work systems, procedures, and policies that enable and encourage the optimum performance of the staff and other resources within the Application & System Development section.

- Troubleshoots software failures for systems to determine root causes and to implement solutions.

- Reviews performance of application programs to ensure efficiency, documentation, and to ensure that output meets the needs of user departments.

- Manages the budgetary functions for the Business Applications team. Provides technical information required in the preparation of annual budget figures for the Applications and System Development Section

- Provides oversight and direction to the employees in the Applications & System Development Section, in accordance with the organization's policies and procedures. Identifies needed improvements to work practices and works with the Director of MIS and Labor Relations staff to bring about changes.

- Manages the preparation and maintenance of reports necessary to carry out the functions of the section. Prepares periodic reports for management, as necessary or requested, to track strategic goal accomplishments.

- Provides recommendation on staffing levels. Works with Human Resources staff to recruit, interview, select, hire, and employ an appropriate number of employees.

- Mentors and develops staff, including overseeing new employee on-boarding and providing career development planning and opportunities. Encourages employees to take responsibility for their jobs and goals. Delegates responsibility as appropriate and expects accountability and regular feedback.

- Manages the Department in a manner that is consistent with MWRA's goals of Diversity, Equity, and Inclusion.

- Fosters a spirit of teamwork that allows for disagreement over ideas, conflict resolution, as well as the appreciation of diversity. Communicates organizational information

through department meetings, one-on-one meetings, and appropriate email, and regular interpersonal communication.

- Leads employees using a performance management and development process that provides an overall context and framework to encourage employee contribution and includes goal setting, feedback, and performance development planning. Leads employees to meet the organization's expectations for productivity, quality, and goal accomplishment.

- Maintains employee work schedules including assignments, job rotation, training, vacations and approved leaves. Ensures coverage for absenteeism, and overtime scheduling as needed.

- Assist in maintaining harmonious labor management relations through proper applications of collective bargaining agreement provisions and established personnel policies.

- Prepare for and hears Step-One grievances and pre-disciplinary hearings.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A Bachelor's degree in computer science, technical education, or related field is required. Advanced degree preferred; and

(B) Seven (7) to nine (9) years of experience in application support, product development, and IT support, of which three (3) years must be in a supervisory capacity; or

(C) Any equivalent combination of education and/or experience.

Necessary Knowledge, Skills and Abilities:

(A) Excellent analytical and technical skills.

(B) Effective communicator both verbally and in writing. Exceptional interpersonal skills in areas such as teamwork, facilitation and negotiation.

(C) Knowledge of formal Project Management methods.

(D) Strong leadership skills.

(E) Demonstrated skill in developing automated business systems.

(F) Knowledge of all components of a technical architecture; understanding of network architecture, service oriented architecture and object-oriented analysis and design.

(G) Skill with CSS, HTML, one or more JavaScript frameworks, and AJAX, Python, C# and Microsoft's .Net Framework and/or current industry standard development tools.

SPECIAL REQUIREMENTS:

- A valid Massachusetts Class D Motor Vehicle Operators License.
- May be required to be on call or provide after hours or weekend coverage in case of an emergency.
- ITIL Foundations Certification version 3.

At least two certifications from the following list or the ability to obtain within one year.

- IPRC - ITIL Practitioner - Release and Control
- MCSE - Microsoft Certified Solution Expert
- MCSD - Microsoft Certified Solution Developer
- PMP - Project Management Professional
- MPM – Master Project Management
- IBM Certified Infrastructure Deployment Professional – Maximo Asset Management v7.6
- Infor Professional Certification

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk and stand.

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

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee works in an office environment. The noise level in the work environment is a moderately quiet office setting.

October 2021

MWRA
POSITION DESCRIPTION

OLD

POSITION: Project Manager, MIS

DIVISION: Administration & Finance

DEPARTMENT: MIS

BASIC PURPOSE:

Provides technical assistance with patching and support of MWRA's Oracle environment.

SUPERVISION RECEIVED:

Works under the general supervision of the Program Manager, MIS Oracle.

SUPERVISION EXERCISED:

None.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Continues to provide OpenVMS system support until minicomputers are retired.
- Assists with hardware and operating system support of servers under the Data Resources Management Group (DRM) as needed.
- As assigned, monitors DRM server assets; runs reports, looks at CPU, I/O, disk, etc. and makes recommendations for optimization, tuning, action, etc. as appropriate.
- Participates in the testing of various vendor OS patches for DRM servers as needed.
- Participates in MIS Security Taskforce meetings as needed.
- Learns fundamental Linux Operating System commands for production support.
- Troubleshoots production issues as needed.
- Learns introductory Oracle DBMS requirements (Oracle's Associate Level program) to assist with fundamental Oracle production support.

- As assigned, assists with end-user testing of Oracle upgrades.
- Conducts product research as needed.
- Maintains documentation of all assigned activities, including monitoring, test plans, OS patches, etc.

SECONDARY DUTIES:

Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience

(A) A four (4) year college program in computer science or related field.

(B) Six (6) to eight (8) years of experience in technical support in a large customer/user support environment that uses Oracle; or

(C) Any equivalent combination of education and/or experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of information system design and programming.

(B) Demonstrated ability to troubleshoot, diagnose and resolve operating system, hardware, software and peripheral device problems.

(C) Technical knowledge of and demonstrated experience with one ore more operating systems including UNIX, OpenVMS, MPE/XL, Microsoft, etc.

(D) Demonstrated experience in project management techniques and the ability to establish effective relationships with users.

(E) Excellent analytical, interpersonal, written and oral communication skills are required.

SPECIAL REQUIREMENTS:

None.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk; stand; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision and color vision, and the ability to adjust focus.

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee occasionally works in various field settings and in an office environment.

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

Jan 2007

MWRA
POSITION DESCRIPTION

NEW

POSITION: Systems Administrator II

DIVISION: Administration

DEPARTMENT: MIS

BASIC PURPOSE:

Responsible for installing, configuring and maintaining operating systems, workstations, and servers. Schedules and performs software installations and upgrades to operating systems and layered software packages. Monitors and tunes systems to achieve optimum performance levels. Evaluates, implements and manages software/hardware solutions to ensure workstation/server data integrity, storage and retrieval. Develops and communicates standard operating procedures. Incorporates long-term system, operations and administration requirements in information systems planning documents.

SUPERVISION RECEIVED:

Works under the general supervision of the Section Manager. On specific IT projects may be supervised by a team lead or project manager.

SUPERVISION EXERCISED:

None

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- System Administration:
  - Servers
    - Supports and performs system management functions for all assigned systems supporting MWRA data processing environments.
    - Development of scripts to perform administrative tasks.
  - Storage
    - Responsible for support of current storage and backup systems
    - Develops and implements backup scripts and jobs for all MWRA systems
    - Conducts backups for current operating environments. Maintains onsite backup records and logs. Restores files and file systems as needed.
  - Applications:
    - Provides application administration and technical support for MWRA's email and mobile device systems.

- Participates and prepares for Disaster Recovery planning and test activities.

- Incident and Problem Management
  - Respond to events, and reported outages to correct and resolve issues
  - Investigate root cause and determine systemic solutions for identified environment problems

- System Documentation:
  - Documents operating procedures to conform to MWRA standards
  - Develops capacity management reports for capacity planning efforts
  - Documents system configurations for networks, servers and storage environments

- System Performance Monitoring, Management and Design
  - Keeps abreast of the latest technologies and solutions, and provides expertise to the MIS Management Team in evaluating and selecting appropriate solutions.
  - Monitors networks, servers and storage for event management and coloration

OTHER DUTIES:

- Shares in on-call rotation and emergency response tasks as needed.
- Participates in occasional off-site travel, extended hours and weekend work.
- Perform related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience

(A) A four (4) year college program in management science, engineering management, computer science or related fields; and

(B) Three (3) to five (5) years' experience, in network and systems management, or;

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Experience with Backup technology, and entire range of functionality and configuration. Experience with one or more of Backup products, such as Data Protector, Backupexec, Netbackup and or Networker, as well as SDLT and LTO tape libraries.

(B) Experience with Network Storage, SAN environment, HP Command View interface, virtualized environment and vSphere ESX/ESXi.

(C) Technical knowledge and experience with large networks, network switching and routing protocols, LANs, WANs, VoIP, TCP/IP Protocol, and Cisco Networking products.

(D) Experience with MS Windows OS, Active Directory including Group Policy, Kerberos, and LDAP,

(E) Knowledge of Unix operating systems, VI editor, and shell scripts. HP-UX Itanium experience is preferred.

(F) Understanding of Building Automation and Control systems and associated set point control, HVAC, Fire Alarm, and UPS systems as applied to the Environmental Alarm System.

(G) Excellent technical project management, interpersonal, written and oral communication skills are required.

SPECIAL REQUIREMENTS:

Information Technology Infrastructure Library (ITIL) Foundation Certification or the ability to obtain within 6 months.

And at least one of the following certifications within one year:

- Microsoft Certified Solutions Engineer (MCSE)
- SQL Data Management and Analytics
- VMware Data Center Virtualization Certifications: VCAP – Data Center one of the current storage infrastructure certification (e.g. HP, NetApp or EMC).

TOOLS AND EQUIPMENT USED:

Mini-computer consoles, tape and disk storage systems, various network and peripheral devices and office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee works is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk; stand; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision and color vision, and the ability to adjust focus.

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee works in a computer center, network closets and occasionally works in various field settings. The employee regularly works near moving mechanical parts, and is occasionally exposed to risk of vibration and electromagnetic radiation. The employee is occasionally exposed to risk of electrical shock. The Computer Center also uses automatically discharging chemicals to suppress fire.

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

September 2017

MWRA
POSITION DESCRIPTION

OLD

POSITION: Project Manager

DIVISION: Operations

DEPARTMENT: Engineering and Construction

BASIC PURPOSE:

Manages professional engineering and design projects related to the rehabilitation and capital improvement of waterworks and wastewater facilities and infrastructure.

SUPERVISION RECEIVED:

Works under the general supervision of a Program Manager or Sr. Program Manager / Engineering and Construction.

SUPERVISION EXERCISED:

Exercises close supervision over a small staff of professional employees.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages the planning and design phases of assigned rehabilitation and capital engineering projects including detailed plans, work schedules, technical assistance, progress and evaluation.

- Supervises and performs professional engineering work of substantial difficulty and importance, including the preparation of reports and contract plans and specifications, requiring the exercising of independent engineering judgment.

- Manages all phases of consultant selection and supervision of professional engineering consultant contracts including the development of scope of services, plans and specifications, costs estimates, work schedules, negotiations and preparation of contracts award recommendations. Ensures compliance with contract budgets, schedules, and terms.

- Supervises and manages junior professional staff, including assignment of tasks and evaluation of performance. Provides technical assistance to staff in the development and performance of projects including designs for waterworks and wastewater projects.

- Initiates new projects and prepares capital or current expense budget requests as required.

- Coordinates projects with communities, external public interest groups, government agencies, and other MWRA departments. Provides technical information and assistance. May address professional and community groups and initiate outreach projects.

- Drafts documents to secure grants and permits from various federal, state and local agencies.

- Provides construction administration services during construction, including review of shop drawings, review of proposed change orders, provide interpretations and clarifications on contract documents, attend monthly progress meetings, receive and review draft redlined drawings, record drawings, and detail records and all other services necessary to support the Construction Department.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Completion of a four (4) year college program in civil engineering or related field; and

(B) Five (5) to seven (7) years experience in facilities planning, design, construction, maintenance and operations of waterworks and wastewater systems and facilities of which two (2) years must be in a supervisory capacity; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Demonstrated ability to work effectively as part of an engineering team and also to function independently, with minimal supervision.

(B) Knowledge of local, state and federal regulations as applicable to the planning, design and construction of pump stations, interceptors, and water lines.

(C) Knowledge of Massachusetts bidding laws including M.G.L. Chapter 30 and Chapter 149 construction bidding regulations.

(D) Familiarity with computer software packages such as Word and Excel

(E) Excellent interpersonal, managerial, oral and written communication skills are required.

SPECIAL REQUIREMENTS:

A valid Massachusetts Motor Vehicle Operators License.

Registered Professional Engineer in Massachusetts is preferred.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computer including word processing and other software, copy and fax machine.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to sit and to use hands to finger, handle, feel or operate objects, tools or controls. The employee frequently is required to talk or hear. The employee is occasionally required to stand, walk, and reach with hands and arms.

The employee must occasionally lift and/or move up to 10 pounds. No specific visual abilities are required by this job.

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee is not exposed to any unusual environmental conditions.

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

January 2019

MWRA
POSITION DESCRIPTION

NEW

POSITION: Program Manager, Structural Engineering

DIVISION: Operations

DEPARTMENT: Engineering - Chelsea

BASIC PURPOSE:

Provides structural engineering support to operation and maintenance departments, and manages engineering responses to 8(m) permit applications. Supervises project teams in the department to oversee professional engineering and design projects related to the rehabilitation and capital improvement of waterworks and wastewater facilities and infrastructure from conceptual planning through design and construction. Additionally, manages engineering and design projects related to the rehabilitation and capital improvement of water and wastewater facilities and infrastructure.

SUPERVISION RECEIVED:

Works under the general supervision of a Senior Program Manager.

SUPERVISION EXERCISED:

Supervises Senior Staff Engineer, Structural. Supervises operations and maintenance staff on a project basis as needed.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages and prepares responses to 8(m) permit applications prepared by property owners and/or consultants. Provides structural review, comments, and approval for 8(m) permits. Oversees and reviews data and conducts site inspections to monitor conditions of infrastructure during construction work.

- Performs design, engineering and construction support of in-house projects involving repair/replace/modification activities, layout changes for shops, laboratories, offices and warehouses, lighting systems, and power distribution, including substation & power generation equipment.

- Develops preliminary designs and detailed designs and prepares plans and specifications for proposed structural modifications/replacement and construction projects.

- Oversees installation, operation, maintenance and repair of complex structures, systems, and equipment.

- Oversees the preparation of plans and specifications for vendor contracts for proposed structural modifications.

- Oversees reviews of and modifications to all operations and maintenance documentation with respect to structural design changes.

- Assists the Operations staff with engineering resolution and recommendations to structural engineering problems, which arise during normal operations.

- Assists the maintenance staff with complex work orders and with the development of contract maintenance contracts.

- Provides on-site engineering inspection of construction projects generated by the in-house engineering staff and outside consultants.

- Develops and maintains files and is familiar with all codes, code amendments, code cases, and industry standards applicable to the structural field. Ensures compliance of specifications to rehabilitate or construct MWRA structures and facilities with these codes and standards.

- Performs periodic inspections to ensure facility-wide compliance with local and national structural codes and other rules of safe structural practices are enforced.

- Reviews structural and related portions of design plans by outside firms who have been hired to design improvements or additions to facilities and infrastructure.

- Develops scope of services, assists with procurement, and manages the services of engineering consultants as required.

- Supervises the updating of structural engineering drawings and records, and the subsequent coordination (in accordance with established procedures) to ensure facility and equipment records are current.

- Provides oral and written reports to management detailing results of problem investigations, proposed resolution, and economic justification for the proposed changes.
- Evaluates assigned employees performance according to MWRA procedures.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Knowledge of principles and practices of structural engineering as attained through a Bachelor's degree in civil engineering, structural engineering or related field; and

(B) Demonstrated knowledge of water and wastewater treatment plant, pump station, and pipeline design and construction as normally acquired through seven (7) to nine (9) years of related structural engineering experience including at least three (3) years supervisory or project management experience; and

(C) Experience with a complex processing facility and water or wastewater treatment operations and utility systems are desirable; or

(D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of structural engineering work related to water and wastewater infrastructure and facilities design.

(B) Knowledge of Microsoft Office Suite, project management and GDS, CADD and AutoCAD desired.

(C) Knowledge of Massachusetts bidding laws, including M.G.L Chapter 30, Chapter 149, and Chapter 25A construction bidding regulations.

(D) Clear understanding of codes and standards such as ACI, AISC, PCI, BOCA, AASHTO, OSHA, Massachusetts State Building and Highway codes, and ASCE .

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

SPECIAL REQUIREMENTS:
A valid Massachusetts Class D Driver's License required.

Massachusetts license as a Registered Professional Engineer (P.E.) is preferred.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computer including word processing and other software, copy and fax machine.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

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

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

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee occasionally works in outside weather conditions. The employee occasionally works near moving mechanical parts, and is occasionally exposed to wet and/or humid conditions and vibration. The employee occasionally works in high precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals and risk of electrical shock. The noise level in the work environment is usually loud in field settings and moderately quiet in an office setting.

October 2021

MWRA
POSITION DESCRIPTION

OLD

POSITION: Regional Manager

DIVISION: Operations

DEPARTMENT: TRAC

BASIC PURPOSE:

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

SUPERVISION RECEIVED:

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

SUPERVISION EXERCISED:

Supervises assigned inspection, permitting or monitoring staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

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

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

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

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

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

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

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

Inspection Program

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

Monitoring Program

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

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

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

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

SECONDARY DUTIES:

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

- Participates actively in TRAC multi-disciplinary work groups.

- Drafts reports, memoranda, and other documents.

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

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

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

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

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

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

(C) Ability to plan and implement programs.

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

(E) Strong written and oral communication skills.

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

SPECIAL REQUIREMENTS:

Massachusetts Class D Motor Vehicle Operators License.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of the job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the essential functions the employee is regularly required to use hands to finger, handle, feel or operate objects, including office equipment, or controls and reach with hands and arms. The employee frequently is required to sit, and talk or hear. The employee is occasionally required to stand, and walk.

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

WORK ENVIRONMENT:

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. While performing the duties of this job, the employee regularly works in an office environment.

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

October 2012

MWRA
POSITION DESCRIPTION

NEW

POSITION: Program Manager, Inspection & Permitting

DIVISION: Operations

DEPARTMENT: TRAC

BASIC PURPOSE:

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

SUPERVISION RECEIVED:

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

SUPERVISION EXERCISED:

Supervises assigned inspection and permitting staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Provides overall direction to inspection staff concerning the implementation of local limits, planning, and database preparation to meet regulatory requirements.

- Reviews and evaluates monitoring reports, engineering reports, pretreatment proposals and associated technical information, inspection reports, permit applications, and permits and recommends appropriate standards and follow-up actions.

- Develops and implements training programs for staff personnel in inspections and permitting procedures, state-of-the-art waste treatment applications and Federal, State and local regulations.

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

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

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

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

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

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

- Coordinates (as required) TRAC staff preparation and response to emergency spills/releases into sewer system and participates in development and implementation of emergency response policy.

- Participates in development and implementation of TRAC policies and procedures.

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

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

SECONDARY DUTIES:

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

- Participates actively in TRAC multi-disciplinary work groups.

- Drafts reports, memoranda, and other documents.

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

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

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

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

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

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

(C) Ability to plan and implement programs.

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

(E) Strong written and oral communication skills.

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

SPECIAL REQUIREMENTS:

Massachusetts Class D Motor Vehicle Operators License.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of the job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the essential functions the employee is regularly required to use hands to finger, handle, feel or operate objects, including office equipment, or controls and reach with hands and arms. The employee frequently is required to sit, and talk or hear. The employee is occasionally required to stand, and walk.

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

WORK ENVIRONMENT:

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. While performing the duties of this job, the employee regularly works in an office environment.

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

August 2021

MWRA
POSITION DESCRIPTION

OLD

POSITION: Second Class Engineer

DIVISION: Operations

DEPARTMENT: Thermal

BASIC PURPOSE:

Under the direction of the Manager, Power Generation, responsible for supervision of watch personnel. Coordinate set up, operation, adjustment and maintenance of Thermal Power Plant equipment as necessary to maintain required supply to heat and electrical power.

SUPERVISION RECEIVED:

Works under the general supervision of the Manager, Power Generation.

SUPERVISION EXERCISED:

Exercises close supervision of assigned staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Supervises assigned shift of Thermal/Power Plant personnel in the proper operation of all Thermal/Power Plant equipment: high pressure boilers, steam topping turbine, combustion turbine generators, fuel oil and waste gas supply systems, pumps, blowers, compressors, water treatment cooling and heating systems, electrical distribution, instrumentation systems, burner management systems, central control systems, hydroturbines,

- Implements the standard operating procedures (SOPs) for the Thermal/Power Plant and the electrical distribution system.

- Is responsible for casualty control training of assigned personnel.

- Coordinates plant operation with contract personnel

- Inspects engineering plant machinery and operation to determine efficiency and need for maintenance requirements.

- Supervises the lubrication of equipment and machinery.

- Communicates with other Thermal/Plant supervisors on the Thermal/Power Plant Operations.
- Oversees equipment for Lock Out/Tag Out in the Thermal/Power Plant.
- Ensures operating logs and records are properly maintained.
- Ensures that safety policies are being followed and work environment is safe.
- Write the performance reviews of subordinates as per the MWRA evaluation system.
- Monitors the chemicals and fuel oil consumption and reorders as needed.
- Submits maintenance requests using the MAXIMO system
- Performs, as directed, scheduled Preventive Maintenance and minor Corrective Maintenance as required.
- Performs light maintenance independently or as part of a team. Light maintenance shall include but not limited to:
- Inspects and troubleshoots various systems and equipment.
- Installs and retrofits/new equipment related to plant systems.
- Modifies and/or aligns existing equipment to specifications.
- With proper training sets up ladders, staging and rigging and utilizes hoists, jacks, dollies, lifts, etc. for proper access to job and to remove and install equipment.
- Operates portable pumping and/or ventilation equipment to prepare work area for access.
- Opens hatches.
- Installs safety rails.
- Removes snow from immediate work area.
- Routine testing, lockout/tagout, operations (startup/shutdown) and adjustment of process equipment.

SECONDARY DUTIES:

- Performs other related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Basic technical and communication skills as normally attained through a high school education or the equivalent; and

(B) Four (4) to six (6) years of experience in the principles of operation of the Thermal/Power plant equipment, high pressure boilers, topping turbines and related auxiliary equipment, of which two (2) year must be in a supervisory capacity; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of operation of generating equipment, plant heating, electrical distribution systems, combustion turbine generators, and hydroturbines.

(B) Ability to plan, organize, direct, train and assign duties to subordinates.

(C) Ability to understand responsibility and work with minimal supervision.

(D) Extensive knowledge of safety practices and application in the Steam Engineering and Wastewater facilities.

(E) Ability to work as a team to support the goals of the Deer Island Facility.

SPECIAL REQUIREMENTS:

- A valid Massachusetts Second Class Engineer's License.

- Complete productivity improvement competency-based training program related to **ESSENTIAL DUTIES AND RESPONSIBILITIES** as outlined above and successfully demonstrates required competencies.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

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

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

WORK ENVIRONMENT:

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

The employee regularly works near moving mechanical parts. The employee occasionally works in precarious places and is occasionally exposed to fumes or airborne particles.

The noise level in the work environment is moderately loud at work locations.

October 2016

MWRA
POSITION DESCRIPTION

NEW

POSITION: Second Class Engineer (Thermal/Power Plant)

DIVISION: Operations

DEPARTMENT: Thermal

BASIC PURPOSE:

Under the direction of the Manager, Power Generation, responsible for supervision of Third Class Engineer watch personnel. Coordinates set up, operation, adjustment and maintenance of Thermal Power Plant equipment as necessary to maintain critical required supply to heat and electrical power. Trains and mentors Third Class Engineers who are preparing to become Second Class Engineers.

SUPERVISION RECEIVED:

Works under the general supervision of the Manager, Power Generation.

SUPERVISION EXERCISED:

Exercises close supervision of assigned Third Class Engineer staff. Provides supervision to outside contractors providing maintenance services.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Supervises assigned shift of Thermal/Power Plant personnel in the proper operation of all Thermal/Power Plant equipment in accordance with M.G.L. Chapter 146: high pressure boilers, steam topping turbine, combustion turbine generators, fuel oil and waste gas supply systems, pumps, blowers, compressors, water treatment cooling and heating systems, electrical distribution, instrumentation systems, burner management systems, central control systems, hydroturbines.

- Works closely with Third Class Engineer/Second Class Engineer-in-Training. Provides mentoring, coaching, and training to help prepare Third Class Engineer to be prepared to acquire Second Class Engineer License.

- Operates the boilers, turbines, and other plant equipment from the plant control room using a DCS (Distributed Control System).

- Implements the standard operating procedures (SOPs) for the Thermal/Power Plant and

the electrical distribution system.

- Is responsible for casualty control training of assigned personnel.
- Coordinates plant operation with contract personnel
- Inspects engineering plant machinery and operation to determine efficiency and need for maintenance requirements.
- Supervises the lubrication of equipment and machinery.
- Communicates with other Thermal/Power Plant supervisors on the Thermal/Power Plant Operations.
- Oversees equipment for Lock Out/Tag Out in the Thermal/Power Plant.
- Ensures operating logs and records are properly maintained.
- Ensures that safety policies are being followed and work environment is safe.
- Writes the performance reviews of subordinates as per the MWRA evaluation system.
- Attends all Toolbox Talks to ensure safety.
- Monitors the chemicals and fuel oil consumption and reorders as needed.
- Submits maintenance requests using the MAXIMO system
- Ensures the completion of scheduled Preventive Maintenance and minor Corrective Maintenance including all shift, daily, weekly and monthly checks as required.
- Performs light maintenance independently or as part of a team. Light maintenance shall include but not limited to:
    - Inspects and troubleshoots various systems and equipment.
    - Installs and retrofits/new equipment related to plant systems.
    - Modifies and/or aligns existing equipment to specifications.
    - With proper training sets up ladders, staging and rigging and utilizes hoists, jacks, dollies, lifts, etc. for proper access to job and to remove and install equipment.

- Operates portable pumping and/or ventilation equipment to prepare work area for access.
- Opens hatches.
- Installs safety rails.
- Removes snow from immediate work area.
- Routine testing, lockout/tagout, operations (startup/shutdown) and adjustment of process equipment.

SECONDARY DUTIES:

- Performs other related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Basic technical and communication skills as normally attained through a high school education or the equivalent. Trade School or vocational training preferred; and

(B) Four (4) to six (6) years of experience in the principles of operation of the Thermal/Power plant equipment, high pressure boilers, topping turbines and related auxiliary equipment, of which two (2) year must be in a supervisory capacity; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of operation of generating equipment, plant heating, electrical distribution systems, combustion turbine generators, and hydroturbines.

(B) Ability to plan, organize, direct, train and assign duties to subordinates.

(C) Ability to understand responsibility and work with minimal supervision.

(D) Extensive knowledge of safety practices and application in the Steam Engineering and Wastewater facilities.

(E) Ability to operate a steam plant from a central control room using a DCS (Distributed Control System) or similar type of control system.

(F) Ability to work as a team to support the goals of the Deer Island Facility.

SPECIAL REQUIREMENTS:

- Required to respond to emergencies and provide overtime shift coverage as required.
- A valid Massachusetts Second Class Engineer's License.
- Complete productivity improvement competency-based training program related to **ESSENTIAL DUTIES AND RESPONSIBILITIES** as outlined above and successfully demonstrates required competencies.
- Annual completion of the following training: Right to Know, Confined Space Entry Refresher, Hazard Communications, and other OSHA training as required.
- Completion of Adult CPR/AED/First Aid Training every two years.
- Completion of MWRA Supervisory Training Program

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

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

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

WORK ENVIRONMENT:

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

The employee regularly works near moving mechanical parts. The employee occasionally works in precarious places and is regularly exposed to fumes or airborne particles.

The noise level in the work environment is moderately loud at work locations.

October 2021

MWRA
POSITION DESCRIPTION

OLD

POSITION: Third Class Engineer

DIVISION: Operations

DEPARTMENT: Thermal

BASIC PURPOSE:

Under the direction of the Thermal/Power Plant Chief Engineer, operates, adjusts and maintains Thermal Power equipment, as necessary to maintain required supply of heat and electrical power.

SUPERVISION RECEIVED:

Works under the general supervision of the Thermal/Power Plant Second Class Engineer.

SUPERVISION EXERCISED:

None.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Performs the proper operation of all Thermal/Power Plant equipment high pressure boilers, steam topping turbine, combustion turbine generators, fuel oil and waste gas supply systems, diesel generators, pumps, blowers, compressors, water treatment cooling and heating systems, electrical distribution, instrumentation systems, hydroturbines, and burner management systems.

- Performs standard operating procedures (SOPs) for the Thermal/Power Plant and the electrical distribution system.

- Performs casualty control training as required.

- Inspects engineering plant machinery and operation to determine efficiency and need for maintenance requirements.

- Lubricates equipment and machinery.

- Communicates with other Thermal/Plant personnel on the Thermal/Power Plant Operations.

- Adheres and knows Lockout/Tagout procedures for equipment in the Thermal/Power Plant.

- Maintains operating logs and records properly.

- Contributes to a safe working environment and follows safety policies.

- Monitors gauges, meters and recording devices and makes adjustments to maintain specified pressures and temperature, flows, amperage, voltage and power.

- Makes ordinary repairs such as replacing gaskets, re-packing pumps, cleaning, scraping and washing out water boxes. Assists in making minor repairs to auxiliary equipment.

- Monitors steam, combustion, and hydro turbines, boilers, feed and circulating pumps, diesel engines, compressors, digester gas systems, digital control systems, etc., controls steam water/oil flows as required.

- Collects water, steam, oil, and gas samples and tests to determine quality. Records results and reports abnormalities to 2nd Class Engineer.

- Maintains a clean and orderly work area.

- Directs all chemical and fuel deliveries/ordering as required.

- Prepares injury and illness reports, safety work orders and maintenance work order requests as necessary.

- Performs light maintenance independently or as part of a team. Light maintenance shall include but not limited to:

    - Operation of forklift or other light equipment that does not require a special license.

    - Generates inspection lists and maintenance reporting through the Computerized Maintenance Management System.

    - Inspects and troubleshoots various systems and equipment

    - Installs and retrofits/new equipment related to plant systems.

    - Modifies and/or aligns existing equipment to specifications.

    - With proper training sets up ladders, staging and rigging and utilizes hoists, jacks, dollies, lifts, etc. for proper access to job and to remove and install equipment.

- Operates portable pumping, ventilation and other equipment necessary to support and accomplish assigned tasks.

- Greases and lubricates, replaces oil reserves, minor packing adjustments and opens hatches.

- Installs safety rails, changes light bulbs and replaces HVAC filters.
- Conducts routine testing, lockout/tagout, operation (startup/shutdown) and adjustment of process equipment.
- Removes snow from immediate work area in order to perform tasks.
- Performs necessary cleanup and housekeeping for work area and other light maintenance tasks.

SECONDARY DUTIES:

- Performs other related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Basic technical and communication skills as normally attained through a high school education or the equivalent; and

(B) Three (3) to five (5) years of experience in the operation of Thermal/Power Plant equipment, high pressure boilers, topping turbines and related auxiliary equipment; or

(D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of operation of generating equipment, plant heating, large diesel-fuel engines and electrical distribution systems.

(B) Ability to plan, organize and perform assigned duties independently.

(C) Ability to understand responsibility and work with minimal supervision.

(D) Extensive knowledge of safety practices and application in Steam Engineering and Wastewater Facilities.

(E) Ability to work as a team to support the goals of Deer Island Facility.

SPECIAL REQUIREMENTS:

- A valid Massachusetts Third Class Engineer's License.
- Complete productivity improvement competency-based training program related to **ESSENTIAL DUTIES AND RESPONSIBILITIES** as outlined above and successfully demonstrates required competencies.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

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

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

WORK ENVIRONMENT:

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

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

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

November 2016

MWRA
POSITION DESCRIPTION

NEW

POSITION: Third Class Engineer (Thermal/Power Plant)

DIVISION: Operations

DEPARTMENT: Thermal

BASIC PURPOSE:

Under the direction of the Second Class Engineer (Thermal/Power Plant), operates, adjusts and maintains complex Thermal Power equipment, critical to maintain required supply of heat and electrical power.

SUPERVISION RECEIVED:

Works under the general supervision of the Second Class Engineer (Thermal/Power Plant). May receive some direction from Manager, Power Generation.

SUPERVISION EXERCISED:

None. Provides oversight to interns. Works closely with and provides general direction to outside contractors.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Performs the proper operation of all Thermal/Power Plant equipment in accordance with M.G.L. Chapter 146: high pressure boilers, steam topping turbine, combustion turbine generators, fuel oil and waste gas supply systems, diesel generators, pumps, blowers, compressors, water treatment cooling and heating systems, electrical distribution, instrumentation systems, hydroturbines, and burner management systems.

- Performs standard operating procedures (SOPs) for the Thermal/Power Plant and the electrical distribution system.

- Performs casualty control training as required.

- Inspects engineering plant machinery and operation to determine efficiency and need for maintenance requirements.

- Lubricates equipment and machinery.

- Communicates with other Thermal/Plant personnel on the Thermal/Power Plant Operations.

- Understands and complies with Lockout/Tagout procedures for equipment in the

Thermal/Power Plant.

- Works with contractors and vendors to support plant maintenance as required.
- Attends all Toolbox Talks to ensure safety.
- Maintains operating logs and records properly.
- Contributes to a safe working environment and follows safety policies.
- Monitors gauges, meters and recording devices and makes adjustments to maintain specified pressures and temperature, flows, amperage, voltage and power.
- Makes routine repairs such as replacing gaskets, re-packing pumps, cleaning, scraping and washing out water boxes. Assists in making minor repairs to auxiliary equipment.
- Monitors steam, combustion, and hydro turbines, boilers, feed and circulating pumps, diesel engines, compressors, digester gas systems, digital control systems, etc., controls steam water/oil flows as required.
- Collects water, steam, oil, and gas samples and tests to determine quality. Records results and reports abnormalities to Second Class Engineer.
- Performs as directed, scheduled Preventive Maintenance and minor Corrective Maintenance, including all shift, daily, weekly and monthly checks.
- Maintains a clean and orderly work area.
- Directs all chemical and fuel deliveries/ordering as required.
- Prepares injury and illness reports, safety work orders and maintenance work order requests as necessary.
- Performs light maintenance independently or as part of a team. Light maintenance shall include but not limited to:
    - Operation of forklift or other light equipment that does not require a special license.
    - Generates inspection lists and maintenance reporting through the Computerized Maintenance Management System.
    - Inspects and troubleshoots various systems and equipment
    - Installs and retrofits/new equipment related to plant systems.
    - Modifies and/or aligns existing equipment to specifications.

- With proper training sets up ladders, staging and rigging and utilizes hoists, jacks, dollies, lifts, etc. for proper access to job and to remove and install equipment.

- Operates portable pumping, ventilation and other equipment necessary to support and accomplish assigned tasks.

- Greases and lubricates, replaces oil reserves, minor packing adjustments and opens hatches.

- Installs safety rails, changes light bulbs and replaces HVAC filters.

- Conducts routine testing, lockout/tagout, operation (startup/shutdown) and adjustment of process equipment.

- Removes snow from immediate work area in order to perform tasks.

- Performs necessary cleanup and housekeeping for work area and other light maintenance tasks.

SECONDARY DUTIES:

- Performs other related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Basic technical and communication skills as normally attained through a high school education or the equivalent. Trade or vocational training preferred; and

(B) Three (3) to five (5) years of experience in the operation of Thermal/Power Plant equipment, high pressure boilers, topping turbines and related auxiliary equipment; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of operation of generating equipment, plant heating, large diesel-fuel engines and electrical distribution systems.

(B) Ability to plan, organize and perform assigned duties independently.

(C) Ability to understand responsibility and work with minimal supervision.

(D) Extensive knowledge of safety practices and application in Steam Engineering and Wastewater Facilities.

(E) Ability to work as a team to support the goals of Deer Island Facility.

SPECIAL REQUIREMENTS:

- Required to respond to emergencies and provide overtime shift coverage as required.
- A valid Massachusetts Third Class Engineer's License.
- Annual completion of the following training: Right to Know, Confined Space Entry Refresher, 8-hour OSHA training, Hazard Communications, and other OSHA training as needed.
- Completion of Adult CPR/AED/First Aid Training every two years.
- Complete productivity improvement competency-based training program related to **ESSENTIAL DUTIES AND RESPONSIBILITIES** as outlined above and successfully demonstrates required competencies.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

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

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

WORK ENVIRONMENT:

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

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

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

October 2021

MWRA
POSITION DESCRIPTION

OLD

POSITION: Manager, Power Generation

DIVISION: Operations

DEPARTMENT: Deer Island

BASIC PURPOSE:

Responsible for the supervision, operation, maintenance and safety of Thermal/Power Plant operation. Operates the Thermal Plant economically on a 24 hour, 7-day a week schedule. Schedules and supervises operating staff on a rotating shift schedule. Plans and implements proper maintenance on Thermal Power Plant systems. Budgets and maintains economic usage of fuel and operational supplies, and coordinates with Eversource on efficient power generation procedures and paybacks. Also, coordinates with Process Control and Operations on any opportunities to improve operational efficiency and shutdowns for service or repair.

SUPERVISION RECEIVED:

Works under the general supervision of the Senior Program Manager, Energy, Deer Island

SUPERVISION EXERCISED:

Exercises close supervision of the Second and Third Class Engineers and the Technical Assistant

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages the Thermal/Power Plant staff in the proper operation of all Thermal/Power Plant equipment, steam topping turbine, combustion turbine generators, fuel oil and waste gas supply systems, diesel generators, pumps, blowers, compressors, water treatment, cooling and heating systems, electrical distribution and instrumentation systems.

- Performs administrative duties for personnel assigned to the Thermal Plant and is responsible for plant knowledge of operating staff.

- Responsible for review of the O&M Manuals and the development and implementation of the standard operating procedures (SOPs) for the Thermal/Power Plant as well as keeping these manuals updated with improvements and modifications to the facilities.

- Participates in the MWRA performance evaluation system.

- Assumes responsibility for the Thermal Plant operation as a licensed engineer in charge per Chapter 146 of the general laws of the Commonwealth of Massachusetts in the absence of the Senior Program Manager, Energy, Deer Island.

- Monitors and maximizes, through information data collection, the Thermal/Power Plant operating efficiencies and takes necessary corrective measures where results are below standard.

- Manages and/or coordinates the assignments of operating staff and others working in and around the facility. Such assignments include, but are not limited to, inventory and control of essential materials and supplies, distribution of Thermal and Electrical Power Generation outputs, forecasts of major repairs and control of waste, energy and fuel.

- Directs and prioritizes the preventive maintenance of all Thermal/Power Plant equipment, ensuring that it is completed properly and timely to ensure the avoidance of costly equipment breakdown and loss of operating capacity.

- Assists in the formulation of and participates in the implementation of a training program to keep all personnel and operations in compliance with regulatory requirements. Assures that all regulatory training is documented.

- Initiates programs for the improvement of methods and develop plans for the reduction of costs for the Thermal Plant operation in conjunction with treatment plant managers.

- Prepares budgets for yearly operations and capital spending programs and manages spending within approved budgets.

- Is responsible for application of Thermal Plant safety programs as well as Health and Safety of staff.

- Anticipates and institutes emergency corrective procedures to maintain or restore effective operational conditions in conjunction with other managers in Process Control, Operations, Maintenance and to determine operating costs for each facet of the operation.

- Is responsible for enforcing the safety procedures in the use of equipment and tools, and the instruction of operating staff in safety procedures and the use of safety equipment.

- Is responsible for the upkeep and appearance of all equipment, appurtenances and general surrounding of the Thermal/Power Plant.

- Coordinates with Deer Island Engineering to closely monitor maintenance and construction contractor work in the Thermal Power Plant, to ensure uninterrupted operation and a safe work environment

- Assists in settlement of grievances.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A four (4) year college degree in mechanical, electrical engineering or a related field; and

(B) Eight (8) to ten (10) years in the Operations Start-up and Maintenance of various types of Thermal Power Equipment, Turbines, Boilers and related systems of which five (5) to seven (7) years must be in a supervisory capacity; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of maintenance and operation of generating equipment, plant heating, large combustion engines and electrical distribution systems, including casualty control of operating systems.

(B) Ability to resolve technical problems connected with gas turbines, steam generating equipment and diesel driven generators.

(C) Proficiency in the use of personal computers and software application packages for financial analysis and management.

SPECIAL REQUIREMENTS:

A valid Massachusetts First Class Engineer's license.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, mobile radio, beeper, personal computer including word processing and other software, copy and fax machine.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to stand and talk or hear. The employee is occasionally required to walk; sit; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move more than 50 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, depth perception, peripheral vision and the ability to adjust focus.

