



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Posted 04/12/19
12:55 p.m.

Frederick A. Laskey
Executive Director

Telephone: (617) 242-6000
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WATER POLICY & OVERSIGHT COMMITTEE MEETING

to be held on

Wednesday, April 17, 2019

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

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

Time: 10:00 a.m.

AGENDA

A. Information

1. Metropolitan Redundancy Program: Update on Tunnel Hydraulics and Program Support Services Key Personnel: Contract 7655

B. Contract Awards

1. Resident Engineering and Inspection Services for Towable Generator Docking Stations: Arcadis U.S., Inc., Contract 7024

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Water Policy and Oversight Committee

March 20, 2019

A meeting of the Water Policy and Oversight Committee was held on March 20, 2019 at the Authority headquarters in Charlestown. Committee Chair Peña presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cotter, Foti, Pappastergion, Vitale and Walsh. Committee Vice Chair Cook and Mr. Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Carl Leone, Kristen Hall, Stephen Estes-Smargiassi, John Colbert, Ester Lwebuga, Kathleen Murtagh, Frederick Brandon, Terrance Flynn, Corinne Barrett and Kristin MacDougall. Newton City Engineer Louis Taverna was also present. The meeting was called to order at 11:09 a.m.

Information

Local Water System Assistance Program Annual Update

Staff made a presentation. There were questions and answers. Mr. Carroll commended the Community Support Program team.

Approvals

*** Memorandum of Agreement Between the Authority and the City of Newton:**

Rehabilitation of Sections 23, 24 and 47 Water Mains, Contract 6392

Staff made a presentation. There were questions and answers.

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

Contract Awards

*** Program Support Services for the Metropolitan Tunnel Redundancy Program: JCK**

Underground, Inc., Contract 7655

* Committee recommendation approved by the Board on March 20, 2019

Staff made a presentation. (Mr. Vitale and Ms. Wolowicz left and returned to the meeting.) There were questions and answers. Mr. Carroll requested an organizational chart with the names of key staff and a hydraulic analysis for a future meeting.

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

Contract Amendments/Change Orders

* Southern Extra High Pipeline - Section 111 (Dedham North): P. Gloioso and Sons, Inc., Contract 7504, Change Order 6

Staff made a presentation. (Mr. Pappastergion and Mr. Carroll left the meeting.)

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

The meeting adjourned at 11:56 p.m.

* Committee recommendation approved by the Board on March 20, 2019

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 17, 2019
SUBJECT: Metropolitan Tunnel Redundancy Program
Update on Tunnel Hydraulics and Program Support Services Consultant Key Personnel, Contract 7655



COMMITTEE: Water Policy and Oversight

X INFORMATION
 VOTE

Frederick O. Brandon, P.E., Director, Design and Construction
Preparer/Title

Kathleen M. Murtagh, P.E.
Director, Tunnel Redundancy

At the Board of Directors meeting on March 20, 2019, the Board requested a description of the hydraulics for the proposed Metropolitan Redundant Tunnel System and information on the organization and key personnel for the Program Support Services consultant.

RECOMMENDATION:

For information only.

DISCUSSION:

Hydraulics of Proposed Metropolitan Redundant Tunnel System

The proposed Redundant Tunnel System consists of two deep rock tunnels beginning in the vicinity of the MassPike/Route 128 interchange (see Attachment 1). The Northern Tunnel would be approximately 4.5 miles in length and would connect to the mid-point of MWRA's WASM 3 pipeline. The Southern Tunnel would be approximately 9.5 miles in length and would connect to the southern surface mains at Shaft 7C of the Dorchester Tunnel.

The proposed tunnel system will be designed to supply high day demands to the metropolitan Boston area with the existing Metropolitan Tunnel System (City Tunnel, City Tunnel Extension and Dorchester Tunnel) offline. The new tunnel system will enable the Authority to shut down all or portions of the existing tunnel system for maintenance or in an emergency at any time during the year with no interruption of service to customer communities.

The historic high day water use in the metropolitan area is 265 million gallons per day (mgd). More than 60 percent of this flow is currently supplied through the metropolitan tunnel system. The remaining flow is supplied through surface pipelines. In the future, with the existing metropolitan tunnel system shut down, the proposed redundant tunnel system will carry approximately 60 percent of the metropolitan area flow. The remaining flow will be carried by existing surface pipelines.

The hydraulic concept of the proposed redundant tunnel system is described below. Attachment 1 illustrates the flow of water through the proposed redundant tunnel and the existing distribution system with the Metropolitan Tunnel system off line. Attachments 2 and 3 illustrate the hydraulic grade line of the proposed tunnel system with the Metropolitan Tunnel system offline. Staff will provide a detailed presentation of the system hydraulics at the Board meeting.

Staff have begun to update the hydraulic model of the water system that was used to develop the proposed tunnel concept to include currently planned distribution system improvements, and the latest population and employment projections for the service area through the year 2040, as well as available longer term projections. Staff also plan to evaluate other longer term water use scenarios such as potential system expansion and the effect of drought or emergency conditions on local water supplies that are operated by MWRA partial users. While staff have found that recent increases in population and employment in the service area have not increased overall water use due to improved water use efficiency, the new tunnel will have a life span of over 100 years. The results of this evaluation will be used to confirm the size and configuration of the proposed redundant tunnel system and ensure that the new tunnel is either designed to accommodate future potential demands or that a plan is in place to address potential future water use.

The following describes the current status of the hydraulic analysis:

Proposed Northern Tunnel. The proposed Northern Tunnel will begin in the vicinity of the MassPike/Route 128 interchange near Shaft 5 of the City Tunnel and will run approximately 4.5 miles to the north and will connect to the mid-point of MWRA's Weston Aqueduct Supply Main (WASM) 3 pipeline near the Waltham/Belmont border. This tunnel will include an intermediate connection for the Lexington Street Pump Station, which supplies the City of Waltham. With the existing tunnel out of service, the north side of the metropolitan area including Waltham will be supplied through a combination of the proposed Northern Tunnel and existing surface mains. The proposed Northern Tunnel will convey flow from the Hultman Aqueduct and MetroWest Water Supply Tunnel to the WASM 3 pipeline near the Waltham/Belmont border. The WASM 3 pipeline will carry the flow from the new tunnel to the Medford area where it will supply the Northern Low service area through a pressure reducing valve. The Low Service system will convey flow to the Gillis Pumping station in Stoneham, which will pump to the Northern High Service area. Water supply to the Northern Intermediate High system will be supplied from the Spot Pond Pumping station, which will also pump out of the Northern Low system.

Proposed Southern Tunnel. The proposed Southern Tunnel will also begin in the vicinity of the MassPike/Route 128 interchange near Shaft 5 of the City Tunnel and will run approximately 9.5 miles to the south and will connect to the southern spine surface mains at Shaft 7C of the Dorchester Tunnel. With the existing tunnel out of service, the south side of the metropolitan area will be supplied through the Southern Tunnel. This tunnel will include connections to: Section 80, which supplies Needham and Wellesley; the pump stations that supply the Southern Extra High service area (Newton Street and Hyde Park pump stations); and connections to the Southern High service area.

Program Support Services Consultant Organization and Key Personnel

The Board approved the award of Contract No. 7655, Program Support Services for the Metropolitan Tunnel Redundancy Program to JCK Underground, Inc. in March 2019. The purpose of this contract is to assist Tunnel Redundancy Department staff with program-wide activities such as risk management planning, quality management, design criteria and standardization, document management and controls, design and construction package planning, independent technical reviews, field investigation procedures, rock core storage, critical path scheduling, and budget planning.

The selected consultant team consists of senior professionals with significant experience in tunneling and complex underground construction. Key personnel include technical experts in the areas of program management, rock tunneling, geotechnical engineering, structural engineering, risk management/mitigation and cost estimating/scheduling with experience in the planning, design, and construction on similar complex rock tunneling and underground projects including mega projects (greater than \$1.0 billion).

The following is a list of the key personnel on the JCK Underground team with a brief summary of their relevant experience and qualifications. Representatives from JCK Underground will be in attendance at the Board meeting. Most of the key personnel have master's degrees in their respective fields and are registered professional engineers. The project organization chart and full resumes for each of the key personnel are attached.

Rafael Castro, PE, JCK Underground, Inc., Project Director - Mr. Castro has 30 years of tunneling and geotechnical experience, with more than 25 years dedicated to PM/CM for large complex water and wastewater infrastructure involving tunnel systems. His background includes both traditional and alternative contract delivery and all phases of project development from planning to commissioning. He has a thorough understanding of geotechnical engineering, mechanized tunnel excavation (soft ground and rock, small and large diameter), deep excavations and ground improvement. Mr. Castro will provide oversight to Program Support Services activity, mitigate risks through appropriate contractual language and furnish the MWRA Tunnel Redundancy Department with advice.

Joel Kantola, PE, JCK Underground, Inc., Project Manager - Mr. Kantola has 30 years of tunneling and geotechnical experience, including over 27 years on large, complex infrastructure projects with 25 years on tunnel systems. On the MWRA Braintree-Weymouth Tunnels and Shafts project, he was included in the design team due to his invaluable knowledge gained on the Construction Management team for the Boston Harbor Project. He then returned to construct the project as the contractor's project and geologic engineer, remaining on the job until close-out. Mr. Kantola's experience on large infrastructure programs includes leadership roles on the Construction Management team for both the \$14B Central Artery Project and the \$3.5B Boston Harbor Project. Mr. Kantola will manage all Program Support Services activity.

Jennifer Jordan, PE, JCK Underground, Inc., Geotechnical Engineer - Ms. Jordan has 25 years of experience in geotechnical and tunnel engineering, with over 17 years of experience related to large complex water and wastewater infrastructure including MWRA's MetroWest Water Supply Tunnel. Ms. Jordan will incorporate lessons learned from other large tunnel

programs into geotechnical standards and data management for the MWRA's Metropolitan Tunnel Redundancy Program.

Rosa Castro-Krawiec, PE, JCK Underground, Inc., Structural Engineer - Ms. Castro-Krawiec has 34 years of experience in structural engineering, with over 24 years on complex underground infrastructure projects and 15 years on water/wastewater projects. Her expertise includes design of shafts and underground structures in both soft ground and rock, and tunnel design for water/wastewater and other infrastructure projects. Ms. Castro-Krawiec will assist with development of design criteria for the MWRA Metropolitan Tunnel Redundancy Program and will review Design Engineer submittals.

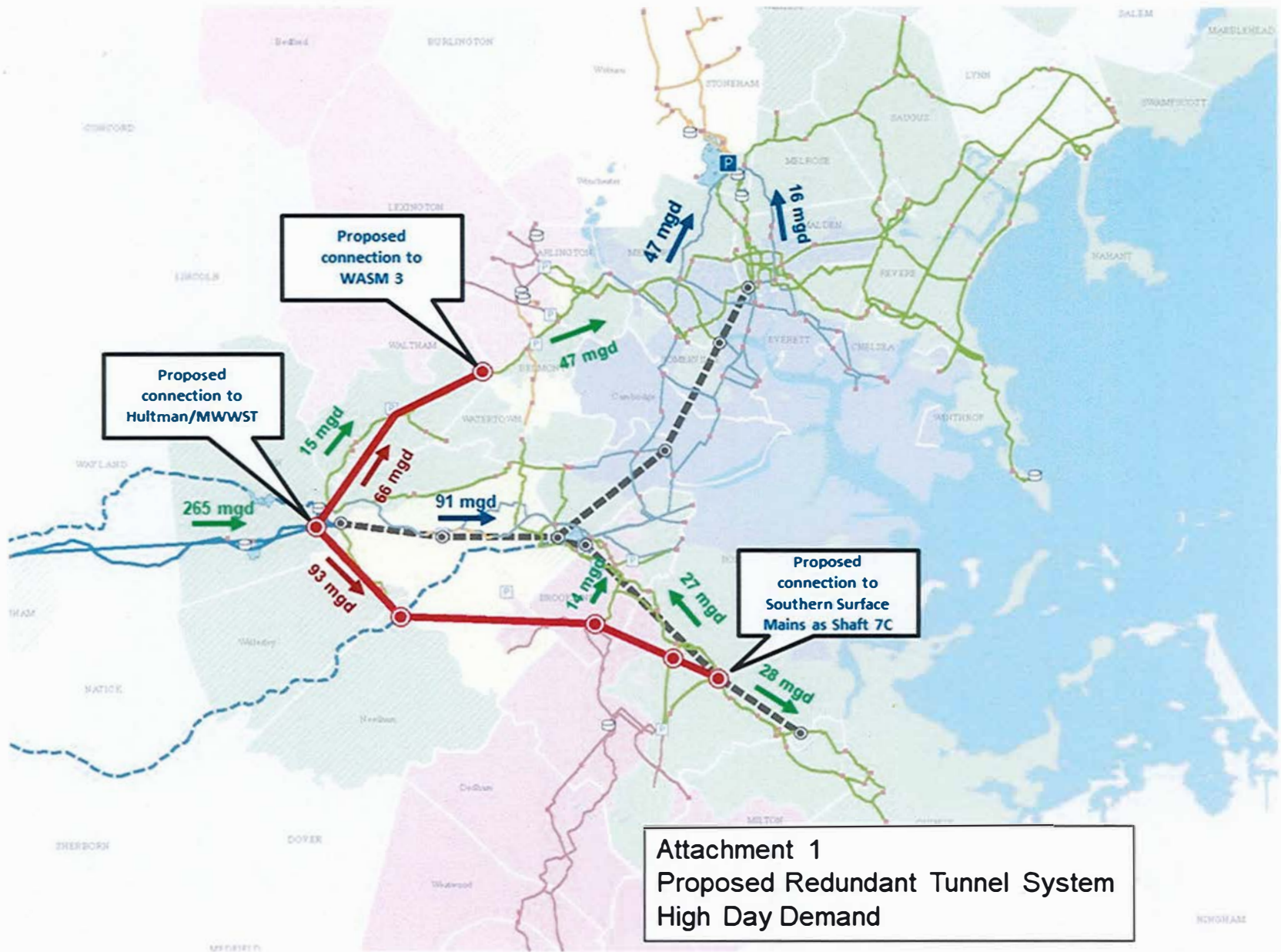
Robert Goodfellow, PE, Aldea Services, Inc., Rock Tunnel Engineer - Mr. Goodfellow has 27 years of tunneling and geotechnical experience, with over 16 years on deep rock pressure tunnels for water and wastewater systems. He has led the design and construction of numerous pressurized rock tunnel system projects in New York, Washington DC, Texas and Ohio. His experience extends to all types of tunneling, leakage control & waterproofing, instrumentation, and rehabilitation of underground structures. He is also a recognized industry-leader in risk management. Mr. Goodfellow will bring his experience in rock tunnel design to help mitigate risk on the MWRA Tunnel Redundancy Program.

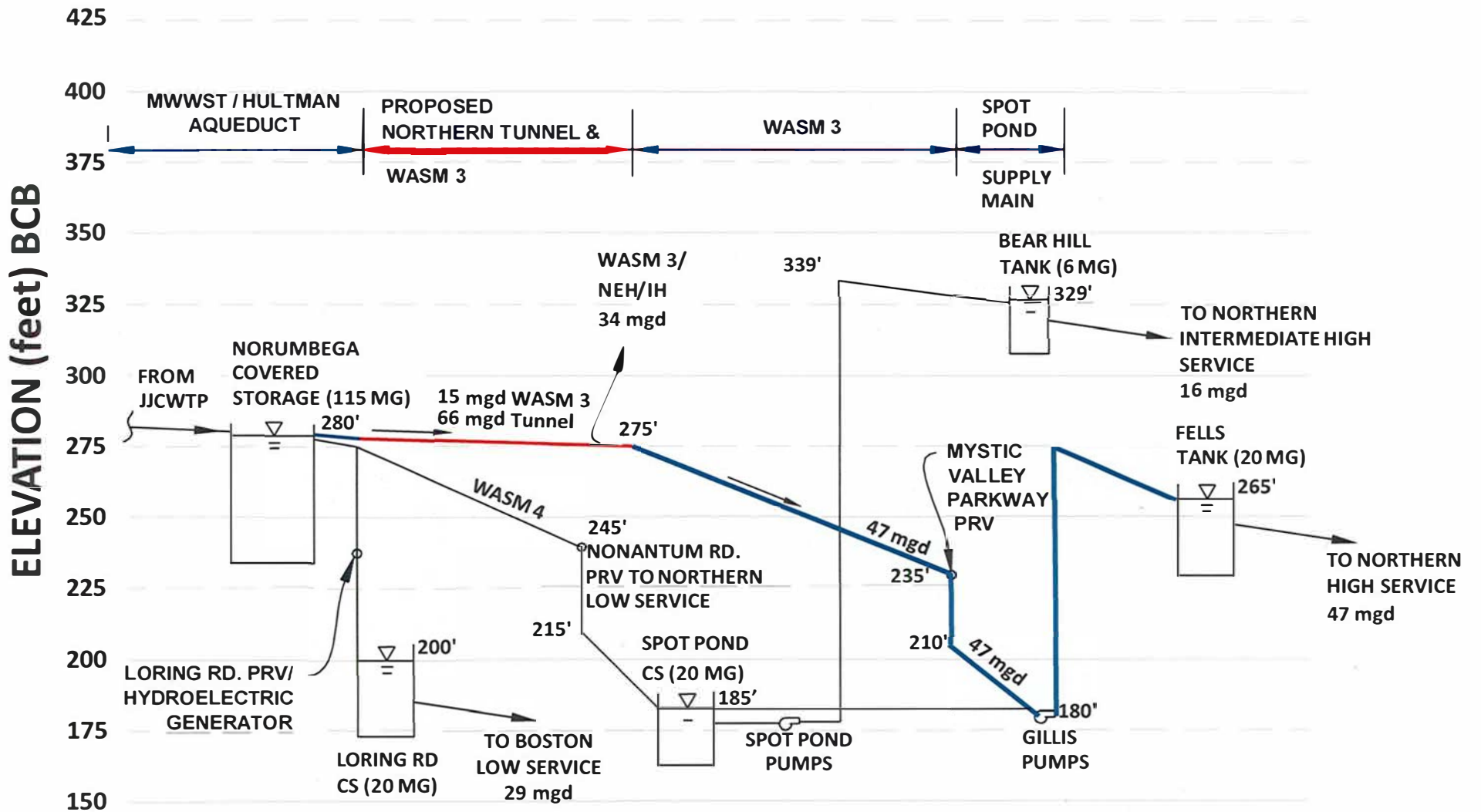
Adam Wirthlin, PE, Wirthlin Consulting Group, LLC, Construction Estimator Mr. Wirthlin has 19 years of experience in construction and design, with 17 years estimating and scheduling large complex water and wastewater infrastructure projects with significant tunnel components. Having worked for both contractors and engineers, his estimating skills are versatile and have been used to estimate projects including tunnels, shafts, trenchless construction, underground utilities, pipelines, ground improvement, sitework, and mechanical/Electrical/Plumbing. Mr. Wirthlin's estimating experience and knowledge base will be used to predict and control construction cost on the MWRA's Metropolitan Tunnel Redundancy Program.

Wayne Beauregard, PSP, PMA Consultants, LLC, Construction Scheduler Mr. Beauregard has 40 years of experience in cost and schedule management with over 15 years of experience on complex billion dollar and multi-million-dollar water/wastewater infrastructure projects. He has extensive expertise in the development, implementation, and updating of schedules using leading industry software. Mr. Beauregard will provide program level schedule support, oversee all schedule related efforts and provide the MWRA with timely schedule information to facilitate decision making to advance the program.

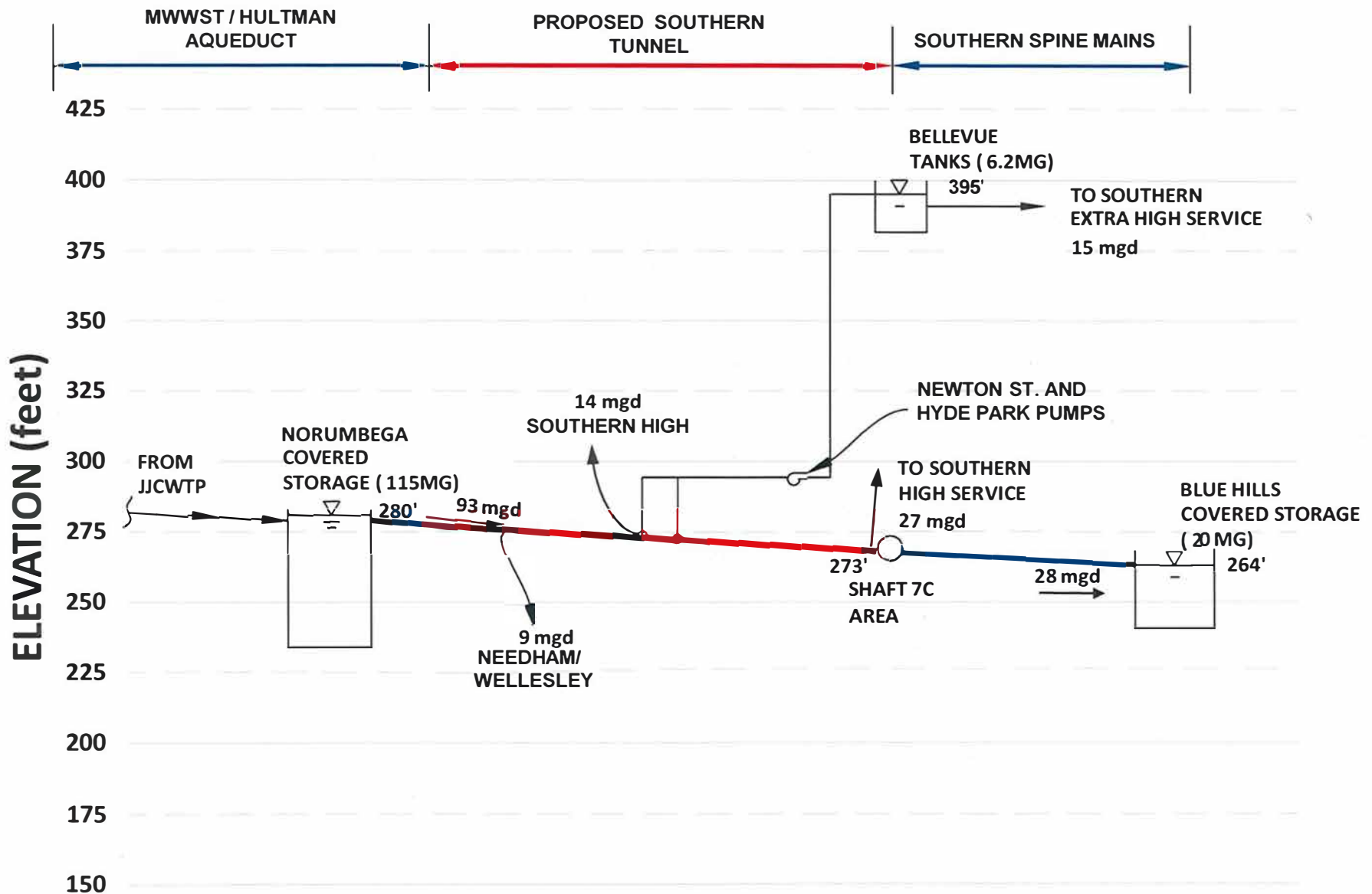
ATTACHMENTS:

- Attachment 1 - Proposed Redundant Tunnel System - High Day Demand
- Attachment 2 - Hydraulic Profile - Proposed Northern Tunnel
- Attachment 3 - Hydraulic Profile - Proposed Southern Tunnel
- Attachment 4 - JCK Underground Team, Organization Chart - Key Personnel
- Attachment 5 - JCK Team - Key Personnel





ATTACHMENT 2
HYDRAULIC PROFILE
METROPOLITAN TUNNEL REDUNDANCY
PROPOSED NORTHERN TUNNEL

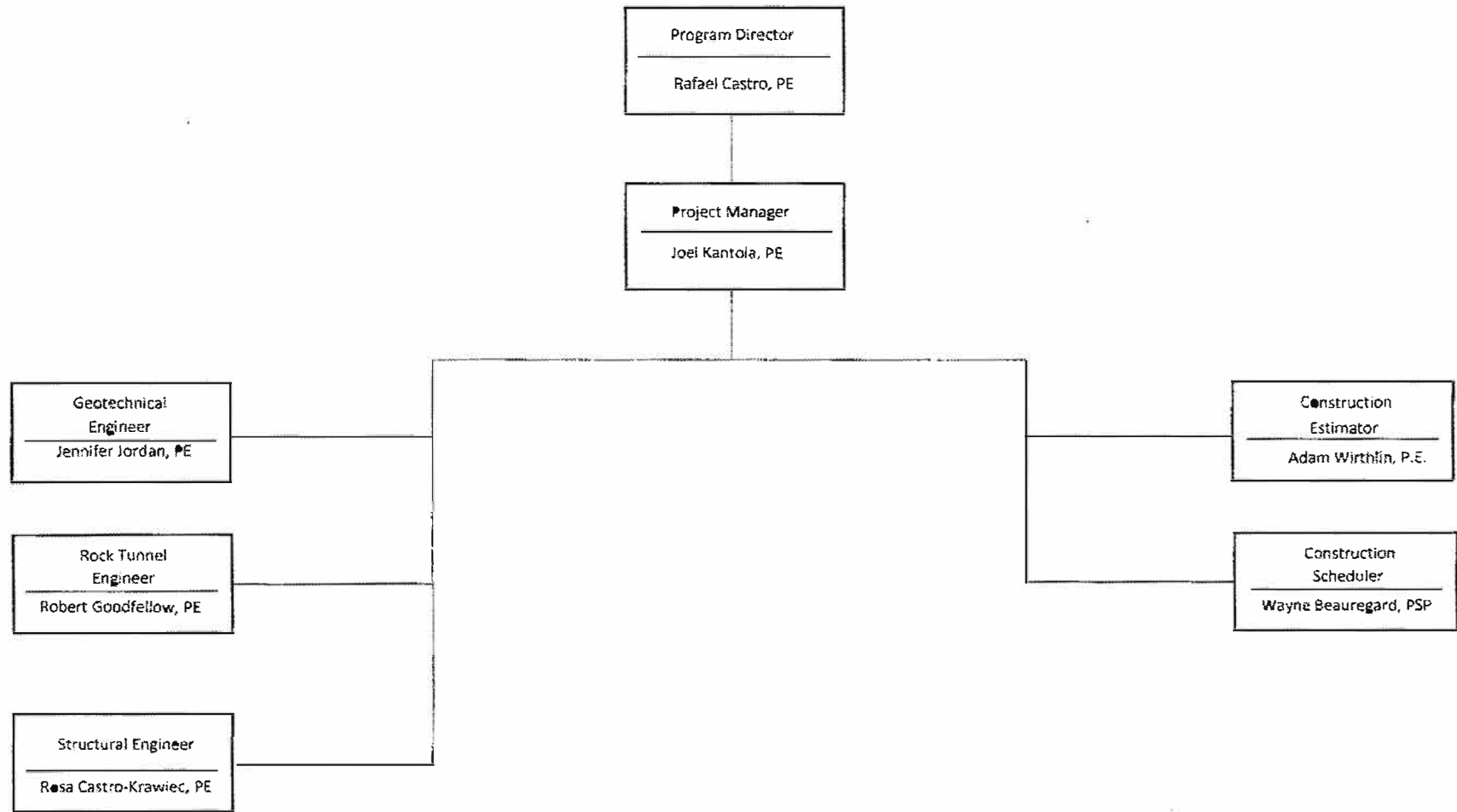


ATTACHMENT 3
HYDRAULIC PROFILE
METROPOLITAN TUNNEL REDUNDANCY
PROPOSED SOUTHERN TUNNEL

JCK Underground Team
Program Support Services Consultant
for the
Metropolitan Tunnel Redundancy Program

Organizational Chart - Key Personnel

April 17, 2019



Attachment 4

JCK Team -Key Personnel

Rafael Castro, PE, Project Director



Mr. Castro has 30 years of tunneling and geotechnical experience, with more than 25 years dedicated to PM/CM for large complex water and wastewater infrastructure involving tunnel systems. Using traditional and alternative contract delivery, his diverse background

includes all phases of project development from planning to commissioning. He has a thorough understanding of geotechnical engineering, mechanized tunnel excavation (soft ground & rock, small & large diameter), deep excavations and ground improvement. From this diverse knowledge base, he provides his clients with practical, proven approaches to manage technical and commercial risks. Having spent more than a decade in leadership roles in the Program Consultant Organization for the \$2.7B District of Columbia Clean Rivers (DCCR) project he has become a trusted advisor to DCCR's executive team. He also participates on advisory boards providing high level technical, commercial and procurement consultation to the Virginia Department of Transportation (VDOT) \$3.2B Hampton Roads Bridge and Tunnel (HRBT) project and the Alexandria Renew Enterprises (AlexRenew) \$345 M RiverRenew CSO tunnel project. Mr. Castro will provide oversight to PSS activity, mitigate risks through appropriate contractual language and furnish the Department with sage advice.

Jennifer Jordan, PE, Geotechnical Engineer



Ms. Jordan has 25 years of experience in geotechnical and tunnel engineering, with over 17 years experience related to large complex water and wastewater infrastructure including NBC's \$1.4B CSO Program, the \$2.7B DCCR program, and ALCOSAN's \$3.6B Program. Having

planned and executed investigations for deep rock tunnels at NBC, Allegheny County Sanitary Authority (ALCOSAN) and MetroWest Water Supply Tunnel (MWWST), she is currently responsible for geotechnical investigations and engineering at the RiverRenew CSO Program in Alexandria VA. Ms. Jordan will incorporate lessons learned from ALCOSAN and RiverRenew into geotechnical standards and data management for the MTRP.

Joel Kantola, PE, Project Manager



Mr. Kantola has 30 years of tunneling and geotechnical experience, including over 27 years on large, complex infrastructure projects with 25 years on tunnel systems. On the \$2.7B DCCR program he managed a large unified multi-firm team located in eight

regions across the country to plan, design, collaborate, procure, and award over \$1.2B in four major DB CSO tunnel contracts (three have been completed under budget and on time and the fourth is under construction). On the \$490 M Silicon Valley Clean Water (SVCW) project he has advised the owner throughout the collaborative Progressive DB Procurement process, which has successfully entered the "Final Design and Construction" stage. On the \$76M MWRA Braintree-Weymouth Tunnels and Shafts (BWTS) project, he was included in the design team due to his invaluable knowledge gained while building tunnels on the BHP. He then returned to construct the BWTS as the contractor's project and geologic engineer, remaining on the job until close-out. Mr. Kantola's experience on large infrastructure programs includes consulting for the Hong Kong Drainage Department, geotechnical engineer for the Comanche Peak Nuclear Power Plant as well as leadership roles on the CM team for both the \$14B Central Artery Project (CA/T) and the \$3.5B Boston Harbor Project (BHP). As well as making his technical insight available to the Department, Mr. Kantola will manage all PSS activity to build a unified team focused on MTRP goals.

Rosa Castro-Krawiec, PE, Structural Engineer



Ms. Castro-Krawiec has 34 years of experience in structural engineering, with over 24 years on complex underground infrastructure projects and 15 years on water/wastewater projects. She has worked on NBC's \$1.4B CSO Program,

the \$2.7B DCCR program, and the \$3.5B BHP. Her expertise includes design of shafts and underground structures in both soft ground and rock and tunnel design for water/wastewater and other infrastructure projects. Ms. Castro-Krawiec will bring her extensive experience in structural design of environmental facilities to assist with development of design criteria for the MTRP as well to the review of Design Engineer submittals.

Robert Goodfellow, PE, Rock Tunnel Engineer



Mr. Goodfellow has 27 years of tunneling and geotechnical experience, with over 16 years on deep, rock pressure tunnels for water and wastewater systems. He has led the design and construction of numerous pressurized rock tunnel system projects

in New York, District of Columbia (DC), Texas and Ohio. His experience extends to all types of tunneling, leakage control & waterproofing, instrumentation, and rehabilitation of underground structures. He is also a recognized industry-leader in risk management with leading roles on mega-projects such as the \$16.7B California Water Fix and the \$2B Alto Maipo, Chile. Mr. Goodfellow will bring his experience in rock tunnel design to help mitigate risk on most critical element of the MTRP.