WORK ENVIRONMENT:

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

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

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

February 2018

MWRA
POSITION DESCRIPTION

NEW

POSITION: Manager, Power Generation

DIVISION: Operations

DEPARTMENT: Deer Island

BASIC PURPOSE:

Responsible for the supervision, operation, maintenance and safety of Thermal/Power Plant operation. Operates the Thermal Plant economically on a 24 hour, 7-day a week schedule. Responsible for the Thermal Plant operation as a licensed engineer in charge per Chapter 146 of the general laws of the Commonwealth of Massachusetts. Schedules and supervises operating staff on a rotating shift schedule. Plans and implements proper maintenance on Thermal Power Plant systems. Budgets and maintains economic usage of fuel and operational supplies, and coordinates with Eversource on efficient power generation procedures and paybacks. Also, coordinates with Process Control and Operations on any opportunities to improve operational efficiency and shutdowns for service or repair.

SUPERVISION RECEIVED:

Works under the general supervision of the Deputy Director, Deer Island Treatment Plant.

SUPERVISION EXERCISED:

Exercises direct supervision of the Second Class Engineers (Thermal/Power Plant) and indirect supervision of Third Class Engineers.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages the Thermal/Power Plant staff in the proper operation of all Thermal/Power Plant equipment, steam topping turbine, combustion turbine generators, fuel oil and waste gas supply systems, diesel generators, pumps, blowers, compressors, water treatment, cooling and heating systems, electrical distribution and instrumentation systems.

- Performs administrative duties for personnel assigned to the Thermal Plant and is responsible for plant knowledge of operating staff.

- Responsible for review of the operations and maintenance (O&M) Manuals and the development and implementation of the standard operating procedures (SOPs) for the Thermal/Power Plant as well as keeping these manuals updated with improvements and

modifications to the facilities.

- Participates in the MWRA performance evaluation system.

- Responsible for the Thermal Plant operation as a licensed engineer in charge per Chapter 146 of the general laws of the Commonwealth of Massachusetts.

- Monitors and maximizes, through information data collection, the Thermal/Power Plant operating efficiencies and takes necessary corrective measures where results are below standard.

- Manages and/or coordinates the assignments of operating staff and others working in and around the facility. Such assignments include, but are not limited to, inventory and control of essential materials and supplies, distribution of Thermal and Electrical Power Generation outputs, forecasts of major repairs and control of waste, energy and fuel.

- Directs and prioritizes the preventive maintenance of all Thermal/Power Plant equipment, ensuring that it is completed properly and timely to ensure the avoidance of costly equipment breakdown and loss of operating capacity.

- Assists in the formulation of and participates in the implementation of a training program to keep all personnel and operations in compliance with regulatory requirements. Assures that all regulatory training is documented.

- Ensures that third class engineers/second class engineers in training receive job shadowing and hands-on training to prepare them to become second class engineers.

- Initiates programs for the improvement of methods and develop plans for the reduction of costs for the Thermal Plant operation in conjunction with treatment plant managers.

- Prepares budgets for yearly operations and capital spending programs and manages spending within approved budgets.

- Is responsible for application of Thermal Plant safety programs as well as Health and Safety of staff.

- Anticipates and institutes emergency corrective procedures to maintain or restore effective operational conditions in conjunction with other managers in Process Control, Operations, Maintenance and to determine operating costs for each facet of the operation.

- Is responsible for enforcing the safety procedures in the use of equipment and tools, and the instruction of operating staff in safety procedures and the use of safety equipment.

- Is responsible for the upkeep and appearance of all equipment, appurtenances and general

surrounding of the Thermal/Power Plant.

- Coordinates with Deer Island Engineering to closely monitor maintenance and construction contractor work in the Thermal Power Plant, to ensure uninterrupted operation and a safe work environment

- Assists in settlement of grievances.

SECONDARY DUTIES:

- Performs related duties as required.

- Supervises Technical Assistant (Thermal Power Plant) in the absence of the Program Manager, Energy.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A four (4) year college degree in mechanical, electrical engineering or a related field; and

(B) Eight (8) to ten (10) years in the Operations Start-up and Maintenance of various types of Thermal Power Equipment, Turbines, Boilers and related systems of which five (5) to seven (7) years must be in a supervisory capacity; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of maintenance and operation of generating equipment, plant heating, large combustion engines and electrical distribution systems, including casualty control of operating systems.

(B) Ability to resolve technical problems connected with gas turbines, steam generating equipment and diesel driven generators.

(C) Proficiency in the use of personal computers and software application packages for financial analysis and management.

SPECIAL REQUIREMENTS:

- Required to respond to emergencies and provide overtime shift coverage as required.
- A valid Massachusetts Class D Motor Vehicle Operator's license.
- A valid Massachusetts First Class Engineer's license.
- Completion of MWRA Supervisory Training program.
- Annual completion of the following training: Right to Know, Confined Space Entry Refresher, and Hazard Communications.
- Completion of Adult CPR/AED/First Aid Training every two years.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, mobile radio, mobile phone, personal computer including word processing and other software, copy and fax machine.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to stand and talk or hear. The employee is occasionally required to walk; sit; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move more than 50 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, depth perception, peripheral vision and the ability to adjust focus.

WORK ENVIRONMENT:

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

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

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

October 2021

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Appointment of Senior Program Manager, Community Support

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COMMITTEE: Personnel & Compensation

____ INFORMATION
__X__ VOTE

Andrea Murphy, Director, Human Resources
Stephen Estes-Smargiassi, Director, Planning and Sustainability
Carolyn Fiore, Deputy Chief Operating Officer
Preparer/Title

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

RECOMMENDATION:

To approve the appointment of Mr. Jon Szarek to the position of Senior Program Manager, Community Support (Unit 9, Grade 30) in the Planning and Sustainability Department at an annual salary of $119,503.32 commencing on a date to be determined by the Executive Director.

DISCUSSION:

The Senior Program Manager, Community Support position became vacant in July 2021 upon the retirement of the previous incumbent. Organizationally, this position reports to the Director of Planning and Sustainability. The Senior Program Manager, Community Support is responsible for managing MWRA's technical and financial community support programs, including the Inflow and Infiltration (I/I) grant/loan program, the Local Water System Assistance Program, Lead Service Line Replacement Program, the leak detection on-call service contract and MWRA's water conservation program. The position is also responsible for analyzing and reporting on both the MWRA and community I/I management programs to DEP and reporting to EPA on water and wastewater demand management programs under MWRA's NPDES permit. It also has been a key contributor to MWRA's wastewater master plan development. The Senior Program Manager, Community Support oversees a staff of three project managers and a project engineer.

Selection Process

MWRA posted the position of Senior Program Manager, Community Support both internally and externally. A total of nine candidates applied for the position including six internal applicants. Two external and two internal candidates were determined to be qualified and were referred for an interview. The Director of Planning and Sustainability, the Deputy Director Finance Division/Treasurer, and the Associate Special Assistant for Affirmative Action conducted the interviews. Upon completion of the interviews, Jon Szarek was determined to be the best candidate based on his experience, knowledge, skills and education.

Jon Szarek currently is a Project Manager within the Community Support Group, and has worked for MWRA for 31 years in the Planning Department. Prior to joining MWRA, he worked for the Army Corps of Engineers for five years. Through his education and experience, he has acquired extensive knowledge of the principles of engineering and planning for water and wastewater systems, and an understanding of master planning and water and wastewater state and federal environmental regulations. He demonstrates the required organizational, analytical and communication skills this position requires. Mr. Szarek has been involved with MWRA's I/I reduction grant/loan programs since their beginning. He is thoroughly familiar with the MWRA and community I/I programs, and has the knowledge and skills necessary to evaluate and quantify I/I in the MWRA interceptor system and community systems. He has demonstrated the ability to work effectively with community engineering, financial and elected officials as well as MWRA financial staff and community bond counsels. Mr. Szarek is familiar with, and has assisted with, the development of prior MWRA wastewater master plans. In his work in the community support program, he has demonstrated the ability to coordinate with all of the various entities necessary to move community loan packages forward efficiently, and to exercise appropriate independent judgment when dealing with community, consultant and contractor staff.

Mr. Szarek has a Bachelor of Science degree in Civil Engineering and a Master of Science degree in Environmental Engineering, both from Northeastern University; and is a licensed Professional Engineer in the state of Massachusetts.

BUDGET/FISCAL IMPACT:

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

ATTACHMENTS:

Resume of Jon Szarek
Position Description
Organization Chart

JON F. SZAREK

EXPERIENCE

MASSACHUSETTS WATER RESOURCES AUTHORITY, BOSTON, MA

Project Manager, Community Support Program, Planning Department
(September 1990 to Present)

Infiltration/Inflow (I/I) Local Financial Assistance Program: The Program's purpose is to provide financial incentives to MWRA's 43 sewer member communities for I/I reduction within municipally-owned collection systems. Responsible for overall management of this $761 million grant/loan program. Tasks include preparation of CIP/CEB and quarterly budget estimates, funding drawdown schedules, Advisory Board/WAC presentations and correspondence, Board of Directors staff summaries and Treasury/Finance Department funding overviews. Supervised and integrated new staff with funding and management protocols for the I/I Local Financial Assistance Program, as well as the Local Water System Assistance and Lead Service Line Replacement Loan Programs. Reviewed staff work product prior to submission to MWRA member communities.

Also responsible to 20 individual sewer communities (including the Boston Water and Sewer Commission) for financial assistance distribution and project management associated with the I/I funding program. Duties include funding application evaluation, contract document review/approval, community bond counsel coordination, consultant/contractor/DPW invoice tracking and evaluation, MWRA resident inspection, final bid quantity verification, I/I reduction tracking and project closeout. To date, $265 million has been distributed to fund 340 I/I identification/reduction projects in these 20 communities. (August 1992 to Present)

Wastewater Metering System: Responsibilities include wastewater flow data analysis for wholesale rate calculation, computation of community wastewater flow components, supervision of bi-monthly wastewater flow data summary preparation and sewer system planning assistance to MWRA member community representatives. Supervised a team of wastewater data analysts. Responsible for data collection overview and assessment. (September 1990 to Present)

Managed condition assessment of 84 permanent flow meters and associated communication hardware within MWRA's Southern Collection System. Member of initial wastewater meter system planning/design/construction team with responsibility for meter site selection and cost-benefit analysis. (September 1990 to February 2001)

Regional I/I Reduction Program: Responsibilities include MWRA/EPA/MassDEP/ community reporting coordination, technical support, I/I Analysis and Sewer System Evaluation and Survey review and approval and I/I reduction plan preparation and verification. Coordinated and submitted the annual I/I Reduction Summary Report to EPA and MassDEP as required under the MWRA's NPDES Permit. I/I Task Force member responsible for development of goals and implementation strategies that reduce I/I to optimize local and regional sewer service. (September 1990 to Present)

Wastewater Master Plan: Assisted in development and review of specific chapters of the 2006/2013/2018 MWRA Wastewater System Master Plans including those related to collection system sewers, pump stations and CSO facilities and financial assistance for community-owned collection systems.

U.S. ARMY CORPS OF ENGINEERS, WALTHAM, MA
Project Manager, Hydraulics and Water Quality Section, Engineering Division
(August 1985 to August 1990)

Dam Safety Inspection and Sampling Program: Directed a multi-disciplinary effort involving facility inspection, water/groundwater/sediment quality sampling and evaluation and technical appendix preparation for 35 Corps-owned reservoir and hurricane barrier facilities. As program leader, prepared schedules and budgets, and served as a focal point in preparing correspondence to the Office of Chief Engineer, Washington, D.C.

Flow Measurement System: Responsible for the design, construction inspection, calibration, and maintenance of flow and seepage measuring devices at various government facilities. Measuring device design included Parshall and Palmer-Bowlus flumes, along with Cipoletti, V-notch and rectangular weirs and pressure transducers.

EDUCATION

M.S. Environmental Engineering, June 1992
Northeastern University, Boston, MA

B.S. Civil Engineering, June 1985
Northeastern University, Boston, MA

REGISTRATION

Registered Professional Engineer (Civil No. 36217), Commonwealth of Massachusetts

TECHNICAL COURSES

EPA sponsored hazardous waste training: Groundwater Investigation, Groundwater Pollution and Hydrology, Safety and Health for Hazardous Waste Site Operation, Underground Storage Tank Management and Hydrocarbon Contamination Cleanup, and Confined Space Entry

SPECIAL INTERESTS

Active volunteer in the Boston Partners in Education grade school instructor program. Program promotes community-wide efforts to improve public school math/science education.

MWRA
POSITION DESCRIPTION

POSITION: Senior Program Manager (Community Support)

PCR#: 1510004

DIVISION: Operations

DEPARTMENT: Planning

BASIC PURPOSE:

Manages the Community Support Section of the Planning Department. Oversees MWRA's community grant and loan programs for Inflow and Infiltration (I/I), Local Water System Assistance, and Lead Line Replacement. Manages MWRA water conservation and leak detection assistance programs. Coordinates MWRA's I/I program and reporting. Assists in the development of MWRA's Master Plans.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, Planning and Sustainability.

SUPERVISION EXERCISED:

Exercises direct supervision over community support staff including engineers, planners and other professionals. Works extensively with teams from other departments and divisions.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Reviews and updates MWRA's regional I/I reduction plan and implements MWRA's I/I policy through internal discussions, coordination with service area communities, the MWRA Advisory Board, and regulatory agencies.
- Develops and implements the MWRA I/I Local Financial Assistance Program and provide overall supervision to staff responsible for approval and review of local community projects funded by MWRA. Coordinates with communities to provide technical assistance on I/I related issues and maximize MWRA/community resources available to reduce extraneous flow.
- Coordinates regional I/I reduction efforts with U.S. Environmental Protection Agency (EPA) and Massachusetts Department of Environmental Protection (DEP) and submits annual I/I summary reports to EPA and DEP as required under MWRA's NPDES permit; develop and maintain a multi-year database of estimated community wastewater flow components.

- Develops and implements the MWRA Local Water System Assistance Program, Lead Service Line Replacement Program, Community Leak Detection Contracts, local demand management/water conservation initiatives, and provides overall supervision to staff responsible for approval and review of local community projects funded by MWRA.
- Coordinates with communities to provide technical assistance on water quality and demand management issues and maximizes MWRA/community resources.
- Works with the Finance Division on the development and execution of strategy to acquire the maximum amount of federal grant and State Revolving Fund (SRF) financing.
- Coordinates local water quality and demand management efforts with EPA and DEP and submit annual reports to EPA and DEP as required under MWRA's National Pollutant Discharge Elimination System (NPDES) permit.
- Provides oversights of Community Support Program staff for development, review, and tabulation of bi-monthly community wastewater flow estimates.
- Develops and manages Community Support Program Capital Improvement Program (CIP) and Current Expense Budget (CEB) budgets.
- Manages professional master planning efforts, policy analyses, quantitative analyses, business planning work of substantial difficulty and importance requiring the application of planning, engineering, administrative analytical principles and the exercise of independent judgement.
- In cooperation with other managers and the Department Director, assists in developing the overall mission and policies of the Planning Department. Assigns Community Support staff work and oversee/review management and technical aspects of projects to ensure quality, completeness, and adherence to schedules.
- Represents the MWRA before regulatory, citizen, and other public groups.

SECONDARY DUTIES:

- Participates in preparing for collective bargaining and hears Step-One grievances.

- Performs other related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A Bachelor’s degree in planning, civil engineering, environmental engineering, or a related field. A graduate degree in planning, engineering or business administration preferred; and

(B) Eight (8) to ten (10) years of engineering, planning, and program management experience, of which at least four (4) years must be in the water or wastewater utility field and at least three (3) years should be in a managerial or supervisory capacity; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of the principles and practices of engineering and planning for water and wastewater systems.

(B) Understanding of master planning, regulatory compliance and policy development.

(C) Understanding of local, state and federal local, state and federal environmental regulatory programs.

(D) Demonstrated ability to lead an inter-disciplinary project team and develop and maintain productive working relationships with external parties. Ability to efficiently and productively utilize resources authority wide.

(E) Excellent interpersonal, oral and written communication skills. Ability to communicate technical information effectively.

(F) Strong organization skills and the ability to manage multiple priorities with competing demands for resources.

(G) Excellent analytical and quantitative skills, and attention to detail; and some exposure to financial tracking and monitoring.

(H) Ability to exercise independent judgment.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators License.
Registration as a Massachusetts Professional Engineer or Certification from the American Institute of Certified Planners (AICP) preferred.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computer including word processing and other software, copy and fax machine.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

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

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

WORK ENVIRONMENT:

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

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

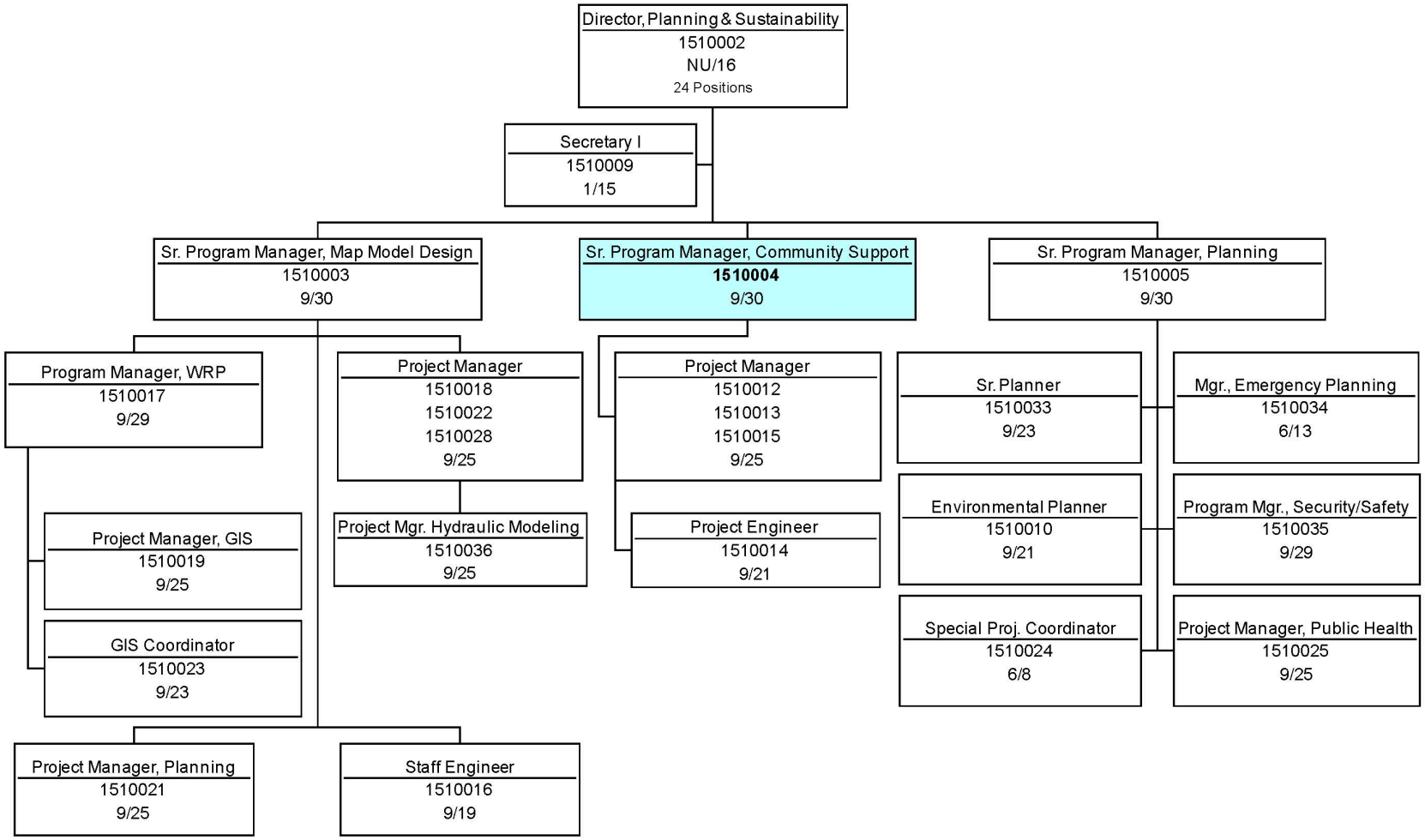
The noise level in the work environment is usually loud in field settings and moderately quiet in an office setting.

July 2021

Programs, Policy & Planning

Planning & Sustainability

October, 2021



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Appointment of the Director, Metropolitan Operations

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COMMITTEE: Personnel & Compensation

_____ INFORMATION
_X_ VOTE

Valerie L. Moran, P.E., Director, Waterworks
Andrea Murphy, Director, Human Resources
Preparer/Title

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

RECOMMENDATION:

To approve the appointment of Mr. Michael J. McCarthy to the position of Director, Metropolitan Operations (Non-Union, Grade 15), in the Operations Division, at the annual salary of $154,400, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Director, Metropolitan Operations became vacant upon the retirement of the incumbent. The position directs the operations, maintenance, and support activities for all metropolitan water distribution, pumping stations, storage, and pressure reducing valve facilities. The Director, Metropolitan Operations directs a staff of more than 60, overseeing the Water Pipeline Maintenance Program, the Water Valve Maintenance Program, and the Metropolitan Operations Program (including the Chelsea Operations Control Center). This position reports to the Director of Waterworks.

Selection Process

This position was posted internally and externally and four candidates applied for the position. Three candidates, including one internal and two external, were determined to be qualified and were referred for an interview. The Deputy Chief Operating Officer, the Director of Waterworks, and the Special Assistant for Affirmative Action conducted the interviews. Upon completion of the interviews, Mr. McCarthy was determined to be the best candidate based upon his experience, knowledge, skills and education.

Mr. McCarthy has worked for 28 years at the MWRA serving in multiple metropolitan water operations, maintenance and engineering positions of increasing levels of responsibility. He started in the Water Pipeline Inspection Program, gaining extensive knowledge of the MWRA water system through leak detection fieldwork. He then was promoted into the Operations Engineering Program. Initially he was a Project Engineer responsible for planning water valve replacement projects and water main isolations. He then moved up to Project Manager, and was responsible for managing the 8M permit program and reviewing both MWRA and private contracts to ensure that work performed on the water system was in conformance with MWRA standards. In 2001, Mr.

McCarthy was promoted to Work Coordination Center Manager. As the first person in this title, he played an integral role in the development of the current Work Coordination Program, which is responsible for the planning and scheduling of preventative and corrective maintenance work for the metropolitan and western maintenance units utilizing the Maximo Maintenance Management software. He worked closely with the maintenance and operations program managers to ensure that standardized work practices and procedures were established and management reports were developed to ensure efficient and effective use of materials and staff. He also took on added duties such as oversight of the MWRA Trench and Excavation Safety permit program and the management of the MWRA's pilot DIGSAFE program.

In 2013, Mr. McCarthy was promoted to his current position of Senior Program Manager, Operations Control Center where he oversees the operation of 12 pump stations and associated storage tanks, and manages the Metropolitan Water Operations Control Center (OCC), which monitors the metropolitan water system on a 24 hour a day, seven day per week basis. In this position, he has worked closely with the ENQUAL Water Department to maintain the water quality of the storage tanks by creating and implementing a water tank cycle program. This has improved the water quality at several water storage tanks within the MWRA system. He also played an integral role in the design and startup of the Spot Pond Water Storage Facility and the Commonwealth Avenue Pumping Station Upgrade projects.

Mr. McCarthy has well rounded experience in the water industry, including experience with managing in a complex union environment with multiple trades. He is respected by his managers, employees and colleagues. Mr. McCarthy's management experience, education, and in depth knowledge of water operations and maintenance make him an excellent candidate for the Director, Metropolitan Operations position.

Mr. McCarthy earned a Bachelor of Science in Civil Engineering from Rochester Institute of Technology. He has a Registered Professional Engineering License in the state of Massachusetts. He holds a Water Distribution Grade IV Operator License, a Water Treatment Grade II Operator in-training License and a Grade IV Wastewater Collections License. Mr. McCarthy served in the US Navy Reserves from1996 to 2004, finishing as Company Commander.

BUDGET/FISCAL IMPACTS:

There are sufficient funds in the Operations Division's FY22 Current Expense Budget to fund this positon.

ATTACHMENTS:

Resume of Michael J. McCarthy
Position Description
Organization Chart

Michael J. McCarthy

Objective To apply my educational and professional experience to assist in the operation and maintenance of a water/wastewater utility.

Education **Rochester Institute of Technology,** Rochester, New York
Bachelor of Science degree in Civil Engineering Received March 1993

Professional Experience

Massachusetts Water Resources Authority, Boston, MA
Senior Program Manager, OCC, Field Operations Department (July 2013 - Present)

Oversee the Metropolitan Operations Control Center (OCC), which monitors and/or controls all pumping stations, storage tanks, pressure reducing valves and meters. Required to be on-call for emergencies twenty-four (24) hours a day, seven (7) days a week.

- Manage the water pump stations, water storage tanks, pressure reducing valves and meters in the Metropolitan water system to ensure continuous water service within the MWRA system and to the customer communities. Respond to alarms or hydraulic issues on a 24/7 basis.
- Coordinate maintenance, equipment repair, facilities maintenance, and SCADA needs with Equipment, Facilities Maintenance, and SCADA managers and staff.
- Perform performance reviews, investigate employee complaints, address employee conflicts, initiate disciplinary actions, prepare for collective bargaining and identify and propose organizational changes to address changing needs.
- Participate in preparing for collective bargaining and hear Step-One grievances.
- Identify training needs and implement appropriate in-house or consultant-led training programs.
- Manage unit budget. Assess resources needed to effectively manage unit, prepare budget requests and in-depth justification, explain budget variances and control unit spending to ensure overall budget compliance.
- Monitor, report and continually improve staff productivity through staff skills development, strategic planning, Standard Operating Procedures (SOPs) improvements and research and implementation of technology advances.
- Conduct emergency response assessments for all major Metropolitan incidents to evaluate the effectiveness of the SCADA system and SOPs in identifying, diagnosing and responding to the incident.

Work Coordination Center Manager, Field Operations Department (July 2001 – July 2013)

Managed the Work Coordination Group and oversaw the various activities including planning, scheduling materials acquisition and dispatch for the maintenance programs within the Field Operations Department. Managed MWRA 8(m) Permit Program, DIGSAFE Program and Trench and Excavation Safety Permit Program.

- Coordinated with other managers to ensure effective and economical use of materials and staff.
- Oversaw all aspects of data quality of the Field Operation Department's database.
- Oversaw the development and distribution of maintenance management reports.
- Performed QA/QC functions including inspection reporting, work order backlog monitoring, productivity and cost analysis information.
- Developed, in conjunction with other Field Operation Department managers, comprehensive work practices that ensure proper data integrity.
- Provided overall oversight for the Waterworks 8(m) permit program, which includes the management of permitting for all waterworks facilities.
- Managed DIGSAFE program for MWRA water distribution mains located in Brookline, Chelsea and Saugus.
- Provided overall oversight for the Trench and Excavation Safety permit program, which includes the management of permitting for all in house excavation sites.

Project Manager, Operations Engineering (July 1999 – July 2001)

Managed engineering coordination efforts for design and construction activities affecting the continuous operation and quality of the water transmission and distribution facilities.

- Managed Waterworks 8(m) permit program.
- Represented Operations Department at construction kick-off and coordination meetings and coordinated Operations Department roles and responsibilities during construction and start-up.
- Coordinated detail record and record drawing review as well as maintenance of department engineering records.
- Developed Operation Plans for major operations and acted as the Responsible Person for these operations, which required making on the spot decision-making.
- Managed design reviews for both in-house and consultant designs.

Project Engineer, Distribution Section (January 1995 – July 1999)

Provided hydraulic support for all in-house Distribution Section operations and construction work completed by in-house forces and contractors. Provided engineering support for all maintenance work completed on MWRA distribution system.

- Prepared and updated valve maintenance program schedule and coordinated maintenance with Pumping Division and all MWRA service communities.
- Maintained valve database to ensure that reliable, accurate information was available on valve characteristics and conditions.
- Performed hydraulic model computer simulation runs to support maintenance work completed on the distribution system and during emergency situations.
- Completed design reviews for both in-house and consultant designs.

Senior Field Service Technician (September 1993 - January 1995)

Performed leak detection of MWRA distribution system and communities using leak correlator and sonic leak detection equipment. Conducted meter testing using pitot-type flow tests.

- Assisted in training of MWRA communities in leak detection methods.
- Assisted general construction inspectors when needed.

U.S. Naval Reserve Mobile Construction Battalion 27 (May 1996 – May 2004)
Lieutenant – Company Commander, Assistant Company Commander, Assistant Operations Officer,

Prepared Company for mobilization and embarkation readiness. Supervised and was responsible for 170 personnel.

- Maintained training in combat and construction readiness in preparation for activation.
- Managed construction project (utilizing 40 personnel) located at Kings Bay, GA, which entailed the replacement and rehabilitation of multiple support buildings.
- Completed various construction projects during weekend drills and annual activation.

Licenses Licensed Professional Engineer (MA Lic #45124), Grade IV Water Distribution License (License #5210), Grade II Water Treatment License (License #23805), Grade IV Wastewater Collections License (License #C-4253)

Professional Affiliations American Society of Civil Engineers, American Water Works Association, American Society of Military Engineers

Computer Skills Excel, WordPerfect, Access, Crystal Reports, Telog, Powerpoint
Microsoft Office Package, MAXIMO CMMS, SCADA, ProcessBook

References available upon request

MWRA
POSITION DESCRIPTION

POSITION: Director, Metropolitan Operations

DIVISION: Operations

DEPARTMENT: Waterworks

BASIC PURPOSE:

Directs the operation, maintenance, and support activities for all metropolitan water distribution, pump stations, storage, and pressure reducing valve (PRV) facilities. Plans for and ensures that the necessary resources and support are provided to meet operational needs and applicable regulatory requirements in a cost effective manner.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, Waterworks.

SUPERVISION EXERCISED:

Exercises direct supervision of Senior Program Manager, Operations Control Center (OCC), Senior Program Manager, Pipelines (Water), Senior Program Manager, Valves, and indirect supervision of approximately 65 staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Directs the operations and maintenance of the metropolitan water system, which includes 300 miles of pipeline, 5500 valves, 12 pump stations, 12 storage facilities and 50 PRVs and 8 tunnel shafts.

- Oversees the preparation and updating of long range operation and maintenance planning for metropolitan water distribution pipeline, pumping, storage, and PRV facilities.

- Develops and implements staffing plans to improve productivity and achieve maximum utilization of staffing resources.

- Oversees water valve maintenance, rehabilitation, and replacement program to maximize valve operability and to continuously improve staff productivity to achieve competitive costs.

- Oversees water pump maintenance program to maximize pump operability and continuously improve staff productivity to achieve competitive costs.

- Collaborates with the Deputy Director of Waterworks to coordinate hydraulic and water operations planning.

- Works closely with community water departments to optimize water supply (volume, pressure and quality). Assists in planning major local system improvements. Assists local communities with emergency response planning efforts. Coordinates improvements within local systems and between the MWRA and local water systems.

- Oversees MWRA's cross-connection control program for all metropolitan water facilities.

- Oversees the inspection program of all construction activities near metropolitan water system facilities to protect the system from accidents.

- Oversees the operations and routine inspection of all metropolitan water storage facilities to ensure compliance with all drinking water protection laws and regulations and to optimize water quality in each storage facility.

- Plays an active role in water distribution system construction coordination activities and start-up planning for major capital projects.

- Manages the development and updating of operations & maintenance manuals and systems, and station operating procedures. Works with the design consultants to ensure timely production of updates.

- Partners with the Manager, Training and Development to oversee and provide opportunities for technical, supervisory and managerial training and education for all department employees. Ensure that staff are trained properly to be ready to operate new facilities as they come on line.

- Directs the Metropolitan Operations safety programs, maximizing employee involvement, supporting the Authority-wide safety program, and making inspections. Acts as liaison to the Manager, Occupational Health and Safety.

- Manages the Department in a manner that is consistent with MWRA's goals of Diversity, Equity, and Inclusion.

- Maximizes effective use of the Maximo maintenance management software and related computer programs.

- Manages the preparation of and exercises control over current expense budget for Metropolitan Operations.

- Represents the Metro Water Operations Section of the Operations Division as required with the Authority's Division Directors, Executive Director and Board of Directors.
- Act as interagency liaison and public relations contract/spokesperson with regard to operation of metropolitan water facilities. Establishes emergency response procedures, training programs, and practice drills with the assistance of emergency response and safety staff.

- Assures consistency and uniformity of work rules in accordance with established policies and procedures.

- Provides feedback and coaching to managers to maximize successful performance.

- Reviews, analyzes and prepares managerial reports for operational, maintenance, process control, budget, and personnel matters. Develops recommendations for ongoing improvements in facility operations and maintenance.

- Oversees successful administration of collective bargaining agreement provisions. Participates in grievance resolution, collective bargaining and contract negotiations. Serves as Step I hearing officer. Hears disciplinary actions.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Bachelor's degree in civil, environmental or mechanical engineering or a related technical discipline; and

(B) Understanding of planning, design, operations and maintenance of major water utilities as acquired through ten (10) to twelve (12) years of related experience, of which at least five (5) years must be in the management of a waterworks facility with multiple supervisory levels; or

(C) An equivalent combination of education and/or experience.

Necessary Knowledge, Skills and Abilities:

(A) Excellent working knowledge of a large water supply system and associated systems and equipment, or of a similar complex hydraulic and treatment system operation.

(B) Demonstrated successful experience managing in a union environment with a diverse workforce.

(C) Knowledge of computerized maintenance management systems and procedures.

(D) Personal computer experience and familiarity with associated software programs.

(E) Excellent interpersonal, written and verbal communication skills.

SPECIAL REQUIREMENTS:

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

Massachusetts Grade III Water Distribution Operator's license or higher (must obtain Massachusetts Grade IV Water Distribution Operator's license within 12 months).

Must be available for on-call assignments and responding to emergencies on a 24/7 basis using a domicile MWRA vehicle.

TOOLS AND EQUIPMENT USED:

Office machines normally associated with the use of telephone, personal computer including word processing and other software, copy, fax machine and mobile radio.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodation may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to sit, talk or hear. The employee is frequently required to use hands to finger, handle or operate objects, including office equipment, controls and reach with hands and arms. The employee is occasionally required to stand and walk and infrequently required to stoop, kneel, crouch or crawl.

There are no requirements that weight be lifted or force be exerted in performing the duties of this job. Specific vision abilities required by this job include close and distance vision.

WORK ENVIRONMENT:

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

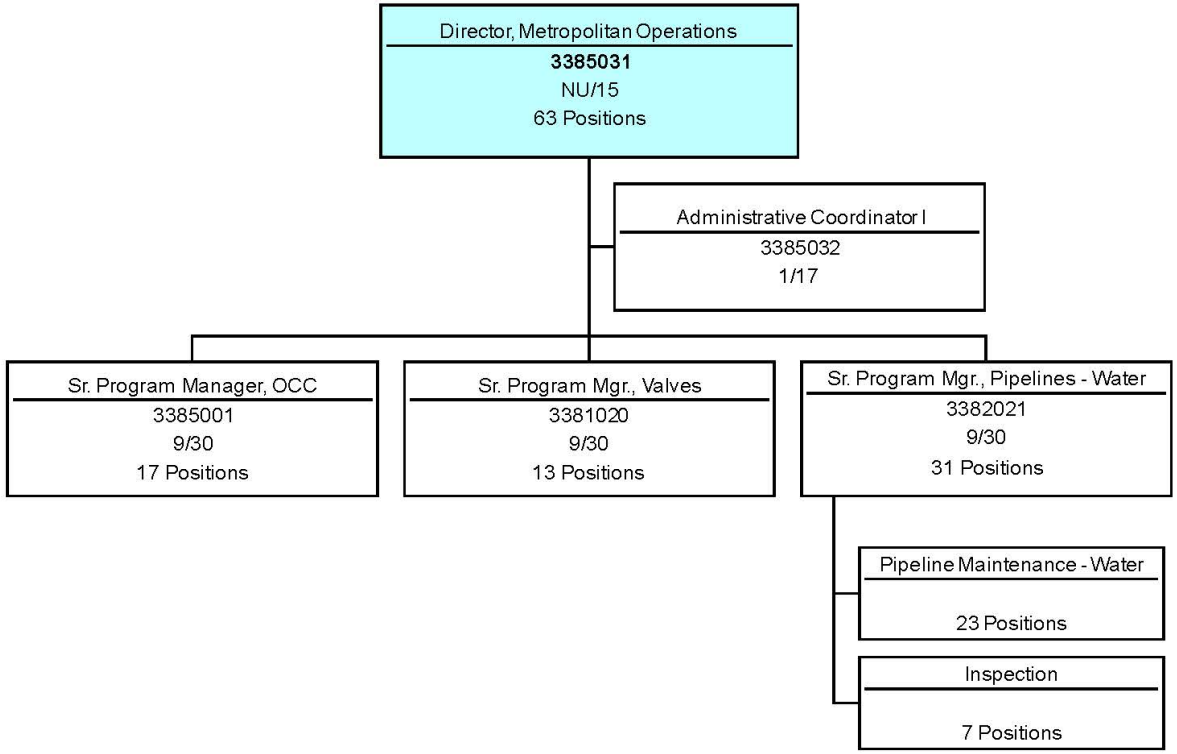
While performing the duties of this job the employee regularly works in an office environment. The employee occasionally works in outside weather conditions. The employee works near moving mechanical parts is occasionally exposed to wet and/or humid conditions. The employee is occasionally exposed to fumes and airborne particles, toxic or caustic chemicals, and risk of electric shock.

The noise level in the office environment is a moderately quiet and is moderately loud in field settings

July 2021

Metro Water Operations & Maintenance - Summary

October, 2021



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Appointment of Manager, Occupational Health and Safety

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COMMITTEE: Personnel & Compensation

____ INFORMATION
__X__ VOTE

Andrea Murphy, Director, Human Resources
Preparer/Title

Michele S. Gillen
Director, Administration

RECOMMENDATION:

That the Board approve the appointment of Mr. Thomas Kirwan to the position of Manager, Occupational Health and Safety (Non-Union, Grade 14) in the Administration Division, at an annual salary of $138,000 commencing on a date to be determined by the Executive Director.

DISCUSSION:

This position became vacant upon the promotion of the incumbent. Among the critical responsibilities of this important position are site safety assessments, data analysis, safety program enhancements, incident response and compliance tracking and reporting. This position played an invaluable role in MWRA's COVID-19 response. This position reports directly to the Director, Administration and will oversee all facets of MWRA's workplace health and safety program to assure that MWRA staff have safe and healthful working conditions that are compliant with the Commonwealth of Massachusetts occupational health and safety regulations.

Selection Process

The position of Manager, Occupational Health and Safety was posted internally and externally. There were nine external applicants. Two qualified candidates were interviewed by the Director, Administration, the Toxic Reduction and Control (the former Manager of Occupational Health and Safety) and the Associate Special Assistant for AACU. Mr. Kirwan was selected as the most qualified candidate based on his experience, abilities, knowledge and education.

Mr. Kirwan has over eight years of experience in environmental health and safety in both the public and private sector. Mr. Kirwan currently serves as the Regional Employee Health and Safety Manager at Amazon where he is responsible for the health and safety program at multiple facilities with employees who do a wide variety of tasks. His responsibilities include job site and safety data analysis, post injury investigations, OSHA compliance and reporting. Mr. Kirwan previously worked for Massport as the Safety Program Manager where he was responsible for regulatory compliance on construction projects, hazardous materials management and overall safety compliance. Mr. Kirwan has held positions of increasing responsibility in the safety field.

Mr. Kirwan has a Bachelor of Science in Marine Safety Protection from Massachusetts Maritime Academy. He also holds several certifications including as a Safety Professional by the Board of Certified Safety Professionals.

BUDGET/FISCAL IMPACT:

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

ATTACHMENTS:

Resume of Thomas Kirwan
Position Description
Organizational Chart

Thomas Kirwan

PROFESSIONAL PROFILE

Environmental Health and Safety professional with multiple years of experience in creating and implementing a strong safety program. A diverse background in the food manufacturing, healthcare an d transportation industries allows the ability to adapt and excel in many different environments. Enjoys being challenged and thiking of creative solutions to complex problems.

LICENSES & CERTIFICATION

Certified Safety Professional
CSP-33744
Associate Safety Professional
ASP-27810
General Practice Toxics Use Red uc tion Planner
TU01-0000126
HAZWOPER40 Hour
RCRA Training
DOT HAZMAT Training

SKILLS

Advanced in Microsoft Office Suite
Excellent Verbal and Written
MEPA and NEPA Review
Advanced knowledge of Environmental Regulations
OSHA 511 Trained
Advanced in Regulatory Compliance
Proficient t in Auto CAD

EDUCATON

MASSACHUSETTS MARITIME ACADEMY
Buzzard's Bay, MA
June 2013
Bachelors of Science degree in Marine Safety Environmental Protection
Regimental Exchange Program Officer
Training and Retention Officer
Earned two dean's list ribbons
(Term GPA of at least 3.33)

WORK EXPERIENCES

Safety Program Manager
Massachusetts Port Authority / Boston, MA
March 2019 - Present

- Manage all aspects of regulatory compliance for multiple le large scale construction projects in various locations
- Created and maintain a Safety Program compliant with all relevant local, state, and federal regulations for Massport Employees Authority-wide
- Manage permitting efforts for hazardous materials management, working with various tenants and departments Authority Wide
- Created a permitting strategy presented to MADEP that maximizes efficiency in regards to Hazardous Materials management

Senior Environmental Health and Safety Officer
Beth Israel Deaconess Medical Center / Boston, MA
December 2016 - March 2019

- . Responsible for creating and implementing multiple safety prog rams pertaining to all hospital/employees.
- Managed all aspects of regulatory compliance programs in accordance with federal state and local regulations to include OSHA EPA, MassDEP etc.
- Created permitting strategies for all current and future environmental permits.
- Created and led Risk Assessment groups for all hospital departments, which eliminated safe ty risks through design and process modifications.
- Fostered and maintained a strong hospital wide safety culture, by collaborating with multiple departments to take a preventative approach to safety.

Environmental Health and Safety Supervisor
Home Market Foods / Norwood, MA
July 2013 - December 2016

- Communicate with Federal, State, and Local agencies in regards to Air Quality Compliance, Environmental Regulations and Safety Policies.
- Created and implemented over forty different company policies and procedures encompassing safety and environmental l compliance.
- Attended frequent regulatory hearings to represent the company.

MWRA
POSITION DESCRIPTION

POSITION: Manager, Occupational Health and Safety

DIVISION: Administration

DEPARTMENT: Safety

BASIC PURPOSE:

Manages MWRA's compliance with Massachusetts Department of Labor Standards (DLS) (state) and federal rules and regulations and provides programs, guidance and recommendations in areas of employee safety and health. Oversees and develops a program for regulatory compliance with state standards and works closely with other authority safety and health staff to communicate, implement, monitor and track safety and health regulatory compliance. Leads agency's activities in a proactive way to minimize health issues and prevent situations that could create workers' compensation cases.

SUPERVISION RECEIVED:

Works under the general supervision of the Director of Administration.

SUPERVISION EXERCISED:

Supervises assigned project or safety staff as needed.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Develops and oversees an overall program of regulatory compliance consistent with the employer responsibilities defined by DLS designed to reduce work-related injury and illness. Such program will include the following key activities:

  - Conducting multi-facility (30+) worksite safety assessments and inspections (i.e., self-audits) to determine risks to employee safety and health and ensure that the workplace conditions conform to DLS standards;
  - Assessing potential hazards and controls;
  - Evaluating risks and hazard control measures;
  - Investigating incidents involving the safety and health of employees, visitors, vendors and contractors;
  - Maintaining and evaluating incident and loss records;
  - Assisting with the development and deployment of emergency response plans.

- Works closely with authority safety, operations and emergency preparedness staff to create, update, and implement safety and health programs in areas such as Bloodborne Pathogens Exposure Control Plan, Emergency Action Plan, Fire extinguishers, Fire Prevention Plan, Confined Space, Model Confined Space Entry Policy and Procedure, Hazard Communication, Hearing Conservation Program, Lockout /Tagout, Respiratory Program, Personal Protective Equipment Hazard Assessment, and Trench Safety.

- Works closely with MWRA Training Department to provide and deliver safety training as required by state and federal regulations or identified through risk assessments.

- Works closely with other authority safety staff to establish and/or update operating procedures including the MWRA Online Safety & Health Manual and ensure the appropriate communication to employees is delivered in order to ensure employee compliance with safety and health requirements.

- Ensures that any required DLS postings are prominently displayed at authority worksites in order to inform employees of their rights and responsibilities.

- Ensures the proper notification to the appropriate DLS office of any work-related fatalities, inpatient hospitalizations, amputations, loss of consciousness, and loss of an eye within the timeframes established by DLS.

- Administers an authority-wide system for record keeping for work-related injuries and illnesses using the OSHA Log of Work-Related Injuries and Illnesses form (OSHA Form 300). Posts the summary of the OSHA log for injuries and illnesses (OSHA 300A) according to procedures promulgated by OSHA. Provides access to employees, former employees and their representatives to OSHA Form 300 as required by applicable state regulations.

- Complete the Bureau of Labor Statistics (BLS) annual survey on Occupational Injury and Illnesses when selected by BLS to participate.

- Serves as the authority's main contact to DLS Inspectors for communications and for inspections. Attends opening and concluding conferences conducted by the DLS Inspector and provides DLS Inspectors with injury records and written programs as requested. Provides DLS Inspectors with the names of any authorized employee representatives who may be asked to accompany the Inspector during an inspection.

- Reviews reports developed by DLS Inspectors and works with MWRA staff to take any necessary corrective actions.

- As required by DLS, posts citations, abatement verification documents or tags near the cited workplace and complies with the posting period required by DLS. Works with authority staff to correct cited violations within the timeframes prescribed by DLS.

- Works with authority staff to evaluate hazard communication programs and training of employees regarding the hazards they may be exposed to during the course of employment at MWRA including communicating the need for employees to utilize proper personal protective equipment required for handling hazardous chemicals.

- Interacts with regulatory agencies, operations managers, employee representatives and employees on a regular basis.

- Tracks changes in federal and state safety and health regulations and apprises authority management of such changes and impact to the authority. Recommends and drafts communications, policies and standard operating procedures needed to meet such

changes in regulations. Oversees the work of professional consultants under contract to the Authority, including quality of output and budget.

- Develops meaningful management workplace safety indicators for use by senior managers (e.g., Yellow/Orange Notebook data and reports).

- Serves as technical consultant to senior management on issues relevant to occupational safety and health.

- Coaches all levels of staff to create and maintain a strong safety culture.

- Provides professional opinions to Law, Labor Relations, Workers' Compensation, and Risk Management, including testifying as an expert witness.

- Represents the executive office in the investigation of serious or potentially serious accidents or security incidents.

- Interprets technical data provided by outside technical professionals.

- Manages budget and staffing.

- Assists in maintaining harmonious labor management relations through proper applications of collective bargaining agreement provisions and established personnel policies. Prepares for, participates in and hears step one grievances and pre-disciplinary hearings. Participates in collective bargaining negotiations.

- Leads efforts to comply with applicable federal or state requirements.

SECONDARY DUTIES:

Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Knowledge of the principles and practices of a safety professional as normally attained through a undergraduate degree in occupational health and safety, industrial hygiene or related science and/or engineering discipline, or environmental science and

(B) Knowledge of health and safety policies, regulations, standards, best practices in an industrial environment; an understanding of issues related to safety, emergency response, risk management, environmental health; experience in incident investigations, safety inspections as normally attained through eight (8) to ten (10) years of experience including at least three years of supervisory experience; and

(C) Demonstrated knowledge through direct involvement/management of federal OSHA and Massachusetts DLS standards, training, implementation and auditing of policies and procedures as they related to employee safety.

(D) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Excellent interpersonal, oral and written communication skills needed to interface with regulatory staff and write analyses, recommendations and draft recommendations for safety policies and procedures.

(B) Expert knowledge in the area of safety and health regulatory compliance in order to recommend, organize and manage a compliance program as required by Massachusetts DLS.

(C) Ability to identify safety and health issues and concerns and recommend actions to correct deficiencies identified through inspections and other oversight activities.

(D) Ability to conduct, interpret and translate all safety-related training requirements mandated by federal, state and local regulatory agencies to staff.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators License.

Certification by the Board of Certified Safety Professionals as a Safety Management Specialist (SMS), Certified Safety Professional (CSP) or by the American Board of Industrial Hygienists as a Certified Industrial Hygienist (CIH).

TOOLS AND EQUIPMENT USED:

Office machines as normally associated, with the use of telephone**,** personal computer including word processing and other software, copy and fax machine**.**

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

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

The employee must frequently lift and/or move up to 10 pounds, and occasionally lift and/or move up to 25 pounds. Specific vision abilities required by this job include close vision, and the ability to adjust focus.

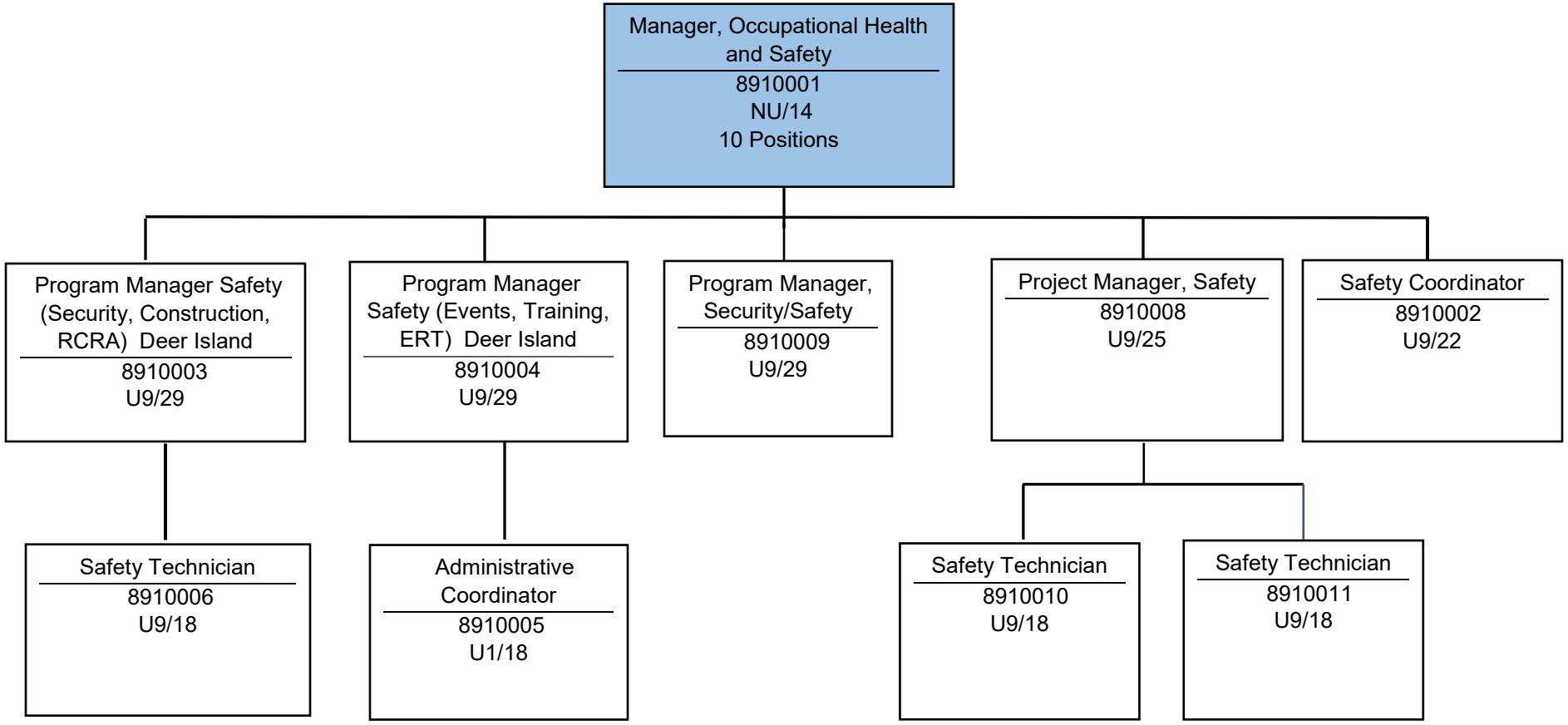
WORK ENVIRONMENT:

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

While performing the duties of this job, the employee regularly works in either an office or field environment which involves traveling to worksites. The employee often works in outside weather conditions. The employee often works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions and vibration. The employee often works in high, precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals, and risk of electrical shock. The employee may be exposed to strenuous, dangerous, or stressful conditions. While in the field, the employee uses gloves, helmets, respirators, and other personal protective and safety equipment to minimize the risk of illness and injury.

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

Administration Division
Occupational Health and Safety Department
October 2021



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Appointment of Technical Operations Manager, Administration

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COMMITTEE: Personnel and Compensation

___ INFORMATION
_X_ VOTE

Paula Weadick, Director, MIS
Preparer/Title

Michele S. Gillen
Director of Administration

RECOMMENDATION:

To approve the appointment of Mr. David Ruiz to the position of Technical Operations Manager, (Non-Union, Grade 14), at an annual salary of $135,000.00 commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Technical Operations Manager in the MIS Department became vacant upon the retirement of the incumbent. The Technical Operations Manager oversees the MIS Operations teams composed of the systems administration, network management and desktop support teams. The Technical Operations Manager is responsible for the maintenance and support of MWRA's MIS network infrastructure including email, network access and backups. In addition, this position is also responsible for the maintenance and support of all end user computing devices such as desktops and phones, and maintaining and securing MWRA's network itself.

Selection Process

This position was posted both internally and externally. A total of eight candidates applied. Three candidates, one internal and two external, were determined to be qualified and were referred for an interview. The Associate Special Assistant for Affirmative Action and the Director and Deputy Director of MIS conducted the interviews. Upon completion of the interviews, Mr. Ruiz was determined to be the best candidate based on his experience, knowledge, background, skills and education.

Mr. Ruiz has over 20 years of experience in information technology with increasing roles of responsibility. For the past year and a half, Mr. Ruiz has been a Technical Support Engineer at LenelS2 were he serves as the team lead for the engineering team, supervising and mentoring his staff. In addition to his supervisory responsibilities, Mr. Ruiz is responsible for troubleshooting to resolution technical issues from installation and setup to operational programming and management with an eye on cyber security and a customer focus.

Prior to his role at LenelS2, Mr. Ruiz served as Technical Support Engineer for Stratus Technologies and Dell EMC where he was responsible for servicing enterprise clients, providing product feedback to development teams for future product enhancements, training to in house support staff as needed and performed product demonstrations for sales prospects.

Prior to his role at Stratus Technologies and Dell EMC, Mr. Ruiz worked for Mobile Messenger where his responsibilities increased from NOC Technician to Team Leader and eventually to a Technical Support Engineer.

Mr. Ruiz is currently completing his Bachelor of Science in Computer Science at the University of Massachusetts, and hold a Certificate in Electronic Maintenance Technology from Wentworth Institute of Technology.

Mr Ruiz has experience working with a number of the technologies and tools currently in use within the MWRA MIS Operations area such as Microsoft Windows Operating System and VMware. In addition his knowledge of multiple computer languages can greatly benefit the Operations team while interfacing with the Applications team.

Based on his experience supporting IT infrastructure and customer support, Mr. Ruiz is recommended for the position of Technical Operations Manager.

BUDGET/FISCAL IMPACT:

Sufficient funds are included in the FY22 CEB for this position.

ATTACHMENTS:

Resume of David Ruiz
Position Description
MIS Organization Chart

David Ruiz

Education:

UNIVERSITY of MASSACHUSETTS, BOSTON MA

Bachelor of Science, Major in Computer Science.

(Approximately 100 credits completed)

WENTWORTH INSTITUTE of TECHNOLOGY, BOSTON MA

Certificate Electronic Maintenance Technology

.

Technical Skills:

C++, Java, Inet, Hammer network simulator, ISUP, SMPP SS7, Nagios, Wireshark, MySQL, Unix, Linux, Microsoft Windows, Apple and associated hardware & software, site scope, p4force, DeviceAnywhere, IntelliJ, dB visualizer, VMware, Hyper-V. Knowledge of VOS operating system. Salesforce and Remedy

Language skills:

Spanish, English & Mandarin.

Professional History:

LenelS2 Framingham Ma - 2020 to present

Technical Support Engineer:

- Mentor other support engineers on process and procedures
- Responding to cases from customers pertaining installation, setup, operational programming and ongoing management of access control (SMS) through SalesForce.
- Mock-up field conditions in a lab environment to duplicate and isolate reported malfunctions using VM and hardware.
- Efficiently and effectively escalate deeper technical issues using Jira to S2 development as required to drive to resolution.
- Help clients with network issue related to S2 software.
- Trouble shoot NAS and FTP issues related to S2 software.
- SME (Subject Matter Expert) on one or more products and 3rd party integrations in order to provide second tier level support.
- Train client on the S2 software
- Access PostgreSQL database to perform update in order to resolve software issues

Stratus Technologies - 2017 to 2020

Technical Support Engineer:

- Assigned to work with key/critical accounts.
- Perform remote troubleshooting of Linux, Windows, VMware, Hyper-V and Stratus VOS operating system incidents.
- Working closely with customer's IT teams and collaborating effectively with other support organizations to resolve issues.
- Takes the lead in driving all issues to closure and is responsible for the resolution of intricate operating system and application issues of a diverse scope.
- Participate in new product introduction activities.
- Provided informal and formal training to support, mentoring and taking escalations as necessary.
- Collaborate and perform knowledge sharing activities to provide insight and assistance across our global support organization.

David Ruiz

DellEMC Hopkinton - 2013 to 2017

Technical Support Engineer/ Team lead:

- Mentor and Train tiers 1 and tier2 support engineers in product use.
- Escalation point for tier1 and tier 2 support.
- Create and owned knowledge based articles and the process involved.
- Reproduce the issue, isolate, provide workarounds and resolve product issues.
- Submit feature requests based on hands-on usage and customer requests that reflect growth of the products.
- Work with Development and Sales, as the point of contact for all technical issues to clients
- Perform technical Product demonstrations for sales prospects, and act as back-up to sales engineers.

MOBILE MESSENGER/VERISGN, WATERTOWN Ma - 2007 - 2013

NOC Team Lead / Technical Support Engineer responsibilities:

- Provide supervision and technical mentoring of on-site NOC staff
- Oversight of NOC projects assigned to NOC staff
- Restructured, designed and implemented NOC work schedule to optimize 24x7 coverage
- Managed Coverage of sick-leave and PTO for NOC staff.
- Updated and created wiki technical procedures.
- Updated and create operation alerts.
- Delegation of work responsibility to NOC staff
- Training of NOC personal.
- Review of all support cases to ensuring resolution or escalation were met in a timely manner per company SLA's.
- Created basic Perl scripts to be used in SiteScope alerts which help NOC personal resolve issues in a timely manner.
- Diagnose internal and customer (tomcat and jBoss) application issues, validate and troubleshoot..
- Work with the engineering teams to test and implement project based resolutions.
- Escalate possible jboss application bugs to Engineering via a Jira for further analysis.
- Perform planned jboss application upgrades.
- Prepare support material and assist in the training of Tier 1 NOC support .
- Creating and updating Tier 1 carriers and client's xml routing files, language used is Jboss Initial Context.
- Run SQL commands using dB visualizer for obtaining needed information to help in the analysis of case issue.
- Update SQL database tables as requested for us in the application.

NETWORK ENGINES, CANTON MA - 2004 - 2007

Test Engineer:

- Run and check that all automated test scripts are completed to ensure product stability per customer standards.
- System and Integration testing
- Updating the configuration and checking that all the automated test scripts are completed
- Ensure the successful completion of projects through the testing cycle and into Production.
- Point of contact with engineers to implement bug fixes and testing releases.

SCHLUMBERGERSEMA, WILMINGTON MA - 1999 - 2003

SS7 Network Support Technician

- Support customer SS7 implementations and configurations.
- Responsible for firmware/hardware upgrade of the Excel switch.
- Work with other internal teams to evaluate the impact of new products and services on the SS7 network.
- Developed Inet/Hammer test scripts for Telecordia compliance testing.
- Install and Configure Dialogic Digital boards T1/E1 and SS7 (Signaling Seven) boards.

MWRA
POSITION DESCRIPTION

POSITION: Technical Operations Manager

DIVISION: Administration

DEPARTMENT: Management Information Systems (MIS)

BASIC PURPOSE:

Manages the cost-effective and reliable operation of the MWRA's management information systems infrastructure. Manages the design and control of technical processes to ensure the operational integrity of services provided by the department. Oversees the development and implementation of computer policies, standards, and service levels for a large, diverse and multi-site customer base.

SUPERVISION RECEIVED:

Reports to the Deputy Director, Management Information Systems.

SUPERVISION EXERCISED:

Exercises close supervision of three (3) technical managers with a total staffing complement of approximately 20.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Represents the Director and/or Deputy Director of Management Information Systems, as required, before internal and external groups; serves on the Steering and Selection Committee.

- Provides rotational 24-hour by 7-day MIS management on-call coverage services.

- Oversees day-to-day operations of the System Administration, Network & Systems, and Desktop support groups

- Oversees the development, maintenance and application of monitoring tools and industry standards for inventory, configuration and utilization of all hardware, operating system/utility software and peripheral devices.

- Establishes and maintains all operational service level agreements, production schedules, security updates, and backup/recovery standards and procedures. Produces monthly reports on progress of operations.

- Sets objectives for technical operations as well as implements action plans necessary for achieving set targets and the establishment of metrics to assess performance.

- Oversees the hiring, training and monitoring of operations staff. Ensures compliance with all company policies and procedures when performing job duties.

- Ensures compliance with contingency plans to recover operating capability in the event of emergencies, both natural (i.e. flood or fire) or man-made (i.e. Terrorist or cyber-attacks).

- Oversees the appropriate administration and budget control of all vendor hardware/software, network, peripheral device, telecommunications, training, and related service contracts.

- Participates with other members of the department management team and senior user management in forecasting and planning for information technology requirements.

- Collaborates with other MWRA managers on physical and cyber security, Operations Control Center (OCC) and Emergency Operations Center (EOC) operations, Supervisory Control and Data Acquisition (SCADA), Process Instrumentation and Control System) (PICS), Security networks, and wireless technology.

- Ensures the coordination of activities and provision of services to meet departmental and organizational priorities.

- Manages the Department in a manner that is consistent with MWRA's goals of Diversity, Equity, and Inclusion.

- Mentors staff and develops training plans and strategies which provide staff development opportunities and ensure appropriate coverage of critical functions/services.

- Provides technical advice on hardware, software, network and telecommunications evaluation, selection and installation, which is consistent with information system strategic plans.

- Addresses professional organizations and user groups from time-to-time and acts as liaison to various vendors.

- Stays current and facilitates the move to new technologies.

SECONDARY DUTIES:

Perform related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A Bachelor's degree in computer science or related field. An advanced degree is preferred; and

(B) Eight (8) to ten (10) years professional Information Technology Operations experience in a large multi-user environment, of which at least 4 years must be in a supervisory or managerial capacity; or

(C) Any equivalent combination of education and/or experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of, and an in-depth understanding of the tools and techniques required to manage effectively in a large integrated, multi-platform, multi-site WAN/LAN technical services operation.

(B) Demonstrated knowledge of and ability to hands-on apply industry standards for telecommunications, network, computer center operations, and desktop support.

(C) Ability to manage and prioritize multiple issues, projects and urgent requests. Familiarity with various network topologies.

(D) Excellent analytical, interpersonal, written and oral communication skills.

SPECIAL REQUIREMENTS:

Able to respond to emergency situations 24 hours per day, seven days per week.

A valid Massachusetts Class D Motor Vehicle Operator's License.

ITIL Foundations Certification v4 or ability to obtain within six months.

At least one from the following list or ability to obtain within six months:

- Master Project Manager or equivalent
- ITIL 4 Specialist Create, Deliver and Support

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk and stand.

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

WORK ENVIRONMENT:

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

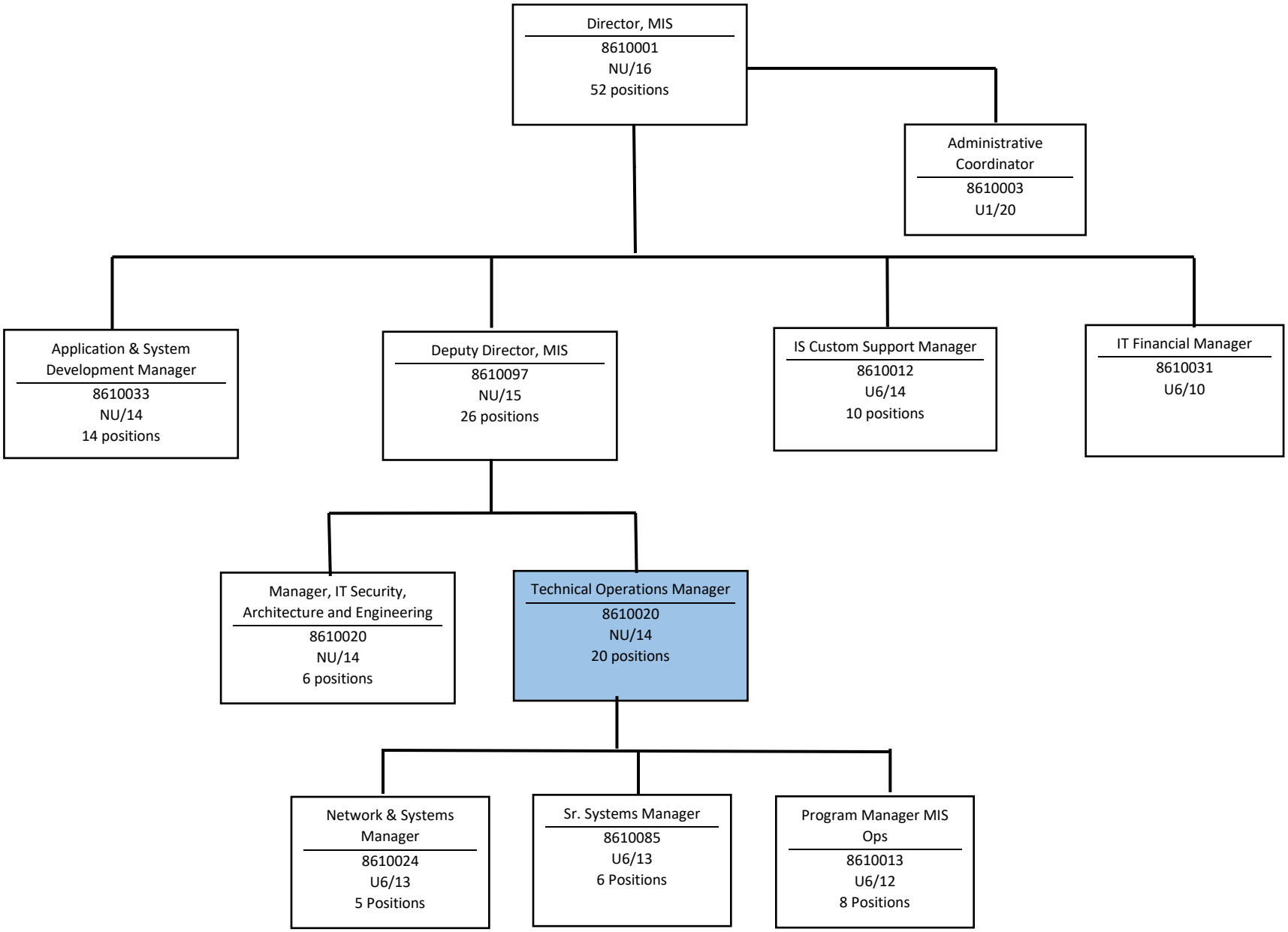
While performing the duties of this job, the employee works in an office environment.

The noise level in the work environment is moderately quiet.

Administration Division

MIS Department

October 2020



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Internal Audit Department Activities Report – FY2021

COMMITTEE: Administration, Finance & Audit

X INFORMATION
__ VOTE

Claude J. Cormier, Director, Internal Audit
Preparer/Title

RECOMMENDATION:

For information only. Internal Audit presents annually to the Board the results of completed assignments and the status of active and planned assignments. Every quarter, Internal Audit utilizes the Orange Notebook to discuss briefly recently issued reports and to report on the status of open audit recommendations and cost savings. This Staff Summary includes a discussion of activities since Internal Audit's last report to the Board in October 2020.

DISCUSSION:

In FY2021, a total dollar savings of $2,325,206 was recognized from numerous assignments, including internal audits, management advisory services, consultant incurred cost audits, consultant preliminary reviews, construction labor burden reviews, the true-up and review of HEEC billings and costs of the new cable, and contract negotiation support.

Internal Audit's goal is to provide sufficient audit coverage to give reasonable assurance that internal management controls are functioning as intended and that only reasonable, allowable and allocable costs are paid to consultants, contractors and vendors. Audit coverage is provided through performance audits that analyze and evaluate MWRA programs and activities to determine if they are being carried out effectively and efficiently, compliance audits that focus on adherence to MWRA policies and procedures, contractual requirements, rules or regulations and management advisory services.

The development of the Annual Audit Plan is based on Internal Audit's risk assessment of program and management controls, as well as input from MWRA senior managers and the MWRA Advisory Board. The actual scheduling and completion of audit assignments depend on staff availability, which can be impacted by control issues needing immediate attention or by unscheduled special requests for management advisory services.

Attachment 1 lists assignments completed since Internal Audit's last report to the Board, assignments currently in process and additional assignments planned to commence in FY2022.

INTERNAL AUDITS AND MANAGEMENT ADVISORY SERVICES

Overhead Crane Inspections

OSHA and industry standards require owners of overhead cranes and hoists (cranes) to have them inspected periodically and frequently by a qualified inspector, and to have any identified deficiencies corrected in a timely manner. Safeway Overhead Crane Service, Inc. has performed inspections for the past several years and was retained for another two years in April 2021.

Recommendations relating to crane asset management, crane inspection management and safety compliance were provided within our report. Management took immediate action and conducted a physical inventory to insure all cranes were identified, accounted for and scheduled for inspection. Management has accepted the recommendations and, to date, has implemented 2 of the 11 recommendations.

Confined Space Entry Training

OSHA and industry standards require employers to provide training to affected employees who may be required to enter permit-required confined spaces. MWRA requires employees to complete an initial confined space entry training course and an annual refresher course prior to entering any confined space.

Recommendations include tracking, reporting and verifying the accuracy and completeness of training records while continuing to train employees who require the aforementioned required training. Management has accepted the recommendations and, to date, has implemented 1 of the 8 recommendations.

Return to Work Guidance

When the World Health Organization declared COVID-19 virus a pandemic, the CDC, OSHA, and state and local governments have provided guidance and protocols to reduce the spread of the virus. Internal Audit monitored guidance and protocols, reporting changes and updates on a weekly basis to the Authority's General Counsel, Director of Administration and Manger of Occupational Health & Safety.

Unemployment Compensation

The Commonwealth of Massachusetts administers the unemployment insurance program. The Department of Unemployment Assistance bills MWRA monthly for amounts paid to former workers.

Internal Audit routinely reviews the monthly claims, on behalf of Human Resources, and checks them for accuracy. MWRA has objected to several claims that might be fraudulent, possible identity thefts, as well as other claims that do not appear to meet eligibility criteria.

Chelsea Lease Agreement

MWRA has a 30-year lease agreement for the Chelsea Facility that expires on May 31, 2032. The lease payment amount is based on a rental plus actual real estate taxes and insurances.

Internal Audit reviewed the lease rental payments for FY2020, and determined they were correctly paid. Amounts for real estate taxes and insurances are deposited into separate escrow accounts to pay the expenses as they come due. The balance in the real estate tax escrow account was sufficient to meet future payment obligations. However, the balances in the insurance escrow account was over-funded; FY21 payments were reduced by a total of $30,000 to bring the escrow balance to a reasonable amount to meet future payment obligations.

Other Management Advisory Services

Annually, Internal Audit provides management advisory services that include calculating MWRA's fringe and indirect cost rates, verifying unemployment benefit calculations, and providing support and review services to the Fore River Railroad Corporation (FRRC). Internal Audit also supports and updates MWRA's Policies and Procedures and Signature Authority forms.

In FY2021, Internal Audit performed numerous other management advisory services that included a prevailing wage review and consultation on real property leases. Internal Audit also performed numerous vendor financial capability reviews and analyses in support of the Procurement Department.

In FY2021, the annual savings resulting from internal audits and management advisory services totaled $465,976.

Policies and Procedures

Policies and Procedures provide consistent and clear statement of MWRA's standards to assist employees in the day-to-day management of the Authority's business and operations. Policy and Procedure numbers that begin with ADM (Administrative), FIN (Finance), HR (Human Resources) and OP (Operations) are accessible on the MWRA's intranet site, Pipeline. Internal Audit is the official custodian of the policies, it does not develop or approve policies but reviews all policies prior to final approval.

During FY2021, Internal Audit supported a process to update two policies, with a number of other policies in various stages of being updated. A further 9 policies were supported and updated in FY2020.

CONTRACT AUDITS AND RELATED REVIEWS

In FY2021, savings of $1,792,083 were recognized from the following contract audits and other related reviews:

Consultant Incurred Cost Audits

An incurred cost audit determines if billed labor costs are supported by the consultant's time reports and project cost records, other direct costs are supported by valid payments, final indirect costs have been calculated in accordance with the contract, and if final indirect cost rates have been properly applied to labor billings. The extent of fieldwork required to complete an assignment is based on a risk assessment that starts with an invoice analysis and a review of the consultant's annual Consultant Disclosure Statement submittal. Internal Audit usually conducts the fieldwork at the consultant's office, but during the COVID-19 period, has perform desk reviews to verify if costs billed are supported.

In FY2021, three incurred cost audits were completed with a total contract value of $6 million. These comprise Hazen and Sawyer, City Point Partners and Peer Consultants. A total of $14,130 was recovered.

Consultant Preliminary Reviews

When a new contract is awarded for more than $1 million, Internal Audit performs a consultant preliminary review to determine if the proposed direct labor, indirect costs, other direct costs or multipliers/comprehensive hourly rates are supportable. Internal Audit then notifies Procurement and the Project Manager of any issues, including any unsupported proposed costs that might be available for re-allocation to another cost element.

In FY2021, eleven consultant preliminary reviews were completed with a total value of $70.4 million. Internal Audit identified a total of $549,395 in unsupported proposed costs for potential reallocation, mainly related to indirect cost rate adjustments.

Consultant Disclosure Statements/ Annual Indirect Cost Rate Reviews

Each professional service consultant is required to submit a Consultant Disclosure Statement annually, including an indirect cost rate for the firm's recently completed fiscal year. Internal Audit reviews and approves provisional indirect cost rates proposed by consultants for billing both new and active contracts. The approved provisional indirect cost rates are reported to Project Managers and Procurement as a reference source for reviewing invoices and pricing contracts and amendments. During FY2021, 51 annual indirect cost rate reviews were completed and letters sent to consultants.

Construction Labor Burden Rate Reviews

A construction labor burden rate review establishes provisional labor burden rates to be used in the pricing of future change orders. Typical adjustments to contractor proposed rates include applying effective versus statutory Federal and State unemployment tax rates, applying appropriate experience modifications and other adjustments to workers compensation rates, and determining the basis for general liability and umbrella insurances and bond premium.

In FY2021, five construction labor burden rate reviews were completed for contracts with a total value of $29.3 million. An estimated $223,432 in cost savings may be achieved on future change orders.

Harbor Electric Energy Company (HEEC) 2020 True-Up and Billings – Existing Cable

Internal Audit reviewed the annual payment to HEEC for the use of the cross-harbor cable. The review included verifying the capacity charge calculation and operations and maintenance (O&M) charges billed by HEEC under the terms of the Massachusetts Department of Public Utility (DPU) tariff for CY2020 The DPU tariff is based on a capacity charge calculation that includes O&M charges for labor and materials needed to maintain the cable, and insurance for the cable.

Internal Audit reviewed the O&M charges and the tariff computation prior to HEEC's filing with DPU, which DPU approved. Savings of $61,177 were recognized from disallowed costs included in the proposed O&M charges. The CY2020 true-up was $622,173; the largest component is for insurance ($533,000), allocated general accounting costs, allocated legal costs and some miscellaneous costs.

Harbor Electric Energy Company (HEEC) - New Cable

During construction of the new cross-harbor cable, Internal Audit has been periodically reviewing the costs incurred on the project. Certain costs incurred prior to the Memorandum of Understanding (MOU) were initially included by HEEC but are not allowed under the terms of the MOU. In addition, HEEC included certain sales tax costs that it did not actually incur and some costs were duplicated related to accrual adjustments. Total cost adjustments in FY2021 are $1,011,095.

As contemplated in the MOU, it was agreed that MWRA could pay for its share of the capital costs during construction (prior to project completion) in order to reduce the costs, including those costs associated with Allowance for Funds Used During Construction (AFUDC). As of June 30, 2021, the MWRA has paid $48.8 million for its share of the capital costs. These payments reduce the AFUDC charge that HEEC is permitted to include in the total costs, resulting in significant future cost savings.

ATTACHMENT:

Status of Internal Audit Assignments FY2021 and FY2022

		Attachment 1
Status of Internal Audit Assignments FY21 and FY22		
COMPLETED	**Date**	**IN PROCESS & PLANNED TO START IN FY22**
Internal Audit/Management Advisory Services		
MWRA & FRRC Overhead Rates	Sep-20	Water and Waste Water Licenses and Certification
Overhead Crane Inspections	Apr-21	MIS Equipment
Office Re-opening Support	Jun-21	MIS Software License Management
Mandatory Confined Space Entry Training	Jun-21	Vendor Master File Review (Accounts Payable Controls)
		EZ Pass Transponder Compliance
		Prevailing Wage Review (Contract 7561)
Reviews of Agreements and Contracts		
Chelsea Lease FY2020	Aug-20	HEEC Cable costs
CNY Lease 2020	May-21	HEEC New Cable Tariff
HEEC 2020 Old Cable Tariff	May-21	CNY Lease 2021
		Chelsea Lease FY2021
		NEFCo Financial Review
Consultant Incurred Cost Audits		
Hazen & Sawyer	Sep-20	Kleinfelder
City Point Partners	Mar-21	JCK Underground
Peer Consultants	Apr-21	Bryant Associates
		Overland Engineering
		Corrosion Probe
		Black & Veatch
		Geosphere
		Hatch Mott MacDonald
		RDK
		Wright-Pierce
Consultant Preliminary Reviews (Over $1 mill)		
As Needed Design (7691 & 7692) $2.5M each	Apr-21	Clarifier Rehabilitation Phase 2 REI (7397) $3M
Deer Island Eastern Seawall (6723) $1.2M	Dec-20	Deer Island Fire Alarm REI (7426) $2.1M
Hayes Pump Station Rehab Design (7162) $2.1M	Apr-21	Deer Island HVAC Design ESDC (7110) $2.1M
Interceptor 7 (7216) $2.6M	Nov-20	DI Cryogenics Replacement (7139) $5.3M
Metro Tunnel Redundancy (7159) $16M	Sep-20	DI Odor Control Rehab (7088) $5.3M
NEH Improvements (7404) $6.7M	Jun-21	DI South System VFD Replacement (7126) $7.5M
Steel Tanks Improvements (6832) $2.8M	Mar-21	Digester & Storage Tank Rehab (7052) $4.1M
Ward St & Columbus Park Headworks (7429) $28.9M	Mar-21	Quabbin Maint Bldg Design (7677) $1.3M
		Masonry/Structural Repair (7711) $1.3M
		Sect 89 Replacement RE/RI (7633) $1.7M
		Shaft 5 Building Improvements Design and ESDC (7599) $1
		Waltham Water Pipeline CA (7547) $1.5M
		Somerville Marginal CSO Facility Rehab (7689) $2.4M
		Section 80 Rehab Design/CA (6892) $2.5M
		Cottage Farm Chem Bldg improv Design (7508) $1M
		Clinton WWTP Rehab Des/ESDC/RE (7371) $1.5M
		Residuals Facility Plan/EIR (7143) $1M
		Waltham Water Pipeline REI (7672) $1M
		Cathodic Protection South Des/CA (7950) $4.6M
		NEH Improvements REI (7724) $2.6M
		Residuals Facility Upgrades Design (7145) $2M

		Attachment 1
Status of Internal Audit Assignments FY21 and FY22		
COMPLETED	**Date**	**IN PROCESS & PLANNED TO START IN FY22**
		PS Rehab Design/CA (7526) $3.9M
		CHP Des/ESDC/REI (6730) $5.6M
Construction Labor Burden Rate Reviews (Over $1 mill)		
CP1 Shafts 6,8,9A (7561) $2.1M	Nov-20	Wachusett Lower Gatehouse Boiler Repl. (7698) $700K
Dorchester Interceptor Sewer (7279) $5.6M	Sep-20	River Road Rehab Construction (7701) $2.2M
Fuel Oil Tank Replacement Ph 1 (7554) $1.4M	Oct-20	Clarifier Rehab Phase 2 CA (7395) $149M
WASM 3, (6544), Albanese D&S	Nov-20	Clinton Screw Valves & Pump (7704) $3.5M
Weston Aqueduct Stop Plank Gate (7369) $2.3M	Dec-20	CP3 Shaft 5&9 (7671) $2.5M
		Deer Island Dystor Membrane Repl. (7135) $4M
		Deer Island Fire Alarm (7051) $28.8M
		Deer Island MCC & Switch Gear (7420) $11.2M
		Deer Island Roofing Replacement (7734) $3M
		DI Gas Protection System Ph 2 (7169) $3.5M
		Fuel Oil Tank Replacement Ph 2 (7555) $1.5M
		JJCWTP SCADA Upgrade (7582) $14M
		Prison Point Rehabilitation (7462) $42.5M
		NIH Sec 89 Replacement (7117) $32.6M
		Wachusett Lower Gatehouse Pipe Replace (7380) $4.1M
		Low Service PRV Improvement (7563) $11.3M
		WASM3 New Connecting Mains CP3 Section 23 24 47 Reh
		Wach Bastion Rehab Construction (7697) $2M
		B/W Improvementts Construction (7366) $8.8M
		Remote HW Shaft Access Impr Constr (7550) $2.8M
		CHEPS Impr Construction (7562) $3M
		Waltham Water Pipeline Constr (7457) $13.8M
		CP 1 NEH Improvements (6522) $4.4M
		Sudbury/Foss Dam Const (7615) $1.8M
		CP3 Shafts 7, 7B, 7C, 7D (7670) $2.5M
		Siphon Structure Rehab Construction (6225) $8.3M
		Cathodic Protection Shafts N&W (7610) $2.5M
		Radio Repeater System Upgrade 2 (7134) $2.5M
		Clinton Landfill Cell #1 Closure (7754) $1M
		Soda Ash & Ammonia Equip Repl (7598) $3M

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Delegated Authority Report – September 2021

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

Michele S. Gillen
Director, Administration

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

Douglas J. Rice
Director of Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period September 1 – 30, 2021.