Wayne Beauregard, PSP, Construction Scheduler



Mr. Beauregard has 40 years of experience in cost and schedule management with over 15 years of experience on complex billion dollar and multi-million-dollar water/wastewater infrastructure projects, including the \$3B Newtown Creek Water Pollution Control

Plant in New York and the \$130M Upper Blackstone Water Pollution Plant in Massachusetts. He has extensive expertise in the development, implementation, and updating of schedules using leading industry software. He has also provided claim support and delay and entitlement analysis for numerous projects. Mr. Beauregard will provide program level schedule support, oversee all schedule related efforts and provide the MWRA with timely schedule information to facilitate decision making to advance the program.


Adam Wirthlin, PE, Construction Estimator



Mr. Wirthlin has 19 years of experience in construction and design, with 17 years estimating and scheduling large complex water and wastewater infrastructure projects with significant tunnel components. Having worked for both contractors and

engineers, his estimating skills are highly versatile and have been used to estimate projects including tunnels, shafts, trenchless construction, underground utilities, pipelines, ground improvement, sitework, and Mechanical/Electrical/Plumbing. He has also provided detailed schedule estimates, cost-benefit analyses of different project alternatives, VE, and cost feasibility reviews for the \$2.7B DCCR, the \$490M SVCW and the \$345M RiverRenew programs. Mr. Wirthlin's estimating experience and knowledge base will be used to predict and control the critical element of construction cost on the MTRP.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 17, 2019
SUBJECT: Resident Engineering and Inspection Services for Towable Generator Docking Stations
Arcadis U.S., Inc.
Contract 7024

COMMITTEE: Water Policy & Oversight


INFORMATION

VOTE


Michele S. Gillen

Director, Administration

John Colbert, P.E., Chief Engineer
Jorge P Silva, P.E., Program Manager, Electrical
Preparer/Title


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

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract 7024, Resident Engineering and Inspection Services for Towable Generator Docking Stations at Various Water and Wastewater Locations, to Arcadis U.S. Inc. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount of \$209,063.30, for a contract term of 10 months from the Notice to Proceed.

DISCUSSION:

This contract provides for Resident Engineering and Inspection services by an electrical engineer to support the construction phase of the Towable Generator Docking Stations, Contract 7025 that was approved under delegated authority on March 21, 2019 at a cost of \$916,928.00 to Fall River Electrical Associates. This contract ensures that Engineering and Construction will have a technical expert trained in electrical construction to provide these services during construction of the towable generator docking stations.

The construction project will retrofit the existing electrical switchgear at four water pumping stations and six wastewater facilities to make them ready to accept a quick connection from MWRA's 1MW towable generator. This will allow back-up power to these facilities in case of an extended utility power outage or issues with the on-site generator.

The water pumping stations are Hyde Park, Newton Street, Commonwealth Avenue and Brattle Court. The six wastewater facilities are the Nut Island Headworks, and the Braintree-Weymouth,

Quincy, New Neponset, Caruso and Framingham pump stations.

All operationally critical facilities in MWRA's water and wastewater systems are supported by an emergency power generator. The generators are normally rated to carry the full electrical load at each location and start automatically on utility power outage.

Although generators are designed to have an adequate supply of diesel fuel and can operate for several days without interruption, there are instances where the utility service may be interrupted for extended periods, causing the facility to rely solely on the backup generator to power critical facility operations. Under these circumstances, MWRA will be able to provide additional redundancy for facility operations in the event that the facility's on-site generator should experience problems or fail.



MWRA's 1MW Towable Generator

To address this issue, MWRA purchased a 1 MW towable emergency power generator, which is large enough to provide power for each of the facilities included in this project. This unit has its own onboard fuel tank and can be transported by in-house staff as required.

Presently, to temporarily hard-wire a 1MW generator to a facility's electrical system requires significant in-house electrical work, and time to complete. More importantly, the final hard-wired connections to the facility's electrical system require the facility's power system to be shut down entirely for several hours, interrupting critical facility water or wastewater pumping operations.



Contract 7025 was recently bid and awarded as a Chapter 149 construction project with the electrical contractor as the general contractor. The work of this construction contract includes reconfiguring the emergency side of the power system by installing switchgear designed to connect to a towable generator via plug-in connectors. This quick connect switch will enable MWRA electrical staff to quickly and safely connect the towable generator without interruption of operations.

Procurement Process:

On January 19, 2019, MWRA issued a one-step Request for Qualifications Statements/Proposals that was publicly advertised in the Central Register, Boston Herald, Banner Publication and El Mundo. The RFQ/P included the following evaluation criteria and points: Cost – 25 points;

Qualifications/Key Personnel – 25 points; Experience/Past Performance – 25 points; Capacity, Organization, Management, and Technical Approach – 25 points.

On February 20, 2019, MWRA received one proposal from Arcadis U.S., Inc. Of the five firms that had received the RFQ/P, four were considered likely to submit proposals. Staff were able to poll three of the four firms to learn why they did not submit proposals. One cited a work load conflict with its staff, one stated that the budget was too small, and one firm replied that it did not have any staff qualified for the job.

The Selection Committee evaluated Arcadis U.S., Inc.'s proposal to determine whether the firm was qualified to perform the job and should be recommended. The proposal costs are presented below:

<u>PROPOSER</u>	<u>PROPOSAL COST</u>
<i>Engineer's Estimate</i>	<i>\$189,784</i>
Arcadis U.S., Inc.	\$203,974*

*The above proposed cost was revised, as explained below.

The Selection Committee was in agreement that Arcadis proposed qualified staff for this project. Arcadis has an extensive history of past projects featuring generators and other low, medium, and high voltage electrical project designs and installations. Arcadis has also participated in the design, engineering services during construction and resident engineer and inspection services on various projects for the MWRA and other clients. The proposed key personnel are well qualified to perform the required work. The proposed resident has 30 years of electrical engineering experience, having been responsible for designs and for providing construction field expertise, including work on emergency generators at eleven water facilities in Ridgewood, New Jersey. Arcadis' proposed engineer's last assignments also include the Nut Island Headworks Electrical and Conveyors Improvements Contract 7312, and the Chelsea Creek Headworks Facility Upgrades.

The RFQ/P required the proposer to carry 1,600 hours for a Resident Engineer and to provide the necessary Administration and Management related to contract administration activities including invoicing. Although Arcadis carried a minimal number of hours for Administration and Management services, it proposed only 1,450 hours for the Resident Engineer and distributed the remaining 150 hours to Project Management and Clerical/Administrative staff. Staff entered into discussions with Arcadis' representatives that resulted in an adjustment of the level of Resident Engineer hours to the required 1,600 hours, and elimination of the 150 hours for Project Management and Clerical/Administration, resulting in a revised cost of \$209,063.30. The higher cost is a result of a higher hourly rate for the 150 hours of Resident Engineering hours versus the 20 hours for a Project Manager and 130 hours for Clerical/Administration staff.

Based on the qualifications of this firm and the appropriateness of the negotiated cost, staff recommend the award of this contract to Arcadis U.S. Inc. for the negotiated not to exceed amount of \$209,063 and a contract term of 10 months. If less hours are required to complete these services, only the actual service hours completed will be paid.

BUDGET/FISCAL IMPACT:

The FY19 CIP did not include a budget for Contract 7024. The contract award amount is \$209,063. A budget of \$200,000 was added in the FY20 Proposed CIP for Resident Engineering/Inspection Services and will be updated to \$209,063 in the final FY20 budget.

MBE/WBE PARTICIPATION:

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



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Executive Director

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PERSONNEL & COMPENSATION COMMITTEE MEETING

to be held on

Wednesday, April 17, 2019

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

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

Time: Immediately Following Water Committee

AGENDA

A. Information

1. Proposed Organizational Changes in the Operations Division

B. Approvals

1. PCR Amendments – April 2019

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Personnel and Compensation Committee

March 20, 2019

A meeting of the Personnel and Compensation Committee was held on March 20, 2019 at the Authority headquarters in Charlestown. Committee Chair Wolowicz presided. Present from the Board were Messrs. Carroll, Cotter, Foti, Pappastergion, Peña, Vitale and Walsh. Messrs. Cook and Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Michele Gillen, Andrea Murphy, Robert Donnelly, Patterson Riley and Kristin MacDougall. The meeting was called to order at 11:56 a.m.

Approvals

*** PCR Amendments - March 2019**

Staff made a verbal presentation. (Mr. Foti left the meeting.)

The Committee recommended approval (ref. P&C B.1).

*** Appointment of Assistant Contracts Manager, Administration Division**

Staff made a verbal presentation.

The Committee recommended approval (ref. P&C B.2).

*** Appointment of Manager, Employment, Human Resources**

Staff made a verbal presentation. (Mr. Pappastergion and Mr. Foti joined the meeting.)

The Committee recommended approval (ref. P&C B.3).

*** Appointment of Senior Program Manager, Engineering and Construction**

Staff made a verbal presentation. (Mr. Peña left the meeting.)

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

* Committee recommendation approved by the Board on March 20, 2019

* Appointment of Program Manager - Data Management, Environmental Quality

Staff made a verbal presentation.

The Committee recommended approval (ref. P&C B.5).

* Appointment of Program Manager, Meter Data and Engineering, Planning Department

Staff made a verbal presentation. (Mr. Carroll joined the meeting.)

The Committee recommended approval (ref. P&C B.6).

* Recommendations for Non-Union Pay Equity Adjustments


Staff made a verbal presentation. (Mr. Peña joined the meeting.)

The Committee recommended approval (ref. P&C B.7).

The meeting adjourned at 12:16 p.m.

* Committee recommendation approved by the Board on March 20, 2019

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 17, 2019
SUBJECT: Proposed Organizational Changes in the Operations Division

COMMITTEE: Personnel & Compensation

X INFORMATION
 VOTE

Andrea Murphy, Director, Human Resources
Preparer/Title


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

This staff summary provides an overview of a plan for re-organization in the Operations Division. Corresponding PCR changes will be presented to the Board for approval in a separate staff summary presented at this meeting.

RECOMMENDATION:

For information only.

DISCUSSION:

MWRA continues to experience a number of retirements at every level of the agency, prompting a focus on succession planning, and continued staff development and training in order to maintain a strong staff “bench” from which to field competent, knowledgeable, and experienced replacements. MWRA thinks about and anticipates various future departures, to the extent possible, and considers staff roles in future organization structures. Despite such contingency thinking, the departure of the Manager of SCADA and Process Control was not anticipated and has required MWRA to revisit the current organizational structure around these critical functions and other closely related functions at the agency.

The SCADA system is the critical computer-controlled heart of facility operations for both drinking water treatment, transmission and distribution, and wastewater collection, pumping, CSOs and headworks. The Deer Island Treatment Plant has its own independent computer-controlled system that is not part of the SCADA system. The industrial computer-control industry is a rapidly changing industry with equipment advancements and pressures to adapt and protect against cyber security threats. The manager of the SCADA sector at MWRA needs to be a critical thinker with an understanding of these issues and ability to look at long-term needs while assuring that day-to-day responsibilities are addressed.

SCADA is just one aspect of MWRA’s system monitoring capability. For example, in addition to SCADA, MWRA maintains water and wastewater meter systems with flow, pressure and elevation sensors at remote locations and local data collection loggers connected to centrally located computer systems via phone and radio. While these metering systems are part of MWRA’s

centralized monitoring at the Chelsea and Carroll Treatment Plant operations control centers, different parts of these systems are managed separately by a group in the Planning Department and in the Chelsea Maintenance Department.

Departure of the Manager of SCADA and Process Control provides an opportunity to reassess the current organizational structure within the Operations Division, and to plan for further possible retirements. Andrew Hildick-Smith is currently MWRA's Director of Emergency Planning and Preparedness (Non-union Grade 15) and is recommended for a new Director of SCADA, Metering and Monitoring at the same grade, which would combine these functions from different parts of the organization. This position will oversee the Senior Program Manager, SCADA and the Manager of Metering and Monitoring (currently in the Planning Department). In addition, a vacant engineering position will be converted to a new Program Manager, Meter Maintenance position under the Manager of Metering and Monitoring, which will oversee the Meter Maintenance group (currently in Metro Maintenance.) This revised organization provides an opportunity to better position this group under the same management as the group that manages the electronic data collection system.

Mr. Hildick-Smith served as the Senior Program Manager of SCADA for 13 years before being promoted to his current role. He is MWRA's foremost authority on Cyber Security and was recently asked to be a subject matter expert on the team that is making revisions to the American Waterworks Association's National Cyber Security tool. He has a degree in engineering from Princeton University, is a Registered Professional Engineer, and has a Grade 4 Drinking Water Operator Distribution license and a Grade 6 Wastewater Operator license. He has a solid understanding of the workings of the monitoring and control systems at MWRA, the personnel that keep these systems running and of future challenges.

In addition to these changes, a recent review of the security and emergency planning functions in the Emergency Planning and Preparedness Department resulted in a recommendation to separate these functions and re-assign them. With this re-organization, the two emergency planning staff overseen by Mr. Hildick-Smith will move into the Planning Department, which better aligns with their responsibilities, and the three security staff have been temporarily assigned under Stephen Cullen, the Director of Wastewater and primary manager in charge of the Chelsea facility. MWRA management is still evaluating options for management of this latter group and will make a final recommendation to the Board of Directors at a future meeting.

BUDGET/FISCAL IMPACTS:

The recommended organizational plan results in elimination of a Non-union Grade 14 position (Manager SCADA and Process Control).

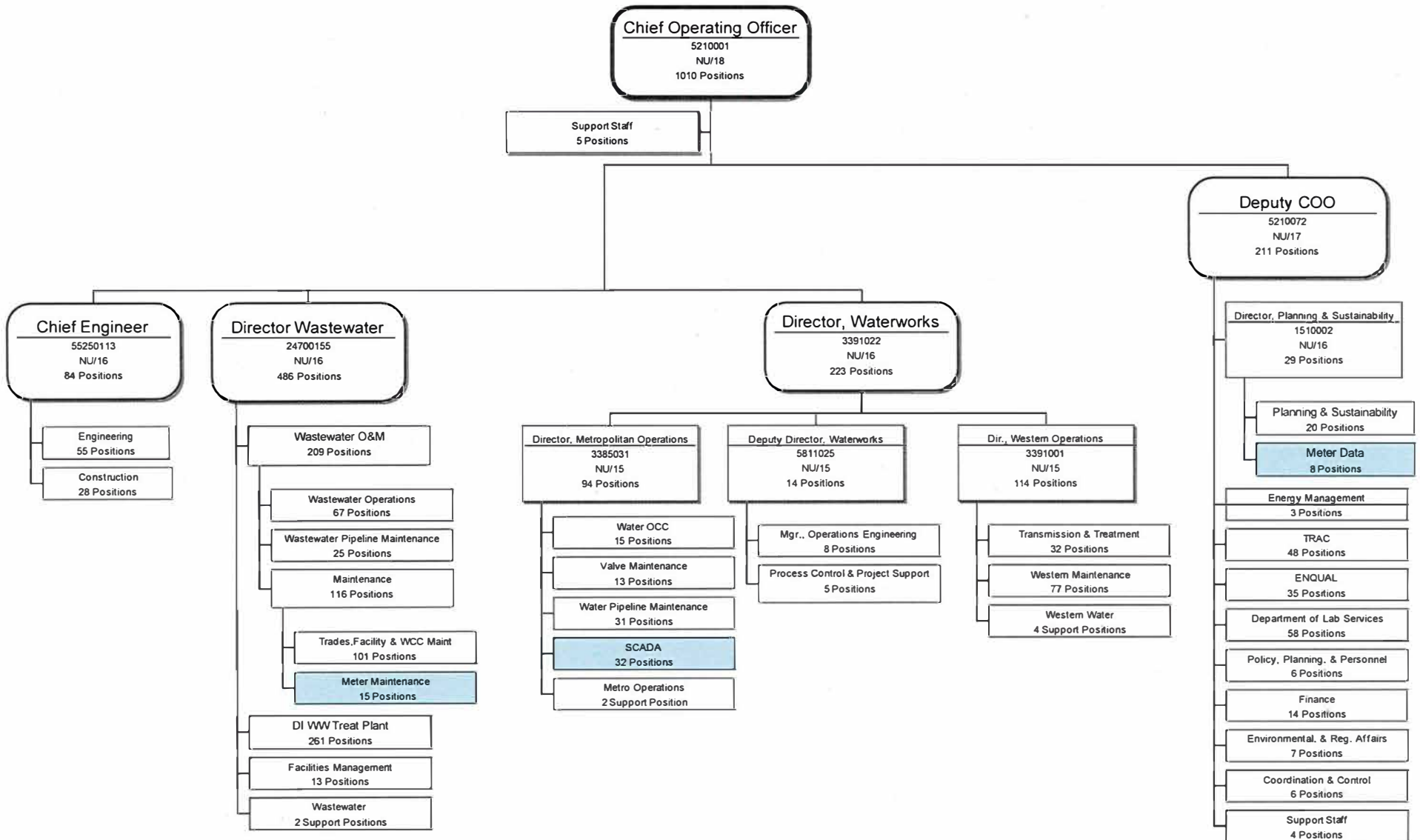
ATTACHMENT:

Current Organization Chart
Proposed Organization Chart

Operations Division

Current Organization

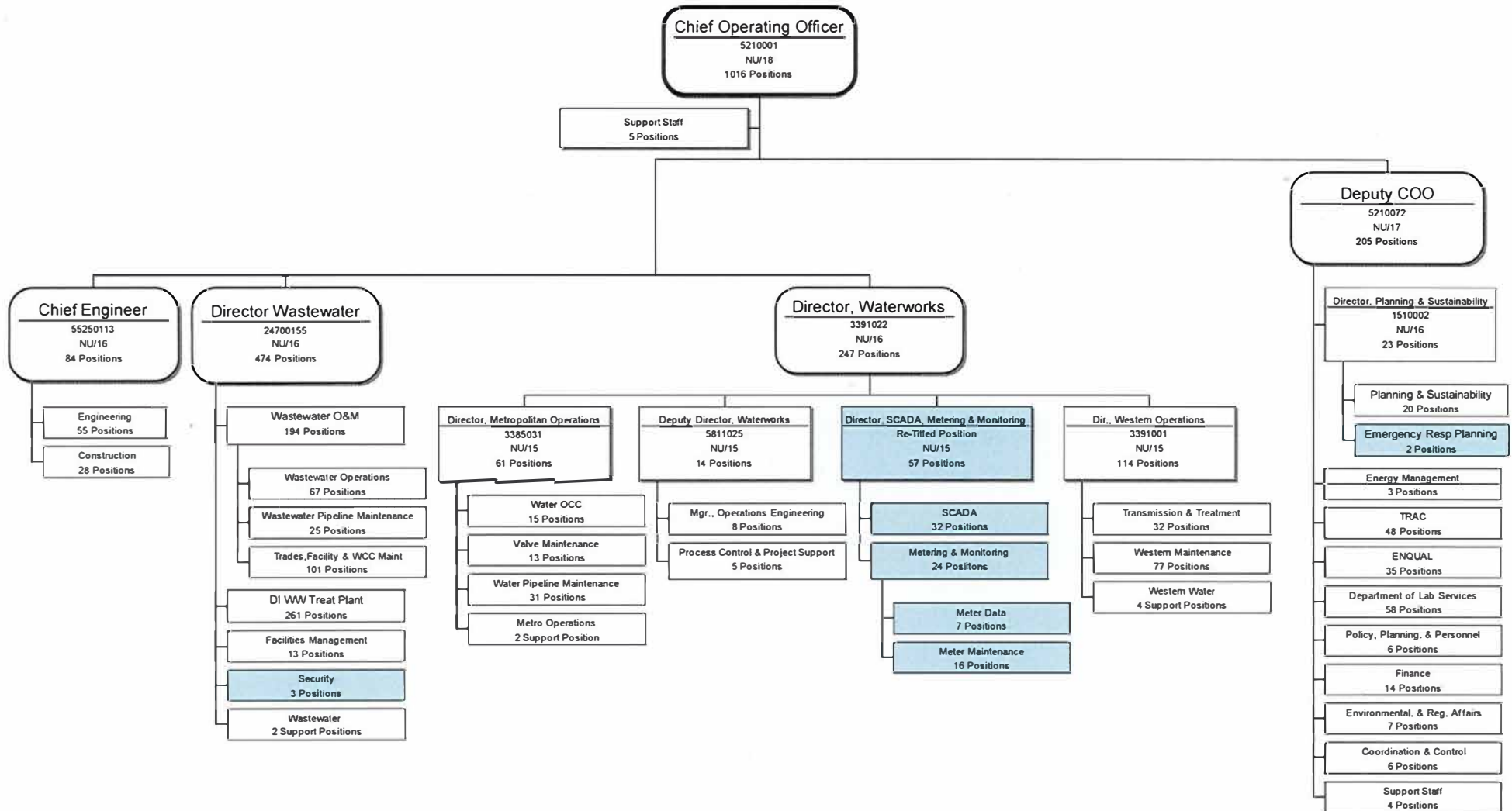
April 2019



Operations Division

Proposed Organization

April 2019



STAFF SUMMARY

TO: Board of Director
FROM: Frederick A Laskey, Executive Director
DATE: April 17, 2019
SUBJECT: April PCR Amendments



COMMITTEE: Personnel and Compensation

Andrea Murphy, Director of Human Resources
Preparer/Title



INFORMATION
 VOTE

Michele S. Gillen
Director, Administration



RECOMMENDATION:

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

DISCUSSION:

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

April PCR Amendments

There are five PCR Amendments this month.

The amendments are:

Operations Division Organizational Changes

1. Title change to one filled position in the Planning department, from Director, Emergency Planning and Preparedness, Non-Union Grade 15, to Director, SCADA, Metering, and Monitoring, Non-Union, Grade 15 to address reorganization needs.
2. Title change to one vacant position in the Engineering department from Program Manager, Electrical Unit 9, Grade 29 to Program Manager, Metro Meter Maintenance Unit 9, Grade 29 to address reorganization needs.
3. Title and grade change to one vacant position in the Operations Engineering department from Senior Program Manager, Startup Unit 9, Grade 30 to Program Manager, Process Control and Process Support Unit 9, Grade 29 to better meet staffing needs.

Administration Division Organizational Changes

1. Grade change to one filled and one vacant Messenger/Courier position in the Facilities Management department from Unit 1 Grade 10 to Unit 1 Grade 12 to more accurately reflect the level of responsibilities.

These amendments require approval by the Personnel and Compensation Committee.

BUDGET/FISCAL IMPACT:

The annualized budget impact of these PCR amendments will be a savings of \$1,278. Staff will ensure that the cost increase associated with these PCR amendments will not result in spending over the approved FY19 Wages and Salaries budget.

ATTACHMENTS:

Old Job Descriptions
New Job Descriptions

MASSACHUSETTS WATER RESOURCES AUTHORITY
 POSITION CONTROL REGISTER AMENDMENTS
 FISCAL YEAR 2019

PCR AMENDMENTS REQUIRING PERSONNEL & COMPENSATION COMMITTEE APPROVAL - April 17, 2019																
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	
P18	Operations Planning 17010001	F	T	Director, Emergency Planning and Preparedness	NU	15	Director, SCADA, Metering & Monitoring	NU	15	\$139,620	\$139,620	-	\$139,620	\$0	\$0	To address reorganization needs.
P19	Operations Engineering 5525044	V	T	Program Manager, Electrical	9	29	Program Manager, Metro Meter Maintenance	9	29	\$125,202	\$90,546	-	\$125,202	-\$34,656	\$0	To address reorganization needs.
P20	Operations Operations Engineering 5811020	V	T, G	Senior Program Manager, Startup	9	30	Program Manager, Process Control and Process Support	9	29	\$130,406	\$90,546	-	\$125,202	-\$39,860	-\$5,204	To better meet staffing needs.
P21	Administration Facilities Management 8710024	F	G	Messenger/Courier	1	10	Messenger/Courier	1	12	\$40,555	\$42,518	-	\$42,518	\$1,963	-\$1,963	More appropriate grade due to level of responsibilities.
P22	Administration Facilities Management 8710023	V	G	Messenger/Courier	1	10	Messenger/Courier	1	12	\$40,555	\$42,518	-	\$42,518	\$1,963	-\$1,963	More appropriate grade due to level of responsibilities.
PERSONNEL & COMPENSATION COMMITTEE TOTAL=					5											
										TOTAL:				-\$70,590	-\$1,278	

MWRA
POSITION DESCRIPTION

OLD

POSITION: Director, Emergency Planning and Preparedness

PCR#:

DIVISION: Executive Office

DEPARTMENT: Emergency Preparedness

BASIC PURPOSE:

Directs a comprehensive authority-wide emergency preparedness program to ensure readiness of MWRA personnel to respond to incidents and events. Directs the activities of the security and emergency planning functions of the authority.

SUPERVISION RECEIVED:

Works under the general supervision of the Executive Director

SUPERVISION EXERCISED:

Exercises close supervision of assigned managerial, professional, technical and clerical staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Conducts risk assessments and evaluates alternatives for mitigating vulnerabilities. Advises operational staff on development of emergency action plans covering all hazards potentially facing the authority.
- Works closely with the Director, MIS on cyber security issues, plans and programs.
- Establishes and directs program for exercising emergency action plans; creates scenarios, manages and critiques lessons learned for all exercises and actual incident response drills.
- Serves as member of the Task Force on Security and Emergency Preparedness. Approved

for access to Security-Most Sensitive documents.

- Directs and administers activities of the Emergency Planning and Preparedness unit.
- Places special focus on continuous refinement of the Emergency Response Plan, including annual updates, updating for significant system improvements, oversight of training exercises and plan updates.
- Assures appropriate emergency incident reporting and follow-up in accordance with MWRA policies and requirements.
- Assures the constant readiness of emergency response systems, including communications equipment, the emergency operations center, and emergency manuals and procedures pertaining to the waterworks and wastewater collection systems.
- Oversees the training and development of section staff by providing opportunities for technical, supervisory and management training.
- Manages the preparation and reporting of the current expense budget .
- Assures consistency and uniformity of work rules in accordance with established policies and procedures.
- Reviews employee performance according to MWRA procedures.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- A) A four (4) year college program in engineering, management or related field; and;
- (B) A minimum of ten (10) to twelve (12) years experience in technical planning and security and emergency planning & response in a large organization, preferably in a public water supply or wastewater collection system.
- (C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Familiarity with water supply, transmission and storage, treatment and distribution, and wastewater collection systems.
- (B) Strong organizational and management skills.
- (C) Excellent communication skills including verbal and written communications skills and interpersonal skills.
- (C) Proficiency in use of PC software for word processing, graphics, presentation, spreadsheets and database management.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle license.

Grade II-D or II-T (or higher) Drinking Water Supply Facilities Operator or Grade 6 Wastewater license 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 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 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.

There are no requirements that weight is lifted or force is exerted in performance of this job. Specific vision abilities required by this job include close vision and the ability to adjust focus.

Agency activities for which the occupant is responsible are performed 24 hours per day, 365 days per year and may require the occupant's attention and attendance at any time and in emergencies for extended periods.

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 frequently 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.

February 2014

**MWRA
POSITION DESCRIPTION**



POSITION: Director, SCADA, Metering & Monitoring

PCR#:

DIVISION: Operations

DEPARTMENT: SCADA

BASIC PURPOSE:

The Director, SCADA, Metering & Monitoring oversees the development, maintenance, and implementation of SCADA and Metering systems for assigned water and wastewater facilities. The position also oversees meter data collection, quality control, and total flow calculations used for allocation of MWRA's rate revenue requirements for the water and wastewater systems using revenue meters. Responds to emergency situations 24 hours per day, seven days per week.

SUPERVISION RECEIVED:

Works under the general supervision of Director, Waterworks.

SUPERVISION EXERCISED:

Exercises direct supervision of Manager, Metering & Monitoring and Senior Program Manager SCADA, and close supervision of other assigned professional, engineering, technical, maintenance and operations staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Directs the further development, implementation, and optimization of SCADA and Process Control Standards for all water and wastewater facilities (excluding Deer Island Treatment Plant - DITP).
- Develops and implements new SCADA and Metering initiatives to ensure efficient, reliable and secure SCADA and Metering operation of all assigned water and wastewater facilities. Ensures that major initiatives and policy changes are properly communicated to all staff.
- Manages the SCADA group efforts related to cyber security. Keeps informed of emerging techniques related to cyber security protection. Leads the MWRA Information

Security Council.

- Oversees emergency and preventive maintenance on all meters, SCADA systems, and electrical, electronic, mechanical and pneumatic equipment used in control, measurement and recording of water flow and pressure, treatment and real time water quality monitoring.
- Oversees water meter data collection, quality control, and data access for users and customer reporting.
- Oversees meter design, construction and start-up for capital or other projects.
- Reports to senior staff on department initiatives and progress towards agency goals.
- Recommends, develops and implements policies and procedures for the SCADA, Meter Maintenance, and Meter Data groups.
- Develops and implements continued updates of control strategies to ensure clear documentation of automated facility controls and alarming functions.
- Directs the operation, modification and continued improvement of the communication infrastructure to support transmission of SCADA and security data throughout MWRA's system.
- Directs the documentation of all control panels and instrumentation installations with support from other departments.
- Directs in-house and contract instrumentation maintenance, modifications and upgrades.
- Oversees the review of capital project designs, and directs staff support of construction and new equipment startup with regard to group responsibilities to ensure adherence to standards and effective integration into overall SCADA system.
- Directs the maintenance and implementation of Programmable Logic Controller (PLC) and Human Machine Interface (HMI) programming to support operations needs.
- Oversees staff productivity monitoring and continual improvement through staff skills development, strategic planning, standard operating procedures (SOP) improvements and research and implementation of technology advances.
- 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 online.

- Directs the SCADA and Metering safety programs, maximizing employee involvement, supporting the Authority-wide safety program, and making inspections. Acts as liaison to the Manager, Occupational Safety and Health.
- Maximizes effective use of the Maxim maintenance management software and related computer programs.
- Manages the preparation of and exercises control over current expense budget for SCADA, Metering, & Monitoring.
- Assures consistency and uniformity of work rules in accordance with established policies and procedures.
- Reviews assigned employees' performance per MWRA 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) A Bachelor of Science degree in civil, electrical or mechanical engineering or related field. A Master's degree is preferred; and
- (B) Ten (10) to twelve (12) years of experience in engineering, construction management, operations, and maintenance in a water or wastewater environment including at least five

- (5) years of experience in a management position with multiple supervisory levels; and
- (C) Five (5) to Seven (7) years experience in design, startup and managing water/wastewater SCADA and process control systems; or
- (D) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Knowledge of engineering principles and practices.
- (B) In depth knowledge of cyber security and how to implement initiatives in the water and wastewater industries.
- (C) Ability to read and interpret plans and drawings.
- (D) Proficient in the use of personal computers and associated Microsoft Office software programs, including Word, Excel, and Access.
- (E) Knowledge of computerized maintenance management systems and procedures.
- (F) Excellent interpersonal, written and verbal communication skills required.
- (G) Knowledge of computer hardware and software such as SCADA and communications technology, routers and networking, cyber security, PLC control programming, HMI programming, databases, data presentation and analysis tools.
- (H) Demonstrated successful experience managing in a union environment with a diverse workforce.

SPECIAL REQUIREMENTS:

- Able to respond to emergency situations 24 hours per day, seven days per week.
- A valid Massachusetts Class D Driver's License.
- Registered Professional Engineer license in the Commonwealth of Massachusetts.
- A Grade IV Massachusetts Drinking Water Operator's license (Distribution or Treatment) or a Grade VI Wastewater Operator's license.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

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

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee regularly works in an office environment. The employee occasionally exposed to outdoor weather conditions. The employee is occasionally exposed to fumes and airborne particles. The noise level in the work environment is a moderately quiet in office setting.