This report is broken down into three sections:

- Awards of Construction, non-professional and professional services contracts and change orders and amendments in excess of $25,000, including credit change orders and amendments in excess of $25,000;
- Awards of purchase orders in excess of $25,000; and
- Amendments to the Position Control Register.

DISCUSSION:

The Board of Directors' Management Policies and Procedures, as amended by the Board's vote on February 21, 2018, delegate authority to the Executive Director to approve the following:

Construction Contract Awards:

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

Change Orders:

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

Professional Service Contract Awards:

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

Non-Professional Service Contract Awards:

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

Purchase or Lease of Equipment, Materials or Supplies:

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

Amendments:

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

Amendments to the Position Control Register:

Amendments which result only in a change in cost center.

BUDGET/FISCAL IMPACT:

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

CONSTRUCTION/PROFESSIONAL SERVICES DELEGATED AUTHORITY ITEMS SEPTEMBER 1 - 30, 2021

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	09/07/21	**MISCELLANEOUS FENCING INSTALLATIONS AND REPAIRS** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: DECREASE IN MATERIALS ALLOWANCE, DECREASE IN HOURS FOR A CREW FOREMAN WITH TRUCKS AND TOOLS, DECREASE IN LABOR HOURS.	6760Y	2	R.A.D. CORP.	($199,087.45)
C-2.	09/07/21	**ELEVATOR MAINTENANCE SERVICES AT VARIOUS FACIITIES** INCREASE IN NON-EMERGENCY REPAIR SERVICES; INCREASE IN REPLACEMENT PARTS ALLOWANCE.	OP-397	1	UNITED ELEVATOR COMPANY, INC.	$43,000.00
C-3.	09/10/21	**JOHN J. CARROLL WATER TREATMENT PLANT SODIUM HYPOCHLORITE SYSTEM MODIFICATIONS** FURNISH AND INSTALL FIVE WALL MOUNTABLE PANEL BOX; PERFORM GROUND PENETRATING RADAR; FURNISH AND INSTALL MAGNETIC FLOW METERS; FURNISH AND INSTALL FLANGE ADAPTERS; FURNISH AND INSTALL B&R AUTOMATION POWERLINK V2 INTERFACE.	7085H	3	HARDING & SMITH, LLC	$94,016.47
C-4.	09/10/21	**NUT ISLAND HEADWORKS ODOR CONTROL AND HVAC IMPROVEMENTS** CHEMICAL FILL PIPING LEAK DETECTION AND DEMOLITION OF CONCRETE ENCASEMENT; BOILER BREECHING MODIFICATIONS; RELOCATE EXISTING ELECTRICAL CIRCUITS AT CARBON ADSORBERS; RELOCATE EXISTING UTILITIES AT SCADA CONTROL PANEL; BOILER ISOLATION VALVES AND CONTROL VALVES.	7548	5	WALSH CONSTRUCTION COMPANY II, LLC	$203,986.91
C-5.	09/10/21	**BOILER AND WATER HEATER SERVICE** AWARD OF A CONTRACT TO THE LOWEST BIDDER TO PROVIDE ANNUAL PREVENTIVE MAINTENANCE SERVICES AND NON-EMERGENCY AND EMERGENCY REPAIRS SERVICES FOR BOILER AND WATER HEATERS LOCATED AT VARIOUS MWRA FACILITIES FOR A TERM OF 730 CALENDAR DAYS.	OP-427	AWARD	COOLING & HEATING SPECIALISTS, INC.	$333,120.00
C-6.	09/10/21	**MARLBOROUGH EMERGENCY PUMP STATION CONNECTION** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR THE MARLBOROUGH EMERGENCY PUMP STATION CONNECTION FOR A TERM OF 180 CALENDAR DAYS.	7791	AWARD	GVC CONSTRUCTION, INC.	$896,730.00
C-7.	09/20/21	**SOUTHERN EXTRA HIGH PIPELINE - SECTION 111 (DEDHAM NORTH)** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: DELETE THE REQUIREMENT TO EXCAVATE ROCK, REMOVE, HANDLE, TRANSPORT AND DISPOSE OF GROUP 1A AND GROUP 1B ULINED EXCAVATED MATERIALS, GROUP IIB ASHPALT BATCH RECYCLING CONTAMINATED EXCAVATED MATERIALS, GROUP III, RCS-2 EXCESS FILL FACILITY CONTAMINATED EXCAVATED MATERIALS, GROUP III RCS-2 EXCESS FILL FACILITY CONTAMINATED EXCAVATED MATERIALS, GROUP III, RCS-2 UNLINED LANDFILL CONTAMINATED EXCAVATED MATERIALS, UNSUITABLE MATERIALS, 5 ASBESTOS	7504	15	P. GIOIOSO & SONS, INC.	($357,371.15)

PURCHASING DELEGATED AUTHORITY ITEMS September 1 - 30, 2021

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	09/13/21	**PURCHASE OF THREE YEARS OF JANITORIAL SERVICES** Award of a three-year purchase order under State Contract FAC114 to the lowest responsive bidder for janitorial services at the Walpole Records Center.	WRA-5011Q		Facilities Management and Maintenance, Inc.	$46,708.90
P-2	09/13/21	**PREFERRED SERVICE AGREEMENT FOR THE COMBUSTION TURBINE GENERATORS** Amendment to purchase order for Preferred Service Agreement for the Combustion Turbine Generators as part of the approval process for the Boston Harbor Project, regulatory agencies (EPA and MADEP)			Mitsubishi Power Aero LLC	$50,000.00
P-3	09/13/21	**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 for the Clinton Wastewater Treatment Plant's Elimination System National Pollutant Discharge.	WRA-5008		Kemira Water Solutions, Inc.	$121,800.00
P-4	09/21/21	**MAINTENANCE AND SUPPORT FOR THE PORTIA INVESTMENT AND CASH MANAGEMENT SYSTEM** Award of a sole source purchase order for one-year maintenance and support for the Portia Investment and Cash Management System for the period of November 1, 2021 through October 31, 2022.			SS&C Technologies, Inc.	$62,371.76
P-5	09/21/21	**MICROSOFT PREMIER SERVICES, WEB ACCESS AND TECHNICAL SUPPORT** Award of a one-year purchase contract under State Contract ITS75 to the lowest responsive bidder for Microsoft Premier Services, Web Access, and Technical Support.	WRA-5013Q		Insight Public Sector, Inc.	$76,997.96
P-6	09/27/21	**AIR EMISSIONS COMPLIANCE TESTING** Award of a three-year purchase order to the lowest responsive bidder for air emissions compliance testing required to be conducted at the Deer Island Treatment Plant and the Pelletizing Plant in accordance with Massachusetts Department of Environmental Protection (DEP) air permit for each facility.	WRA-5010		Gammie Air Monitoring, LLC	$92,250.00
P-7	09/30/21	**SLUDGE HEAT EXCHANGER REPLACEMENT PARTS** Award of a sole source purchase order to the lowest responsive bidder for sludge heat exchanger replacement parts for the Deer Island Treatment Plant.			Walker Process Equipment	$30,100.00
P-8	09/30/21	**MAINTENANCE AND SUPPORT FOR THE LABORATORY INFORMATION MANAGEMENT SYSTEM** Award of a sole source purchase order for one-year of maintenance and support of the Laboratory Information Management System for the time period of November 1, 2021 through			LabWare, Inc.	$68,508.00

POSITION CONTROL REGISTER (PCR) LOCATION CHANGES September 2021

DATE OF CHANGE	POSITION TITLE	CURRENT PCR#	CURRENT COST CENTER	NEW PCR #	NEW COST CENTER	REASON FOR CHANGE
9/18/2021	Administrative Coordinator	5910041	Policy and Administration	2210082	TRAC	To better meet staffing needs.
8/7/2021	Administrative Systems Coordinator	5910033	Policy and Administration	3391024	Western Operations	To better meet staffing needs.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: FY22 Financial Update and Summary through September 2021

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 2022 through September 2021, comparing actual spending to the budget.

DISCUSSION:

The total Year-to-Date variance for the FY22 CEB is $10.0 million, due to lower direct expenses of $5.9 million, indirect expenses of $0.3 million, and debt service costs of $2.9 million; and higher revenue of $0.9 million.

FY22 Current Expense Budget

The CEB expense variances through September 2021 by major budget category were:

- Lower Direct Expenses of $5.9 million or 9.7% under budget. Spending was lower for Wages & Salaries, Maintenance, Chemicals, Fringe Benefits, Professional Services, Worker's Compensation, Utilities, Other Services, and Training & Meetings. Spending was higher than budget for Overtime.

- Lower Indirect Expenses of $0.3 million or 1.9% under budget due primarily to lower Watershed reimbursements and Insurance Payments/Claims.

- Debt Service expenses were $2.9 million or 4.8% under budget driven by lower than budgeted variable interest expense.

- Revenue was $0.9 million or 0.4% over budget driven by Other Revenue of $0.8 million, and Other User Charges of $0.1 million.

FY22 Budget and FY22 Actual Variance by Expenditure Category
(in millions)

	FY22 Budget YTD	FY22 Actual YTD	$ Variance	% Variance
Direct Expenses	$60.8	$54.9	-$5.9	-9.7%
Indirect Expenses	$18.4	$18.1	-$0.3	-1.9%
Capital Financing	$111.7	$108.9	-$2.9	-2.6%
Total	**$190.9**	**$181.8**	**-$9.1**	**-4.8%**

Totals may not add due to rounding

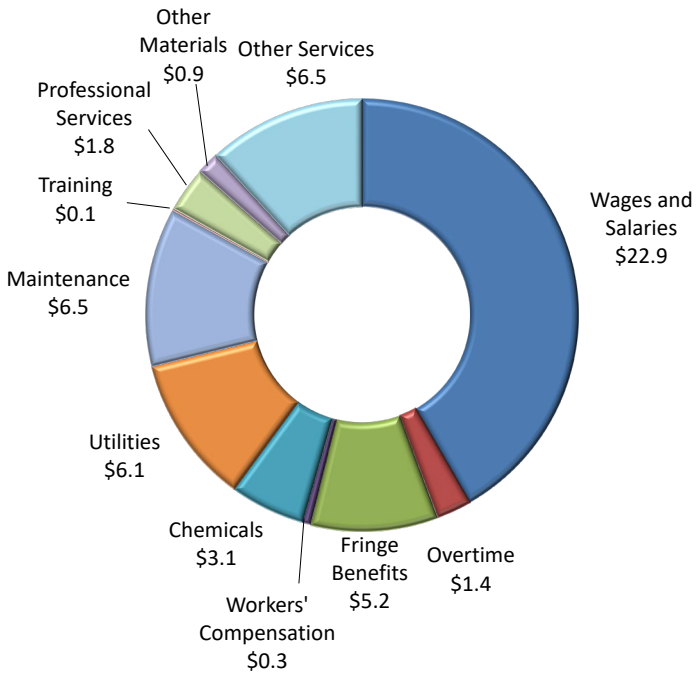
Total Revenues of $203.5 million were $0.9 million or 0.4% over budget due to higher Other Revenue and Other User Charges, offset slightly by lower Investment Income.

Please refer to Attachment 1 for a more detailed comparison by line item of the budget variances for FY22.

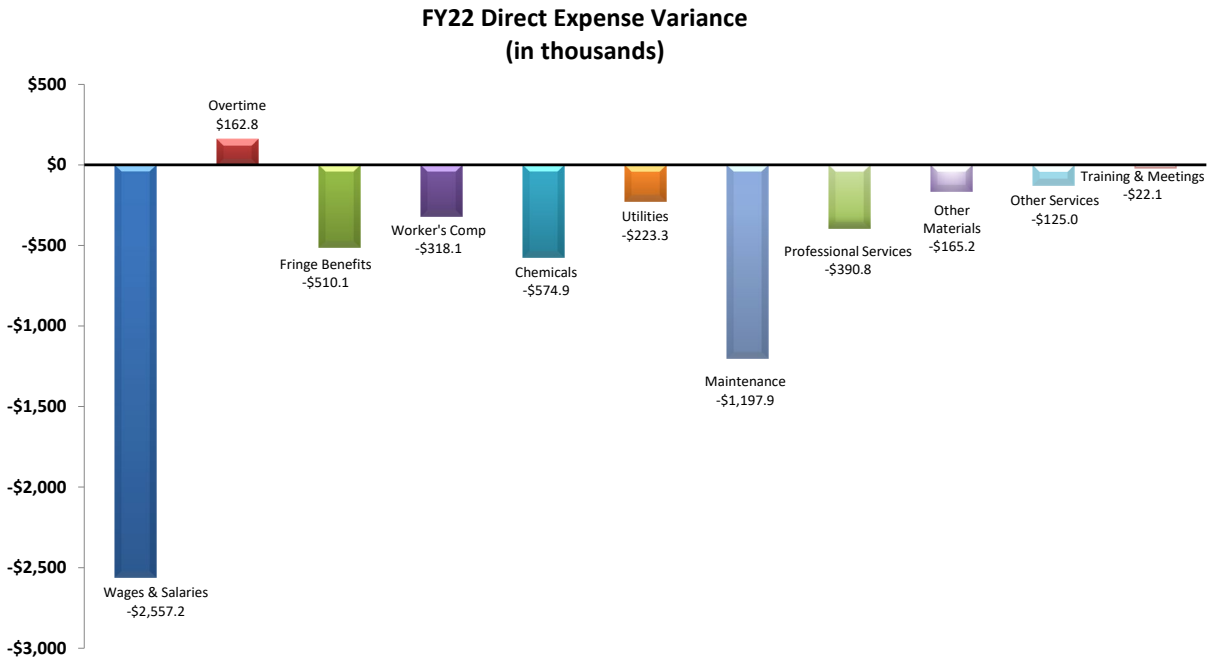
Direct Expenses

FY22 direct expenses through September totaled $54.9 million, which was $5.9 million or 9.7% less than budgeted.

FY22 Direct Expenses
(in millions)

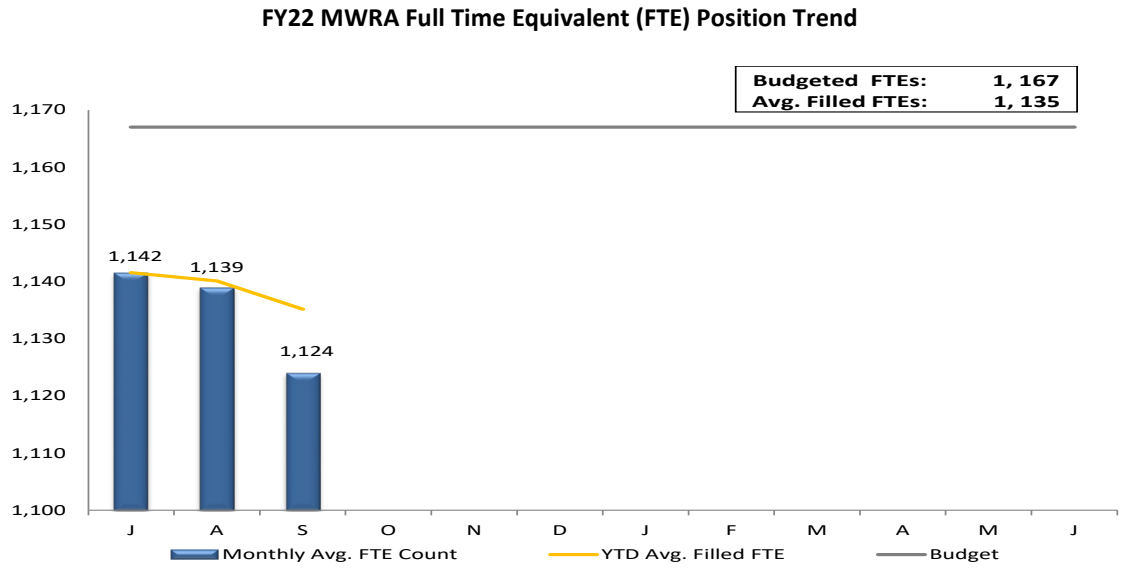


Lower than budgeted spending for Wages & Salaries, Maintenance, Chemicals, Fringe Benefits, Professional Services, Worker's Compensation, Utilities, Other Materials, Other Services, and Training & Meetings. These were partially offset by higher than budgeted spending in Overtime.



Wages and Salaries

Wages and Salaries are under budget by $2.6 million or 10.0%. Through September, there were 32 fewer average FTEs (1,135 versus 1,167 budget) or 2.7% and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions also contributed to Regular Pay being under budget.



Maintenance

Maintenance was less than budget by $1.2 million or 15.5%, largely driven by the timing of projects. Maintenance Services were under budget by $0.7 million driven by Building & Grounds Services ($359,000), Plant and Machine Services ($294,000), and Computer Services ($189,000) primarily due to timing of service contracts, partially offset by Computer Software Licenses ($140,000). Maintenance Materials are under budget by $0.5 million driven by Plant and Machine Materials ($320,000) and Pipe Materials ($131,000) primarily due to timing.

Chemicals

Chemicals were lower than budget by $0.6 million or 15.7%. Lower than budget spending on Hydrogen Peroxide ($214,000) driven by DITP based on usage as excessive rainfall helped lower H2S levels; Activated Carbon ($166,000) driven by Wastewater Operations due to timing of deliveries; Polymer ($80,000) driven by DITP due to less usage for centrifuge operations; Soda Ash ($78,000) driven by Water Operations due to lower dosing and lower average flows at CWTP; and Sodium Hypochlorite ($64,000) driven by Deer Island and Field Operations due to lower overall usage. This is partially offset by higher than budget spending on Sodium Bisulfite of $69,000 driven by Wastewater Operations due to higher use at wastewater facilities due to higher flows/rain, and Ferric Chloride of $29,000 driven by DITP to keep the orthophosphate levels in the digesters at the desired target level. DITP flows are 69.7% higher than the budget and CWTP flows are 7.1% lower than the budget through September. 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.

Fringe Benefits

Fringe Benefit spending was lower than budget by $0.5 million or 8.9%. This is primarily driven by lower Health Insurance costs of $447,000, 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. Dental Insurance and Medicare were under budget by $22,000 and $19,000, respectively.

Professional Services

Professional Services were lower than budget by $0.4 million or 17.5%. The overall underspending is due to lower than budget spending in Computer Systems Consultant of $195,000 in MIS primarily due to a change in scope for Managed Security Service Provider (MSSP) monitoring extension; Engineering of $175,000 primarily in Field Operations; and Legal Services of $69,000 in Law and Administration.

Worker's Compensation

Worker's Compensation expenses were lower than budget by $0.3 million or 48.7%. The lower expenses were primarily due to favorable variances in compensation payments ($199,000), medical payments ($94,000), and administrative expenses ($25,000). Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.

Utilities

Utilities were less than budget by $0.2 million or 3.5%. Underspending in Diesel Fuel ($1.1 million) is driven by Deer Island Treatment Plant due to the timing of deliveries. Deliveries began on October 5th. Overspending in Electricity of $939,000 primarily at DITP ($650,000) driven primarily by power demand charges being more than budgeted based on flows, new pricing for Eversource, and real time market prices for the non-block purchases under the Direct Energy contract. Also, Field Operations ($288,000) is over budget primarily due to new rates and quantity.

Other Materials

Other Materials were lower than budget by $0.2 million or 15.0%, driven by less than budgeted spending for Computer Software ($81,000) in MIS, Vehicle Expense ($59,000) primarily due to delay in obtaining parts, and Office Supplies ($36,000).

Other Services

Other Services were lower than budget by $0.1 million or 1.9%. Lower than budgeted spending for Memberships/Dues/Subscriptions ($55,000) primarily in Operations, Other Services ($54,000), Sludge Pelletization ($38,000) due to quantities, Health/Safety ($19,000), and Telecommunication costs ($18,000). This is partially offset by higher than budgeted spending for Grit & Screening Removal ($108,000) due to higher quantities.

Training & Meetings

Training & Meetings expenses were lower than budget by $22,000 or 20.4% driven by the timing of spending.

Overtime

Overtime expenses were greater than budget by $0.2 million or 12.8%. Higher spending mainly in Deer Island $94,000 and Clinton $32,000 for storm and shift coverage and Field Operations of $39,000 for shift coverage and unplanned maintenance. Year-to-date rainfall was a major contributor for the increased overtime.

Indirect Expenses

Indirect Expenses totaled $18.1 million, which is $0.3 million or 1.9% lower than budget. The variance is driven by lower Watershed reimbursements and Lower Insurance Payments/Claims.

Based on FY22 operating activity only, the Watershed Division is $281,000 or 7.6% under budget. Lower spending on Wages and Salaries, Equipment, and Fringe Benefits is partially offset by higher spending on Maintenance. When factoring in the FY21 balance forward ($69,000) which was paid during Q1 of FY22, Watershed Reimbursement is $212,000 or 5.7% below budget through September 2021.

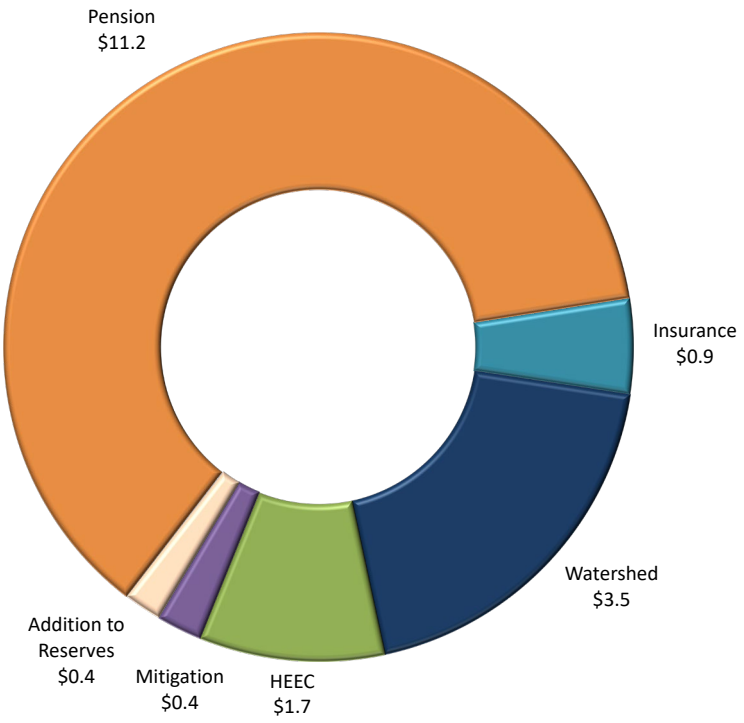
FY22 Watershed Protection Variance

$ in millions	YTD Budget	YTD Actual	YTD $ Variance	YTD % Variance
Operating Expenses	4.0	3.7	-0.3	-6.5%
Operating Revenues - Offset	0.3	0.3	0.0	5.6%
FY22 Operating Totals	**3.7**	**3.4**	**-0.3**	**-7.6%**
DCR Balance Forward (FY21 4th quarter accrual true-up)	0.0	0.1	1.0	
FY22 Adjusted Operating Totals	**3.7**	**3.5**	**-0.2**	**-5.7%**
PILOT	0.0	0.0	0.0	0.0%
Total Watershed Reimbursement	**3.7**	**3.5**	**-0.2**	**-5.7%**

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 quarterly in arears. Accruals are being made monthly based on estimated expenses provided by DCR and trued-up quarterly based on the quarterly invoice. MWRA's budget is based on the annual Fiscal Year Work Plan approved by the Massachusetts Water Supply Protection Trust. The FTE count at the end of September was 134 (and 133.3 on a year-to-date basis) vs. a budget of 150.

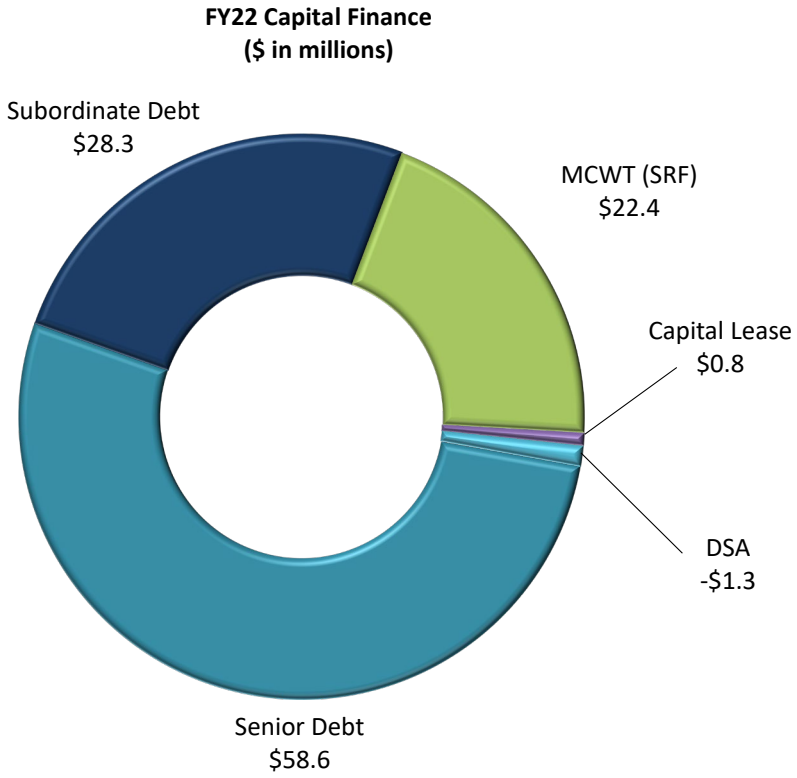
FY22 Indirect Expenses
(in millions)



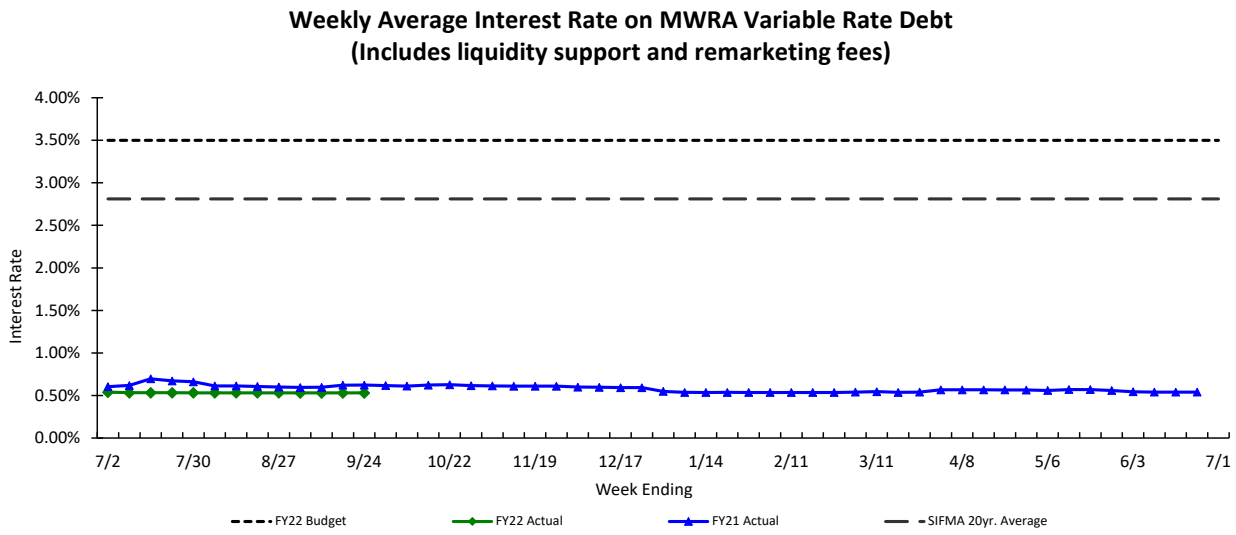
Capital Financing

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 FY22 through September totaled $108.9 million, which is $2.9 million less than budget. This favorable variance is the result of lower than budgeted variable interest rates.



The graph below reflects the FY22 actual variable rate trend by week against the FY22 Budget.



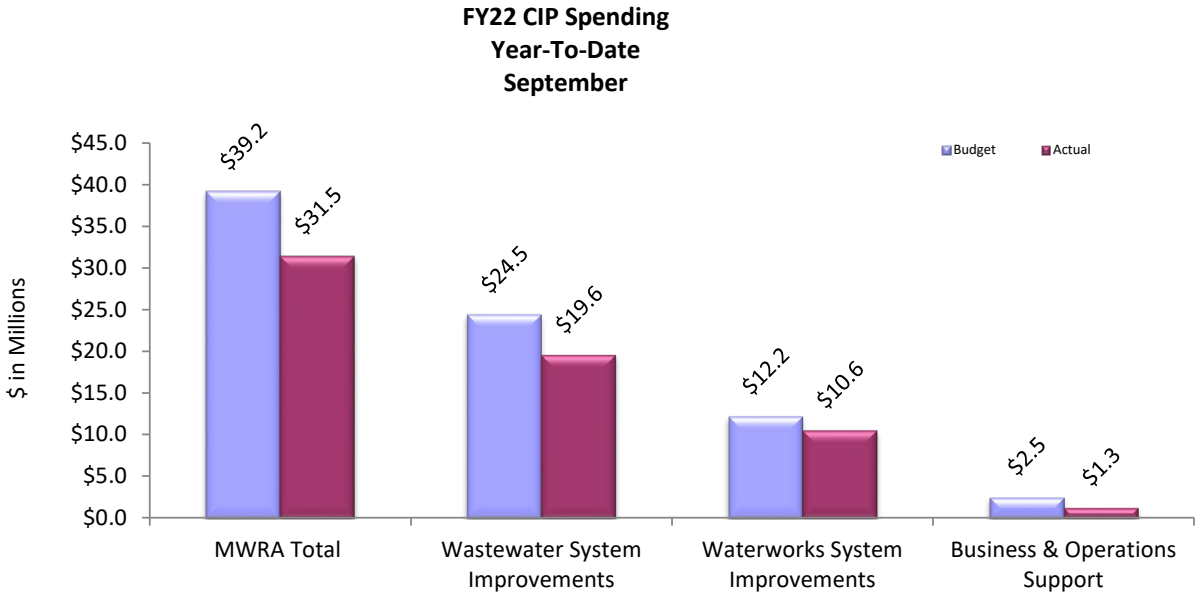
Revenue & Income

Revenues of $203.5 million were $0.9 million or 0.4% over budget. Other Revenue was $0.8 million or 97.6% over budget due to Miscellaneous Revenue of $454,000 primarily associated with worker's compensation reimbursement for older claims, income from the disposal of equipment $358,000, Energy Rebates ($104,000), and Energy Revenue ($115,000). In addition, Other User Charges were over budget by $111,000 for unplanned water used by the Town of Burlington. Investment Income was $43,000 or 4.3% under budget due to lower than budgeted interest rates (0.52% vs. 0.58%).

FY22 Capital Improvement Program

Capital expenditures in Fiscal Year 2022 through September total $31.5 million, $7.7 million or 19.7% 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 $23.9 million, $5.2 million or 17.8% under budget.



Overall, CIP spending reflects the underspending in Wastewater Improvements ($4.8 million), Waterworks ($1.7 million) and Business and Operations Support ($1.3 million). Major variances in Wastewater are primarily due to timing of community grants and loans for the I/I Local Financial Assistance Program, slower than anticipated meter installation and acceptances for the Wastewater Metering Installation contract, timing of work for the Winthrop Terminal Facility VFD Replacement and Gravity Thickener contracts, and completion of some design and inspection tasks later than anticipated for the Ward Street and Columbus Park Headworks Upgrades Design/ESDC. This was partially offset by planned FY21 work completed in FY22 for the NI Odor Control and HVAC Improvements and Chelsea Creek Headworks Upgrades.

Waterworks variances are primarily due to timing of community loan distributions for the Water Loan Program, updated schedule for NIH Section 89 & 29 Replacement, FY22 planned work and summer shutdown for the WASM 3 CP-1 construction, and reduction in scope for Sections 50 & 57 Water Pipeline. This was partially offset by an earlier than anticipated land purchase for the Metropolitan Tunnel Redundancy Admin, Legal, Public Outreach contract and timing of work for the Tunnel Preliminary Design and MEPA Review and WASM/Spot Pond Supply Mains Pressure Reducing Valves Construction.

FY22 Budget and FY22 Actual Variance by Program
(in millions)

$ in Millions	Budget	Actuals	$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	11.2	9.6	(1.6)	-13.9%
Treatment	4.7	2.4	(2.3)	-49.2%
Residuals	0.0	0.0	0.0	0.0%
CSO	1.7	2.9	1.2	68.7%
Other	6.8	4.6	(2.1)	-31.5%
Total Wastewater System Improvements	**$24.5**	**$19.6**	**($4.8)**	**-19.8%**
Waterworks System Improvements				
Drinking Water Quality Improvements	0.3	0.6	0.3	113.3%
Transmission	5.8	8.2	2.4	40.5%
Distribution & Pumping	3.6	1.3	(2.3)	-63.5%
Other	2.6	0.5	(2.1)	-81.5%
Total Waterworks System Improvements	**$12.2**	**$10.6**	**($1.7)**	**-13.5%**
Business & Operations Support	**$2.5**	**$1.3**	**($1.3)**	**-49.4%**
Total MWRA	**$39.2**	**$31.5**	**($7.7)**	**-19.7%**

Totals may not add due to rounding

FY22 Spending by Program:

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

Waterworks Transmission: Net overspending of $2.4 million

- $1.9 million for Metropolitan Tunnel Redundancy Administration, Legal & Public Outreach due to earlier than anticipated land purchase.
- $0.7 million for Tunnel Preliminary Design and MEPA Review due to timing of consultant work.
- $0.7 million for WASM/Spot Pond Supply Main Pressure Reducing Valves Improvements due to timing of contractor work.
- $0.3 million for Wachusett Dam Bridge Crane Removal for FY21 planned work completed in FY22.
- This overspending was partially offset by underspending of $0.6 million for WASM 3 CP-1 for FY22 planned work completed in FY21 and summer shutdown, $0.2 million for Water Land due to timing of land purchases, and $0.2 million for WASM 3 Design due to timing of consultant work.

Wastewater Treatment: Net underspending of $2.3 million

- $1.3 million for Winthrop Terminal Facility VFD and Motors Replacements, $0.8 million for Gravity Thickener Rehabilitation, and $0.2 million for Miscellaneous VFD Replacements due to timing of work.
- $0.1 million for Clarifier Rehab Phase 2 Design due to pending time extension.
- This underspending was partially offset by overspending of $0.2 million Chemical Tank due to contractor progress.

Water Distribution and Pumping: Net underspending of $2.3 million

- $1.6 million for Section 89 & 29 Replacement Construction and REI and $0.3 million for CP-3 CP3-Sections 23, 24, 47 Final Design/CA/RI due to updated schedules.
- $0.3 million for Sections 50 & 57 Water Rehabilitation - Design/ESDC due to contract scope reduction.
- This overspending was partially offset by underspending of $0.2 million for NEH Improvements Design ESDC due to timing of consultant work.

Other Wastewater: Net underspending of $2.1 million

- $2.1 million for Community I/I due to timing of community distributions of grants and loans.

Other Waterworks: Net underspending of $2.1 million

- $1.7 million for Local Financial Assistance due to timing of community loan distributions.
- $0.2 million for Water System Hydraulic Model due to slower than anticipated start-up.

Interception & Pumping: Net underspending of $1.6 million

- $1.5 million for Wastewater Meter System Equipment Replacement due to slower than anticipated meter installations and acceptances.
- $0.8 million for Ward Street & Columbus Park Headworks - Design/CA due to completion of some design and inspection tasks later than anticipated.
- $0.3 million for Fuel Oil Tank Replacement - Phase 1 Construction due to timing of work.
- $0.2 million for Wastewater Meter System Planning/Study/Design due to construction administration work behind to construction delay.
- $0.1 million for Hayes Pump Station Rehab – Design due to additional time needed to inspect the pumps.
- This underspending was partially offset by overspending of $1.2 million for Nut Island Odor Control & HVAC Improvements Phase 2 – Construction and $1.1 million for Chelsea Creek Headworks Upgrades - Construction and REI due to work scheduled for FY21 performed in FY22.

Business & Operations Support: Net underspending of $1.3 million

- $0.9 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work, and $0.2 million for Edge Switches and $0.1 million for Enterprise Content Management due to timing of work.
- This underspending was partially offset by $0.3 million for Security Installation & Equipment due to timing of security initiatives.

Combined Sewer Overflow: Net overspending of $1.2 million

- $0.7 million for East Boston CSO Control - BOS014 due to work ahead of original schedule.
- $0.6 million for Dorchester Inflow Removal Construction due to timing of payment.

Drinking Water Quality Improvements: Net overspending of $0.3 million

- $0.2 million for CP-7 Existing Facilities Modifications - Cosgrove Boat Storage due to contractor progress.

Construction Fund Balance

The construction fund balance was $200 million as of the end of September. Commercial Paper/Revolving Loan available capacity was $222 million.