April 2019

**MWRA
POSITION DESCRIPTION**

OLD

POSITION: Program Manager, Electrical

PCR#:

DIVISION: Operations

DEPARTMENT: Engineering - Chelsea

BASIC PURPOSE:

Provides electrical engineering support to operation and maintenance departments. 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 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 electrical engineering staff, medium voltage technicians, and electrical distribution staff as needed.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Performs design, engineering and finalization 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, detailed designs and the preparation of plans and specifications for proposed electrical modifications/replacement and construction projects.
- Oversees installation, operation, maintenance and repair of complex electrical equipment

including generation, transmissions, distribution systems.

- Oversees the preparation of plans and specifications for vendor contracts for proposed electrical modifications.
- Oversees reviews of and modifications to all operations and maintenance documentation with respect to electrical design changes.
- Assists the operations staff with engineering resolution and recommendations to electrical 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 Technical Services group, central engineering and outside consultants.
- Develops and maintains files and familiarity with all codes, code addends, code cases, and industry standards applicable to the electrical field and ensure that facility specifications comply.
- Performs periodic inspections to ensure facility-wide compliance with local and national electrical codes and other rules of safe electrical practice are enforced.
- Reviews electrical and related portions of design plans by outside firms who have been hired to design improvements or additions to facilities and infrastructure.
- Assists with the coordination of project activities with engineering consultants as required.
- Supervises the updating of electrical engineering drawings and records, and the subsequent forwarding (in accordance with established procedures) to the Technical Services Center.
- Provides oral and written reports to the Senior Program Manager 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 general and specific engineering and design principles and practices as attained through a accredited four (4) or (5) year college program in electrical engineering; and
- (B) Experience in design, installation and maintenance of a wide variety of electrical power and control equipment as normally acquired through seven (7) to nine (9) years of related electrical engineering 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) Personal computer skills including spreadsheet, database, word processing, project management and GDS, CADD and AutoCADD desired.
- (B) Knowledge of Massachusetts bidding laws, including M.G.L Chapter 30, Chapter 149, and Chapter 25A construction bidding regulations.
- (C) Excellent interpersonal, written and oral communication skills.

SPECIAL REQUIREMENTS:

Possession of Engineer-in-Training certification preferred.

A valid Massachusetts Licensed Professional Engineering certificate preferred.

A valid Massachusetts Drivers License required.

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 2015

**MWRA
POSITION DESCRIPTION**

NEW

Position: Program Manager, Metro Meter Maintenance

PCR:

Division: Operations Division

Department: Meter Maintenance

BASIC PURPOSE:

Oversee the condition inspections, repair/replacement, budgeting, priority setting, work scheduling and maintenance for water/wastewater metering equipment.

SUPERVISION RECEIVED:

This position reports to the Manager, Metering & Monitoring.

SUPERVISION EXERCISED:

Exercises close supervision of assigned meter maintenance staff (and vendor staff as needed).

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages maintenance, repair, upgrades and condition assessment of permanent flow meters, associated communications hardware and other remote site specialty equipment (e.g. pressure sensors, depth sensors, rain gauges).
- Coordinates with Meter Data Program staff to identify problem sites and issue corrective action work orders. Schedules and tracks all necessary preventive maintenance work orders. Oversees Maximo data entry by crew supervisors and prepares any maintenance activity summaries and tracking reports.
- Oversees operation of a bench testing facility for equipment problem diagnosis and verification of equipment condition.
- Manages meter staff. Monitors crew work progress and oversees crew performance. Performs field audits.
- Coordinates with other managers, supervisors, work coordination staff and others for optimal functioning of assigned staff.

- Monitors "Work in Progress" by coordinating with Maintenance Supervisors, Operations Managers and Planner/Schedulers, and also monitors backlog to reduce pending assignments.
- Manages all aspects of assigned Maintenance Programs relative to preventive, corrective, predictive, project, condition-based maintenance, and emergency maintenance activities with special emphasis on the development of a formal preventive maintenance program.
- Prepares, manages, and oversees contracts and purchase orders for the repair and purchase of maintenance equipment.
- Develops the Current Expense Budget (CEB) for areas of responsibility including annual project work, contracts, training, and material purchases. Monitors budget performance and provides budget updates for the CEB as required. Approves and tracks spending, justifies variances from budget, and provides support documentation as required.
- Implements staffing redeployments, establishes work policies and procedures, defines work priorities and oversees training program.
- Manages metering equipment inventory and oversees receiving of meter components and return shipping of equipment sent for repair.
- Reviews assigned employee performance according to MWRA procedures as established and maintained by the Human Resources Department.
- Recommends upgrades to meter equipment to ensure continued optimal operation. Includes tracking major projects and the coordination of outside contractors, as required.
- Promotes the MWRA Safety Policy and Program by participating in and supporting activities as detailed by the Manager of Occupational Health and Safety and his team.
- Schedules shifts and works overtime as required.
- Make themselves available for work during any emergency.
- Provides training to assigned staff.
- Operates motor vehicles, such as vans and pick-up trucks, to transport materials to work sites, pick up equipment, etc.
- Perform related duties as required.

- Performs related duties as assigned.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Knowledge of the principles and practices of maintenance attained through a four (4) year college program in civil, mechanical, electrical/electronic or environmental engineering or related field; and
- (B) Demonstrated practical understanding of all phases of operations, maintenance engineering, and management of water or wastewater flow metering systems, as normally acquired through seven (7) to nine (9) years of related experience. Knowledge of water distribution and/or wastewater collection systems preferred; and
- (C) Three (3) years of experience in supervising staff and/or large projects; or
- (D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Demonstrated knowledge of water or wastewater meter technologies and Telog software and components.
- (B) Proven ability to plan, organize, direct, train, assign duties to, and maintain harmonious working relationships with maintenance staff and other personnel. Demonstrated successful experience managing in a union environment with a diverse workforce.
- (C) Proficiency with personal computers and knowledge of word processing, spreadsheets, database and engineering application software.
- (D) Extensive experience utilizing computerized maintenance management and work order systems.
- (E) Excellent oral and written communication skills.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators License.

A valid Massachusetts Grade 4 wastewater operator's license or 2D Drinking Water Supply Facilities Operators license preferred.

Must be available to respond to emergencies as needed.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone and personal computer.

PHYSICAL DEMANDS:

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

While performing the duties of this job, the employee is regularly required to use hands/fingers, handle, feel or operate objects, including office equipment or controls and reaches with hands and arms. The employee must frequently lift and/or move up to 10 pounds, occasionally lift/move up to 25 pounds. Specific vision abilities required by this job include close vision, distance vision, depth perception and the ability to focus.

WORK ENVIRONMENT:

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

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

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

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

April 2019

**MWRA
POSITION DESCRIPTION**

OLD

POSITION: Senior Program Manager, Start-Up Services

DIVISION: Operations Division

DEPARTMENT: Field Operations Department/Operations Support

BASIC PURPOSE:

Directs the development and implementation of Start-up programs for all new Field Operations Department facilities.

SUPERVISION RECEIVED:

Works under the general supervision of the Manager of Operations Engineering.

SUPERVISION EXERCISED:

Provides supervision of the project manager of design and 8(m) permit support and 4 support staff.

Provides matrix management over Field Operations staff working on start-up teams for new and rehabilitated facilities.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages and coordinates the Start-up Program for all new and rehabilitated Field Operations Department facilities. Coordinates with the lead design and construction departments in their development and implementation of the detailed steps required for integration of multiple construction packages and for successful testing, check-out, documentation and training for new and rehabilitated facilities.
- Coordinates with the lead design and construction departments on the development of facilities handbooks, O&M manuals, and Standard Operating Procedures, providing direction and coordination to insure the products provide the information required to safely operate and maintain the facility in a standardized format. Coordinate the review and approval of the documents by Field Operations Department staff. Coordinate review of training materials and training schedules to assure that Field Operations staff are thoroughly trained in the operations and maintenance of new equipment and in facility operations and SOPs.

- Coordinates with the lead design and construction departments on the receipt of new equipment data for the Authority's computerized maintenance management system.
- Coordinates with the lead design and construction departments to minimize construction impacts on Field Operations Department operations and to assure uninterrupted operations and optimal water quality.
- Tracks and assists in resolution of start-up issues arising from the interaction of the lead design and construction department and the Field Operations Department.
- Supervises waterworks 8(m) permit program and coordinates DIG SAFE activities throughout the department.
- Supervises preparation of Field Operations Department condition assessments, records maintenance activities, and department design reviews.
- Participates in the preparation of capital and current expense budgets for the start-up program activities.
- Emergency Operations Center staffing for emergency response, as directed.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Knowledge of engineering principles and practices as normally attained through a four (4) year college program in engineering or a related technical field. Advanced degree preferred; and
- (B) Demonstrated supervisory skills and knowledge of operations, testing and start-up techniques and procedures as acquired by six (6) to eight (8) years experience in the start-up of large water or wastewater facilities, large utilities, manufacturing plants, of which at least three (3) years should be in a supervisory capacity; or
- (C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Proficiency with word processing, spreadsheet and database programs.
- (B) Excellent written and oral communications skills are required. Demonstrated organizational and coordination abilities.
- (C) Massachusetts Registered Professional Engineer preferred.
- (D) Wastewater Operator's License Grade 4C and Water Operator's License Grade 4D within two years. One of the above licenses obtained within one year

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 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 25 pounds. Specific vision ability required by this job includes close vision distance vision, color vision, depth perception, peripheral 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 outside weather conditions. The employee occasionally works near moving mechanical parts, and is occasionally exposed to wet and/or humid conditions and vibrations. 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.

August, 2001

MWRA
POSITION DESCRIPTION



POSITION: Program Manager, Process Control & Project Support

PCR#:

DIVISION: Operations

DEPARTMENT: Process Control & Project Support

BASIC PURPOSE:

Provides technical support to water and wastewater operations on all operational process control related matters. Independently manages, with minimal supervision, the planning, design and construction services for various operation and maintenance projects and programs.

SUPERVISION RECEIVED:

Works under the general supervision of the Senior Program Manager within the Process Control & Project Support Group.

SUPERVISION EXERCISED:

Exercises close supervision of assigned staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Provides technical support and develops project work plans to support operations, maintenance and construction activities to ensure minimal impact to operations and to water/wastewater customers.
- Manages the checkout and startup of new process control equipment and systems during construction and rehabilitation of facilities to ensure new equipment and automation meet the process control objective.
- Manages technical support for senior staff in the development of program plans and standard designs for projects which may include design and construction of new and rehabilitation projects, development of maintenance and operations procedures, and hydraulic evaluation efforts.

- Provides technical review of consultants prepared reports and design projects, contractor shop drawings and O&M manuals for new facilities and facility rehabilitation projects.
- Performs condition assessments and field audits on equipment at MWRA facilities, CSOs, outfalls and other structures within the system in support of safe/efficient infrastructure. Develops written reports of field investigations and corrective actions plans for any faulty equipment and/or systems found during the investigations.
- Develops and coordinates maintenance service contracts in the field such as, but not limited to, SCADA, I&C and Electrical at Metro water and wastewater facilities.
- Assists in the development and administration of condition monitoring programs such as vibration analysis, load bank testing, and Thermography.
- Manages the utilization of existing Authority software and databases (ex. Process Book, PL Telog Enterprise Website, etc.) to analyze facility and system data for assigned post event investigations and process control and hydraulic evaluations. Provides presentations and reports to Managers to detail findings and recommendations.
- Represents the department at various internal and external meetings, including construction meetings, O & M Meetings, and project progress meetings for facility upgrades and other complex projects.
- Works with Senior Manager, Pipeline to develop and implement sewer system optimization and storage program.
- Manages staff productivity monitoring and continual improvement through staff skill development, strategic planning, SOP improvements, and research and implementation of technology advances.
- Participates in the selection and hiring of project consultants and oversees the consultants planning process.
- Participates in the Emergency Operations Center (EOC) staffing as required and trains staff to provide storm and incident management.

SECONDARY DUTIES:

- Provides backup and support to the Senior Program Manager, Operations during wet weather events.
- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) A four (4) year college degree in civil, mechanical, chemical, or environmental engineering is required; and
- (B) A thorough knowledge of the operation and maintenance of a large Municipal Sewerage and/or Water System as normally attained through seven (7) to nine (9) years of experience with three (3) of supervision of staff and or large projects; 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. Demonstrated ability to supervise technical staff.
- (B) Demonstrated understanding of process design, hydraulics and mechanical equipment integral to pumping and treatment systems typically found in water and wastewater facilities.
- (C) Demonstrated knowledge of process control theory, practices and principles
- (D) Demonstrated abilities to work productively and maintain working relationships with external parties.
- (E) Proficiency with personal computers and knowledge of word processing, spreadsheets, database and engineering applications software required.
- (F) Excellent interpersonal, verbal and written communications skills are required.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators License is required.

A valid Grade 6 wastewater operator's license, a collections system certification or 4D Drinking Water Supply Facilities Operators license preferred.

TOOLS AND EQUIPMENT USED:

Hand tools, mobile radio, telephone, 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 occasionally is required to sit, stand and walk. The employee is frequently required to climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

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

WORK ENVIRONMENT:

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

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

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

April 2019

**MWRA
POSITION DESCRIPTION**



POSITION: Messenger/Courier
DIVISION: Administration
DEPARTMENT: Facilities Management

BASIC PURPOSE:

Assists the Supervisor of Transport/Courier as assigned.

SUPERVISION RECEIVED:

Works under the general supervision of the Supervisor of Transport/Courier.

SUPERVISION EXERCISED:

None.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Operates shuttle services on a regular time and route schedule using various MWRA vehicles.
- Picks up and delivers packages and MWRA employees to various locations in the Metropolitan Boston area and Charlestown Navy Yard.
- Maintains vehicles such as cleaning inside and outside, checking all fluids, checking the pressure and making other small repairs if requested by the Supervisor.
- Cross-trains as backup and may fill in for one or more of the following: Reproduction Clerk, Receptionist, Secretary, Inventory Control Coordinator or Mail Clerk.
- Provides some job orientation to employees in like positions.
- Weighs mail and parcels to determine appropriate charges, prepares mail, and parcels for pickup by vendors.
- Separates and sorts all incoming US first class mail, parcels and interoffice mail on an established schedule and distributes in proper mail slots. Accepts, records and notifies recipients of all incoming parcels.

- Prepares and maintains all tracking logs and provides supervisor with monthly statistics and reports.
- Researches and appropriately dispatches all incorrectly addressed mail and parcels.
- Assists and consults with staff in preparing special mailings.
- Ships and receives procurement bids and other important documents.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Basic reading, writing, mathematical, oral communication skills as normally attained through a high school education; or
- (B) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Familiarity with courier and delivery services function including knowledge of the metropolitan Boston area.
- (B) Ability to follow written and oral instruction and work independently.
- (C) Skill in the operation of the listed tools and equipment.
- (D) Good physical condition with strength and ability to facilitate the handling of bulky and/or heavy mail containers and packages.

SPECIAL REQUIREMENTS:

A valid Massachusetts Commercial License (CDL) Class B or ability to obtain within 6 months of appointment.

TOOLS AND EQUIPMENT USED:

Motor vehicle, mobile and vehicle radios, handcarts, power and hand tools.

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

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move more than 100 pounds. Specific vision abilities required by this job include close vision, distance 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 outside weather conditions. The employee regularly works near moving parts and is occasionally exposed to wet and/or humid conditions and vibration. The employee occasionally works in precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals and risk of electrical shock.

The noise level in the work environment is very loud in field settings and moderately loud at other work locations.

May 2015

**MWRA
POSITION DESCRIPTION**



POSITION: Messenger/Courier
DIVISION: Administration
DEPARTMENT: Facilities Management

BASIC PURPOSE:

Assists the Supervisor of Transportation, Courier and Mail Services as assigned.

SUPERVISION RECEIVED:

Works under the general supervision of the Supervisor of Transportation, Courier, and Mail Services.

SUPERVISION EXERCISED:

None.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Operates shuttle services on a regular time and route schedule using various MWRA vehicles.
- Picks up and delivers packages and MWRA employees to various locations in the Metropolitan Boston area and Charlestown Navy Yard.
- Maintains vehicles such as cleaning inside and outside, checking all fluids, checking the pressure and making other small repairs if requested by the Supervisor.
- Cross-trains as backup and may fill in for one or more of the following: Reproduction Clerk, Receptionist, Secretary, Inventory Control Coordinator or Mail Clerk.
- Provides some job orientation to employees in like positions.
- Weighs mail and parcels to determine appropriate charges, prepares mail, and parcels for pickup by vendors.
- Separates and sorts all incoming US first class mail, parcels and interoffice mail on an established schedule and distributes in proper mail slots. Accepts, records and notifies

recipients of all incoming parcels.

- Prepares and maintains all tracking logs and provides supervisor with monthly statistics and reports.
- Researches and appropriately dispatches all incorrectly addressed mail and parcels.
- Assists and consults with staff in preparing special mailings.
- Ships and receives procurement bids and other important documents.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Basic reading, writing, mathematical, oral communication skills as normally attained through a high school education; AND
- (B) At least one year of driving, mail handling, clerical, or office experience; OR
- (C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Familiarity with courier and delivery services function including knowledge of the metropolitan Boston area.
- (B) Ability to follow written and oral instruction and work independently.
- (C) Skill in the operation of the listed tools and equipment.
- (D) Good physical condition with strength and ability to facilitate the handling of bulky and/or heavy mail containers and packages.

SPECIAL REQUIREMENTS:

A valid Massachusetts Commercial License (CDL) Class B or ability to obtain within 6 months

of appointment.

TOOLS AND EQUIPMENT USED:

Motor vehicle, mobile and vehicle radios, handcarts, power and hand tools.

PHYSICAL DEMANDS:

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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.

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The noise level in the work environment is very loud in field settings and moderately loud at other work locations.

April 2019



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

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

ADMINISTRATION, FINANCE & AUDIT COMMITTEE MEETING

to be held on

Wednesday, April 17, 2019

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

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

Time: Immediately Following P&C Committee

AGENDA

A. Information

1. 2018 Annual Update on New Connections to the MWRA System
2. Delegated Authority Report – March 2019
3. FY19 Financial Update and Summary as of March 2019
4. MWRA Retirement System Update

B. Contract Awards

1. Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System: Infor Inc.
2. Arbitrage Rebate Compliance Services: PFM Asset Management LLC, Contract F251

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Administration, Finance and Audit Committee

March 20, 2019

A meeting of the Administration, Finance and Audit Committee was held on March 20, 2019 at the Authority headquarters in Charlestown. Committee Chair Vitale presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cotter, Foti, Pappastergion, Peña and Walsh. Messrs. Cook and Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Thomas Durkin, Michele Gillen, Douglas Rice, James Halloran, Michael Cole and Matthew Horan. The meeting was called to order at 12:16 p.m.

Information

Delegated Authority Report – February 2019

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

Retirement System Update

Item postponed.

FY2019 Financial Update and Summary as of February 2019

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

Contract Amendments/Change Orders

* Main Line Adjustment Project, Fore River Railroad: JF White Contracting Co., Contract FRR32, Change Order 2

Staff made a verbal presentation. The Committee recommended approval (ref. AF&A B.1).

* Committee recommendation approved by the Board on March 20, 2019

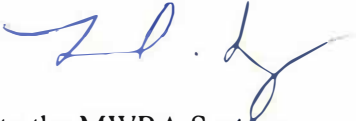
* Lead Market Participant Services for the Deer Island Treatment Plant: Direct Energy Business Marketing, LLC, Amendment 1

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

The meeting adjourned at 12:25 p.m.

* Committee recommendation approved by the Board on March 20, 2019

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 17, 2019
SUBJECT: 2018 Annual Update on New Connections to the MWRA System

COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Beth Card, Director, Environmental and Regulatory Affairs
Katie Ronan, Environmental Analyst
Preparer/Title


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

RECOMMENDATION:

For information only. This 2018 Annual Update on New Connections to the MWRA System has been prepared pursuant to the “Annual Update” requirements of MWRA’s system expansion policies.

DISCUSSION:

MWRA’s system expansion policies require an annual update on the status of any new connections (connection approved within the preceding five years) to the MWRA from outside the water and sewer service areas. Calendar year 2002 was the first year that MWRA system expansion policies prescribed update requirements. This 2018 Annual Update addresses post-2002 connections to the MWRA. A summary of each connection’s compliance with requirements as stipulated in its water supply or sewer use agreement is provided. For water connections, requirements include compliance with water withdrawal limits and entrance payments due to MWRA. For wastewater connections, requirements address inflow removal, ongoing stipulations regarding management of wet weather flows, compliance with discharge limits, and entrance payments due to MWRA. An update on inquiries from potential applicants for admission and other system expansion considerations is also included.

The MWRA operating policies listed below govern system expansion. A more detailed summary of each policy is provided in Attachment A.

- # OP.04, Sewer Connections Serving Property Partially Located in a Non-MWRA Community (the “Sewer Straddle” policy);
- # OP.05, Emergency Water Supply Withdrawals;
- # OP.09, Water Connections Serving Property Partially Located in a Non-MWRA community (the “Water Straddle” policy);
- # OP.10, Admission of New Community to MWRA Water System; and

- # OP.11, Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area.

Summary of Approved Connections to the MWRA System

Water

In 2018, the Executive Office of Energy and Environmental Affairs and its agencies, through the Massachusetts Drought Management Task Force, continued to assess hydrologic conditions throughout the Commonwealth. According to DCR Hydrologic Conditions Reports, precipitation was at or above normal in the Spring of 2018 and after a short dry period during May and June rainfall returned to normal and above normal for the balance of the year. There were no requests for withdrawals under OP.5, Emergency Water Supply Withdrawals, due to hydrologic conditions, although there was one request from Burlington due to operational issues within the local system resulting in inability to meet local demand. There were no formal applications to the MWRA in 2018 under OP.09 or OP.10 – “water straddle” or admission of a new community, respectively.

Since 2002, Stoughton, Reading, the Dedham-Westwood Water District and Wilmington have become MWRA water supplied communities. (Bedford was admitted into the MWRA system prior to 2002, before firm water withdrawal limits were established for new communities.) There have also been two “straddle connections” since 2002: Avalon in Peabody/Danvers (now called 14 North), and the YMCA in Marblehead/Salem. The Connections are shown on the map in Figure 1 and information pertaining to these connections is provided in Table 1.

Figure 1: New Water Connections Since 2002 & Communities Pursuing Admission

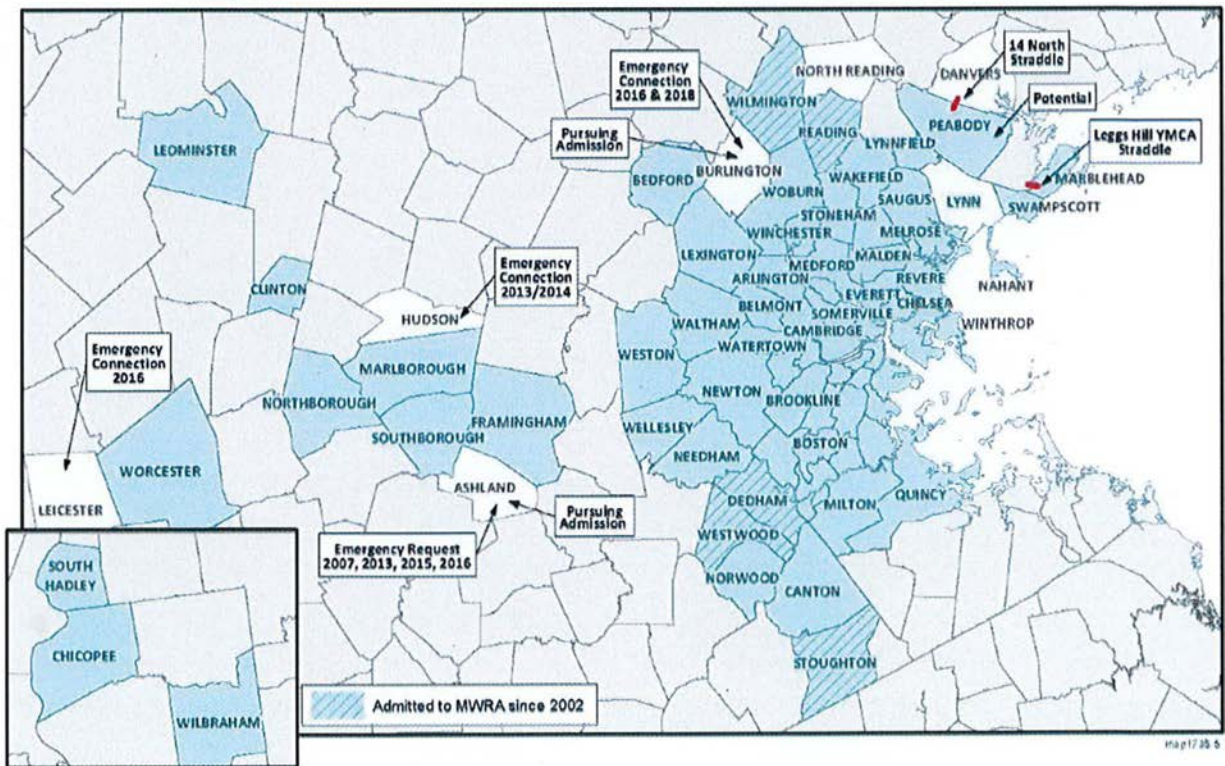


Table 1 - Approved Connections to MWRA Water System Since 2002					
Applicant	Applicable MWRA Policy	Approval Date or Emergency Period	Entrance Fee or Payment of Charges Under the Emergency Policy	MWRA Approved withdrawal	2018 MWRA Withdrawal
Burlington	OP.05 Emergency	9/30/16- 3/29/17 1/18 7/18 12/18	For 1 six-month and 3 one-month emergency withdrawal periods, MWRA received a total of \$162,545.	N/A	0.07 mgd
Cherry Valley Rochdale Water District	OP.05 Emergency	10/27/16- 4/6/17	0	N/A	0
Ashland	OP.05 Emergency	12/07-5/07 12/13-6/14 12/15-6/16 8/22/16- 2/22/17	For 4 six-month emergency withdrawal periods, MWRA received \$14,078.	.75 mgd	0
Hudson	OP.05 Emergency	6/13 12/13 6/14	For 3 six-month emergency withdrawal periods, MWRA received a total of \$1,033,787.	N/A	0
Dedham/ Westwood W.D (partially supplied)	OP.10, New	12/05 12/14 10/18	Entrance fee \$548,748 for first .1 mgd paid. Fee of \$566,727 for additional 0.1 mgd paid in 5 annual installments. Final installment was received in FY19.	0.2 mgd 150 mg (1 mgd for 5 months)	0.124 mgd
Wilmington (partially supplied)	OP.10, New	5/09	Net Entrance Fee of \$2,809,320 w/ 20-year payment schedule. On-time payments.	0.6 mgd	0.499 mgd
Reading	OP.10, New	11/05 10/07	\$3,285,242 (first 0.6 mgd) \$7,799,606 (for additional 1.5 mgd). Paid in full	2.1 mgd	1.615 mgd
YMCA Salem/Marblehead	OP.09, Straddle	11/06	\$70,823 paid in full	0.0127 mgd	0.0073 mgd
14 North Danvers/Peabody	OP.09 Straddle	05/03	\$64,063 paid in full	0.012 mgd	0.00787 mgd
Stoughton (partially supplied)	OP.10, New	6/02	Net Entrance Fee of 5,657,117 w/ 20-year payment schedule. On time payments.	1.15 mgd	0.100 mgd

The highlights of Table 1 include:

- All water supply withdrawals are below their contract limits.
- For permanent connections, all entrance fees have been paid pursuant to agreed-upon schedules of payments included in the communities' Water Supply Agreements.

- At this time, the Cherry Valley and Rochdale Water District have not executed the Emergency Water Supply Agreement.
- Stoughton's 2018 MWRA withdrawals are substantially below the volume it projected when it joined MWRA. Stoughton has rehabilitated local wells and decreased reliance on MWRA.
- In September 2018, Dedham-Westwood formally requested approval from the MWRA and the MWRA Advisory Board, to temporarily increase its MWRA withdrawal by 150 million gallons (1 MGD for five months). The existing water supply agreement between the MWRA and Dedham-Westwood has a provision for a temporary increase in volumes beyond 2 MGD and 73 million gallons on an annual basis without a written amendment to that agreement.
- On March 20, 2019, at Burlington's request, MWRA authorized the temporary use of the emergency connection as a result of maintenance/mechanical issues.

Sewer

In 2018, there was one application to MWRA for a sewer connection under #OP.11, Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area for Crescent Ridge Dairy in Sharon. There were no formal applications for admission under #OP.4, the "Sewer Straddle" policy; however, several inquiries about admission were received.

Figure 2 shows and Table 2 summarizes connections to the MWRA sewer system since 2002 when annual reporting requirements were established as well as the proposed new Crescent Ridge Dairy connection.

Figure 2: New or Increased Volume Sewer Connections Since 2002

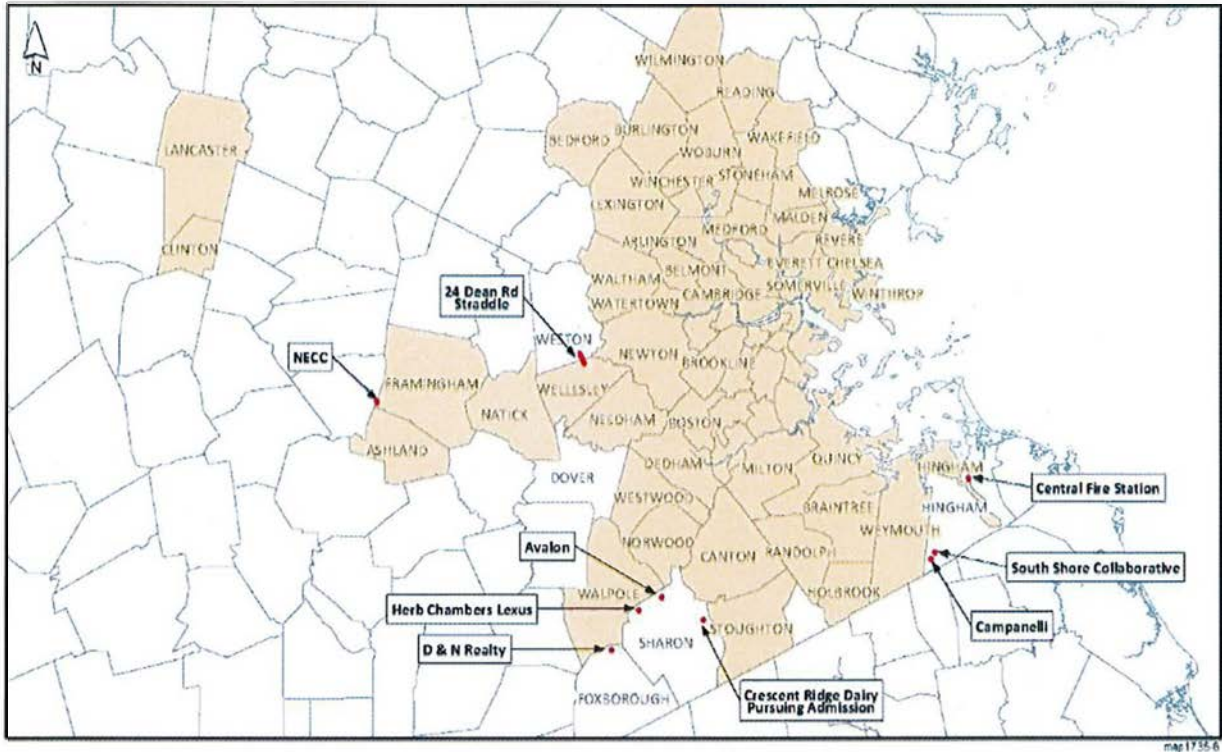


Table 2 - Approved Connections to MWRA Sewer System Since 2002

Applicant	MWRA Policy	Approval Date	Entrance Fee Payment	Status of Inflow Removal/Other Contract Requirements	MWRA Approved discharge	Estimated Discharge to MWRA in 2018*
New England Center for Children, Southborough	OP.11	7/15	\$24,228 Paid in full	Inflow removal completed.	12,500 gpd	9,232
FoxRock Realty South Shore Collaborative, Hingham	OP.11	4/12	\$9,133 + \$12,750 paid in full	Inflow removal completed.	5,536 gpd	7,331 gpd
24 Dean Road, Weston/Wellesley	OP.04	3/11	\$18,033 paid in full	Inflow removal completed.	575 gpd	317.64 gpd
D&N Realty, Foxborough	OP.11	6/07	\$168,391 paid in full	Inflow removal completed.	13,000 gpd (average) 22,750 gpd (max day)	4,346 gpd**

Table 2 - Approved Connections to MWRA Sewer System Since 2002						
Applicant	MWRA Policy	Approval Date	Entrance Fee Payment	Status of Inflow Removal/Other Contract Requirements	MWRA Approved discharge	Estimated Discharge to MWRA in 2018*
Avalon Bay, Sharon	OP.11	6/07	\$105,586 paid in full	Inflow removal completed.	16,120 gpd	15,245 gpd
Herb Chambers Lexus, Sharon	OP.11	5/07	\$40,750 paid in full.	Inflow removal completed.	6,400 gpd (average) 10,500 gpd (max)	5,578 gpd**
Hingham Fire Station, Hingham	●P.11	4/07	\$8,429 paid in full	Inflow removal completed.	782 gpd	203.81 gpd
<p>* Wastewater discharges are estimated based on water meter readings. **Water consumption figures are adjusted downward by 5% to account for a certain percentage of water that is used by the facility and not returned as wastewater (such as landscaping, water consumed).</p>						

The key findings of Table 2 include:

- South Shore Collaborative in Hingham is over its approved discharge. Communications are beginning with regard to whether a modification to the entrance fee payment is appropriate.
- All other connections reported that wastewater discharges in 2018 were below their approved agreement limits.
- Entities reported compliance with ongoing obligations that relate to sewer system operations.