ATTACHMENTS:

Attachment 1 – Variance Summary September 2021
Attachment 2 – Current Expense Variance Explanations
Attachment 3 – Capital Improvement Program Variance Explanations

ATTACHMENT 1
FY22 Actuals vs. FY22 Budget

	Sep 2021 Year-to-Date				
	Period 3 YTD Budget	Period 3 YTD Actual	Period 3 YTD Variance	%	FY22 Approved
EXPENSES					
WAGES AND SALARIES	$ 25,446,880	$ 22,889,640	$ (2,557,240)	-10.0%	$ 116,680,341
OVERTIME	1,271,277	1,434,033	162,756	12.8%	5,156,681
FRINGE BENEFITS	5,702,903	5,192,781	(510,122)	-8.9%	23,253,137
WORKERS' COMPENSATION	653,540	335,469	(318,071)	-48.7%	2,614,159
CHEMICALS	3,672,878	3,098,007	(574,871)	-15.7%	12,202,286
ENERGY AND UTILITIES	6,299,962	6,076,700	(223,262)	-3.5%	24,749,865
MAINTENANCE	7,708,630	6,510,688	(1,197,942)	-15.5%	32,442,382
TRAINING AND MEETINGS	108,364	86,254	(22,110)	-20.4%	473,994
PROFESSIONAL SERVICES	2,227,171	1,836,410	(390,761)	-17.5%	8,773,258
OTHER MATERIALS	1,097,954	932,769	(165,185)	-15.0%	8,334,774
OTHER SERVICES	6,588,715	6,463,752	(124,963)	-1.9%	25,129,234
TOTAL DIRECT EXPENSES	**$ 60,778,274**	**$ 54,856,503**	**$ (5,921,770)**	**-9.7%**	**$ 259,810,111**
INSURANCE	$ 985,900	$ 885,450	$ (100,450)	-10.2%	$ 3,943,600
WATERSHED/PILOT	3,684,804	3,473,084	(211,720)	-5.7%	26,731,490
HEEC PAYMENT	1,747,988	1,715,514	(32,474)	-1.9%	6,991,953
MITIGATION	423,340	423,340	-	0.0%	1,693,360
ADDITIONS TO RESERVES	353,162	353,162	-	0.0%	1,412,647
RETIREMENT FUND	11,205,000	11,205,000	-	0.0%	11,205,000
POST EMPLOYEE BENEFITS	-	-	-	---	4,673,624
TOTAL INDIRECT EXPENSES	**$ 18,400,194**	**$ 18,055,550**	**$ (344,644)**	**-1.9%**	**$ 56,651,674**
STATE REVOLVING FUND	$ 22,441,124	$ 22,441,124	$ -	0.0%	$ 95,673,399
SENIOR DEBT	58,639,470	58,639,470	-	0.0%	244,957,128
DEBT SERVICE ASSISTANCE	(1,287,870)	(1,287,870)	-	0.0%	(1,287,870)
CURRENT REVENUE/CAPITAL	-	-	-	---	17,200,000
SUBORDINATE MWRA DEBT	31,133,308	31,133,308	-	0.0%	125,046,218
LOCAL WATER PIPELINE CP	-	-	-	---	6,120,127
CAPITAL LEASE	804,265	804,265	-	0.0%	3,217,060
VARIABLE DEBT	-	(2,857,143)	(2,857,143)	---	-
DEFEASANCE ACCOUNT	-	-	-	---	-
DEBT PREPAYMENT	-	-	-	---	5,609,355
TOTAL CAPITAL FINANCE EXPENSE	**$ 111,730,297**	**$ 108,873,154**	**$ (2,857,143)**	**-2.6%**	**$ 496,535,417**
TOTAL EXPENSES	**$ 190,908,765**	**$ 181,785,207**	**$ (9,123,557)**	**-4.8%**	**$ 812,997,202**
REVENUE & INCOME					
RATE REVENUE	$ 198,021,000	$ 198,021,000	$ -	0.0%	$ 792,084,000
OTHER USER CHARGES	2,386,495	2,497,231	110,736	4.6%	9,222,883
OTHER REVENUE	853,895	1,687,420	833,525	97.6%	6,479,203
RATE STABILIZATION	312,500	312,500	-	0.0%	1,250,000
INVESTMENT INCOME	1,009,518	966,361	(43,157)	-4.3%	3,961,116
TOTAL REVENUE & INCOME	**$ 202,583,408**	**$ 203,484,512**	**$ 901,105**	**0.4%**	**$ 812,997,202**

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY22 Budget YTD September	FY22 Actuals September	FY22 YTD Actual vs. FY22 Budget		Explanations
			$	%	
Direct Expenses					
Wages & Salaries	25,446,880	22,889,640	(2,557,240)	-10.0%	Wages and Salaries are under budget by $2.6 million. Year to date, there have been 32 fewer average FTEs (1,135 versus 1,167 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions.
Overtime	1,271,277	1,434,033	162,756	12.8%	Higher spending mainly in Deer Island of $94,000 and Clinton of $32,000 for storm and shift coverage and Field Operations of $39,000 for shift coverage and unplanned maintenance. Year-to-date rainfall was a major contributor for the increased overtime.
Fringe Benefits	5,702,903	5,192,781	(510,122)	-8.9%	Lower than budget in **Health Insurance** of $447,000, due to fewer than budgeted participants in health insurance plans, increased contribution by external new hires vs. lower contribution rates of staff retiring, and the shift from family to individual plans which are less expensive. In addition, **Dental Insurance** was under budget by $22,000 and **Medicare** by $19,000.
Worker's Compensation	653,540	335,469	(318,071)	-48.7%	The lower expenses were due to favorable variances in **Compensation Payments** of ($199,000), **Medical Payments** of ($94,000), and **Administrative Expenses** ($25,000). Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.
Chemicals	3,672,878	3,098,007	(574,871)	-15.7%	Lower than budget spending on **Hydrogen Peroxide** ($214,000) driven by DITP based on usage as excessive rainfall helped lower H2S levels**, Activated Carbon** ($166,000) driven by Wastewater Operations due to timing of deliveries**, Polymer** ($80,000) driven by DITP due to less usage for centrifuge operations; **Soda Ash** ($78,000) driven by Water Operations due to lower dosing and lower average flows at CWTP and **Sodium Hypochlorite** ($64,000) driven by Deer Island and Field Operations due to lower overall usage. This is offset by higher than budget spending on **Sodium Bisulfite** of $69,000 driven byWastewater Operations due to higher use at wastewater facilities due to higher flows/rain, and **Ferric Chloride** of $29,000 driven by DITP to keep the orthophosphate levels in the digesters at the desired target level. DITP flows are 69.7% higher than the budget and CWTP flows are 7.1% lower than the budget through September. 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	6,299,962	6,076,700	(223,262)	-3.5%	**Diesel Fue**l is underspent by ($1.1 million) driven by Deer Island Treatment Plant due to timing of deliveries. Deliveries started on October 5th. Overspending in **Electricity** of $0.9 million primarily at DITP ($0.6 million) driven by power demand charges being more than budgeted based on flows, new pricing for Eversource, and real time market prices for the non-block purchases under the Direct Energy contract. Also, Field Operations ($0.3 million) is over budget primarily due to new rates and quantity.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY22 Budget YTD September	FY22 Actuals September	FY22 YTD Actual vs. FY22 Budget		Explanations
			$	%	
Maintenance	7,708,630	6,510,688	(1,197,942)	-15.5%	Underspending in **Ongoing Maintenance** by $1.2 million is largely driven by the timing of projects. *Maintenance Services* are under budget by $0.7 million driven by **Building & Grounds Services** ($0.4 million), **Plant and Machine Services** ($0.3 million), and **Computer Services** ($0.2 million) due to timing of service contracts, partially offset by higher spending for **Computer Software Licenses** ($0.1 million). *Maintenance Materials* are under budget by $0.5 million, driven by **Plant and Machine Materials** ($0.3 million) and **Pipe Materials** ($0.1 million) due to timing.
Training & Meetings	108,364	86,254	(22,110)	-20.4%	Lower than budget spending on **Training & Meetings** by $22,000 is driven by MIS (17,000), Procurement ($8,000), Tunnel Redundancy ($6,000), partially offset by higher spending in Engineering & Construction ($6,000).
Professional Services	2,227,171	1,836,409	(390,762)	-17.5%	Lower than budget spending primarily for **Computer Systems Consultant** ($195,000) in MIS primarily due to a reduction in scope of Managed Security Services Provider (MSSP) monitoring extension; **Engineering** ($175,000) primarily in Field Operations; and **Legal Services** ($69,000) in Law and Administration.
Other Materials	1,097,954	932,770	(165,184)	-15.0%	Driven by less than budgeted spending for **Computer Software** ($81,000) in MIS, **Vehicle Expense** ($59,000) primarily due to delay in obtaining parts, and **Office Supplies** ($36,000).
Other Services	6,588,715	6,463,752	(124,963)	-1.9%	Lower than budgeted spending for **Memberships/Dues/Subscriptions** ($55,000) primarily in Operations, **Other Services** ($54,000), **Sludge Pelletization** ($38,000) due to lower quantities, **Health/Safety** ($19,000), and **Telecommunication** costs ($18,000). These are partially offset by higher than budgeted spending for **Grit & Screening Removal** of $108,000 due to higher quantities.
Total Direct Expenses	**60,778,274**	**54,856,503**	**(5,921,771)**	**-9.7%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY22 Budget YTD September	FY22 Actuals September	FY22 YTD Actual vs. FY22 Budget		Explanations
			$	%	
Indirect Expenses					
Insurance	985,900	885,450	(100,450)	-10.2%	Lower Payments/Claims ($80,000) and Premiums ($20,000) than budgeted.
Watershed/PILOT	3,684,804	3,473,084	(211,720)	-5.7%	Lower Watershed Reimbursement of $0.2 million favorable variance to budget driven by lower spending on (1) Wages & Salaries, (2) Equipment, (3) Fringe Benefits, partially offset by Maintenance.
HEEC Payment	1,747,989	1,715,514	(32,475)	-1.9%	O&M charge was less than anticipated.
Mitigation	423,340	423,340	-	0.0%	
Addition to Reserves	353,162	353,162	-	0.0%	
Pension Expense	11,205,000	11,205,000	-	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	**18,400,195**	**18,055,551**	**(344,644)**	**-1.9%**	
Debt Service					
Debt Service	111,730,297	108,873,154	(2,857,143)	-2.6%	Debt service is $2.9 million under budget due to lower than budgeted variable interest rates.
Debt Service Assistance	-	-	-		
Total Debt Service Expenses	**111,730,297**	**108,873,154**	**(2,857,143)**	**-2.6%**	
Total Expenses	**190,908,766**	**181,785,208**	**(9,123,557)**	**-4.8%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY22 Budget YTD September	FY22 Actuals September	FY22 YTD Actual vs. FY22 Budget		Explanations
			$	%	
Revenue & Income					
Rate Revenue	198,021,000	198,021,000	-	0.0%	
Other User Charges	2,386,495	2,497,231	110,736	4.6%	FY21 unplanned water use by the town of Burlington that was paid in FY22.
Other Revenue	853,895	1,687,420	833,525	97.6%	Miscellaneous Revenue of $454,000 primarily associated with worker's compensation reimbursement for older claims; Disposal of surplus materials of $358,000; Energy Rebates of $104,000, and Energy Revenue ($115,000).
Rate Stabilization	312,500	312,500	-	0.0%	HEEC Reserve.
Investment Income	1,009,517	966,361	(43,156)	-4.3%	Investment Income is under budget due to lower than budgeted interest rates (0.52% actual vs. 0.58% budget).
Total Revenue	**202,583,407**	**203,484,512**	**901,105**	**0.4%**	
Net Revenue in Excess of Expenses	**11,674,641**	**21,699,304**	**10,024,662**		

ATTACHMENT 3
FY22 CIP Year-to-Date Variance Report ($000's)

	FY22 Budget YTD September	FY22 Actuals YTD September	YTD Actuals vs. Budget		Explanations
			$	%	
Wastewater					
Interception & Pumping (I&P)	$11,209	$9,649	($1,560)	-13.9%	Underspending Wastewater Meter System Equipment Replacement: $1.5M (slower than anticipated meter installations and acceptances) Interceptor Renewal No. 3, Dorchester Interceptor Sewer - Construction: $600k (timing of contractor work due to weather impacts) Ward Street & Columbus Park Headworks - Design/CA: $829k (completed some design and inspection tasks later than anticipated) Fuel Oil Tank Replacement - Phase 1 Construction: $297k (timing of work) Wastewater Meter System Planning/Study/Design: $195k (CA work behind due to construction delay) Hayes Pump Station Rehab - Design: $100k (additional time needed to inspect the pumps) Offset Overspending Nut Island Odor Control & HVAC Improvements Phase 2 - Construction: $1.2M, and Chelsea Creek Headworks Upgrades - Construction and REI: $1.1M (work scheduled for FY21 performed in FY22)
Treatment	$4,714	$2,394	($2,320)	-49.2%	Underspending Winthrop Terminal Facility (WTF) VFD Replacement - Construction: $1.3M, Gravity Thickener Rehabilitation: $833k and Miscellaneous VFD Replacements FY19-FY23: $175k (timing of work) Clarifier Rehabilitation Phase 2 - Design: $103k (pending time extension) Motor Control Center and Switchgear Replacement - Design/ESDC/REI: $101k (updated construction schedule) Offset Overspending Chemical Tank and Digester Pipe: $184k (contractor progress)
Residuals					
CSO	$1,736	$2,929	$1,192	68.7%	Overspending East Boston CSO Control - BOS014: $727k (work ahead of original schedule) Dorchester Inflow Removal Construction: $572k (timing of payment)
Other Wastewater	$6,792	$4,650	($2,142)	-31.5%	Underspending I/I Local Financial Assistance: $2.1M (timing of community distributions of grants and loans)
Total Wastewater	**$24,452**	**$19,622**	**($4,830)**	**-19.8%**	

ATTACHMENT 3
FY22 CIP Year-to-Date Variance Report ($000's)

	FY22 Budget YTD September	FY22 Actuals YTD September	YTD Actuals vs. Budget		Explanations
			$	%	
Waterworks					
Drinking Water Quality Improvements	$294	$628	$333	113.3%	Overspending CP-7 Existing Facilities Modifications: $240k (contractor progress)
Transmission	$5,827	$8,185	$2,358	40.5%	Overspending Metropolitan Tunnel Redundancy Administration, Legal & Public Outreach: $1.9M (timing of land purchase, and Preliminary Design & MEPA Review: $736k (timing of consultant work) WASM/SPSM West PRV - Construction: $733k (timing of contractor work) Wachusett Dam Bridge Crane Removal: $250k (FY21 planned work completed in FY22) Offset Underspending WASM 3 Rehabilitation, CP-1: $605k (FY22 planned work completed in FY21 and summer shutdown), Watershed Land: $213k (timing of purchases) WASM 3 - MEPA/Design/CA/RI: $186k (timing of consulatant work)
Distribution & Pumping	$3,573	$1,304	($2,269)	-63.5%	Underspending CP3-Sections 23, 24, 47 Final Design/CA/RI: $315k, and Section 89/29 Replacement - Construction and RE/RI Services: $1.6M (updated schedules) Sections 50 & 57 Water Rehabilitation - Design/ESDC; $324k (contract scope reduction) SEH Redundancy Pipeline Phase 1 - Design/CA/RI: $127k (Construction Administration and Resident Inspection services less than anticipated budgeted spending) Offset Overspending NEH Improvements Design - ESDC: $180k (timing of consultant work)
Other Waterworks	$2,552	$473	($2,079)	-81.5%	Underspending Local Water Pipeline Financial Assistance Program: $1.7M (timing of community distributions) Water System Hydraulic Model: $231k (slower than anticipated start-up)
Total Waterworks	**$12,246**	**$10,589**	**($1,657)**	**-13.5%**	

ATTACHMENT 3
FY22 CIP Year-to-Date Variance Report ($000's)

	FY22 Budget YTD September	FY22 Actuals YTD September	YTD Actuals vs. Budget		Explanations
			$	%	
Business & Operations Support					
Total Business & Operations Support	**$2,540**	**$1,286**	**($1,254)**	**-49.4%**	Underspending As-Needed Technical Assistance and CS/REI Services: $859k (lower than projected task order work) FY19-23 Vehicle Purchases: $380k (due to timing) Edge Switches: $156k and Enterprise Content Management: $136k, (timing of work) Offset Overspending Security Equipment & Installation: $294k (timing of physical security initiatives), and Telephone Sytem Upgrades: $113k (contractor progress)
Total MWRA	**$39,238**	**$31,497**	**($7,741)**	**-19.7%**	

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Approval of the Eighty-Fourth Supplemental Resolution

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COMMITTEE: Administration, Finance & Audit

__X__ VOTE
____ INFORMATION

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

Thomas J. Durkin
Director of Finance

RECOMMENDATION:

To adopt the Eighty-Fourth Supplemental Resolution authorizing the issuance of up to $775,000,000 of Massachusetts Water Resources Authority Taxable and Tax-Exempt General Revenue Bonds and General Revenue Refunding Bonds and the supporting Issuance Resolution.

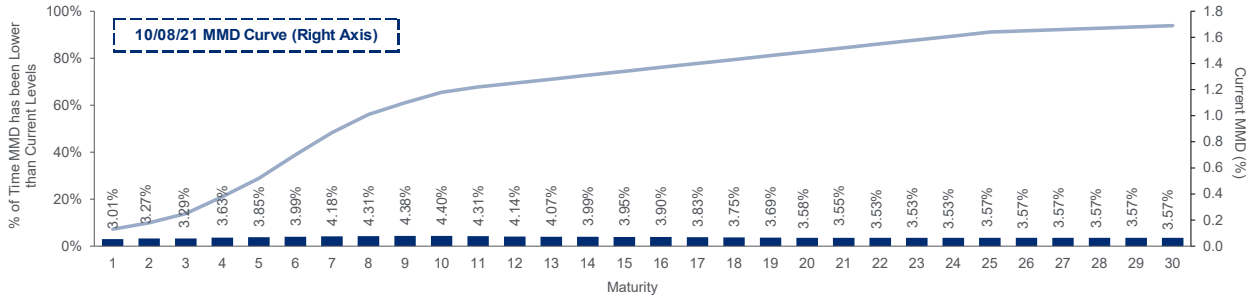
DISCUSSION:

The bonds to be issued under this authorization will include approximately $700 million in refunding bonds and $75 million in new money bonds. The refunding bonds will be issued as federally taxable, unless Congress enacts changes to the tax code that restore tax-exempt advanced refundings. As described in this staff summary, the restoration of tax-exempt advance refundings would improve the savings under this transaction. The new money bonds will be issued as tax-exempt and will be used to permanently finance outstanding tax-exempt commercial paper. The following table provides a breakdown of the components of the proposed transaction.

Bond Type	Proposed Issuance Amount	
New Money	$	75,000,000
Refunding Bonds	$	700,000,000
Total Authorization	**$**	**775,000,000**

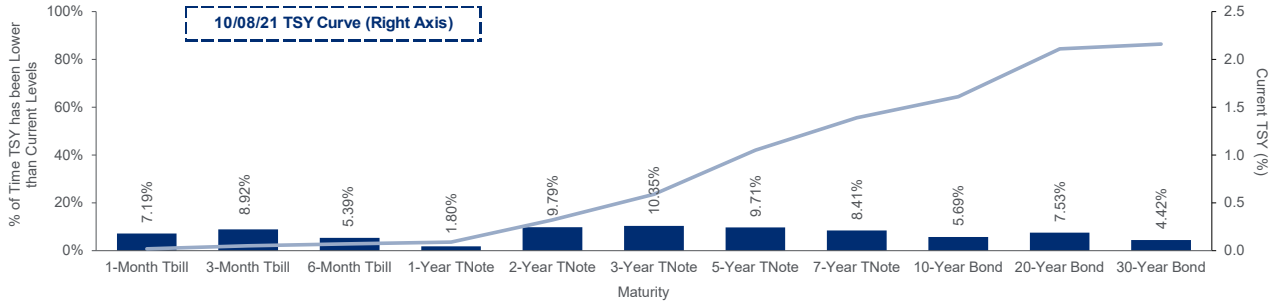
While taxable and tax-exempt rates have seen some upward pressure as a result of inflation fears, ongoing developments in Washington D.C. surrounding the debt ceiling, infrastructure bill, and budget reconciliation, as well as uncertainty around China's economy, the overall market technical conditions including supply and demand have helped to keep taxable and tax-exempt rates at near historic lows. In addition to lower rates, the overall compression has resulted in tightening of the spread between tax-exempt and taxable interest rates. In general, taxable interest rates are higher than tax-exempt rates because the bondholder wants compensation for paying taxes on the interest earnings. While the ratio would be different for each taxpayer, the market overall recognizes that tax-exempt rates should be approximately 67% of the taxable rate. Currently the ratio ranges from 144% for the one year to 80% in year 30. As a result investors are willing to take a 20% tax margin as opposed to the traditional 33% on longer-term debt and a lower yield on the one year taxable than the tax-exempt.

The following graph shows the percent of time that the Municipal Market Data (MMD) tax-exempt yield curve has had lower interest rates since 1986. The range of 3.0% to 4.4% of the time is indicative of the low interest rate environment we are currently in.



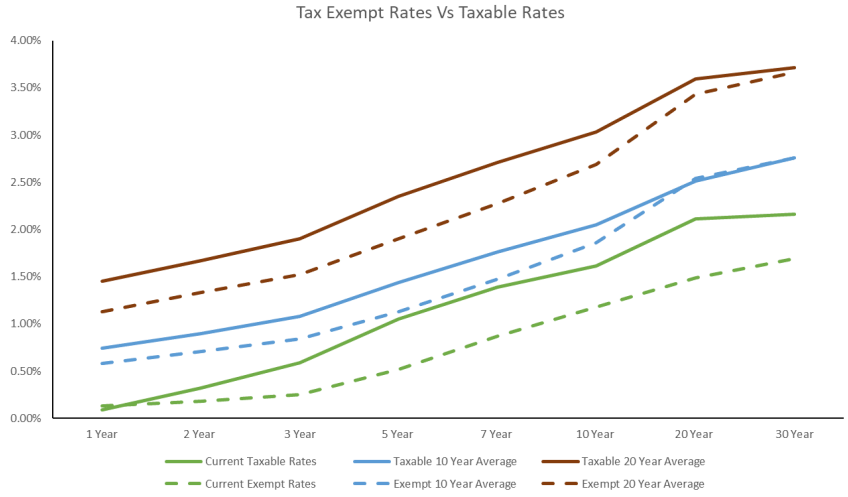
Source: Thomson Reuters, data as of October 8, 2021

Similar to the tax-exempt yield curve analysis, the following graph shows the number of times U.S. Treasury taxable yields have been lower since 1986. The interest rate on taxable debt is priced as the U.S. Treasury rate plus a credit risk spread, so the historically low Treasury rates help lower the cost of MWRA's taxable debt. Taxable rates have only been lower 1.8% to 10.4% of the time.



Source: U.S. Treasury Market data as of October 8, 2021

The following graph detail the current MMD tax-exempt rates and the U.S. Treasury taxable rate as compared to the 10 and 20 year averages.



In addition to both rates being lower than their 10 and 20 year averages, the current taxable rates are lower than the tax-exempt averages. Prior to the passage of the Tax Reform and Jobs Act of 2017, MWRA would have utilized tax-exempt bonds to complete an advance refunding for interest rate savings. Unfortunately, the 2017 Act eliminated the ability to use tax-exempt debt to advance refund outstanding tax-exempt bonds. As a result, the use of tax-exempt debt for refundings is limited to current refundings, which limits the new debt issuance to within 90-days of the call date of the outstanding bonds. The advance refunding restriction does not apply to taxable bonds. The Build Back Better Act currently pending in Congress would reinstate tax-exempt advance refunding transactions, which would result in increased savings.

Due to the market conditions discussed above, MWRA has the opportunity to execute a taxable advance refunding for interest rate savings. Staff utilized MWRA's debt policy's parameters when reviewing candidates for a refunding for interest rate savings. The criteria are as follows:

- overall savings has a present value of 4.0% or greater;
- individual maturities have a 3% present value savings or an option value above 70%; and
- the efficiency of the escrow is greater than 50%.

In addition to these criteria, bonds may be refunded or restructured to meet particular organizational and/or strategic needs when it is advantageous to do so. All refunding transactions require the approval of the Board of Directors. Based on current taxable interest rates, the following bonds meet MWRA's refunding criteria.

Series	Principal to be Refunded	Call Date
2013 Series A	$ 43,830,000	August 1, 2023
2014 Series D	$ 53,885,000	August 1, 2024
2014 Series F	$ 72,870,000	August 1, 2024
2016 Series B	$ 47,590,000	August 1, 2026
2016 Series C	$ 317,700,000	August 1, 2026
2016 Series D	$ 52,190,000	August 1, 2026
Total	**$ 588,065,000**	

The difference between the $588.1 million in principal to potentially be refunded and the $700 million in authorization is related to the interest cost for the period between retirement of the old bonds and the issuance date. Current market conditions result in $61.8 million in budgetary savings with $49.4 million or 8.4% in present value savings for the bonds listed above. The table to the right details the taxable refunding savings by fiscal year. While some of these bonds would not be eligible to be advance refunded with tax-exempt debt, if the 2017 restriction where to be removed the budget savings would increase to $64.6 million with $51.6 million or 8.3% in present value savings.

Fiscal Year	Prior Debt Service	Refunding Debt Service	Savings
2022	$ 28,603,100	$ 26,399,894	$ (2,203,206)
2023	$ 28,603,100	$ 25,192,476	$ (3,410,625)
2024	$ 28,603,100	$ 25,191,543	$ (3,411,558)
2025	$ 28,603,100	$ 25,194,637	$ (3,408,463)
2026	$ 28,603,100	**$ 25,190,387**	$ (3,412,713)
2027	$ 33,943,100	$ 30,527,227	$ (3,415,873)
2028	$ 40,506,100	$ 37,088,233	$ (3,417,867)
2029	$ 35,882,600	$ 32,471,584	$ (3,411,016)
2030	$ 35,907,450	$ 32,492,357	$ (3,415,093)
2031	$ 88,581,100	$ 85,164,739	$ (3,416,361)
2032	$ 80,902,600	$ 77,485,805	$ (3,416,795)
2033	$ 77,647,700	$ 74,568,793	$ (3,078,908)
2034	$ 71,710,900	$ 68,628,049	$ (3,082,851)
2035	$ 89,756,600	$ 86,676,070	$ (3,080,530)
2036	$ 36,755,750	$ 33,336,720	$ (3,419,031)
2037	$ 65,109,250	$ 62,226,220	$ (2,883,030)
2038	$ 57,020,150	$ 54,428,020	$ (2,592,130)
2039	$ 57,067,550	$ 54,478,870	$ (2,588,680)
2040	$ 49,393,450	$ 46,803,820	$ (2,589,630)
2041	$ 14,823,400	$ 14,093,270	$ (730,130)
2042	$ 4,810,500	$ 4,323,820	$ (486,680)
2043	$ 4,812,750	$ 4,326,525	$ (486,225)
2044	$ 4,819,500	$ 4,335,355	$ (484,145)
Total	**$ 992,465,950**	**$ 930,624,412**	**$ (61,841,538)**

In addition to the refunding, given the historical low tax-exempt rates, staff are recommending issuing $75 million of new money bonds. The new money bonds would be utilized to permanently finance outstanding tax-exempt commercial paper. Tax-exempt commercial paper is utilized for short-term borrowings, primarily for projects under construction. Currently MWRA could issue the new money at an All-In TIC of 2.88%, which would make it the fourth lowest cost fix rate transaction since 1990.

These bonds will represent the second time in MWRA's history that it has issued taxable bonds in the public market. The taxable market is very different from the traditional tax-exempt market with different buyers and more daily volatility in interest rates. This transaction will offer MWRA the ability to attract new bondholders but it also has a greater risk that market conditions will eliminate the economic viability of the transaction. Long-term taxable fixed interest rates would have to increase by 165 basis points for the entire taxable refunding transaction to fall below the 4% threshold.

Staff intend to issue both the refunding and new money bonds as "Green Bonds." Green Bonds are marketed to environmentally responsible investment funds. While there is no required certification for Green Bonds, MWRA will be required to document that the funds were used to pay for projects that provided an environmental benefit. Given MWRA's mission its projects are green by their nature. MWRA has issued $1.7 billion in Green Bonds making it one of the largest Green Bond issuers in the country.

Under the terms of the last procurement approved by the Board in June 2021, Citigroup Global Markets will serve as the lead underwriter for this transaction. Staff will continue to work with MWRA's financial advisor to determine the most appropriate size and structure for the transaction.

BUDGET/FISCAL IMPACT:

There are sufficient funds available in the FY22 CEB to pay the debt service costs associated with these borrowings. The potential refunding for savings component will reduce future debt service. The amount of the potential reduction will be determined based on market conditions and the ultimate pricing of the refunding transaction.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Automated Vehicle Locator Tracking System
GPS Insight, LLC
Bid WRA-5027, State Contract VEH106

COMMITTEE: Administration, Finance & Audit

_____ INFORMATION
__X__ VOTE

Michele S. Gillen
Director of Administration

Carolyn Fiore, Deputy Chief Operating Officer
Paula Weadick, Director, MIS
Ronald S. Zizza, Manager, Coordination and Control
Preparer/Title

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

RECOMMENDATION:

To approve the award of a purchase order contract to provide Automated Vehicle Location services to the lowest responsive bidder under Bid WRA-5027, GPS Insight, LLC, and to authorize the Executive Director to execute said purchase order contract in an amount not to exceed $362,007 for a contract term of 36 months from the Notice to Proceed.

DISCUSSION:

MWRA has utilized an Automated Vehicle Locator (AVL) system since 2013. The AVL system offers near real-time transmission alerts from vehicles utilizing a web-based live mapping system. The system enables MWRA staff to accurately pinpoint and track a vehicle's location and route at any time; respond more quickly to emergencies; enhance vehicle maintenance through electronic engine diagnostics (e.g. check engine light codes will be sent by e-mail or text message to Vehicle Maintenance Department staff to alert them of a problem with the vehicle); enhance productivity and gain efficiencies in work assignments by optimizing work crew routes; improve driver and vehicle safety by providing the ability to verify traffic complaint events; track odometer readings and mileage electronically; and capture driving statistics.

MWRA currently utilizes a system through a contract with Verizon Connect, NWF, Inc., which is due to expire in December 2021. Pursuant to this contract, Verizon Connect installed transponder devices in approximately 420 MWRA vehicles, and provided the software to track the vehicles in real-time. The existing 3G transponders provided by Verizon Connect were installed five years ago and are reaching the end of life, becoming obsolete within the next year. The end of the existing contract provided the opportunity to evaluate other AVL products.

This replacement contract will provide a web-based AVL system to electronically track approximately 425 MWRA vehicles in its service area using a combination of satellite, cellular and Wi-Fi networks. The recommended vendor, GPS Insight, provides capabilities that are not

part of the existing system, including real-time mileage tracking, simplified integration with MWRA's fuel data system, the ability to query vehicles based on MWRA-specified attributes, a simplified location playback feature, 3D mapping, and the ability to integrate with MWRA's ESRI GIS system.

Procurement Process

Prior to soliciting bids, staff contacted the four vendors listed on State Contract VEH106, which provides for telematics AVL services and equipment to determine interest. A representative from CalAmp Wireless Networks stated it no longer provides this service. Chevin Fleet Services did not respond to phone calls and emails. Under Bid WRA 5027 utilizing MWRA's e-procurement system (Event 4804), staff directly solicited the remaining two vendors. Both vendors provided product demonstrations to staff, which confirmed that the products performed as required.

On September 14, 2021, Event 4804 closed with the following results:

BIDDER	BID AMOUNT
GPS Insight, LLC	**$362,007.00**
PreCise MRM, LLC	$383,670.00

The existing contract with Verizon Connect was awarded in December 2016 in the amount of $426,490 for a term of 36-months, then was extended through December 31, 2021. Under that contract, MWRA is paying $19.00 per month per vehicle. Compared to the existing contract, the three-year cost per vehicle has reduced slightly to $18.95 per month per vehicle. In addition, under this contract, there is a one-time $150.00 per vehicle set-up fee for each vehicle. It should be noted that under the original three-year award, the cost per vehicle was $24.00 per month and included two option years that reduced this cost to $19.00. The original award also included a $50,000 allowance for hardware or software enhancements and additional training if requested by MWRA staff.

Staff reviewed the bid submitted by GPS Insight and determined that it meets all of the requirements of the specifications. Therefore, staff recommend the award of this purchase order contract to GPS Insight, LLC, as the lowest responsive bidder. The contract term will provide overlap with the existing Verizon contract to provide no lapse in AVL services for MWRA.

BUDGET/FISCAL IMPACTS:

There are sufficient funds included in the FY22 Current Expense Budget for the first portion of this contract. Appropriate funding will be included in subsequent CEB requests for the remaining term of this three-year contract.

MBE/WBE PARTICIPATION:

GPS Insight, LLC is not a certified Minority-owned or Women-owned business.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: 2020 Deer Island Outfall Monitoring Overview

COMMITTEE: Wastewater Policy & Oversight

X INFORMATION
VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Betsy Reilley, Ph.D., Director, Environmental Quality
Daniel L. Codiga, Ph.D., Project Manager
Preparer/Title

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

RECOMMENDATION:

For information only.

DISCUSSION:

MWRA monitors the Deer Island Treatment Plant effluent, as well as the water, sediment and the health of fish and shellfish in Massachusetts and Cape Cod Bays. Calendar year 2020 marked the 29th consecutive year of monitoring and 20 years since the effluent discharge moved to Massachusetts Bay. The *Outfall Monitoring Overview* report summarizes and analyzes monitoring results for any potential environmental impacts from Deer Island discharges. As in previous years, MWRA has not identified any adverse impacts, a finding with which regulators, their science advisory panel, and public interest groups agree. Under the current National Pollutant Discharge Elimination System (NPDES) permit for Deer Island, MWRA must submit the *Outfall Monitoring Overview* to federal and state regulatory agencies by November 15 each year. This staff summary provides the Board of Directors with highlights of the 2020 *Outfall Monitoring Overview* and summarizes special monitoring efforts under way and ongoing collaboration with the science advisory panel. Modest modifications to the monitoring program, as developed and evaluated in 2019 and 2020 through such interactions, were approved by EPA in January 2021.

The Deer Island NPDES permit requires MWRA to monitor the environment around the Massachusetts Bay outfall. MWRA carefully analyzes monitoring data to identify potential impacts to the bay's ecosystem. Key results are compared to 95 thresholds contained in MWRA's Contingency Plan.[1] Required monitoring includes measurements of the Deer Island Treatment Plant's effluent quality and of receiving water, sediments and fish and shellfish. Other studies include modeling water quality and continuous monitoring using instruments on a buoy in Massachusetts Bay. MWRA monitored baseline conditions in Boston Harbor, Massachusetts Bay,

[1] The Contingency Plan is a requirement of the NPDES permit. It contains 20 effluent thresholds and more than 70 numeric thresholds for bay conditions calculated from environmental monitoring data (for example, annual average chlorophyll levels near the outfall). An exceedance of a threshold requires rapid notification to EPA, DEP, the science advisory panel, and the public. Some exceedances (for example, harmful algal blooms, known informally as "red tide") can lead to enhanced sampling for further evaluation of the event.

and Cape Cod Bay starting in the early 1990s, and began discharge monitoring when the outfall came on-line in September 2000.

The COVID-19 pandemic impacted environmental monitoring in 2020. The initial field survey of Massachusetts Bay water column (surface to seafloor) conditions was completed in February, but the Governor's state of emergency declaration was just before the March survey, which as a result was only partially completed. The April survey was postponed, while MWRA, its regulators, and sampling partners developed safe alternative protocols (Figure 1). Eventually, what would have been the April survey was conducted in early May, so two surveys were conducted in May, and the year ended with eight, rather than the usual nine, completed water column survey dates. Field staffing was decreased from six to three during May–July to accommodate social distancing; a fourth scientist was added in August. Consequently, some parameters were dropped from the program for the four surveys conducted in May–July. There were some delays to summer surveys of seafloor conditions and fish and shellfish, but all were completed as planned. Regulators and members of the advisory panel expressed their appreciation for how proactive and resourceful MWRA and its consultants were, to keep the impacts of the pandemic so limited.

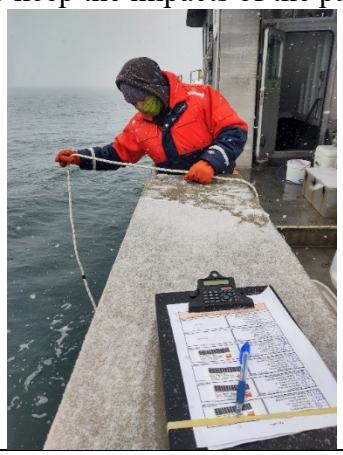


Figure 1. MWRA, its regulators, and its sampling partners were proactive and resourceful in developing safe alternative protocols as necessitated by impacts of the pandemic.

Gaps in data, due to COVID-19, precluded calculation of three Contingency Plan thresholds, which was acceptable to regulators in the context of disruptions due to the pandemic. Besides those three, sufficient data were collected to calculate all the other (more than 65) threshold parameters for 2020, none of which was exceeded.

Summary of Effluent Quality Monitoring in 2020

- The Deer Island Treatment Plant earned a Platinum 14 Peak Performance Award from the National Association of Clean Water Agencies for fourteen years of 100% compliance with permit effluent limits.

- The year had low rainfall (38 inches, below the 1990-2020 average of 44 inches). Mean effluent flow from Deer Island in 2020 (300 mgd) was lower than the 333 mgd mean flow Deer Island treated in 2019.

- As is consistently the case at Deer Island, virtually all flow received full secondary treatment. In 2020, only trace amounts of primary-treated effluent were blended with fully treated effluent prior to discharge. Blended effluent meets standards for discharge.

- Total Suspended Solids loads from effluent were about 12 tons/day, a fraction of the solids load discharged in the early 1990s (Figure 2).

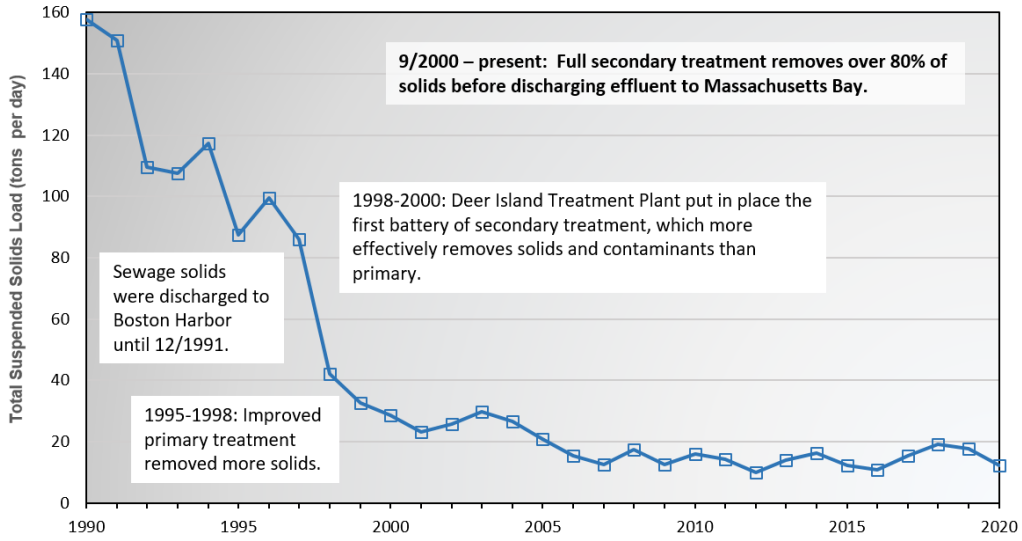


Figure 2. Annual Total Suspended Solids discharges remained extremely low in 2020 compared to the early 1990s.

- Total effluent nitrogen load was lower than in recent years (Figure 3). There was no exceedance of the Contingency Plan threshold for effluent nitrogen load in 2020, in contrast to 2019 when the first such exceedance occurred and was attributed, in part, to increasing population. The lower load in 2020 may be attributed in part to lower wastewater flows.