Potential Future Connections and Expansions

In 2018, several communities and other potential applicants inquired about the process and feasibility of connection to the MWRA or expanding existing service volumes.

Communities

Ashland: Ashland is seeking approximately 0.3 mgd of supplemental water supply from MWRA in an effort to diversify its water source. Currently, the Town relies on three wells in a well field adjacent to the Hopkinton State Reservoir. In May 2018, Ashland filed an FEIR with MEPA and a certificate was issued by the Secretary in late June 2018, which found that the project properly complies with MEPA. In October 2018, the Water Resources Commission approved Ashland’s request for an Interbasin Transfer. Ashland is currently working with MWRA staff to submit a formal application in compliance with ●P.10 and is pursuing necessary legislation to authorize connection to the system.

Burlington: At its May 2018 Town meeting, members voted to approve Article 15, which provides \$5.3 million in funding to begin the process of joining the MWRA. In June 2018, MWRA staff met with Town representatives to discuss the next steps for the Town related to the MWRA approval process, environmental permitting, construction of additional water mains and the creation of a water stabilization fund. Options associated with sharing some of the connection costs, particularly if Burlington were to construct a direct connection to MWRA as opposed to wheeling MWRA water through Lexington as it has done in emergencies, is being considered. A flow test has been conducted for the calibration of a hydraulic model. This flow test and calibration included opening a connection between Burlington and Lexington, and tracking pressures and flow rates at key locations. Coordination with Burlington will be on-going in the year ahead. In November 2018, Burlington filed an ENF with MEPA and a certificate was issued by the Secretary requiring a mandatory EIR. The ENF outlined Burlington's two-phased proposal to obtain water supply from MWRA. Phase 1 includes purchasing approximately 1 mgd of MWRA water through a wheeling arrangement with Lexington. Phase 2 includes a second connection to MWRA and pipeline construction to obtain an Average Day Demand of approximately 3.47 million gallons and a Maximum Daily Demand of approximately 6.45 million gallons. In December 2018, MWRA staff attended a scoping meeting with staff from MEPA, MassDEP, Water Resources Commission, Burlington and Lexington to discuss project details and next steps. Burlington is continuing to work on its EIR and in March 2018 MWRA, MEPA, and WRC staff met with the Town to discuss the MEPA process and the best approach for the Town.

Non-Communities

Crescent Ridge Dairy: Crescent Ridge Dairy is currently pursuing admission under OP.11 to the MWRA wastewater system to discharge approximately 6,500 gpd of wastewater via a connection to the Town of Stoughton. In May 2018 Sharon, Stoughton and Crescent Ridge Dairy signed an agreement outlining the details of the sewer connection and codifying a commitment for Infiltration/Inflow removal. Water supply is provided by the Town of Sharon, which has sources in the Neponset River Basin and Taunton River Basin. The portion of the water originating from the Neponset River Basin (0.065mgd) is subject to the Interbasin Transfer Act. Crescent Ridge Dairy has requested a Determination of Insignificance which was reviewed by the Water Resources Commission in March 2019 and is expected to be voted on in April 2019. The Entrance Fee is estimated to be approximately \$25,000. Legislation has been signed enabling MWRA to provide sewer service to Crescent Ridge Dairy upon approval by the MWRA Advisory Board and MWRA Board of Directors. Crescent Ridge Dairy will also be required to obtain a Sewer Use Discharge Permit from MWRA upon connection to the wastewater system.

Sherborn Potential Development: Pulte Homes of New England, LLC recently requested to meet with MWRA about a proposed residential development in Sherborn that is going to be near the Natick and Framingham borders. The developer is interested in options to connect to the sewer in Natick and to purchase water through Framingham. Initial conversations allowed Pulte Homes to understand that while a sewer connection is likely feasible, a water connection is not because it is the development, as opposed to the municipality or a water district that is seeking to purchase the water. Admission policy and cost information has been provided.

The Rivers School: This is a co-educational, college preparatory day school for students in grades 6 through 12, located at 333 Winter Street in Weston. The school, which is located on the Weston/Natick town line and has property in both towns, is seeking to discharge wastewater generated at the Weston portion of its campus into the MWRA system. The school has determined that the most sensible place for this connection is via the collection system in Natick. MWRA staff have met with operational staff and a consultant for the school. On average, the school generates approximately 2,500 gallons per day; however, the peak day average daily flow, for example when there are large events at the school, is about 14,500 gallons per day. The school has a functioning on-site wastewater treatment system that is a permitted groundwater discharge. However, given the fluctuations in flows when students are in and out of school, it is finding it hard to maintain the system effectively and meet permit requirements during low flow periods. Further, the school has indicated an interest in doing more to protect surface waters in neighboring areas and a sewer connection as opposed to a groundwater discharge would advance that goal. School officials have begun to have conversations with DPW personnel in Natick to evaluate the feasibility of connecting via their system. Conversations have yet to be finalized with other officials in Natick or Weston, so the Rivers School does not yet have formal approval to join the MWRA, as is required by MWRA admission policies.

Yankee Trader Foods: This company, which makes frozen seafood appetizer products, has purchased a building in Hingham. The property, located at 80 Sharp Street, has a failed septic system. The company is looking to connect to the Weymouth wastewater system. The facility would discharge on average 1,500 gallons per-day, with a peak of 3,000 gallons per-day. While these are relatively low volumes, capacity in Weymouth is limited in wet weather and the Town typically requires 6:1 inflow and infiltration removal. MWRA and Yankee Trader Seafood have both been in communications with the Town of Weymouth. Currently, the Town's wastewater superintendent is reviewing the sewer plans, septic connection and grease trap plans to determine if the connection is allowable. If the Town of Weymouth is willing to accept the additional wastewater into its system, then the MWRA will work with Yankee Trader Seafood to consider a recommendation for the MWRA admission process. The wastewater has been described as sanitary waste, but considering that it is generated at a food processing facility, MWRA staff will make a determination as to whether additional permits, such as a Sewer Use Discharge Permit, will be required along with the other components of our admission policy.

ATTACHMENT:

Attachment A: Policies for Admission to the MWRA

ATTACHMENT A

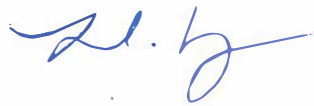
Policies for Admission to the MWRA

- **OP. #04, Sewer Connections Serving Property Partially Located in a Non-MWRA Community.** This policy applies to persons seeking sewer services for buildings/structures that are located partially within an MWRA sewer community and partially outside an MWRA sewer community (the actual structures, not just the parcel of land on which the structure is located, must straddle the municipal boundary). It is also known as the “Sewer Straddle” policy.
- **OP#05. Emergency Water Supply Withdrawals.** This policy applies to communities outside MWRA’s Water Service Area that are seeking MWRA water on an emergency basis. The MWRA may approve emergency withdrawals for no more than six months at a time, and typically, the emergency withdrawal period coincides with a DEP Declaration of Emergency for the Community.
- **OP#09, Water Connections Serving Property Partially Located in a Non-MWRA community.** This policy applies to persons seeking to obtain water for a location, building, or structure located on a parcel of land, under single ownership, and which is subject to an integrated plan for use of development, that is located partially within an MWRA water community and partially outside an MWRA water community. It is also known as the “Water Straddle” policy.
- **OP#10, Admission of New Community to MWRA Water System.** This policy applies to communities seeking admission to the MWRA water system. OP#10 also applies to any local body, institution, agency or facility of the Commonwealth or federal government seeking MWRA water for a location outside MWRA’s Water Service area. Connections and withdrawals by private entities outside the water service area are prohibited, except for those that are eligible under either the water straddle policy (OP#9), or that are located contiguous to or in the vicinity of local community-owned water supply pipelines that extend from the MWRA’s Chicopee Valley Aqueduct (CVA) and that receive the appropriate approvals from the CVA, host communities, and applicable regulatory bodies.
- **OP#11, Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area.** This policy applies to communities seeking admission to the MWRA sewer system and to all parties seeking sewer service for locations outside the MWRA service area that are not eligible under the Sewer Straddle Policy.

MWRA must approve all extension of service to entities outside the service area pursuant to the applicable policy noted above, with the exception of connections to local community owned water supply pipelines that extend from the Chicopee Valley Aqueduct. This is the case even when an entity outside the service area is not directly connected to the MWRA, but instead to a community local system that is part of the MWRA service area.

STAFF SUMMARY


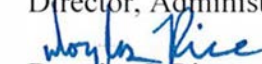
TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 17, 2019
SUBJECT: Delegated Authority Report – March 2019



COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

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


Michele S. Gillen
Director, Administration

Douglas J. Rice
Director of Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period March 1 – 30, 2019.

This report is broken down into three sections:

- Awards of Construction, non-professional and professional services contracts and change orders and amendments in excess of \$25,000, including credit change orders and amendments in excess of \$25,000;
- Awards of purchase orders in excess of \$25,000; and
- Amendments to the Position Control Register, if applicable.

BACKGROUND:

The Board of Directors' Management Policies and Procedures, as amended by the Board's vote on February 21, 2018, delegate authority to the Executive Director to approve the following:

Construction Contract Awards:

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

Change Orders:

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

Professional Service Contract Awards:

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

Non-Professional Service Contract Awards:

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

Purchase or Lease of Equipment, Materials or Supplies:

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

Amendments:

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

Amendments to the Position Control Register:

Amendments which result only in a change in cost center.

BUDGET/FISCAL IMPACT:

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

CONSTRUCTION/PROFESSIONAL SERVICES DELEGATED AUTHORITY ITEMS MARCH 1 - 30, 2019

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	03/11/19	NASH HILL EASEMENT TREE TRIMMING, CUTTING AND REMOVAL AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR TREE TRIMMING, CUTTING AND REMOVAL ON THE EASEMENT OF THE NASH HILL COVERED STORAGE FACILITY IN LUDLOW FOR A TERM OF 150 CALENDAR DAYS.	OP-383	AWARD	NORTHERN TREE SERVICE, INC.	\$51,500.00
C-2.	03/12/19	GRIT AND SCREENINGS HAULING AND DISPOSAL FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: DEER ISLAND GRIT AND SCUM HAULING AND DISPOSAL, NUT ISLAND GRIT HAULING AND DISPOSAL, OTHER FACILITIES GRIT HAULING AND DISPOSAL, VACTOR BOX TRANSPORTATION TO DITP, MWRA'S USE OF CONTRACTOR-FURNISHED VACTOR BOX, ROUND TRIP OF FURNISHED VACTOR BOX, VACTOR BOX SCUM DISPOSAL, RINSE FEE FOR FURNISHED VACTOR BOX, OPEN CONTAINER TRANSPORTATION TO DITP, MOVEMENT OF FURNISH CONTAINER AT DEER ISLAND.	5536	2	W.L. FRENCH EXCAVATING CORP.	(\$491,560.74)
C-3.	03/15/19	BELLEVUE 2/TURKEY HILL WATER TANK PAINTING PROJECT INCREASE ESTIMATED QUANTITIES FOR MISCELLANEOUS STRUCTURAL STEEL BEAM REPLACEMENT/DUPLICATION REPAIRS.	7634	4	WORLDWIDE INDUSTRIES CORP.	\$47,250.00
C-4.	03/18/19	FALL RIVER RAILROAD MAIN LINE ADJUSTMENT PROJECT TEST, REMOVE, HANDLE, TRANSPORT AND DISPOSE OF SOILS; VACUUM EXCAVATE TEST PITS AT TWO LOCATIONS, BACKFILL, COMPACT AND SURFACE RESTORATION OF DENSE GRADED GRAVEL IN LIEU OF SPECIFIED ASPHALT MIX.	FRR32	1	J.F. WHITE CONTRACTING CO.	\$233,356.64
C-5.	03/21/19	TOWABLE GENERATOR DOCKING STATIONS AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER TO CREATE QUICK CONNECTIONS FOR THE TOWABLE GENERATOR DOCKING STATIONS FOR A TERM OF 360 CALENDAR DAYS.	7025	AWARD	FALL RIVER ELECTRICAL ASSOCIATES CO., INC.	\$916,928.00

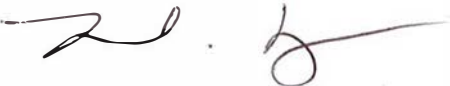
PURCHASING DELEGATED AUTHORITY ITEMS MARCH 1 - 30, 2019