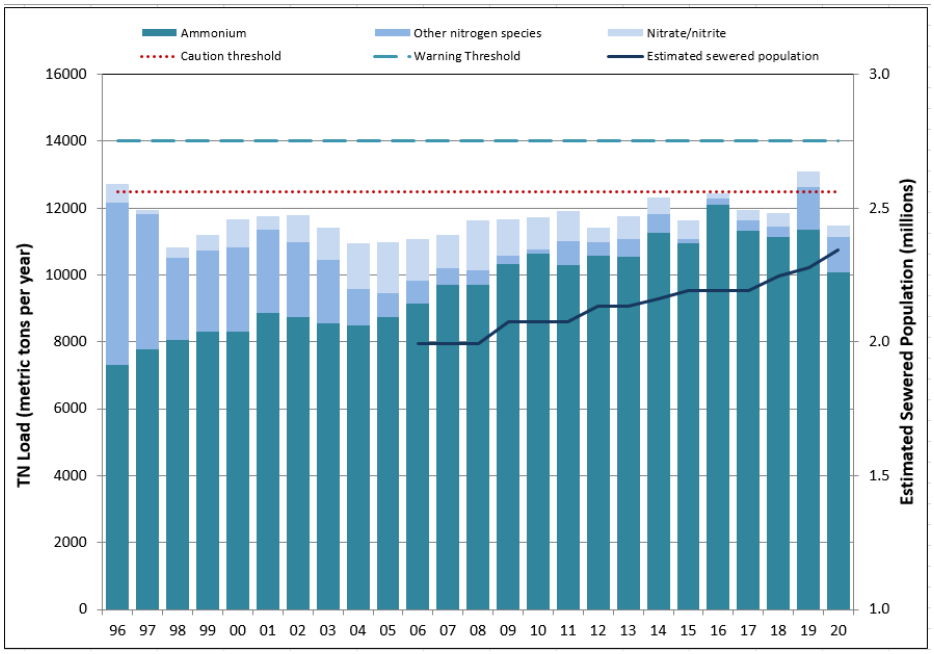


Figure 3. Annual effluent nitrogen load and MWRA sewered population.

- Metal loads and organic contaminant loads (*e.g.,* poly-chlorinated biphenyls or PCBs) in Deer Island effluent also remained low. In the late 1980s, EPA made projections for expected contaminant loads in MWRA effluent during the year 2020; then more than thirty years in the future. For all contaminants, the actual loads in 2020 are smaller than the projections, and for nearly all they are only a very small percentage (Figure 4).

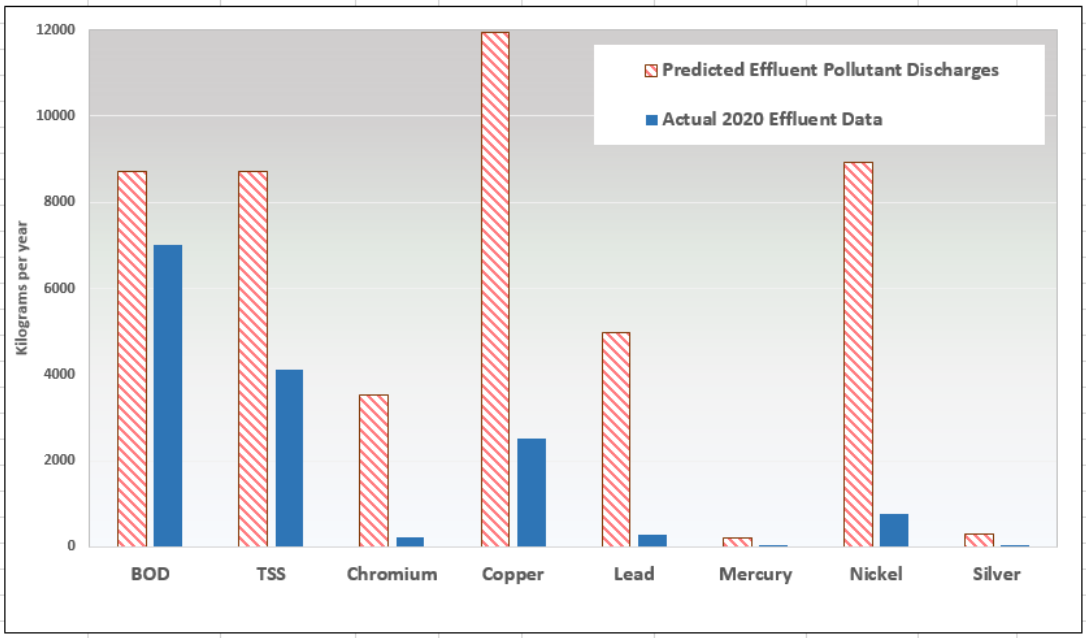


Figure 4. Actual 2020 loads of contaminants in MWRA effluent compared to projections made in the late 1980s.

Environmental Monitoring Results

Results of 2020 monitoring in Massachusetts Bay found that, as in past years:

- No adverse impacts of the outfall discharge on environmental quality were identified in Massachusetts or Cape Cod Bays;
- Water quality remains good and plankton communities remain diverse and normal;
- The seafloor animal community is healthy and diverse; and
- Flounder liver disease remains low.

Water Quality Monitoring

Nutrients

Water quality sampling focuses on the potential impact of nitrogen discharged by the outfall because only about 30% of nitrogen is removed during treatment. After the outfall was relocated in 2000 from the harbor to its current offshore location, ammonium levels decreased strongly in the harbor; they increased in the bay, but only near the outfall (Figure 5). The monitoring plan was designed to address concerns about whether effluent nitrogen would cause excess algal growth, which could decrease the amount of oxygen in the water; change the types or amount of plankton; potentially adversely impacting the food web; or increase blooms of harmful algal species.

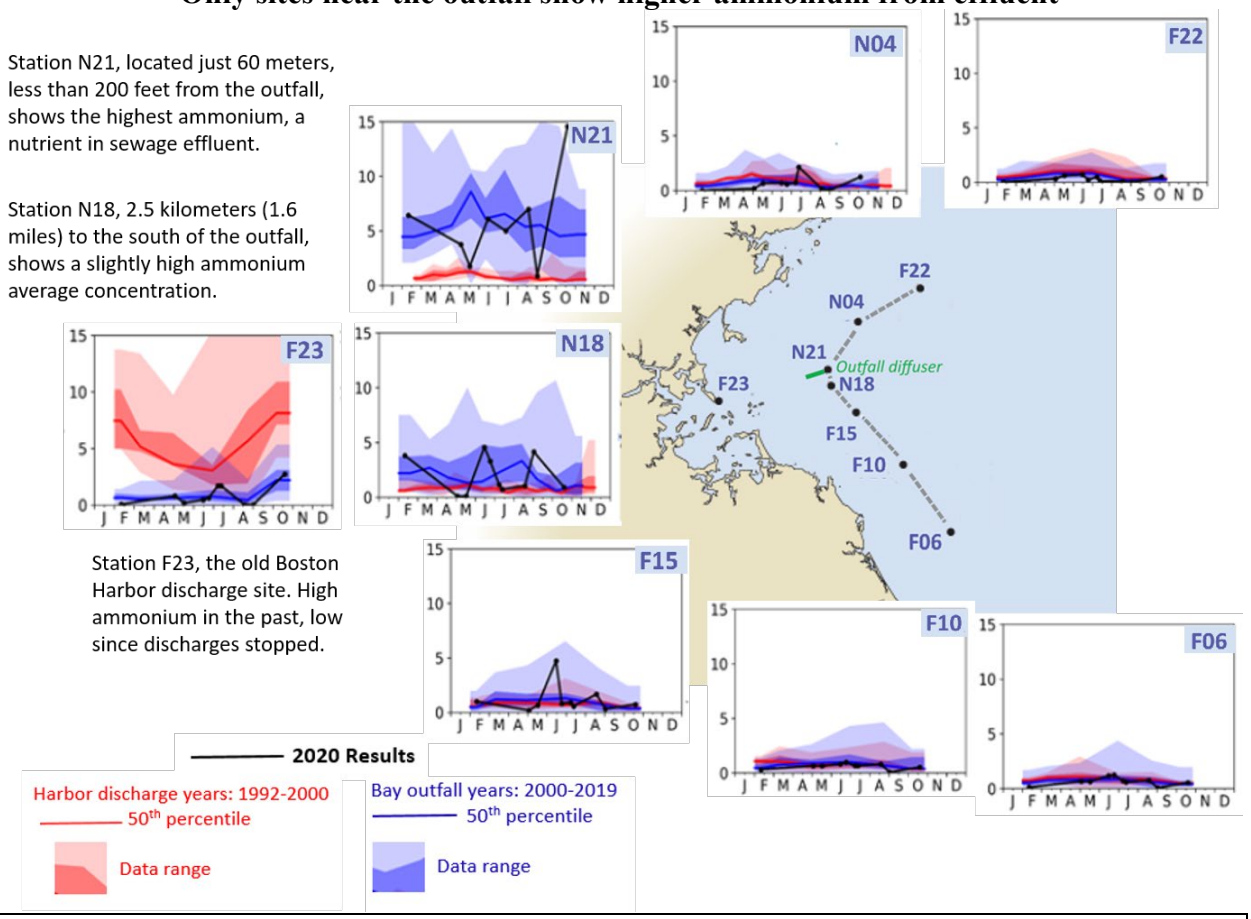


Figure 5. Ammonium levels declined sharply in the harbor in 2000 when the offshore outfall began operating. In the bay, ammonium has increased, but only within a local area near the outfall. The spike at Station N21 in October 2020 may have resulted from sampling directly within the turbulent mixing zone of the outfall diffusers, where the initial mixing dilution process was not complete. Otherwise, results for 2020 are similar to past years.

Plankton

Although the outfall has not resulted in increased algae, MWRA continues to monitor phytoplankton communities, including potential and confirmed nuisance species. One new species of potential concern, *Karenia mikimotoi*, which was first observed in Massachusetts Bay in 2017 and has become abundant in recent years in waters from Maine to Massachusetts, was present again in 2020 (Figure 6). A bloom of the species in Boston Harbor in 2019 was associated with numerous reports of discolored water. It is not known whether its recent appearance in local waters represents an introduction (*e.g.* from ship ballast waters) or a range expansion. Further,it has been categorized as a harmful species, but its toxins are not well characterized; it is not expected to exert harmful effects on human health, but in very high abundances (much higher than observed in 2017-2020) it can adversely affect fish and shellfish. In high abundances, it also can lead to low oxygen levels when its cells decay. During 2020, abundances were not high enough for this to occur in most of Massachusetts and Cape Cod bays. However, as noted below, low oxygen levels (hypoxia) were observed in shallow inshore waters of southern Cape Cod Bay in 2019 and 2020, and *Karenia* may have been a contributing factor in addition to warmer than normal temperatures.

The dinoflagellate *Karenia mikimotoi* may have contributed to low oxygen in Cape Cod Bay

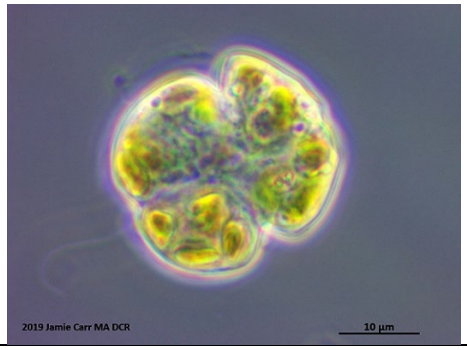


Figure 6. The dinoflagellate *Karenia mikimotoi*. Although invisible to the naked eye, under certain conditions this organism can accumulate to form water-discoloring blooms having millions of cells in a liter of seawater.

A bloom of *Alexandrium catenella,* a species responsible for some harmful algal blooms (known informally as "red tide") in New England waters, occurred in 2020. At high densities, *Alexandrium* can cause paralytic shellfish poisoning or PSP, a serious public health concern. In comparison to other years, the 2020 bloom was moderate, and no PSP toxicity was detected in Massachusetts Bay. Past *Alexandrium* blooms have occurred solely when strong spring winds from the northeast bring algal cells from coastal Gulf of Maine waters into Massachusetts Bay. However, *Alexandrium* cysts were detected inside the bay in the fall of 2019, prompting some concern that a bloom could originate from local sources rather than from the Gulf of Maine. The moderate bloom in 2020 did not provide sufficient evidence to establish a source. However, cysts were again found in Massachusetts Bay in the fall of 2020, there was a modest bloom again in 2021, and MWRA continues to consider the possibility that a local cyst bed could fuel future blooms.

Oxygen

Before the outfall was relocated offshore in 2000, there was concern that nutrients in the effluent might lead to excess algal growth. If it occurred, it could cause oxygen levels to decline when the algae die and decay, so MWRA monitors oxygen conditions closely. In 2020, the oxygen conditions in Massachusetts Bay were typical of past years (Figure 7). There is a natural seasonal cycle in which oxygen declines through summer and then returns to higher levels in the fall when wind strength increases and causes bay waters to overturn.

During 2020, as in 2019, the late summer oxygen levels in a shallow, near-shore portion of southern Cape Cod Bay fell to low levels, a condition called hypoxia (this is not reflected in Figure 7, which only includes Massachusetts Bay). In 2020, the National Oceanic and Atmospheric Administration (NOAA) Sea Grant program funded monitoring team members from the Woods Hole Oceanographic Institution and the Center for Coastal Studies in Provincetown to investigate. In 2020, the hypoxia was short-lived, and did not cause fish and lobster mortality as was observed in 2019. Several natural factors can trigger these events. Warm temperatures can lead to strong and persistent stratification, which effectively separates surface from bottom waters, isolating deep water from oxygen it would otherwise receive from exposure to the atmosphere. Oxygen can then be depleted from deep waters by the decay of high abundances of phytoplankton. Monitoring data strongly indicate MWRA's discharge has no detectable effects on nutrient levels or phytoplankton as far away as Cape Cod Bay.

Oxygen conditions in Massachusetts Bay were typical of past years

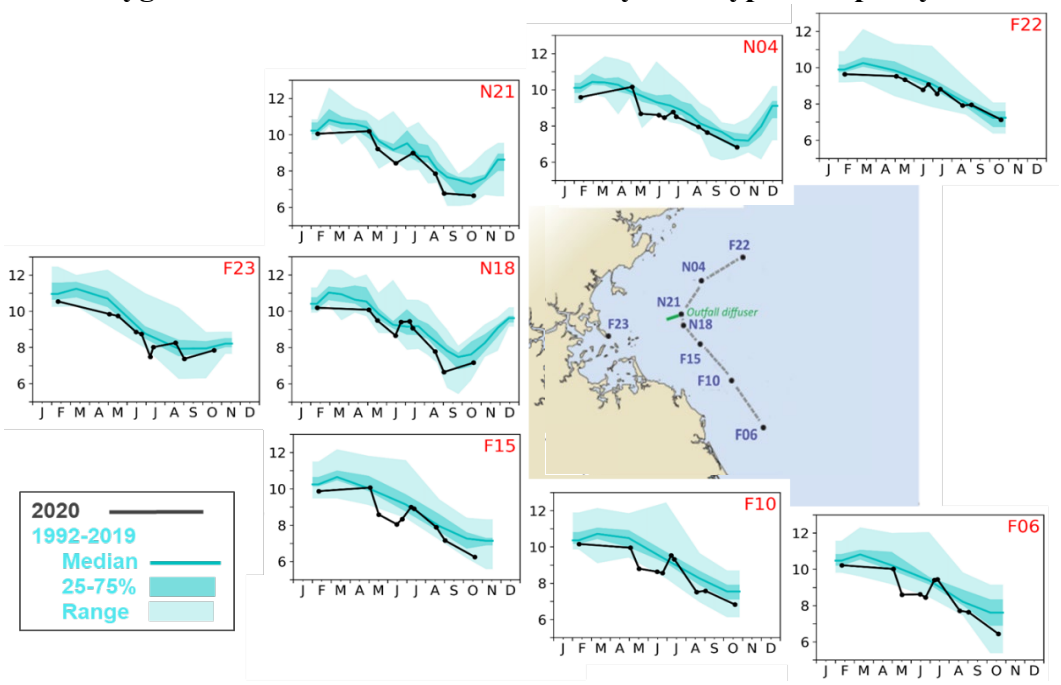


Figure 7. Oxygen conditions during 2020 in Massachusetts Bay were typical of past years. Results are presented as in Figure 6 except that the shading represents all years 1992-2020.

More recently, in September 2021 at one monitoring station (F22, see Figure 7) in the deep water of Stellwagen Basin offshore from the outfall, there was an exceedance of the Contingency Plan threshold for oxygen percent saturation. A similar exceedance occurred in 2000, and oxygen percent saturation was comparably low multiple times during the 1990s, before the outfall began operating in the bay. In all cases, the investigations concluded that the cause was natural variability, as oxygen conditions in the bay are largely determined by offshore influences. The measurement of oxygen concentration (a related, but different, parameter than oxygen percent saturation) at F22 during the same survey was not in exceedance, and in fact, was above the state water quality standard. In Massachusetts Bay, there has been no hypoxia. There are known long-term regional trends of increasing temperatures and declining oxygen, seen in many datasets including MWRA's monitoring data, and unrelated to the outfall. The recent exceedance may be related to these trends.

Monitoring the Sea Floor near the Outfall and in the Harbor

Sea floor habitat (the benthos) is a major component of a healthy marine ecosystem and is of particular interest in studies of pollutant effects because many contaminants ultimately end up in the sediments. MWRA's benthic monitoring assesses the health of animal communities and the concentrations of toxic contaminants in sediments (Figure 8). Healthy, diverse groups of animals including worms, mollusks, and crustaceans typical of New England were observed in 2020 as in past years.

Figure 8. Benthic monitoring in Boston Harbor.

In 2020, video surveys of rocky seafloor environments and outfall diffuser caps were completed as part of the monitoring program. Conditions vary across these habitats, but the biological communities supported over the 1996-2020 monitoring period have been relatively stable, with changes that are geographically widespread and determined not to be related to the outfall. Growth thrives on outfall diffuser caps (Figure 9), without negatively impacting effluent discharge.

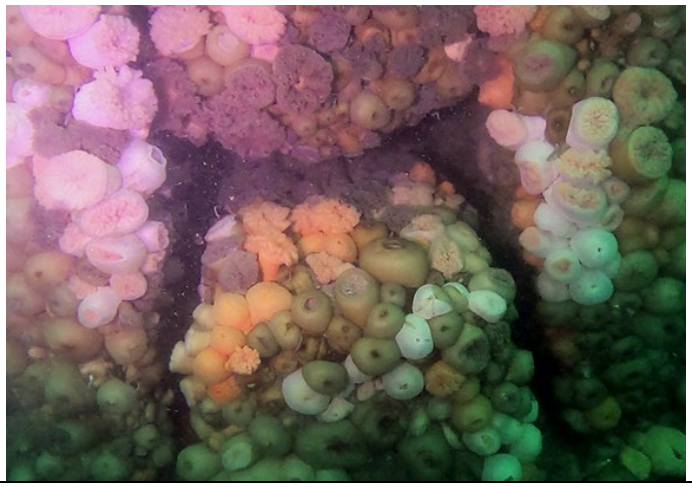


Figure 9. Lush growth, primarily sea anemones, on an active outfall diffuser in 2020.

Fish and Shellfish Monitoring

Because flounder live in close contact with the bottom sediments, their health, especially rates of liver disease, is an indication of the effects of contaminants in the sea floor. During the 1970s and 1980s, fin rot and liver disease (including liver tumors) associated with contaminant exposure were common in winter flounder taken from Boston Harbor. Sampling of flounder has continued as part of MWRA's monitoring since 1991. The flounder study has documented substantial declines in tumor precursors as the flounder population recovered in the harbor, with no increases in fish caught near the Mass Bay outfall. The percent of flounder containing tumor precursors leveled off in flounder caught from Deer Island Flats in recent years, while also continuing to decrease in flounder caught near the outfall. Importantly, liver tumors have not been observed in flounder from the harbor since 2004, and have never been observed in flounder caught near the outfall.

Information Outreach Efforts

MWRA informs the public, area environmental groups and colleagues in academia and the wastewater industry about the findings from its monitoring. Despite some impacts of COVID-19 these activities continue, largely via remote meetings and conferences. In 2020 and 2021 staff:

- presented beach and river monitoring results to regional watershed associations;
- met periodically with researchers and students from local universities (for example, Woods Hole and UMass Boston) to share results of MWRA's monitoring, learn about current academic research, and discuss emerging issues of environmental concern (for example, microplastics and environmental justice initiatives);
- participated in advisory and oversight committees for regional monitoring and outreach groups, including the Sea Grant College program, EPA, the Massachusetts Bays National Estuary Program and the Northeast Regional Association of Coastal Ocean Observing Systems. Staff promote outreach and information gathering on issues important to MWRA;
- will post the 2020 *Outfall Monitoring Overview* on MWRA's website and issue a summary of results.

Other monitoring program activities

Monitoring plan reductions. Working with the Outfall Monitoring Science Advisory Panel (OMSAP), the scientific committee that advises regulators on MWRA's monitoring, in 2019-2020 MWRA identified monitoring studies that had fully answered the concerns they were designed to address. OMSAP members asked to review additional data and data evaluations, which MWRA provided. Committee members agreed that two monitoring studies could be ended and that the monitoring effort could be reduced by a third. In June 2020, MWRA proposed these changes to regulatory agencies, with changes to take effect starting in 2020 and 2021. EPA permanently approved the changes in January 2021. These changes reduce monitoring spending by approximately $50,000 per year.

Contaminants of emerging concern (CECs). OMSAP is in the process of preparing a series of white papers on per- and polyfluoroalkyl substances (PFAS), pharmaceutical and personal care products (PPCPs), and microplastics, and hopes to release such by late 2021. OMSAP members identified a need to understand sources, as well as potential effects. While recognizing that contaminants of emerging concern will require regional and national collaborative initiatives beyond the responsibilities of MWRA's discharge monitoring, meeting participants suggested that new, special studies may help to better define the current issues.

MWRA is also playing an active role working with other agencies and institutions in researching these regional CEC concerns. For example, MWRA participated in the planning of a multi-agency pilot study investigating PFAS and PPCPs in Deer Island effluent and in Massachusetts Bay. Participants included representatives from Stellwagen Bank National Marine Sanctuary, EPA Region I and the University of Rhode Island. Sampling for this study occurred in fall and winter, 2019-2020 at no cost to ratepayers. Sample and data analysis under this pilot project have been delayed by lab shutdowns associated with COVID-19, but are expected to be completed in the coming months. Two other cooperative initiatives consist of participation, as a provider of samples and data, on national-scale research grants funded by the Water Research Foundation. One grant focuses on PFAS in treatment plants and the other examines release of PFAS from finished biosolids. Finally, MWRA is supporting a research project by Woods Hole Oceanographic Institution scientists, funded by Sea Grant, to investigate and better understand the distribution of microplastics throughout Massachusetts Bay. MWRA is providing cost share support and hosting the scientists on routine monitoring surveys of the bay, so they can carry out the needed sampling.

BUDGET/FISCAL IMPACT:

The FY22 Current Expense Budget for required harbor and outfall monitoring, including the water column, sediment, fish and shellfish, and instrumented buoys, is $1.3 million. The monitoring changes approved in January 2021 are expected to reduce spending by approximately $50,000 per year on average, starting in FY21.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: MWRA Industrial Waste Report #37: Industrial Pretreatment Program Annual Report to EPA for FY21

COMMITTEE: Wastewater Policy & Oversight

X INFORMATION
____ VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Matthew Dam, Director, TRAC
Preparer/Title

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

RECOMMENDATION:

For information only.

DISCUSSION:

MWRA is required by its National Pollutant Discharge Elimination System (NPDES) Permits and U.S. EPA regulations (40 CFR 403.12(i)) to submit an annual report to the U.S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection that describes the activities and accomplishments of MWRA's Industrial Pretreatment Program. Staff will be submitting the FY21 Annual Report (Industrial Waste Report #37) to EPA and MassDEP on or before October 31, 2021, the required submittal deadline. This staff summary discusses some of the highlights from the report.

Industrial Waste Report #37 documents MWRA's efforts to control current permitted sewer users during FY21. MWRA's Toxic Reduction and Control (TRAC) Department operates the Industrial Pretreatment Program to control the level of toxic substances discharged into the sanitary sewer system from commercial and industrial sources. Through permits, inspections, sampling, and enforcement, the program keeps excessive levels of toxics out of the sanitary sewer system to protect worker health and safety, protect municipal and MWRA infrastructure, prevent interference at the Deer Island and Clinton Wastewater Treatment Plants, prevent the pass-through of pollutants into receiving waters, and to enable MWRA to beneficially reuse its residuals for the production of fertilizer.

Staff estimate that approximately 3% of the total flow to the treatment plants comes from permitted facilities, but this flow represents a significantly higher proportion of toxics discharged to the system. TRAC currently oversees approximately 2,100 permitted sewer users. There were 190 facilities that met MWRA's definition of Significant Industrial User (SIU) during FY21. SIUs require substantial oversight due to the nature of the pollutants they discharge and/or the volume of their flows. Some of the highlights included in the report are described below.

Figure 1: Safely Monitoring Atmosphere

Fiscal Year 2021 continued to present a challenge due to the COVID-19 pandemic. Although fieldwork resumed, a large increase in COVID-19 cases in the general population going into the winter and the new, more contagious delta variant in the spring led to personnel limitations and continued changes in how staff performed monitoring and inspections. TRAC transitioned its business processes to primarily electronic-based in response to the COVID-19 pandemic. These processes and practices proved to be efficient and will be utilized moving forward. Many TRAC field staff worked a hybrid remote schedule that allowed monitoring and inspections for MWRA's industrial pretreatment program to continue while minimizing contact with others.

TRAC generally focuses on meeting EPA goals as early in the fiscal year as possible, so the end of the fiscal year can be spent focusing on other projects. Other projects include Combined Sewer Overflow (CSO) sampling, special project sampling, obtaining samples from difficult sampling locations, non-SIU inspections, and permit writing. Even with the challenging circumstances presented in FY21, TRAC met all of its EPA goals for the Industrial Pretreatment Program.

FY21 Accomplishments

TRAC, in partnership with the Executive Office of Energy and Environmental Affair's Office of Technical Assistance and Technology (OTA), began an outreach campaign to MWRA's Significant Industrial Users regarding per- and polyfluoroalkyl substances (PFAS). OTA offered all of the SIUs free and confidential support for identifying and reducing PFAS containing chemicals in their processes. PFAS regulations are evolving quickly. In FY22, MWRA plans to build off this outreach and implement a program to better understand sources of PFAS in wastewater. MWRA's initial efforts will focus on identifying sources of PFAS from dischargers requiring permits.

TRAC staff also supported the initial study of COVID-19 in wastewater by collecting wastewater samples at the MWRA's four headworks. COVID-19 samples were analyzed by a contract lab to help determine the viral RNA signal of each sample and better understand which areas of the system showed the strongest signal.

Significant Industrial Users

An SIU is a sewer user subject to federal categorical standards such as pharmaceutical manufacturer, has a flow equal to or above 25,000 gallons per day, or has a reasonable potential to violate MWRA's regulations. By the end of FY21, the number of SIUs in the district dropped to 181. The number of SIUs can vary during the year as a result of companies going out of business, a change in their pretreatment process, or a new company being added. TRAC met EPA's requirements for inspections and sampling in FY21, inspecting all of the 190 SIUs and sampling 166 SIUs. In FY21, 24 SIUs were not sampled for the following reasons: four discharging SIUs did not discharge during the year; three industries went out of business early

Figure 2: Inspecting Pretreatment System

in the fiscal year without adequate time to sample; and 17 SIUs hold non-discharging SIU permits and therefore cannot be sampled by MWRA.

Pursuant to MWRA's Deer Island NPDES permit, EPA requires TRAC to issue 90% of MWRA's SIU permits within 120 days of the industries' current permit expiration dates, or MWRA's receipt of a Sewer Use Discharge Permit Application, whichever is later, and 100% within 180 days. TRAC issued 94% of SIU permits (46 permits) within 120 days and 100% of permits (49 permits) within 180 days. The Clinton NPDES permit, effective March 1, 2017, requires staff to issue all permits in the Clinton sewer service area within 90 days of the application received dates or previous expiration dates, whichever is later. Five permits were issued to industries in the Clinton area, one permit was issued outside of the 90-day timeframe due to longer than usual time reviewing the permit likely due to delays caused by remote working during the pandemic.

Inspections and Monitoring Programs

TRAC staff are also responsible for permitting, inspecting and monitoring a variety of other types of facilities to minimize the discharge of toxics to the sewer and assist other MWRA programs. In FY21, TRAC staff also conducted 295 dental inspections, an additional 741 industrial/commercial facility inspections of other regulated industries, 126 inspections associated with the septage program, including inspections of haulers and septage receiving sites, and 634 inspections of oil/water separators. There are ten septage receiving sites and more than 3,800 gas/oil separators within MWRA's service area.

Figure 3: Monitoring

TRAC's monitoring staff conducted 1,506 sampling events to characterize wastewater flow from SIU and non-SIU permitted facilities. In addition, TRAC's monitoring staff conducted an additional 1,599 monitoring events to support MWRA's NPDES permits, MWRA's local limits program, other MWRA projects, and to evaluate discharges to the sewer in response to emergencies.

Enforcement Program

This year, the total number of SIUs in Significant Noncompliance[1] was 26, a decrease from the 32 SIUs in FY20. MWRA is working on plans to host virtual SIU meetings during the spring of 2022. SIU meetings provide an opportunity to review and reinforce methods for maintaining compliance. The FY21 SIU meetings were postponed due to the COVID-19 pandemic.

In FY21, TRAC issued a total of 270 early enforcement actions (Notices of Violations and Traps Warning Letters) to industrial and commercial facilities, compared to 195 in FY20. A total of seven higher-level enforcement actions (Orders, Penalty Assessment Notices, and Notices of Proposed Permit Suspension) were issued in FY21 in response to a variety of persistent discharge and reporting violations, down from 56 higher-level enforcement actions in FY20. The number of enforcement actions TRAC issues varies from year to year. FY21 was a distinctive year because of the COVID-19 pandemic. Many industries in MWRA's service area went out of business during the year. Although there were still challenges related to COVID-19, staff were able to perform the

[1] MWRA is required to annually update EPA regarding Significant Industrial Users that meet EPA's definition of Significant Noncompliance. Each industrial user is evaluated for Significant Noncompliance four times during the year. MWRA evaluates each SIU based on discharge and reporting requirements.

expected monitoring and inspections. These factors contributed to an increase in early enforcement actions over FY20.

TRAC assessed and collected no penalties in FY21 against permitted sewer users, compared to $50,000 assessed and collected in FY20. The amount of penalties assessed and collected can vary significantly from year-to-year, as a result of the timing of the penalty issuance, assessment of the penalty, negotiations, and collection.

Dental Discharges Group Permit

Fiscal year 2021 was the second year of implementation for the new dental discharges group permit. The first round of annual invoices were issued in March 2020 to just over 700 dental facilities. During FY21, MWRA issued 21 group permits for dental discharges, which is in addition to the 714 dental discharge permits that were issued in FY20. These are five-year permits and require dental facilities to comply with a series of Best Management Practices included in the permit.

Program Cost Recovery

MWRA's Incentive and Other Charges Program continues to recover a substantial portion of MWRA's costs of inspecting, monitoring, and permitting industrial sewer users. The total adjusted amount billed under the program in FY21 was $2,516,741, an increase from $2,368,967 in FY20. As of September 2021, collections for FY21 bills were at $2,566,229 (compared to $2,383,295 in FY20), an approximate 102% recovery of the adjusted amount invoiced. The additional revenue is the result of payment of interest, payment of outstanding permitting and monitoring charges, and new industries opening in the service area.

BUDGET/FISCAL IMPACTS:

In FY21, the TRAC Department recovered $2,566,229 or 49 percent of the Department's actual Current Expense Budget spending ($5,276,089) through permit charges. FY21 revenue was up from FY20 ($2,383,295). This increase is due to a three percent increase to the permitting and monitoring charges. In FY22, permitting and monitoring charges will increase by another three percent.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Prison Point CSO Facility Improvements, Design, Construction Administration and Resident Engineering Services
Arcadis U.S., Inc.
Contract 7359, Amendment 5

COMMITTEE: Wastewater Policy & Oversight

_____ INFORMATION
_X_ VOTE

John P. Colbert, P.E., Chief Engineer
Andrea K. Adams, P.E., Project Manager
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 5 to Contract 7359, Prison Point CSO Facility Improvements Design, Construction Administration and Resident Engineering Services, with Arcadis U.S., Inc. to increase the contract amount by $28,464 from $4,549,359 to $4,577,823, with no increase to the contract term.

DISCUSSION:

The Prison Point CSO Facility in Cambridge came online in 1981. It provides screening and pumping of dry weather wastewater flows from portions of Cambridge and Boston to the Charlestown Branch Sewer. During wet weather, the facility provides screening, chlorination, detention and dechlorination of combined sewer flows from Cambridge, Boston and Somerville.

Prison Point CSO Facility – Main Building

On July 13, 2016, the Board approved the award of Contract 7359 to Arcadis, U.S., Inc. in an amount not to exceed $2,838,370, for a term of 60 months for design, construction administration and resident engineering services for the Prison Point CSO Facility Improvements project. This project will provide a major facility rehabilitation, including replacement of dry and wet weather mechanical bar screens, screenings conveyor system, grinder, influent and effluent sluice gates, several chemical feed and sampling pumps, diesel engines driving the wet weather pumps, replacement of the underground fuel storage tank, five chemical tanks and two chemical waste tanks; installation of chemical induction units and additional sample lines, security updates, SCADA system upgrades, structural modifications, including concrete repairs throughout the facility, and electrical and HVAC improvements. Award of construction Contract

7462 was approved by the Board of Directors on September 15, 2021 to Barletta Heavy Division, Inc. in the amount of $39,479,000.

Amendment 1 increased the contract amount by $302,189 and extended the contract term by three months. Amendment 1 added out of scope design services for a new automatic transfer switch and standby generator, replacement of the lightning protection system on the Chemical Building, replacement of two additional diesel engines that drive the facility's storm pumps, and lining the pump discharge header. Amendment 1 also added design services to relocate electrical room equipment to improve sequencing and constructability.

Amendment 2 increased the contract amount by $233,760 with no increase in contract term. Amendment 2 added out of scope design services for SCADA operator displays in accordance with the new MWRA standards, facility radio system, towable generator quick connect docking station, improved total chlorine residuals analyzers, modifications to the uninterruptable power supply, and for approval of code variances. Amendment 2 also added e-Construction Orion project management system services for the construction phase.

Amendment 3 increased the contract amount by $15,781 with no increase in contract term. Amendment 3 added out of scope services to obtain the more complex air permit required by MassDEP for the four new diesel engines to drive the wet weather pumps.

Amendment 4 increased the contract amount by $1,159,259 and extended the contract term by 854 days. Due to the complexity of the construction sequencing, two shifts for construction, and increases in equipment replacements, an additional level of effort for construction services was necessary. An increase in the budget was required to fund a qualified construction oversight team consisting of a resident engineer for two years and a resident inspector for one year to support the period with two shifts of construction. This amendment also added design services for revisions to the contract documents for a newly installed DCR fence and to address COVID-19 requirements, and an increased level of effort for administration and management services for the 12 month time extension.

This Amendment:

Amendment 5 will increase the contract amount by $28,464 with no increase to the contract term. This amendment requires Board approval as there is not sufficient delegated authority remaining.

The amendment consists of the following:

<u>Pre-Bid Services</u> $19,025

The contract includes one four-hour site visit for prospective bidders on construction Contract 7462. Due to COVID-19, site visits were spread out over two full days to minimize the number of attendees at one time. The Consultant attended both site visits. Additionally, the Consultant prepared for a virtual pre-bid conference that was unanticipated. This amendment includes the extended site visit work and the preparation for the virtual pre-bid conference.

The contract includes a requirement that the Consultant respond to up to 150 questions during bidding and prepare up to 150 addenda items, for a total of 300 items. During bidding, more questions were received for which responses were required, and more addenda items were

required, than provided in the contract. This amendment includes funding for 55 items required beyond the contract scope.

Pre-Award Services $9,439

In proposing level of effort on the design contract, Arcadis estimated that eight filed sub-bid categories would be included in construction Contract 7462 based on the original scope of services. In final design, it was determined that the Chapter 149 estimated cost thresholds requiring filed sub-bids would be met in 13 filed sub-bid categories, adding Metal Windows, Glass and Glazing, Acoustical Tile, Tile, and Fire Protection Sprinkler Systems to the filed sub-bid category. An increased level of effort was required by the Consultant to perform evaluations, reference checks and DCAMM and OSHA file reviews, and to supplement the qualifications memorandum, for eight bidders in the additional five sub-bid categories. This amendment includes funds for this increased level of effort.

CONTRACT SUMMARY:

	AMOUNT	TIME	DATED
Contract Amount:	$2,838,370	1,825 days	9/1/16
Amendment 1:	$302,189	93 days	10/21/18
Amendment 2*:	$233,760	0 days	3/29/19
Amendment 3*:	$15,781	0 days	9/16/19
Amendment 4:	$1,159,259	854 days	11/18/20
Proposed Amendment 5:	$28,464	0 days	Pending
Adjusted Contract Amount:	$ 4,577,823	2,772 days	

* Approved under delegated authority.

BUDGET/FISCAL IMPACTS:

The FY22 CIP includes a budget of $4,549,359 for Contract 7359. Including this amendment in the amount of $28,464, the adjusted contract total will be $4,577,823 or $28,464 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The minimum MBE and WBE participation requirements for this contract are 15% and 5.77%, respectively, and will be unchanged by this amendment.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Deer Island Treatment Plant – Combined Heat and Power Study
Black & Veatch Corporation
Contract 6963A, Amendment 3

COMMITTEE: Wastewater Policy & Oversight

_____ INFORMATION
__X__ VOTE

David F. Duest, Director, Deer Island Treatment Plant
Richard J. Adams, Manager, Engineering Services
Brian Driscoll, P.E., Senior Program Manager
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 3 to Contract 6963A, Deer Island Treatment Plant – Combined Heat and Power Study, with Black & Veatch Corporation to increase the contract term by three months, from October 7, 2021 to January 7, 2022, with no increase in contract price.

DISCUSSION:

The scope of this contract consists of evaluating the existing energy infrastructure of Deer Island and performing a comprehensive evaluation of multiple long-term energy supply and on-site generation alternatives to meet the energy demands of Deer Island in a cost effective manner while also satisfying the critical regulatory requirement for an independent standby power system. The study includes the evaluation of 13 energy system alternatives, which range from an in-kind replacement of Deer Island's existing power assets at the end of their useful lives, to a new combined heat and power (CHP) system sized to meet all of Deer Island's heat and power needs.

Amendment 1, which increased the contract term by six months, was necessary to ensure that the performance and economics of Deer Island's existing heat and power systems were realistically defined so that an accurate comparison to the new energy system alternatives could be made.

Amendment 2, which increased the contract term by seven months, was necessary to accommodate the complexity of evaluating multiple CHP technologies. The criticality of this decision required a longer than expected analysis and evaluation period.

This Amendment

If approved, Amendment 3 will extend the contract term by three months. The need for this extension arises from the opportunity for an independent review of the Consultant's draft Energy Alternatives Analysis Report by the U.S. Department of Energy, which staff pursued. Specifically, the U.S. Department of Energy Better Plants Program supports energy efficiency

improvements in United States industries. MWRA is a partner in this program. The program includes a no-cost, technical assistance component where CHP evaluations are reviewed by industry expert academics. Even though MWRA would perform its own internal review of the report, staff concluded that an independent review by professionals with a broad industry perspective would be valuable because it would provide an alternative perspective and potentially confirm issues raised by staff. It was for these reasons that the no-cost, independent review was pursued. The review was recently completed and comments transmitted to the MWRA. The review validated a number of the Authority's issues and generated some additional comments. These comments were sent to the Consultant for a response and to incorporate any potential changes in the final report.

It was not known until after Amendment 2 was executed that the Department of Energy would be conducting a review of the draft Energy Alternatives Analysis Report. The Department completed its review at the end of September 2021. As a result, it has delayed the completion of the contract by three months. The total contract cost will not increase under Amendment 3.

CONTRACT SUMMARY:

	AMOUNT	**TIME**	**DATED**
Original Contract:	$1,149,500.00	15 Months	6/7/19
AMENDMENTS:			
Amendment 1*	$0.00	6 Months	2/2/21
Amendment 2	$0.00	7 Months	3/5/21
Amendment 3	$0.00	3 Months	Pending
Total Amendments	$0.00	16 Months	
Adjusted Contract:	$1,149,500.00	31 Months	

*Approved under Delegated Authority

BUDGET/FISCAL IMPACTS:

The Final FY22 CIP includes $1,149,500 for Contract 6963A, the Combined Heat and Power Study project. Amendment 3 is for a time extension only and has no financial impact.

MBE/WBE PARTICIPATION:

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

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Deer Island Treatment Plant Clarifier Rehabilitation, Phase II
Design/Engineering Services During Construction
CDM Smith Inc.
Contract 7394, Amendment 3

COMMITTEE: Wastewater Policy & Oversight

___ INFORMATION
_X_ VOTE

David F. Duest, Director, Deer Island Treatment Plant
Richard J. Adams, Manager, Engineering Services
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 3 to Contract 7394, Deer Island Treatment Clarifier Rehabilitation, Phase II , with CDM Smith Inc. to increase the contract amount by $113,581, from $2,375,349 to $2,488,930 and to increase the contract term by 62 months, from October 20, 2021 to December 20, 2026.

DISCUSSION:

The primary treatment facilities at Deer Island were constructed in the mid-1990s and include four primary clarifier batteries identified from east to west as Batteries A, B, C, and D. There are 48 primary clarifiers in total located at the center of Deer Island and each of the four batteries contains 12 stacked sets (upper and lower) of primary clarifiers. Flows enter aerated influent channels and then are equally distributed to each of the 12 stacked clarifiers through eight 14-inch-diameter inlet ports located at the same centerline elevation in the influent channel. Primary treatment is provided as flow moves slowly to the opposite end of the upper and lower clarifiers. Gravity separates sludge and scum from the wastewater and it is removed from the clarifiers using chain-driven longitudinal sludge and scum collectors.

Construction began on the secondary treatment facilities in the mid-1990s and was completed in 2001. The biological secondary treatment facility at Deer Island is a high-purity, oxygen-activated sludge system. The secondary facilities consist of three oxygen reactor batteries, followed by three clarifier batteries. These facilities provide secondary clarification to separate the liquid and solid components of what is referred to as the “mixed liquor” for the oxygen activated sludge process. The three clarifier batteries each contain 18 stacked (upper and lower) clarifiers for a total of

54 clarifiers. Each clarifier battery receives flow from the corresponding oxygen reactor battery in an influent channel.

Much of the primary and secondary treatment equipment has been in operation for approximately 24 years. This equipment is subjected to very corrosive environments and is approaching the end of its useful life. The protective coating on the concrete has delaminated and the concrete is now exposed to the high levels of hydrogen sulfide in the primary tanks. The sludge collection equipment in the tanks was manufactured with carbon steel and has deteriorated and requires replacement. In addition, components such as wear strips, flights, and sprockets have reached the end of their useful life and also need to be replaced.

Contract 7394 includes design, bid support, construction administration services and engineering services during construction for the Phase II Clarifier Rehabilitation Project (Construction Contract 7395). Resident inspection services are not included in this contract and will be procured separately at a later date.

The construction project will include the replacement of various equipment, such as clarifier influent, effluent, and dewatering gates; primary effluent cross channel gate actuators; and secondary scum influent gates and actuators. Further, the work will include the replacement of influent channel aerations systems, longitudinal and cross collection equipment and drive systems (not chain and sprockets), primary sludge pump suction piping, return sludge line vent piping, and various concrete and aluminum hatches. Finally, the work will also include various repairs and upgrades, such as installation of concrete cores for head shaft maintenance, concrete repairs around hatch openings, minor expansion joint repair, and miscellaneous electrical upgrades.

Amendment 1 increased the contract amount by $43,116, with no increase in contract term. The added costs were for design work related to replacement of the current density baffles at the effluent launders in Secondary Batteries A and B and the replacement of corroded conduits and conductors for the flight drive systems. These items were identified during the Preliminary Design Report phase.

Amendment 2 increased the contract amount by $94,832, with no increase in contract term. The added costs were for design work related to the installation of semi-permanent scaffolding in the secondary influent channels to assist staff with accessing and maintaining the knife gates that isolate each tank, concrete remediation for the Primary Clarifier tank ceilings, and replacement of the corroded headshaft bearings in both the Primary and Secondary Clarifier tanks. These items were also identified during the Preliminary Design Report phase.

This Amendment

Additional Design Level of Effort $36,874

The scope of this design was developed seven years ago and provided an assumed scope of services and contract term for both the design and construction phases. During the Primary Design Report phase, CDM Smith made a number of recommendations including the replacement of additional equipment, additional concrete remediation and improvements with the materials and types of isolation valves and scum collection equipment. After review, staff selected several of the recommendations, the majority of which were included in Amendments 1 and 2. Since then, CDM Smith has made two additional recommendations: (1) replacement of the Primary Clarifier Longitudinal and Cross-Collector Headshafts; and (2) replacement of four existing stop logs located in the four Primary Clarifier Effluent Channels. Both the headshaft and the stop logs are corroded and in need of replacement. The headshafts will be manufactured with 316 stainless steel material, which will extend the useful life of the shafts. Staff are in agreement that these recommendations should be included in this design contract. The design phase is complete, with the exception of the work specified in Amendment 3, and no additional recommendations are anticipated.

Extend the Contract Term by 62 Months $76,707

Staff recommend that this contract be extended by 62 months due to following issues which arose during the design and bidding phase for this project.

- Investigations performed by CDM Smith resulted in several recommendations that required additional design effort, including the use of more corrosion resistant materials such as stainless steel and high density polyethylene in lieu of carbon steel (additional sixteen months).
- Delays were encountered, including a temporary shutdown of the Consultant's office and loss of production time for both the Consultant and the Authority, due to the impact of COVID-19 in 2020 (additional eight months).
- Several issues were encountered during the bidding phase. Filed subbids were received in November 2020 but the Authority did not receive qualified bids from two of the four Filed subbid categories (Division 5 Miscellaneous and Ornamental Iron and Division 7 Waterproofing, Dampproofing and Caulking). In addition, only one Division 9 Coating subbid was received. This bid was approximately $80 million compared to the Engineer's estimate of approximately $18 million or 450% higher than the engineers estimate. Staff performed a bid tab interview with the Division Coating Filed subbidder and it was determined that the bid did not accurately reflect the Work required in the bid documents. The bid package was re-advertised for the Division 5, 7 and 9 Filed Subid Categories in February 2021. MWRA received qualified bids for Division 5 and Division 7 but again only received one Division 9 bid, from the same subbidder, that was again determined that it did not accurately reflect the Work indicated in the bid documents. Staff contacted the Attorney General's office and requested advice on how to move forward with the Division 9 Filed Subid category, The Consultant is now in the process of revising the bid documents and is changing the Division 9 Coating work to "Industrial Coating" and including this in the General Contractor's work. The problems encounter during the bidding phase has resulted in a substantial delay with the award of this contract (additional 14 months).

- The construction phase duration increased by an additional 24 months. The original contract duration of 42 months was estimated by staff during the original scope of services several years before the development of the Preliminary Design report was completed by the Consultant. The construction scope of work has significantly increased as a result of the inspections in the Primary tanks that took place during the design phase. Inspections on these tanks are difficult to perform as they are classified as "Permitted Confined Spaces." The detailed tank inspections performed by the consultant identified a significant increase in concrete remediation that is required in the Primary Clarifier tanks. In addition, the construction term also accounts for the increase in curing time required for the concrete remediation. In addition, the Consultant has identified a significant delay in the acquisition of commodities for manufacturers which is significantly delaying delivery times with equipment. This is expected to have an impact on this project for at least the first two years of the contract period. This has also been accounted for in the revised construction schedule.

The additional time in the design phase has proven very beneficial to MWRA, as it has resulted in a number of changes in the type and material of equipment not readily available during the original design of the Deer Island Treatment Plant. These changes will result in longer equipment life cycles and reduced maintenance costs. Delays resulting from COVID-19 and during the bid phase could not have been anticipated during the development of the scope of services in 2014. The increase in cost includes wage rate increases over the 62-month extended period.

CONTRACT SUMMARY:

	AMOUNT	TIME	DATED
Contract Amount:	$2,237,401	81 Months	1/20/2015
Amendment 1*	$ 43,116	0 Months	04/28/2017
Amendment 2*	$ 94,832	0 Months	Pending
Proposed Amendment 3	$ 113,581	62 Months	Pending
Adjusted Contract	$2,488,930	143 Months	

*Approved under delegated authority

BUDGET/FISCAL IMPACT:

The FY22 CIP includes a budget of $2,675,346 for Contract 7394. Including this amendment for $113,581, the adjusted sub-phase total will be $2,488,930.

MBE/WBE PARTICIPATION:

The MBE and WBE participation requirements established for this project are 7.18% and 5.77%, respectively. CDM Smith has committed to 8.68% MBE and 5.82% WBE participation. This commitment is unchanged by this amendment.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Metropolitan Water Tunnel Program Update

COMMITTEE: Water Policy and Oversight

X INFORMATION
VOTE

Paul V. Savard, P.E., Deputy Director, Design and Construction
Preparer/Title

Kathleen M. Murtagh, P.E.
Director, Tunnel Redundancy

RECOMMENDATION:

For information only.

DISCUSSION:

This staff summary provides an update on the following ongoing activities for the Metropolitan Water Tunnel Program.

- Geotechnical Field Investigation
- MEPA Review Process
- Evaluation of Alternative Tunnel Shaft Sites and Tunnel Alignments
- Community Outreach

Staff will provide future updates to the Board at key milestones during the Preliminary Design phase of the Program, such as recommendation of the proposed tunnel alignment and shaft sites; completion of the Draft Environmental Impact Report; and completion of the Preliminary Design Report and Program cost estimate and schedule.

On February 15, 2017, the Board approved staff's 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 for the purpose of providing redundancy for the Metropolitan Tunnel System (City Tunnel, City Tunnel Extension and Dorchester Tunnel) and directed staff to proceed with preliminary design, geotechnical investigations and Massachusetts Environmental Policy Act (MEPA) review of the project. The MEPA review process is designed to provide meaningful opportunities for public review of potential environmental impacts of certain projects for which actions by state agencies are required. The ultimate goal is to use all feasible measures to avoid, minimize and mitigate damage to the environment.

On May 27, 2020, the Board approved the award of Contract 7159, Metropolitan Tunnel Redundancy Program Preliminary Design, Geotechnical Investigation and Environmental Impact Report to CDM Smith, Inc. This 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.

Geotechnical Field Investigation

The ongoing preliminary design engineering contract includes the first phase of an extensive geotechnical field investigation to provide an understanding of ground conditions that the tunnel will be constructed in. The results are being used to support the tunnel alternatives analysis required as part of the MEPA review process. The geotechnical field investigations are being initiated during the preliminary design phase and will continue throughout the final design phase.

MWRA's preliminary design engineer initiated the Phase 1A geotechnical field program in spring of 2021. Rock outcrop mapping and geophysical investigations are complete. Nine out of ten deep rock borings up to 550 feet deep have been drilled within the tunnel study area. The tenth and last Phase 1A boring is scheduled to be completed in the fall of 2021. Rock cores from these borings have been extracted and are being inspected and logged for rock type and characteristics. Laboratory testing will be conducted on the rock cores to provide further information on the rock characteristics. Figure 1 shows the locations of the ten borings under the preliminary design Phase 1A geotechnical program. Figure 2 shows typical rock cores that have been extracted from a borehole. A second subsurface investigation program (Phase 1B) is being planned for spring and summer of 2022.

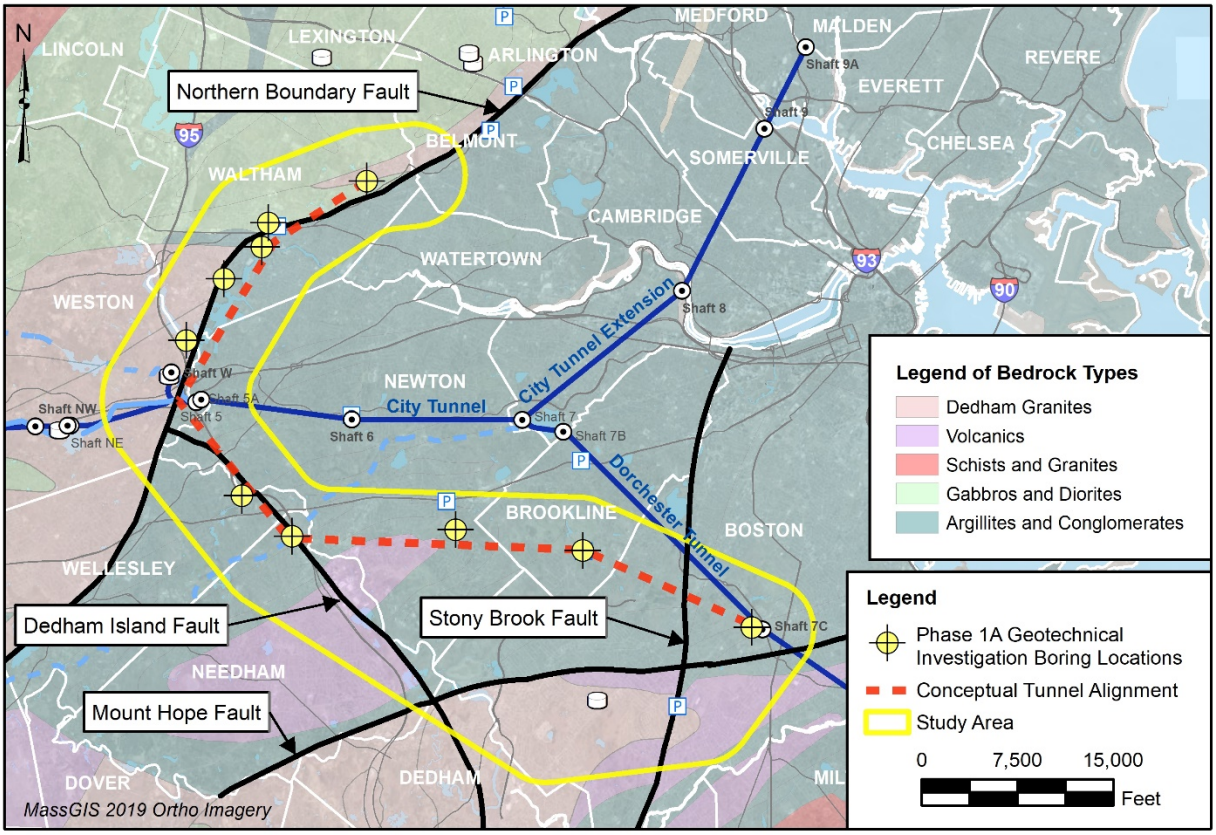


Figure 1. Locations of Phase 1A deep rock borings.

Figure 2. Typical Rock Cores Extracted from a Boring.

MEPA Review Process

Staff submitted an Environmental Notification Form (ENF) to the MEPA Office for public comment in March 2021. This is the first step in the environmental review process for the proposed Metropolitan Water Tunnel Program. The ENF presented the need for tunnel redundancy, the proposed two-tunnel concept and proposed study area for identifying and evaluating potential tunnel shaft sites and tunnel alignment alternatives. The ENF also included an Alternatives Screening Report that documents the comparison and selection of the preferred two-tunnel concept to other surface pipe and tunnel alternatives. Six comment letters were received on the ENF from the following entities:

- Charles River Watershed Association
- Department of Conservation and Recreation
- Massachusetts Department of Environmental Protection - Northeast Regional Office
- Water Supply Citizens Advisory Committee
- City of Newton
- Massachusetts Historical Commission

The Secretary of Energy and Environmental Affairs issued a certificate on the ENF that requires the submittal of a mandatory Draft Environmental Impact Report (DEIR). The DEIR will identify the proposed locations of tunnel shaft sites and tunnel alignments and describe environmental impacts of constructing the proposed tunnel. Over the next year, staff will be identifying potential

shaft sites giving priority to undeveloped publically owned land where there would be minimal environmental impacts, although any site that may be potentially viable could be considered. The Secretary's Certificate requires that the DEIR include information on the following topics:

- Project Description and Permitting
- Public Outreach/Environmental Justice
- Alternatives Analysis
- Land Alteration, Open Space, Wetlands, Rare Species Habitat, Cultural and Historical Resources
- Water Management Act/Water Supply
- Climate Change (adaption and resiliency, greenhouse gas emissions)
- Construction Period
- Mitigation and Draft Section 61 Findings
- Responses to Comments

Staff are currently evaluating alternative tunnel shaft sites and alignments (further discussed below) and plan to propose one preferred and up to two back up alternatives for further evaluation in the DEIR. The DEIR is scheduled to be completed and submitted to the MEPA office in fall 2022.

Evaluation of Alternative Tunnel Shaft Sites and Tunnel Alignments

Staff have begun to identify key locations of tunnel shaft sites for constructing the tunnels and making connections to the water distribution system. Figure 3 shows the conceptual alignment for the north and south tunnels. Potential shaft sites are indicated by large circles (indicating potential tunnel construction shafts) and small circles (indicating potential intermediate tunnel connection shafts). The conceptual tunnel alignment will be updated once the shaft sites are selected and geologic conditions are better understood. It is expected that the tunnel alignment will generally follow a line between the shaft sites, but will likely not be a straight line to account for underground conditions.

As the Metropolitan Water Tunnel Program progresses through preliminary design and MEPA review, a key factor at this stage of the Program is identifying and, if possible, securing real estate for tunnel shaft sites. These shaft sites need to be located close to connection points to our existing water distribution system. Staff are targeting Authority controlled land for potential shaft sites. If Authority controlled land is not available, which is the case at many locations, then publically owned land (municipal or state) is being investigated. At this time, land owned by the Authority, Waltham, Wellesley, MassDOT, DCR and DCAMM is being investigated for suitable shaft sites. Finally, where no Authority, municipal or state land is available for a particular shaft site, then the availability of privately owned land is being investigated, as is the case for the recently purchased School Street parcel in downtown Waltham.

As discussed above, staff plan to propose one preferred and up to two backup alternatives for further evaluation in the DEIR. These alternatives may include alternative shaft sites or alternative site uses (tunnel boring machine launching shaft vs. receiving shaft) for one or more shaft sites.

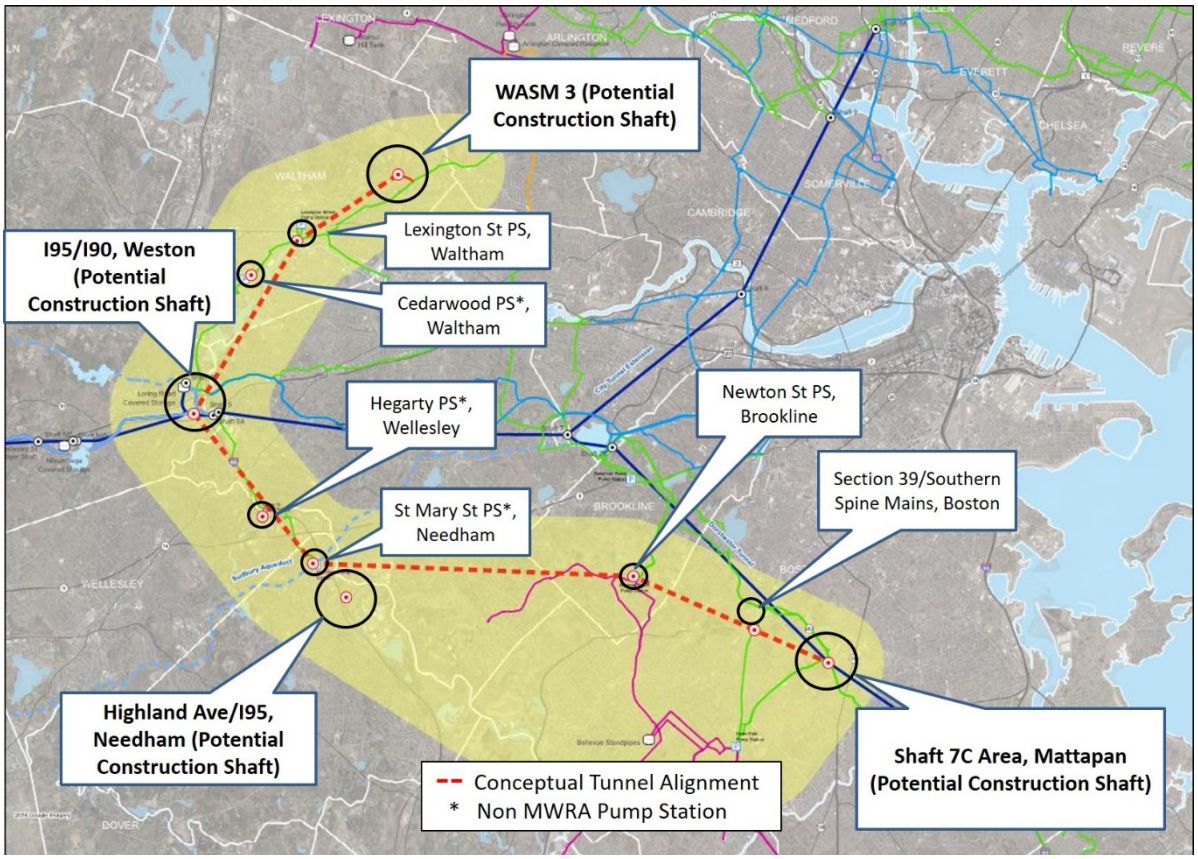


Figure 3. Conceptual North and South Tunnel Alignment

Staff will present the recommended preferred and backup alternatives to the Board after the evaluation has been completed.

Community Outreach

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

In addition to reaching out to communities, staff will also work to schedule a briefing or summary document for MWRA's Legislative Caucus. MWRA also plans to reach out to environmental advocacy groups and environmental justice representatives.

The development of the preliminary design and environmental impact reports will require substantial amounts of coordination with environmental regulatory agencies in order to ensure the data and documentation generated result in a robust alternatives analysis in the MEPA

process. Staff have already met several times with members of the Department of Environmental Protection and MEPA to present the proposed Tunnel Program, and discuss the regulatory process. This early interaction with regulators will give MWRA staff the opportunity to address comments and concerns raised by agencies in the earlier MEPA phases.

BUDGET/FISCAL IMPACTS:

The FY22 CIP includes $1.5 billion for the Metropolitan Tunnel Redundancy Program. This budget will be refined at the completion of Preliminary Design.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Memorandum of Agreement between MWRA and the Town of Lexington Northern Extra High Pressure Zone Improvements, CP1 - Section 63 Extension Contract 6522

COMMITTEE: Water Policy & Oversight

___ INFORMATION
_X_ VOTE

Carolyn Francisco Murphy
General Counsel

Paul T. Rullo, P.E., Program Manager
John Colbert, P.E., Chief Engineer
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to execute a Memorandum of Agreement with the Town of Lexington, substantially in the form attached hereto, related to reimbursement to MWRA for construction costs associated with the installation of the Town of Lexington's local water main and appurtenances.

DISCUSSION:

The Northern Extra High (NEH) Pressure Zone provides water to Arlington, Bedford (through Lexington), Belmont, Lexington, Waltham and Winchester. The six communities are supplied an average of 11.55 million gallons per day (mgd) from MWRA. Water is pumped to these communities and into storage facilities in Arlington, Lexington and Waltham by three pumping stations: Spring Street Pumping Station, Brattle Court Pumping Station and Lexington Street Pumping Station. The pumping stations draw water from the Norumbega Covered Storage Facility via the Weston Aqueduct Supply Main 3 (WASM 3).

The Town of Burlington has recently been approved for admission to the MWRA Water System to purchase up to 6.5 mgd via a connection to Lexington's water system and will be supplied via the NEH Pressure Zone. The proposed connection to MWRA by the Town of Burlington consisting of approximately 12,450 linear feet of new 24-inch diameter water main is scheduled to be complete in the fall of 2022. This connection will allow Burlington to purchase an average of 3.5 mgd and, if required, a maximum of 6.5 mgd in the event that Burlington takes the Mill Pond Treatment Plant offline.

The NEH Pressure Zone Improvements Project involves installation of up to 23,100 linear feet of new 24-inch diameter water main, replacement of approximately 8,400 linear feet of existing water main, rehabilitation or replacement of approximately 4,800 linear feet of existing water main, installation of two new community meters, and rehabilitation or replacement of existing community meters. The project is necessary to improve redundancy in the NEH Pressure Zone by the rehabilitation or replacement of aging infrastructure and extension of existing water mains. The majority of the improvements are located in Lexington and Arlington, and the general locations and extent of the proposed improvements for the project are presented in the attached Figure 1 and includes three construction packages.

Contract 6522 – Construction Package 1, will include installation of approximately 5,300 linear feet of new 24-inch diameter water main to extend Section 63 in Lexington, as the first leg of the redundant loop, which will also allow Burlington's pipeline to connect to the MWRA system. The new MWRA pipeline is scheduled to be completed by the time Burlington's project is complete in the Fall of 2022. The anticipated request for approval for Construction Package 1 by the MWRA Board of Directors is early 2022.

Construction Package 2 will include installation of up to 11,100 linear feet of new 24-inch diameter water main in Lexington to interconnect Section 45 to the new pipeline installed in Construction Package 1 to improve redundancy. Three alternative routes are being evaluated for this interconnection. Construction Package 2 will also include installation of a new meter for Lexington and replacement of 3,400 linear feet of 20-inch diameter pipe in Section 63 in Arlington with 24-inch diameter piping.

Construction Package 3 will include installation of up to 6,700 linear feet of new 24-inch diameter water main in Lexington to interconnect Section 83 to Section 45 and the new pipeline installed in Construction Package 2 to improve redundancy. Three alternative routes are being evaluated for this interconnection. Construction Package 3 will also include increasing the capacity of approximately 5,000 linear feet of Sections 34 and 45 in Arlington with 20-inch pipe (currently 12-inch and 16-inch), rehabilitation or replacement of approximately 4,800 linear feet of 24-inch Section 61 in Arlington, installation of one new meter for Belmont, and rehabilitation and replacement of existing community water meters for Arlington, Belmont, Lexington, Waltham and Winchester.

The new MWRA 5,300 linear foot 24-inch piping of Construction Package 1 is located on Lowell Street and Summer Street (State Route 2A) in Lexington, from Maple Street to the town border with Arlington. Lexington has identified replacement of its local water main along this route as a high priority in its Asset Management Plan due to the water main's high leak history. Therefore, Lexington requested that MWRA include replacement of its 16-inch local water main piping in the upcoming MWRA Contract 6522 – Construction Package 1.

The design of the project is underway and staff have negotiated an agreement with Lexington, subject to Board approval, for the added construction cost of its work as detailed in the attached Memorandum of Agreement (MOA). Among other provisions, the MOA includes the following:

- The Town of Lexington will contract directly with MWRA's design consultant for the design, construction administration and resident inspection of its work.
- The bid documents for Contract 6522 will include a separate line item for installation of approximately 5,300 linear feet of Lexington local water main and appurtenances.

- Lexington will reimburse MWRA for its share of construction costs and the costs for uniformed police officers and local fire department personnel and any change orders associated with Lexington's work.
- MWRA will require its selected contractor for the Project to: (i) name Lexington as an additional insured on all insurance policies required to be provided by such contractor for the Project, except for Workers Compensation; (ii) name Lexington as an obligee on the performance and labor and materials payment bonds provided by the contractor under the construction contract; and (iii) warrant, for the benefit of Lexington, that the Lexington work will be free from defects in materials and workmanship for a period of one year from substantial completion of the project in accordance with standard MWRA terms.

BUDGET/FISCAL IMPACT:

The FY22 CIP includes a budget of $4,400,000 for Contract 6522.

ATTACHMENTS:

Figure 1: Section 111- Southern Extra High Redundancy
Draft Town of Lexington Memorandum of Agreement

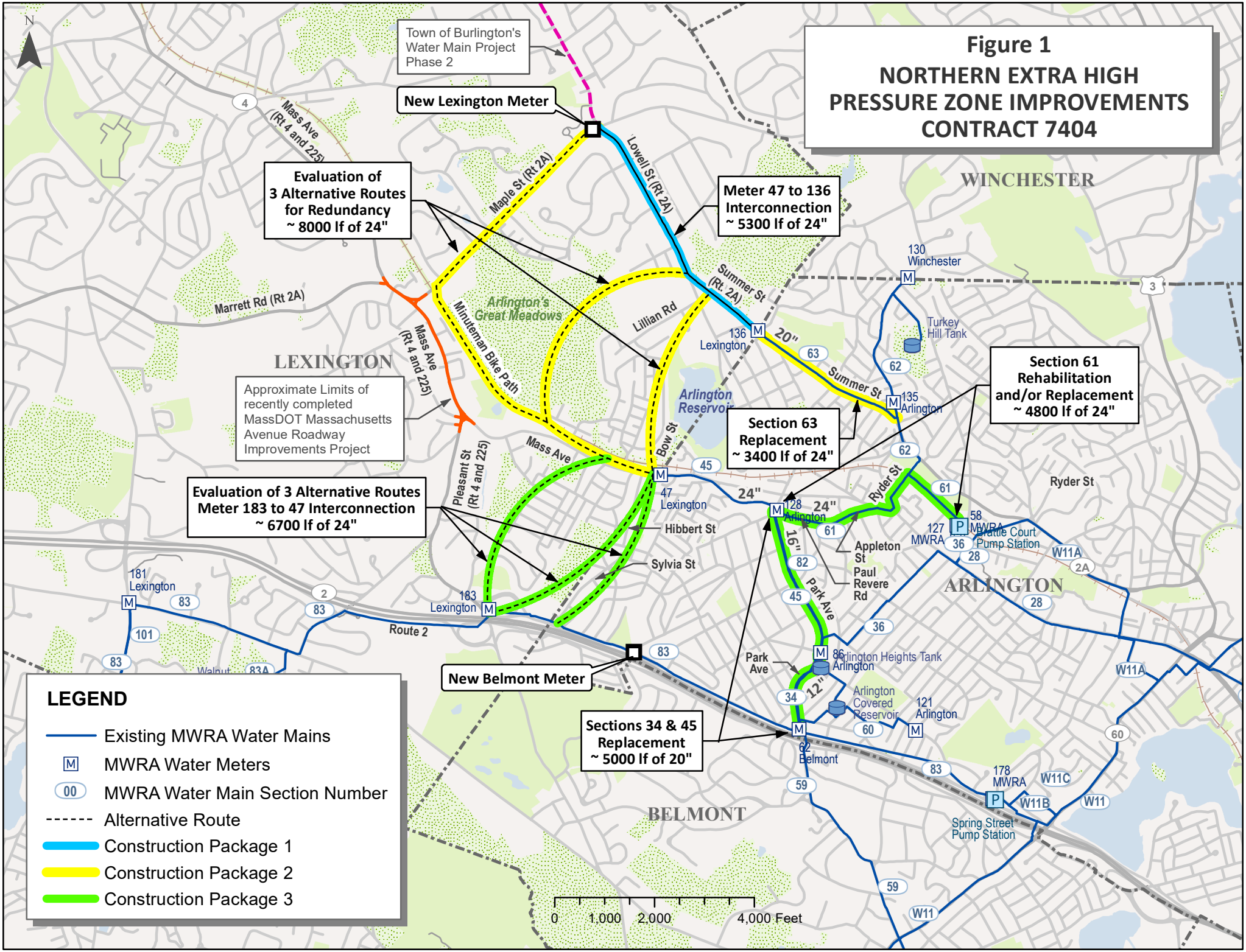


Figure 1
NORTHERN EXTRA HIGH PRESSURE ZONE IMPROVEMENTS CONTRACT 7404
Town of Burlington's Water Main Project Phase 2
New Lexington Meter
Evaluation of 3 Alternative Routes for Redundancy ~ 8000 lf of 24"
Meter 47 to 136 Interconnection ~ 5300 lf of 24"
Section 61 Rehabilitation and/or Replacement ~ 4800 lf of 24"
Section 63 Replacement ~ 3400 lf of 24"
Approximate Limits of recently completed MassDOT Massachusetts Avenue Roadway Improvements Project
Evaluation of 3 Alternative Routes Meter 183 to 47 Interconnection ~ 6700 lf of 24"
New Belmont Meter
Sections 34 & 45 Replacement ~ 5000 lf of 20"
WINCHESTER
LEXINGTON
ARLINGTON
BELMONT
Mass Ave (Rt 4 and 225)
Maple St (Rt 2A)
Lowell St (Rt 2A)
Summer St (Rt. 2A)
Marrett Rd (Rt 2A)
Minuteman Bike Path
Arlington's Great Meadows
Lillian Rd
Arlington Reservoir
Bow St
Pleasant St (Rt 4 and 225)
Hibbert St
Sylvia St
Route 2
Ryder St
Appleton St
Paul Revere Rd
Park Ave
Spring Street Pump Station
Turkey Hill Tank
Brattle Court Pump Station
Arlington Heights Tank
Arlington Covered Reservoir
130 Winchester
136 Lexington
135 Arlington
47 Lexington
128 Arlington
127 MWRA
58 MWRA
121 Arlington
62 Belmont
178 MWRA
181 Lexington
183 Lexington
20"
24"
16"
12"
0 1,000 2,000 4,000 Feet
LEGEND
Existing MWRA Water Mains
MWRA Water Meters
MWRA Water Main Section Number
Alternative Route
Construction Package 1
Construction Package 2
Construction Package 3
Date: 8/30/2021 MwraGIS 2018-2

MEMORANDUM OF AGREEMENT
BETWEEN
MASSACHUSETTS WATER RESOURCES AUTHORITY
AND
TOWN OF LEXINGTON, MASSACHUSETTS

This MEMORANDUM OF AGREEMENT ("MOA") is made this _____ day of _____, 2021, by and between the MASSACHUSETTS WATER RESOURCES AUTHORITY ("MWRA"), a body corporate and politic and an independent authority pursuant to St. 1984, c. 372 of the laws of the Commonwealth of Massachusetts, and the TOWN OF LEXINGTON ("Lexington"), duly incorporated as a Town under the laws of the Commonwealth of Massachusetts (each individually a "Party" and collectively the "Parties").

RECITALS

WHEREAS, MWRA is planning to install approximately 5,300 linear feet of new 24-inch water pipeline and appurtenances, by open cut construction, in portions of roadway along Lowell Street and Summer Street in Lexington, which roadway is Commonwealth land maintained by the Massachusetts Department of Transportation ("MassDOT") and otherwise known as Route 2A ("Project");

WHEREAS, the Project will be competitively bid by MWRA as MWRA Contract 6522, "Construction Package 1 – Section 63 Northern Extra High Redundancy Pipeline";

WHEREAS, in furtherance of its Water System Master Plan Lexington has requested that MWRA include in Contract 6522 the installation of approximately 5,300 linear feet of 16-inch water pipeline, fire hydrants, water services, temporary water bypassing, interconnections appurtenances, abandonment of their 8" water main, and related work, within the same roadway as MWRA's 24-inch water pipeline along Route 2A in MassDOT land (the "Lexington Work");

WHEREAS, MWRA and Lexington have determined that it is in the best interest of the Parties to include the Lexington Work within the scope of MWRA Contract 6522;

WHEREAS, MWRA expects that after award of MWRA Contract 6522, a Notice to Proceed will issue in or around March 2022; and

WHEREAS, MWRA and Lexington wish to enter into this MOA regarding certain aspects of the construction, as well as payment for and sharing of costs with respect to the Project, Contract 6522 and installation of the sections of MWRA and Lexington water pipelines referenced above.

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

1. PROJECT RESPONSIBILITIES AND ALLOCATION OF COSTS

1.1 MWRA will, in coordination with its design consultant, complete the design of its work on the Project and include the scope of that work in the contract documents for

MWRA Contract 6522. Lexington has contracted with the same design consultant as MWRA for the design and engineering services for the Lexington Work, the scope of which will also be included in the contract documents for MWRA Contract 6522. Lexington shall contract with the same engineering consultant as MWRA for construction administration and resident inspection services associated with the Lexington Work. Lexington shall be responsible for all costs and expenses of the design, engineering, construction administration and resident inspection services associated with the Lexington Work and will pay the consultant(s) directly for such costs.

1.2 The bid documents for MWRA Contract 6522 will include a separate line item(s) for all work associated with the Lexington Work, which will be installed by means of open cut construction in Commonwealth land on Route 2A. Lexington is responsible for 100 percent of the cost of this line item(s). Lexington shall pay MWRA all costs for services of uniformed police officers and local fire department services associated with the Lexington its work. Lexington shall be responsible for all Change Order costs under MWRA Contract 6522 arising out of or relating to the Lexington Work. Lexington shall make all payments to MWRA in accordance with Section 6 of this MOA.

1.3 Consistent with the provisions of G.L. c. 44, §31C, Lexington certifies that it has duly appropriated funds for the cost of the portion of Contract 6522 that is being constructed on its behalf based upon its current cost estimate of $_____ [to be filled in]. Following the opening of bids for MWRA Contract 6522 and prior to award by MWRA, Lexington shall re-certify that it has duly appropriated funds to cover all costs for the design, engineering, construction administration and resident inspection services and construction of its portion of Contract 6522.

1.4 Under MWRA Contract 6522, MWRA shall require its selected contractor for the Project to name Lexington as an additional insured on all insurance policies required to be provided by such contractor for the Project, except for Workers Compensation; and (ii) name Lexington as an obligee on the Performance and Labor and Materials Payment Bonds to be provided by the contractor under MWRA Contract 6522.

1.5 Under MWRA Contract 6522, MWRA shall cause its contractor to warrant, for the benefit of Lexington, that the Lexington Work will be free from defects in materials and workmanship for a period of one (1) year from substantial completion of the Project in accordance with standard MWRA terms. Provision shall be made for the contractor to repair or replace all defective work within said one-year period in accordance with standard MWRA terms.

1.6 Under MWRA Contract 6522, MWRA shall cause its contractor to indemnify and hold harmless Lexington to the same extent that MWRA requires its contractor to indemnify and hold harmless the MWRA.

2. ADVERTISEMENT AND AWARD OF CONTRACT

2.1 In accordance with Massachusetts public bid laws, MWRA shall advertise and accept bids for MWRA Contract 6522. MWRA, in its sole discretion, reserves the right to

accept and/or reject any and/or all bids for the reasons articulated in the MWRA Contract 6522 bid solicitation materials and/or as provided by law.

2.2 If and/or when MWRA awards MWRA Contract 6522 and enters into a contract for the Project, such contract shall include the installation of the Lexington Work.

3. CHANGE ORDERS

3.1 MWRA shall determine whether a request for a Change Order under MWRA Contract 6522 should be approved or rejected, in whole or in part. In the event a request for a Change Order relates, in whole or in part, to the Lexington Work, MWRA will provide Lexington with a copy of the proposed Change Order for review and comment and, at Lexington's request, MWRA project personnel shall meet with Lexington personnel to discuss and consider Lexington's and MWRA's respective positions. The parties shall, in good faith, confer regarding their respective positions. After conferring with Lexington, MWRA shall process those Change Orders that MWRA approves. Change Orders approved by MWRA shall be included in the contractor's monthly invoice to MWRA. Lexington shall make payments to MWRA for its portion of the Change Order costs arising out of or relating to the Lexington Work in accordance with Section 6 of this MOA.

In the event the contractor submits a claim for additional compensation and/or additional time relating to or arising out of, in whole or in part, the Lexington Work, which claim sums and/or time request are not included in an approved Change Order, MWRA shall provide Lexington with a copy of such claim and the Parties shall confer and cooperate with each other and Lexington shall assist MWRA in the defense and/or resolution of such claim.

4. HAZARDOUS MATERIALS

MWRA shall be responsible for, and shall take all actions necessary or appropriate in accordance with MGL Chapter 21E and the Massachusetts Contingency Plan ("MCP") Utility Related Abatement Measures ("URAM") necessary to conduct the work under the Project. Lexington shall be responsible for all costs associated with the disposal of contaminated soils related to the Lexington Work under MWRA Contract 6522.

5. TERM

The term of this MOA shall, unless otherwise agreed to by the Parties, commence on the date written above and continue until final completion of the Project and any Warranty period within MWRA Contract 6522.

6. PAYMENT BY LEXINGTON

The contractor shall submit monthly invoices to MWRA for the work under MWRA Contract 6522, including the Lexington Work and approved Change Orders, in accordance with the contract documents. MWRA shall pay the contractor its monthly invoices in accordance with the contract documents. Lexington shall make payment to

MWRA of the amounts requested in the contractor's monthly invoice for line items associated with the Lexington Work and for approved Change Orders within 15 days of receiving invoices from MWRA. Payment amounts shall be in accordance with the Schedule of Values submitted by the contractor and approved by MWRA. MWRA will invoice Lexington on a monthly basis.

7. AMENDMENTS

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

8. SEVERABILITY

If any part of this MOA is determined to be invalid, illegal, or unenforceable, such determination shall not affect the validity, legality, or enforceability of any other part of the Agreement and the remaining parts of this MOA shall be enforced as if such invalid, illegal or unenforceable part were not contained herein, unless continued performance of the remaining provisions of this MOA, which have not been determined to be invalid, illegal or unenforceable, would result in the substantial loss of the benefit of the bargain to either MWRA or Lexington.

9. NOTICE

Whenever, by the terms of this instrument, notices may or are to be given either to Lexington or MWRA, such notice shall be deemed to have been given, if in writing and either delivered by hand or by U.S. mail to the following addresses:

To Lexington: [to be filled in] _____
_____
_____

To MWRA: John Colbert, Chief Engineer
Massachusetts Water Resources Authority
2 Griffin Way
Chelsea, MA 02150

10. ENTIRE AGREEMENT

This MOA constitutes the entire agreement between the Parties with respect to the subject matter hereof and supersedes all prior agreements, understandings, expectations, negotiations, and discussions of the Parties, whether oral or written. There are no representations by either Party, which are not specifically set forth in this MOA.

11. GOVERNING LAW

This MOA shall be executed and delivered in the Commonwealth of Massachusetts and shall be construed and enforced in accordance with, and shall be governed by, the laws of the Commonwealth of Massachusetts.

12. DISPUTES/COOPERATION

The Parties shall each use their best efforts to cooperate in the performance of the Project and MWRA Contract 6522 by appointing appropriate representatives who, respectively, shall be responsible for expediting and responding to any and all inquiries, problems, and matters requiring coordination among the Parties concerning the scheduling, performance, progress or completion of the Project. Any and all disputes which arise and which cannot be amicably resolved by the Parties during the course of the performance of the Project, if at all possible, shall be resolved after the completion of the Project.

13. COUNTERPARTS

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

14. AUTHORITY

Each person signing in an official or representative capacity warrants that he or she is duly authorized to act for his or her principal and that he or she is so acting when signing this MOA, and that, when executed this MOA shall be a valid and binding obligation, enforceable in accordance with its terms.

15. NO PRESUMPTION

The Parties agree that this MOA shall be construed without regard to any presumption or other rule requiring construction or interpretation against the Party causing this Agreement to be drafted.

IN WITNESS WHEREOF, the Parties hereto have caused the MOA to be executed as a sealed instrument and signed in duplicate by their duly authorized representatives.

EXECUTED AS A SEALED INSTRUMENT this _____ day of _____, 2021.

MASSACHUSETTS WATER RESOURCES AUTHORITY	TOWN OF LEXINGTON
By: _____	By: [to be filled in]_____
Frederick A. Laskey	_____
Executive Director	_____

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Three-Year Purchase Order Contract for the Supply and Delivery of Soda Ash to the John J. Carroll Water Treatment Plant
Tata Chemicals Soda Ash Partners
Bid WRA-5003

COMMITTEE: Water Policy & Oversight

_____ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

Valerie L. Moran, P.E., Director, Waterworks
Douglas J. Rice, Director of Procurement
Preparer/Title

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

RECOMMENDATION:

To approve the award of Purchase Order Contract WRA-5003 for the supply and delivery of soda ash to the John J. Carroll Water Treatment Plant to the lowest responsive bidder, Tata Chemicals Soda Ash Partners, and authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $10,162,800 for a period of three years, from January 1, 2022 through December 31, 2024.

DISCUSSION:

MWRA uses sodium carbonate, commonly referred to as soda ash, at the Carroll Plant for corrosion control. In combination with carbon dioxide, soda ash increases and stabilizes the alkalinity and pH of water. MWRA takes delivery of soda ash in powder form. It is stored in six 120-ton vertical silos inside the Post-Treatment Building. It is then fed into the system by six gravimetric feeders with solution tanks.

A tangible result of the use of soda ash and one of the most significant benefits are reflected in the sampling results under EPA's Lead and Copper Rule. This requires that nine out of ten, or 90%, of the sampled homes must have lead levels below the Action Level of 15 parts per billion. Soda ash is also used for compliance with the Department of Environmental Protection's Optimal Water Quality Control Parameters program, which requires a continuous finished water tap pH of greater than or equal to 9.1, an alkalinity of greater than or equal to 37 mg/L, and a pH no less than 9.0 collected from 27 distribution system locations on a quarterly basis.

Procurement Process

Bid WRA-5003 was advertised in the following publications: the Boston Herald, the Goods and Services Bulletin, El Mundo, and Banner Publications. In addition, bids were made available for public downloading on MWRA's e-procurement system (Event 4743) and six potential bidders

were solicited through the e-Portal.

On August 4, 2021, Event 4743 closed with the following results:

Item	Description	**Tata Chemicals Soda Ash Partner**s	Univar Solutions USA Inc	Ciner Wyoming LLC	Genesis Alkali Wyoming LP
1	10,800 Tons Year 2022	**$305.00 per ton $3,294,000**	$347.37 per ton = $3,751,596	$355.54 per ton = $3,839,832	$360.00 per ton = $3,888,000
2	10,800 Tons Year 2023	**$314.00 per ton = $3,391,200**	$357.89 per ton = $3,865,212	$365.54 per ton = $3,947,832	$370.00 per ton = $3,996,000
3	10,800 Tons Year 2024	**$322.00 per ton = $3,477,600**	$368.42 per ton = $3,978,936	$375.54 per ton = $4,055,832	$380.00 per ton = $4,104,000
	Total	**$10,162,800**	$11,595,744	$11,843,496	$11,988,000

The contract will provide up to 10,800 tons of soda ash each year during the three-year term of this contract. MWRA will pay only for product that is delivered and received.

Under the existing three year contract with Ciner Wyoming LLC, which expires on December 31, 2021, MWRA is paying $345.00 per ton (third year pricing; the first year's unit bid price for was $320.00 per ton and the second year's price was $335.00 per ton). Compared to the existing contract; the three year cost per ton average price has decreased by $19.67 per ton, a decrease of 6%. Tata Chemicals Soda Ash Partners previously supplied the John Carroll Water Treatment Plant with soda ash from 2016 through 2018. A representative from Tata stated that losing the contract to Ciner Wyoming LLC in 2018, led to an aggressive bidding approach to this year's contract.

The marketplace for soda ash is typically in a state of consistent strong demand. Soda ash is primarily used in the production of flat glass and detergents. There are four main soda ash producers in the United States, Ciner Wyoming LLC, Tata Chemicals Soda Ash Partners, Genesis Alkali, and Solvay Soda Ash. All of these producers have mines in Sweetwater County, Wyoming. U.S. producers of soda ash have been successful in maintaining lower production costs than their main competitors in China. As a result, global users buy all of the soda ash that the Wyoming-based companies can produce. As evident from the bid results, MWRA received bids from three major producers. Solvay Soda Ash contacted the Purchasing Unit and stated that due to current demands for next year, it would not be responding. The bid submitted by Univar included product that would have been supplied by Genesis Alkali Wyoming LP.

Staff have reviewed the bid submitted by Tata Chemicals Soda Ash Partners and have determined it meets all of the requirements of the specifications. Therefore, staff recommend the award of this purchase order contract to Tata Chemicals Soda Ash Partners as the lowest responsive bidder.

BUDGET/FISCAL IMPACT:

There are sufficient funds included in the Operations Division's FY22 Current Expense Budget for the first portion of this contract. Appropriate funding will be included in subsequent CEB requests for the remaining term of this three-year contract.

MBE/WBE PARTICIPATION:

Tata Chemicals Soda Ash Partners is not a certified Minority- or Women-owned business.

STAFF SUMMARY

TO: Board of Directors
FROM: Fredrick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Rehabilitation of Sections 23, 24 and 47 Water Mains – Boston and Newton
Albanese D&S, Inc.
Contract 6392

COMMITTEE: Water Policy & Oversight

____ INFORMATION
__X__ VOTE

Michele S. Gillen
Director of Administration

Ester N. Lwebuga, P.E., Sr. Program Manager
John P. Colbert, P.E., Chief Engineer
Preparer/Title

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

RECOMMENDATION:

To approve the award of Contract 6392, Rehabilitation of Sections 23, 24 and 47 Water Mains, Boston and Newton, to the lowest responsible and eligible bidder, Albanese D&S, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $26,843,000 with a contract term of 912 calendar days from the Notice to Proceed.

DISCUSSION:

Sections 23, 24 and 47 water mains are part of the Southern High pressure zone. They provide supply to the communities of Boston, Newton and Watertown. The water mains are cast iron and are over 100 years old. Rehabilitation of these water mains will improve water quality by reducing the length of unlined cast iron water mains in the system; improve reliability; restore hydraulic looping and redundancy between Weston Aqueduct Supply Main (WASM) 2 and WASM 4; and facilitate conveyance of high service water from Shaft 7 of the City Tunnel to the communities of Boston, Newton and Watertown.

This contract includes cleaning and cement mortar lining approximately 4,500 linear feet of Section 23, which is a 36-inch diameter cast iron water main, 10,800 feet of 20-inch Section 24 and Section 47 cast iron water mains, and 500 feet of 20-inch steel water main along Section 24. The construction work will also include installing, by open-cut, 3,600 feet of 36-inch ductile iron Section 23 water main, 6,400 feet of 24-inch ductile iron Section 24 water main, and new valves and appurtenances, and replacing the check valve assembly at Boston Meter 120. Additionally, the construction contract will include replacing approximately 2,400 linear feet of City of Newton 20-inch diameter, 140 year old cast iron water main on Ward Street between Manet Road and Waverly Avenue. In March 2019, the Board of Directors approved a Memorandum of Agreement with the City of Newton to reimburse MWRA for construction of the local Newton water main.

Construction Contract 6392 was originally scheduled for advertisement in December 2018, but was delayed by the relocation of gas mains in both Newton and Boston. The Columbia gas line explosion on September 13, 2018, resulted in a hold on gas line relocations. The gas company changed its procedures and professional engineer stamped drawings were required to be developed and approved prior to any gas relocations. Due to the work to repair gas lines after the explosion, a large backlog of gas work in other areas was put on hold. Staff did not move forward with advertising the construction project until enough gas line relocation progress was completed, and a schedule for the remaining relocations was provided so that the water main construction could proceed with less risk. Currently, in Newton, all relocations are completed with the exception of a short relocation on Ward Street that is scheduled for completion by the end of October 2021. The relocations in Boston on Lake Street have started and are estimated to be complete by spring 2022. The sequence of construction for the water mains has the work being completed in Newton first, followed by the work in Boston in the second year of the construction contract. As a result of this 36-month delay, an amendment to Contract 6385 with Green International is necessary and will also be presented at this Board meeting.

Procurement Process

Contract 6392 was advertised in the Central Register, the Boston Herald, Banner Publication, El Mundo, and COMMBUYS and bid utilizing MWRA's e-procurement system (Event 4772) in accordance with Massachusetts General Laws, Chapter 30. Bids were received and opened on October 6, 2021 with the following results:

Contractor	Bid Amount
Albanese D&S, Inc.	$26,843,000
R. Zoppo Corp.	$27,530,000
P. Gioioso & Sons Inc.	$27,634,500
RJV Construction Corp.	$27,656,000
Revoli Construction Co., Inc.	$37,542,862
Engineer's Estimate	*$22,847,000*

The four lowest bids are within 3.0% of each other, an indication that the three low bids are reflective of the cost for the work to be completed. The second lowest bidder, R. Zoppo Corp's bid is $687,000 (2.6%) higher than the low bid. The lowest bid from Albanese D&S is $3,996,000 (14.9%) higher than the Engineer's Estimate. The major difference between the lowest bid and the engineer's cost estimate is due to recent market inflations, higher material costs, higher manufacturers' related expenses for production and transportation, and lower pipeline production rates than estimated.

MWRA staff and the Design Engineer, Green International, reviewed Albanese D&S's bid in detail and discussed the major bid items with the company. Based on the bid review and subsequent discussions with Albanese D&S, staff are satisfied that the firm understands the full scope of work and can perform the work for the bid price, which includes the payment of prevailing wages.

References were checked and found to be favorable. Albanese D&S successfully completed several water and sewer projects for MWRA including the three Northern Intermediate High Pipeline projects in Stoneham, Wakefield and Reading, which included large diameter pipe construction. Albanese D&S's performance on these projects was good. Albanese D&S is currently working on Contract 6544, WASM 3 Rehabilitation Construction Package 1, in the

amount of $19,487,850 and its performance to date has been good. Staff also checked references for other non-MWRA projects, which were favorable. Six years of OSHA records for Albanese D&S were reviewed and no violations were found.

Staff are of the opinion that Albanese D&S possesses the skill, ability, and integrity necessary to perform the work under this contract and is qualified to do so. Therefore, staff recommend the award of this contract to Albanese D&S as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The FY22 CIP includes a budget of $14,700,000 for Contract 6392.The contract award amount is $26,843,000, or $12,143,000 greater than budget. The latest cost estimate was recently completed after the project was put on hold in 2018 and incorporates all updates to the project. This cost estimate was received after the budget was submitted. Accordingly, this amount will be absorbed within the five-year CIP spending cap. It should be noted that Contract 6392 may receive funding through the DEP Clean Water State Revolving Fund. In addition, the cost associated with replacement of the City's 20-inch water main is $2,633,000, and will be reimbursed to MWRA in accordance with the terms of the Memorandum of Agreement between MWRA and City of Newton.

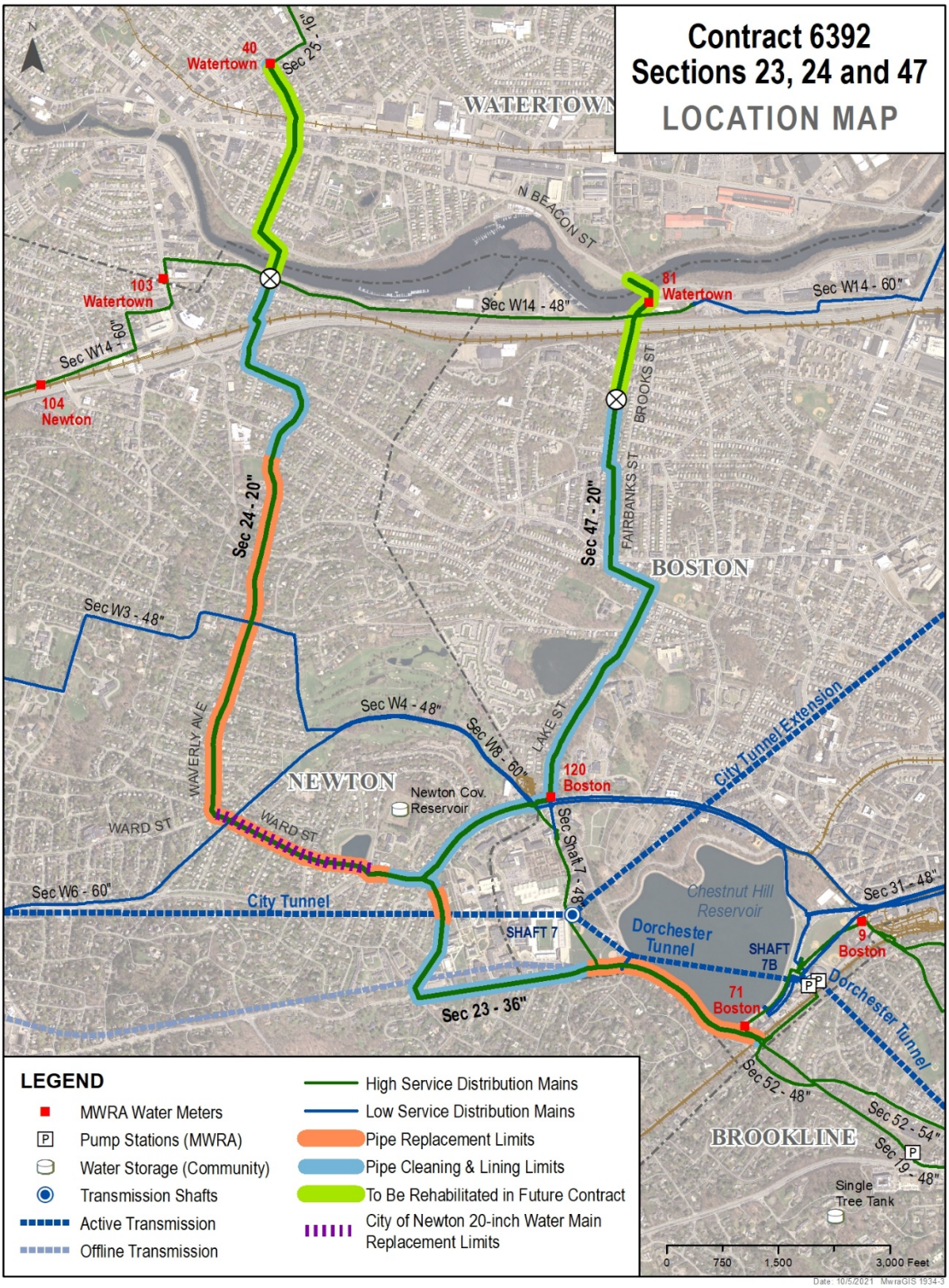
MBE/WBE PARTICIPATION:

Contract 6392 will receive Clean Water State Revolving Fund funding from the Massachusetts Clean Water Trust. The D/MBE and D/WBE participation requirements for this contract were established at 4.2% and 4.5%, respectively. The Affirmative Action and Compliance Unit reviewed the bids and determined that the bid from Albanese D&S is responsive to these requirements.

ATTACHMENT:

Attachment A – Sections 23, 24 and 47 Location Map

Attachment A



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: Rehabilitation of Sections 23, 24 and 47 Water Mains – Design, Engineering Services During Construction, and Resident Engineering/Inspection Services
Green International Affiliates, Inc.
Contract 6385, Amendment 1

COMMITTEE: Water Policy & Oversight

_____ INFORMATION
_X_ VOTE

Ester N. Lwebuga, P.E., Sr. Program Manager
John P. Colbert, P.E., Chief Engineer
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to Contract 6385, Rehabilitation of Sections 23, 24 and 47 Water Mains - Design, Engineering Services During Construction, and Resident Engineering/Inspection Services with Green International Affiliates, Inc., increasing the contract amount by $245,401, from $3,506,868 to $3,752,269 and extending the contract term by 36 months, from August 1, 2022 to August 1, 2025.

DISCUSSION:

The Section 23, 24 and 47 water mains are 103 to 124-year-old cast iron pipes serving Boston and Watertown, and providing redundancy for parts of Newton. This contract includes design, engineering services during construction and resident engineering/inspection for Construction Contract 6392 which includes cleaning and cement mortar lining approximately 4,500 linear feet of Section 23, which is a 36-inch diameter cast iron water main, 10,800 feet of 20-inch Section 24 and Section 47 cast iron water mains, and 500 feet of 20-inch steel water main along Section 24. The construction work will also include installing, by open-cut, 3,600 feet of 36-inch ductile iron Section 23 water main, 6,400 feet of 24-inch ductile iron Section 24 water main, and new valves and appurtenances, and replacing the check valve assembly at Boston Meter 120. Additionally, the construction contract will include replacing approximately 2,400 linear feet of City of Newton 20-inch diameter, 140 year old cast iron water main on Ward Street, between Manet Road and Waverly Avenue. In March 2019, the Board of Directors approved a Memorandum of Agreement with the City of Newton to reimburse MWRA for construction of the local Newton water main. Newton also contracted Green International separately for the design of this construction work.

Construction Contract 6392 was originally scheduled for advertisement in December 2018, but was delayed by the relocation of gas mains in both Newton and Boston. The Columbia gas line explosion on September 13, 2018, resulted in a hold on gas line relocations. The gas company changed its procedures and professional engineer stamped drawings were required to be developed and approved prior to any gas relocations. Due to the work to repair gas lines after the explosion,

a large backlog of gas work in other areas was put on hold. Staff did not move forward with advertising the construction project until enough gas line relocation progress was completed, and a schedule for the remaining relocations was provided so that the water main construction could proceed with less risk. Currently, in Newton, all relocations are completed with the exception of a short relocation on Ward Street that is scheduled for completion by the end of October 2021. The relocations in Boston on Lake Street have started and are estimated to be complete by spring 2022. The sequence of construction for the water mains has the work being completed in Newton first, followed by the work in Boston in the second year of the construction contract. As a result of this 36-month delay, an amendment to Contract 6385 with Green International is necessary.

This Amendment

If approved, Amendment 1 will extend the contract term by 36 months for engineering services during construction, which includes a 12-month warranty period.

Project Administration *$38,925*

Green International did not charge project administration costs during the time when the gas relocations were being completed and the project was on hold. Additional design work, which was completed within the existing project budget, was required to check the gas company drawings, make changes to plans as necessary, coordinate with Newton, and bid the contract. Additional budget was necessary for project administration, progress reports, M/WBE compliance reporting, invoicing and project update meetings to support the additional design efforts to restart and bid this project.

Escalation *$206,476*

Additional budget is needed for project administration, engineering services during construction and resident engineering/inspection services due to escalation in labor rates for the 36-month contract extension.

Contract Summary:

	Amount	Time	Dated
Original Contract	$3,506,868	72 Months	08/01/2016
Amendment 1	$245,401	36 Months	Pending
Amended Contract	$3,752,269	108 Months	

This amendment is 7% of the original contract value.

BUDGET/FISCAL IMPACTS:

The FY22 CIP includes a budget of $3,506,868 for Contract 6385. Including this amendment for $245,401, the adjusted subphase total will be $3,752,269 or $245,401 over budget. This amount will be absorbed within the five-year CIP spending cap.

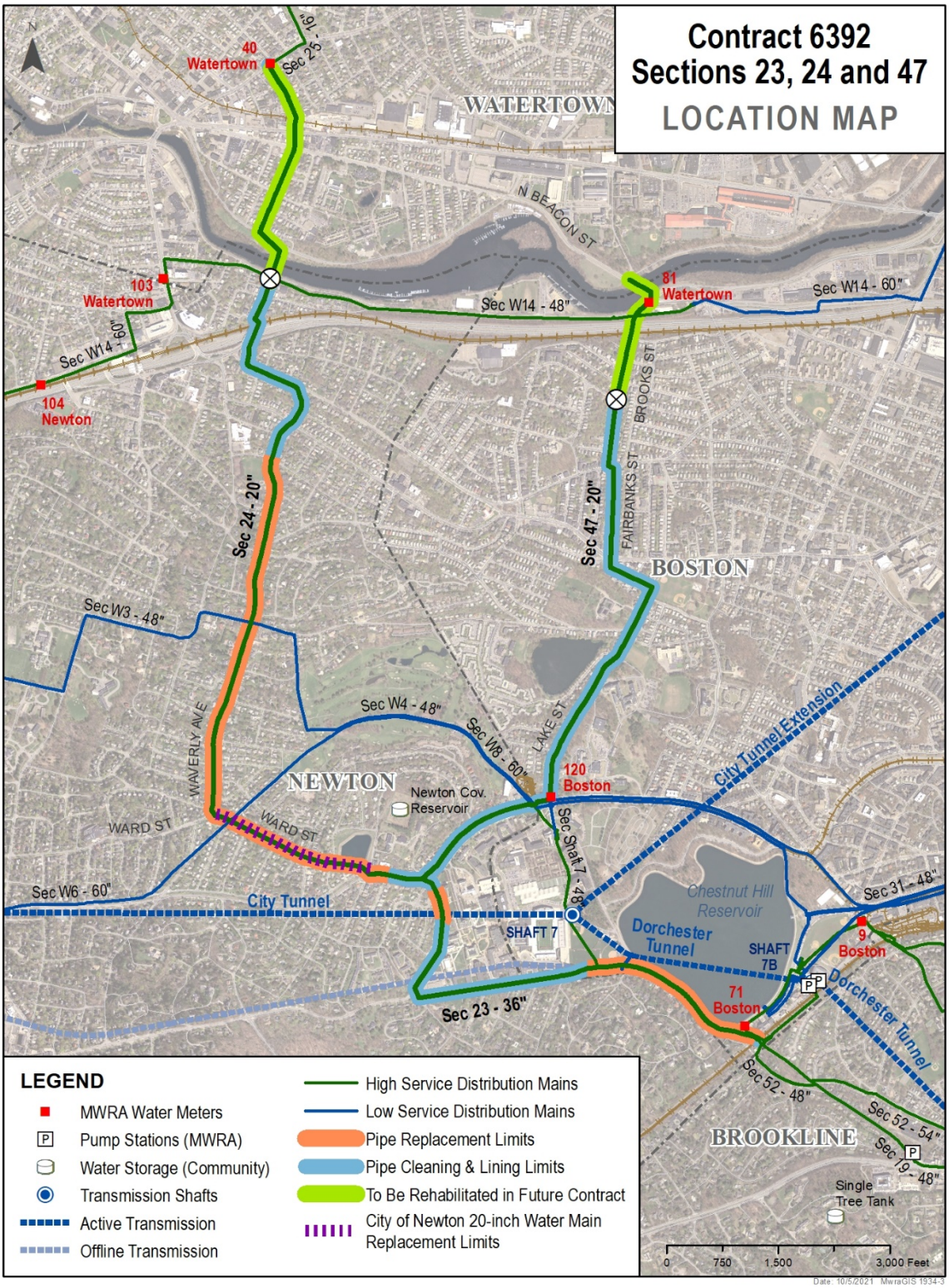
MBE/WBE PARTICIPATION:

The minimum MBE or WBE participation requirements for this project were established at 7.18% and 5.77%, respectively. Green International Affiliates, Inc. is a certified Minority Business Enterprise and has committed to 46.02% MBE and 6.26% WBE participation.

ATTACHMENT:

Figure 1 – Sections 23/24/47 Water Mains

Figure 1 – Sections 23/24/47 Water Main



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: October 20, 2021
SUBJECT: John J. Carroll Water Treatment Plant SCADA System Improvements
Design, Engineering Services During Construction and Resident Engineering Services
Arcadis U.S., Inc.
Contract 7581, Amendment 2

COMMITTEE: Water Policy and Oversight

_____ INFORMATION
_X_ VOTE

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

David W. Coppes, P.E
Chief Operating Officer

This item was postponed at the September 15, 2021 Board meeting so that staff could provide additional information for the Board's consideration. At that meeting, concern was expressed that changes in scope, subsequent to the award, did not allow other proposers the same opportunity with respect to this contract. This staff summary provides further information regarding the procurement timeline for this contract, the difficulties in securing competition from qualified firms, the RFQ/P requirements and the subsequent award to the sole proposer, Arcadis U.S. Inc.

RECOMMENDATION:

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

DISCUSSION:

Attached to this staff summary is a copy of the December 19, 2018 award staff summary, which describes the difficulties in securing competition from qualified design firms.

From the start of this project, staff have had concerns about releasing security sensitive information regarding the SCADA system architecture to the public in procurement documents. In November 2017, staff outlined for the Board an alternative qualifications-based selection process, which generated a number of questions and concerns. Staff returned in December 2017, with a recommendation for a two-step procurement process, which would short-list firms based on qualifications submittals and then provide the security sensitive information to only the prequalified firms for use in preparation of their proposals.

This procurement, initiated in February of 2018, resulted in a single response from the consulting firm, Arcadis U.S., Inc. That procurement was then canceled and the project re-issued after outreach and direct solicitation to a number of firms in order to encourage competition. The second procurement resulted in short-listing of two firms, followed by a subsequent submission of a single proposal from Arcadis U.S., Inc. with a price of $4,652,028.

The Request for Qualifications statements and the Request for Proposals included experience requirements for the key personnel selected by the firms, with the exception of the Resident Engineer. Each team was given the opportunity to propose the candidate thought to have the appropriate qualifications for the Resident Engineer position. All of the firms solicited to propose on this project had an opportunity to put forward their best team for the project and to determine the means for carrying out the scope. In the end, only one firm chose to submit.

The proposed amendment is primarily the result of the additional time needed to support the longer than originally anticipated duration for the construction contract. As the Board rightly pointed out, a portion of this amendment is for staff's request to enhance resident inspection at a cost of $388,460.15. Staff believe it is in the best interest of the MWRA to request highly qualified oversight of this sensitive and critical work at this time.

Contract 7581 includes design and programming services for replacing the original programmable logic controllers (PLCs) and other Supervisory Control and Data Acquisition (SCADA) system components commissioned in 2005 as part of the original construction of the John J. Carroll Water Treatment Plant. These computer system components are at the end of their useful life and/or are becoming obsolete, and future vendor support is no longer guaranteed. Critical components, such as backup scanner modules, have been discontinued and when MWRA's current stock of spare parts is exhausted, maintenance of the system will become increasingly difficult. The system consists of 34 PLCs with thousands of inputs and outputs, interconnected through a fiber optic local area network and the Operations Control Center. Each redundant pair of PLCs controls different processes in the plant; they work in conjunction with each other and with other critical off-site PLCs to control the entire treatment plant and western water transmission and treatment system. The Carroll Plant is in operation 24 hours per day, seven days per week and the SCADA system is essential to maintaining continuous operation of the facility.

The construction contract, 7582, which was approved for award by the Board on July 21, 2021, includes the supply and installation of replacement instrumentation panels, PLCs, UPS backup power, fiber-optic communication network, wiring between the existing panels, and new equipment and refurbishment of the operator control room. A new server room equipped with HVAC and fire suppression system will be constructed to house redundant computer hardware supporting active and backup SCADA systems.


SCADA Panels

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

Amendment 1

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

This Amendment

Additional Time for Engineering Design Services 184 days

Staff had similar concerns about protecting security sensitive information related to the SCADA system being published during procurement of the construction contractor. MWRA requested and DCAMM provided a waiver allowing the Authority to issue the construction contract through a two-step procurement process. The first step was a Request for Qualifications followed by a subsequent Request for Proposals. In November 2020, only one Contractor responded to the initial RFQ. Given the lack of competition, staff re-evaluated the procurement method and re-bid the project.

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

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

Design Project Management and Re-Bid $57,962.46

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

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

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

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

As a result of the schedule changes, 40 months are now necessary to construct the project and complete project closeout. Consequently, this results in the need to add 503 days to the design contract to support the longer construction period, including for resident engineering services, engineering services during construction, and project administration.

Additional Resident Engineering & Inspection Services $382,101.16

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

Also, during the design a number of additional scope items were needed to complete the project - such as the construction of a server room, fire suppression and HVAC systems, which expanded the amount and complexity of the work that the resident engineer and resident inspector must oversee. The detailed design includes a complex live cutover process with small windows in which to perform the work in coordination with plant maintenance activities and potential risks to the operation of the facility.

Change in Resident Engineering Staff Qualifications $388,460.15

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

Construction Project Administration $108,949.01

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

Construction Meetings and Site Inspections $96,102.92

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

Escalation $62,141.27

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

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

Contract Summary:

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

*Approved under delegated authority

BUDGET/FISCAL IMPACTS:

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

MBE/WBE PARTICIPATION:

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

ATTACHMENT:

December 19, 2018 Staff Summary

ATTACHMENT A

W B.1
IV B.1
12/19/18

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: December 19, 2018
SUBJECT: John J. Carroll Water Treatment Plant SCADA System Improvements, Design, Engineering Services During Construction and Resident Engineering Services
Arcadis U.S., Inc.
Contract 7581

COMMITTEE: Water Policy and Oversite

____ INFORMATION
__X__ VOTE

Michele S. Gillen
Director of Administration

Mark H. Johnson, P.E., Director, Waterworks
Augustin Serino, P.E., Manager, SCADA & Process Control
John P. Beckley, P.E., Program Manager
Preparer/Title

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

Staff briefed the Board of Directors at the November 15, 2017 meeting regarding procurement options for selecting design consultants for the replacement of the supervisory control and data acquisition (SCADA) system equipment at the John J. Carroll Water Treatment Plant while protecting security sensitive information. Staff recommended a two-step procurement process at the December 20, 2017 meeting with provisions for protecting that information.

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract 7581, John J. Carroll Water Treatment Plant SCADA System Improvements, Design, Engineering Services During Construction and Resident Engineering & Inspection Services to Arcadis U.S., Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed $4,652,028.07, for a contract term of 52 months from the Notice to Proceed.

BACKGROUND:

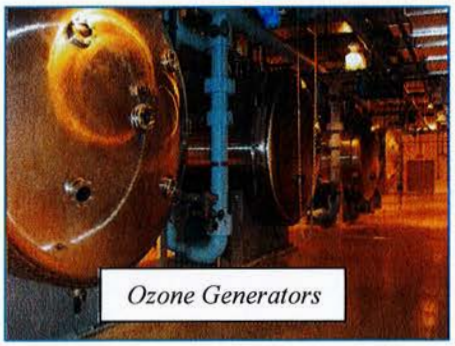
The John J. Carroll Water Treatment Plant is located in Marlborough, Massachusetts and was placed into service in 2005. With a peak capacity of 405 MGD, the plant provides drinking water to nearly three million customers including the majority of residents and businesses in 45 metro west and greater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

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

John J. Carroll Water Treatment Plant

SCADA is a powerful process control architecture that consists of four main components: 1) field instruments, 2) programmable logic controllers (PLCs), 3) communication devices and media, and 4) host computers, software, and a graphical human machine interface. It allows an operator to control processes locally or at remote locations, monitor real-time data, directly interact with devices (sensors, valves, pumps, motors, etc.), optimize operations, and record facility data into a historian.

The Carroll Plant is in operation 24 hours a day, seven days a week and the SCADA system is essential to maintaining continuous operation of the facility. A plant-wide network of 34 PLCs is linked to a centralized operations control center that provides a single point of control for MWRA staff to adjust treatment parameters and monitor plant performance. The control system performs calculations to ensure the ozone and UV processes meet mandated disinfection requirements, as well as data collection for regulatory reporting and record keeping. A communication network enables the SCADA system to integrate with remote facilities, such as the Cosgrove Intake and Norumbega Covered Storage Facility, to manage flow into and out of the treatment plant.



Ozone Generators

The current SCADA control equipment is reaching the end of its useful life and future vendor support for the installed PLC base is no longer guaranteed. Critical components, such as backup scanner modules, have been discontinued and when MWRA's current stock of spare parts is exhausted, maintenance of the system will become increasingly difficult. Advances in control system technology have resulted in new PLC models with improved security provisions, increased system robustness and enhanced maintenance features. Contract 7581 will allow the MWRA to replace legacy equipment at the Carroll Plant, implement updated control system standards to enhance redundancy, ensure future reliability, and maintain secure plant operations.

DISCUSSION:

Contract 7581 will provide evaluation, preliminary and final design, integration services (PLC programming, graphics development, communication configuration), training, construction administration and resident inspection services to replace the existing SCADA equipment and systems that automate, monitor, and control the Carroll Plant.

Work will include replacing 16 instrumentation panels equipped with legacy PLCs that are the core of the treatment facility control system. These panels are in continuous operation and the sequence of cutting over to the new equipment without interruption to plant operations is a key project constraint. A significant component of the construction phase services is the programming required to convert the PLC logic to the new control platform and the testing to ensure system functionality is maintained. Updated control screens and high performance graphics are to be developed by the Consultant as part of the project.

A new fiber optic communication network will also be constructed, linking all control systems to the control room. This will facilitate the transition from the existing equipment, eliminate capacity bottlenecks, and harden security against cyber intrusion and other threats.

Currently, complex SCADA maintenance activities require short duration nighttime plant shutdowns to perform the work. The scope includes provisions to allow control equipment to be taken out of service for maintenance without requiring a full plant shutdown in the future. This will include modifying equipment to operate without the use of the SCADA system by installing dedicated local controllers.

The operations control room is equipped with legacy operator interface equipment. The work includes replacing SCADA displays and providing new consoles to house the larger sized equipment. The design will also evaluate data storage systems, computer hardware and replace instrumentation panel battery backup systems.

Design and bidding of the construction contract is estimated to take 16 months. Construction is estimated to take 24 months due to equipment lead times and constraints related to sequencing of portions of the work, followed by 12 months of warranty period.

Procurement Process

A request for qualifications (RFQ) was issued on February 2, 2018, with requirements for execution of confidentiality agreements and vetting of the Consultant's staff with access to the sensitive information through the FBI and Fusion Center. The RFQ was publicly advertised and 21 firms were notified. The RFQ deadline of March 19, 2018, closed with a single response from the Consulting firm, Arcadis, U.S. Inc. (Arcadis).

In an effort to increase the number of bidders and encourage competition, the RFQ was cancelled, the Arcadis qualification statement returned un-opened, and the project re-issued. MWRA re-advertised the RFQ, reissued it on April 17, 2018, and directly solicited 51 firms, of which 19 requested copies of the RFQ. MWRA received two responses on May 25, 2018, from Arcadis and Weston Technology Solutions. Four firms provided notice declining to submit and others indicated the work was too specialized, they did not have the appropriate staff or resources, or they wanted to team with larger firms.

Both Arcadis and Weston were determined to have met the requirements outlined in the RFQ and invited to submit proposals at the second stage of the selection process. Prior to issuing the RFP documentation, each firm was required to satisfy the security provisions of the selection process. This required an extended schedule to allow for the submission of confidentiality agreements and for the FBI and Fusion Center to vet the consultant's proposed staff.

The RFP included the following evaluation criteria: Cost - 25 points; Qualifications and Key Personnel - 25 points; Technical Approach -24 points; Capacity/Organization and Management Approach - 23 points; and MBE/WBE participation - 3 points.

A pre-proposal conference and site visit was held at the Carroll Plant on September 9, 2018, which was attended by representatives from both of the shortlisted firms. Proposals were due on October 23, 2018, and MWRA received just one response from Arcadis. Staff contacted Weston to inquire why they elected not to submit a proposal. Weston indicated that after the site visit they were not confident they would be selected and stated they would have been more likely to propose if the procurement process was qualification based with less emphasis on cost.

The proposed cost and level of effort by Arcadis is as follows:

PROPOSER	PROPOSED CONTRACT COST	LEVEL OF EFFORT
Engineer's Estimate	*$5,462,883*	*32,152*
Arcadis, U.S., Inc.	$4,652,028	34,720

The Selection Committee reviewed and scored the proposal with a sum of 404 points awarded out of a total of 500 available.

Arcadis presented a very strong proposal demonstrating it has the qualifications, experience, past performance, technical approach, and capacity to do the work. The project director, project engineer, and programming staff are based in Massachusetts and meet or exceed the qualifications required. The qualifications of Arcadis technical staff are very high and the Arcadis SCADA design experience is very applicable to this project. The subconsultant, Aztec Technologies, is a valuable addition to the team and has direct experience with the John J. Carroll Plant, Gillis Pump Station, and other MWRA projects. It is currently involved with programming at the Chelsea Creek Headworks.

Arcadis' total project level of effort was 7.9 % higher than the engineer's estimate. The difference was largely due to Arcadis including more hours for the design phase tasks, with the majority of this additional time accounted for in field investigation, QA/QC, and project management. The Engineering Services During Construction level of effort was within 1% of the engineer's estimate. Both Arcadis and the subconsultant Aztec are utilizing overseas labor as a direct cost, and as a result, the overall project budget is approximately $800,000 lower that the engineer's estimate.

Staff met with Arcadis to confirm and gain a better understanding of the proposed costs and level of effort. Due to complexity of the design and experience with this type of work, staff are of the opinion that Arcadis' proposal reflects the costs and hours required for this project. Arcadis is aware of the challenges and constraints of maintaining plant operation while transitioning to the new control system and these have been built into the project schedule. The security concerns related to sharing sensitive information have been acknowledged and Arcadis will take appropriate steps to cooperate with MWRA to safeguard this information. This includes vetting both U.S. and overseas employees involved with the project. Arcadis expressed confidence that it could complete the work for the price proposed.

Although Arcadis is the sole proposer for this project, the proposal was solicited in a competitive process and the level of effort is comparable with the engineer's estimate. Staff determined that Arcadis submitted a high quality proposal with a qualified engineering team, excellent technical approach, and proven prior experience working on equivalent projects, and an appropriate level of effort for this project.

Based on the reasons set forth above, the Selection Committee recommends the award of this contract to Arcadis, U.S. Inc., in an amount not to exceed $4,652,028.07.

BUDGET/FISCAL IMPACT:

The FY19 CIP includes a budget of $4,100,000 for Contract 7581. The contract award amount is $4,625,028.07 or $525,028.07 over budget. This amount will be accounted for within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

No minimum MBE and WBE participation requirements were established for this project; however, Arcadis has committed to 15.09% MBE participation.