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1	03/13/19	QA/QC DIVING INSPECTIONS (WACHUSETT AND SUDBURY DASH) AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR QUALITY ASSURANCE/QUALITY CONTROL DIVING SERVICES FOR MWRA'S INVASIVE AQUATIC PLANT CONTROL CONTRACTS AT THE WACHUSETT AND SUDBURY RESERVOIRS.	WRA-4641		FATHOM RESOURCES, LLC	\$59,462.18
P-2	03/13/19	WACHUSETT STILLWATER BASIN DASH AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR DIVING ASSISTED SUCTION HARVESTING OF INVASIVE AQUATIC PLANTS AT STILLWATER BASIN IN THE WACHUSETT RESERVOIR.	WRA-4624		AE COMMERCIAL DIVING SERVICES	\$81,000.00
P-3	03/13/19	RESERVOIRS AQUATIC MACROPHYTE SURVEY AND EMERGENCY RESERVOIRS WATER QUALITY ANALYSIS AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR AQUATIC INVASIVE MACROPHYTE SURVEY AT MWRA/DCR SOURCE AND EMERGENCY RESERVOIRS, AND WATER QUALITY ANALYSIS AT THE MWRA EMERGENCY RESERVOIRS.	WRA-4632		ESS GROUP, INC.	\$86,350.00
P-4	03/13/19	CHESTNUT HILL INVASIVE CONTROL / ALUM TREATMENT AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR AQUATIC INVASIVE PLANTS MONITORING AND CONTROL AT THE CHESTNUT HILL RESERVOIR.	WRA-4629		SOLITUDE LAKE MANAGEMENT, LLC	\$97,075.00
P-5	03/13/19	WACHUSETT LOWER BASINS / MAIN BODY COVES DASH AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR DIVER ASSISTED SUCTION HARVESTING OF INVASIVE AQUATIC PLANTS AT THE WACHUSETT RESERVOIR'S THOMAS BASIN, OAKDALE BAIN, CARVILLE BASIN, QUINAPOXET BASIN, AND COVES.	WRA-4631		AE COMMERCIAL DIVING SERVICES	\$134,250.00
P-6	03/14/19	ANNUAL MAINTENANCE AND SUPPORT FOR HYDRAULIC MODELING SOFTWARE AWARD OF A SOLE SOURCE PURCHASE ORDER FOR THE ANNUAL MAINTENANCE AND SUPPORT OF INFOWATER SUITE, INFOSURGE, AND INFOWORKS SEWER LICENSE SOFTWARE FOR THE TIME PERIOD MARCH 15, 2019 THROUGH MARCH 14, 2020.			INNOVYZE, INC.	\$33,597.15
P-7	03/14/19	PURCHASE MICROSOFT WINDOWS SERVER AND CLIENT LICENSES AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITS58 TO THE LOWEST RESPONSIVE BIDDER FOR ONE MICROSOFT WINDOWS SERVER 2019 STANDARD LICENSE AND 1,500 WINDOWS SERVER 2019 CLIENT ACCESS LICENSES.	WRA-4621Q		CDW-G LLC	\$39,079.80
P-8	03/14/19	TECHNICAL CONSULTING SERVICES AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITS63 TO THE LOWEST RESPONSIVE BIDDER FOR TECHNICAL CONSULTING SERVICES TO UPGRADE THE SAP BUSINESS OBJECTS ENVIRONMENT.	WRA-4640Q		OVERTURE PARTNERS, LLC	\$120,075.12
P-9	03/19/19	FUME HOOD MAINTENANCE AWARD OF A SOLE SOURCE PURCHASE ORDER FOR FUME HOOD MAINTENANCE FOR THE CENTRAL LABORATORY AT THE DEER ISLAND TREATMENT PLANT.			SIEMENS INDUSTRY, INC.	\$26,220.00
P-10	03/19/19	SUPPLY AND DELIVERY OF SODIUM HYDROXIDE AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF SODIUM HYDROXIDE TO VARIOUS WASTEWATER LOCATIONS.	WRA-4652Q		BORDEN & REMINGTON CORPORATION	\$43,999.05
P-11	03/19/19	REMOVE AND DISPOSE OF SEDIMENT AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO REMOVE AND DISPOSE OF SEDIMENT FROM CELL #2 OF THE NORUMBEGA COVERED STORAGE TANK.	WRA-4625		ATLANTIC UNDERWATER SERVICES, INC.	\$96,000.00
P-12	03/21/19	INSPECTIONS AND SERVICE OF THE ULTRAVIOLET REACTORS AWARD OF A TWO-YEAR SOLE SOURCE PURCHASE ORDER FOR INSPECTIONS AND SERVICE OF THE ULTRAVIOLET REACTORS AT THE JOHN J. CARROLL WATER TREATMENT PLANT AND WILLIAM A. BRUTSCH WATER TREATMENT FACILITY FOR THE TIME PERIOD JUNE 1, 2019 THROUGH MAY 30, 2021			CALGON CARBON CORPORATION	\$104,300.00
P-13	03/28/19	PURCHASE OF 80 FEET OF 10-INCH AND 80 FEET OF 16-INCH GLASS LINED DUCTILE IRON PIPE AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR 80 FEET OF 10-INCH AND 80 FEET OF 16-INCH GLASS-LINED DUCTILE IRON PIPE FOR THE DEER ISLAND TREATMENT PLANT.	WRA-4663Q		BILLERICA WINWATER WORKS COMPANY	\$28,420.00
P-14	03/28/19	PURCHASE OF ONE ODOR CONTROL FAN AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ONE ODOR CONTROL FAN FOR THE DEER ISLAND TREATMENT PLANT.	WRA-4648		MASSFLOW AIR PRODUCTS CORP.	\$81,330.00
P-15	03/28/19	PURCHASE OF ONE HEWLETT PACKARD 3PAR STORAGE ARRAY, THREE HEWLETT PACKARD DL360 SERVERS, VMWARE AND WINDOWS SERVER LICENSES AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITC47 TO THE LOWEST RESPONSIVE BIDDER FOR ONE HEWLETT PACKARD 3PAR STORAGE ARRAY, THREE HEWLETT PACKARD DL360 SERVERS, VMWARE AND WINDOWS SERVER LICENSES, INSTALLATION SERVICES AND FIVE YEARS OF SUPPORT.	WRA-4637Q		HUB TECHNICAL SERVICES, LLC	\$157,131.94
P-16	03/29/19	PURCHASE OF HARBOR SAMPLING EQUIPMENT AWARD OF A SOLE SOURCE PURCHASE ORDER FOR HARBOR SAMPLING EQUIPMENT FOR THE DEPARTMENT OF LABORATORY SERVICES.			YSI, INC.	\$33,868.00
P-17	03/29/19	PURCHASE OF 25 16-INCH RETURN SLUDGE LINE PLUG VALVES AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR 25 16-INCH RETURN SLUDGE LINE PLUG VALVES FOR THE DEER ISLAND TREATMENT PLANT.	WRA-4643		F.W. WEBB COMPANY	\$102,499.75

POSITION CONTROL REGISTER (PCR) LOCATION CHANGES MARCH 2019

<u>DATE OF CHANGE</u>	<u>POSITION TITLE</u>	<u>CURRENT PCR#</u>	<u>CURRENT COST CENTER</u>	<u>NEW PCR #</u>	<u>NEW COST CENTER</u>	<u>REASON FOR CHANGE</u>
3/30/2019	Secretary I	5525069	Operations Engineering	5910044	Operations - Policy and Admin	Employee reassignment.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 17, 2019
SUBJECT: FY19 Financial Update and Summary Through March 2019

COMMITTEE: Administration, Finance & Audit

James Halloran, Budget Director
Michael Cole, Budget Manager
Preparer/Title

INFORMATION
 VOTE



Thomas J. Durkin
Director, Finance

RECOMMENDATION:

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

DISCUSSION:

MWRA is continuing the practice of setting aside favorable Capital Finance variances into the Defeasance Account with the intention of using these funds to defease debt and provide rate relief in future years. Targeted defeasances are a critical component of the Authority's multi-year rate management strategy. As such, in March the year-to-date debt related savings of \$7.1 million was transferred to the Defeasance Account. This favorable variance is largely driven by the lower than budgeted variable rates. As in past years, staff expect to recommend a defeasance to the Board of Directors next month, and have identified candidates for year-end defeasance and included the impact of the FY19 defeasance in the Proposed FY20 budget and planning estimates. It is noteworthy to mention that the favorable budget variance from the variable rate bonds is reduced this year relative to past years due to rising interest rates.

The total Year-to-Date variance for the FY19 CEB is \$7.7 million, due to lower direct expenses of \$4.4 million and indirect expenses of \$0.5 million; and higher revenue of \$2.8 million. The year-end favorable variance is projected at \$21.3 million, of which \$13.2 million is related to debt service. Beyond debt service savings, staff project a surplus of approximately \$8.1 million at year-end of which \$4.1 million would be from lower direct expenses, \$1.1 million from lower indirect expenses, and \$3.0 million from greater than budgeted revenues.

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

FY19 Current Expense Budget

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

- Net Lower Direct Expenses of \$4.4 million or 2.5% under budget. Spending was lower for Wages & Salaries, Maintenance, Professional Services, Other Materials, and Fringe Benefits. This is offset by higher spending on Utilities, Other Services, Overtime, Chemicals, Worker's Compensation, and Training & Meetings.
- Lower Indirect Expenses of \$0.5 million or 1.5%, due to lower expenses for the low voltage switchgear upgrades related to the HEEC cable and lower Watershed reimbursements due to a FY2018 year-end over accrual.

FY19 Budget and FY19 Actual Year-to-Date Variance by Expenditure Category
(in millions)

	FY19 Budget YTD	FY19 Actual YTD	\$ Variance	% Variance
Direct Expenses	\$174.5	\$170.1	-\$4.4	-2.5%
Indirect Expenses	\$32.0	\$31.6	-\$0.5	-1.5%
Capital Financing	\$352.6	\$352.6	\$0.0	0.0%
Total	\$559.1	\$554.3	-\$4.9	-0.9%

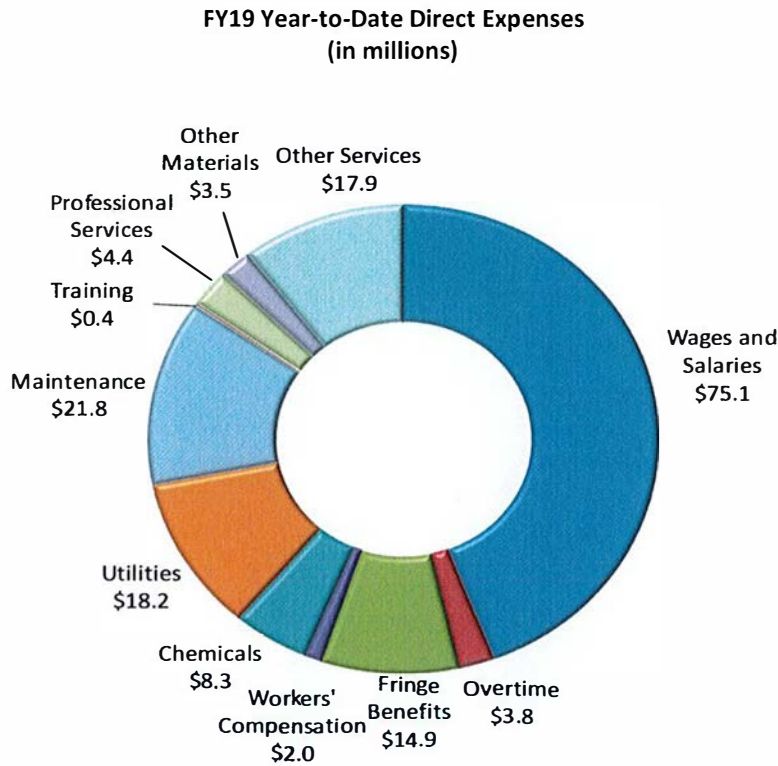
Totals may not add due to rounding

Total Revenues of \$578.7 million were \$2.8 million or 0.5% over budget. The majority of the variance is pertaining to the favorable short-term rates for investment income.

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

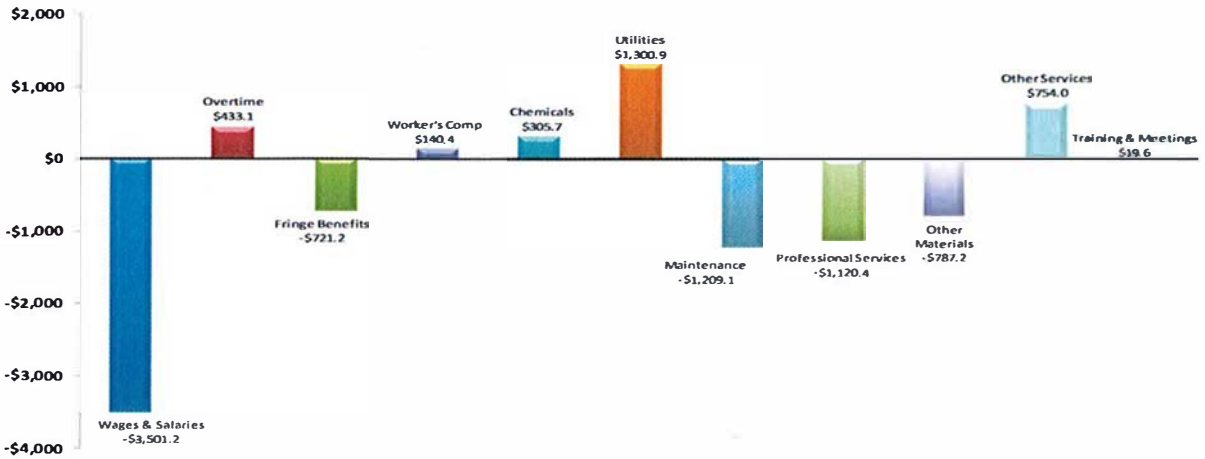
Direct Expenses

Year-to-date direct expenses totaled \$170.1 million, which was \$4.4 million or 2.5% less than budgeted.



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

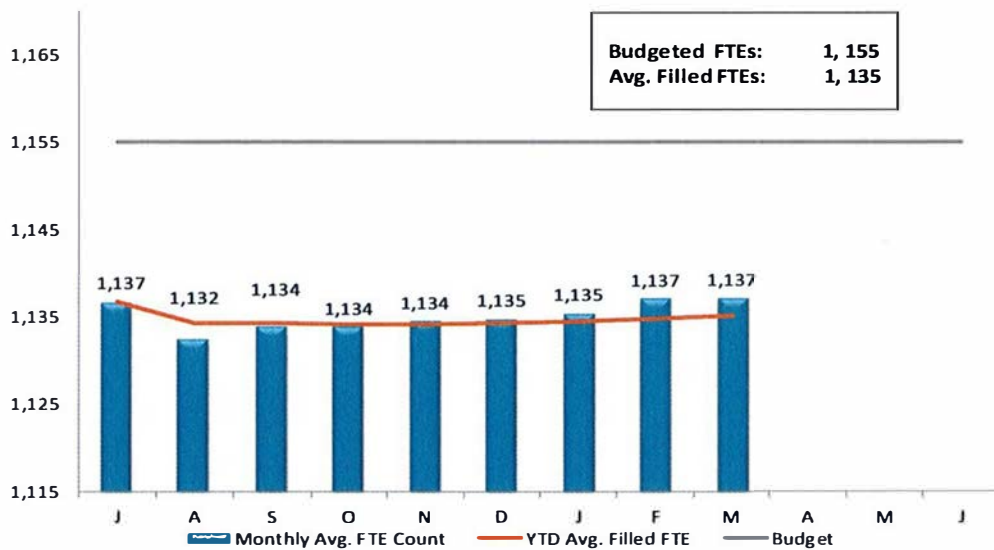
**FY19 Year-to-Date Direct Expense Variance
(in thousands)**



Wages and Salaries

Wages and Salaries are under budget by \$3.5 million or 4.5%. Year to date, there have been 20 fewer average FTEs (1,135 versus 1,155 budget) and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions, and lower leave balance accruals also contributed to Regular Pay being under budget.

FY19 MWRA Full Time Equivalent (FTE) Position Trend



Maintenance

Maintenance was under budget by \$1.2 million or 5.3%, largely driven by Field Operations (\$1.0 million) and Deer Island (\$0.1 million). Much of the underspending in Field Operations is due to the timing delays for projects that will be completed later in FY19 than budgeted or due to the shift of projects from the CEB to the CIP after reassessing the scope and costs. Underspending at Deer Island is primarily due to the timing delays in FY19 for numerous smaller, planned projects and purchases that will be completed later in FY19 than budgeted.

Professional Services

Professional Services were under budget by \$1.1 million or 20.5%. The overall underspending year-to-date is due to Other Professional Services in Human Resources, Law, Operations, and Finance; Computer System Consultants in MIS; Engineering Services in Operations; Lab Testing and Analysis in EnQual Wastewater and Lab Services; and Legal Services in Law and Human Resources.

Other Materials

Other Materials were under budget by \$0.8 million or 18.5%, largely driven by the timing of purchases related to Computer Hardware and Equipment/Furniture. This is offset by overspending for Vehicle Purchases/Replacements in Operations, Lab and Testing Supplies in the Department of Laboratory Services, and Postage in Administration.

Fringe Benefits

Fringe Benefit spending was lower than budget by \$0.7 million or 4.6%. This is primarily driven by lower Health Insurance costs of \$0.7 million due to fewer employees and retirees participating in health insurance plans, the change to the ratio of employee contribution for past employees versus new hires that contribute at a higher percentage, and change from family to individual plans which are less costly.

Utilities

Utilities were overspent by \$1.3 million or 7.7%. Electricity overspending of \$1.2 million is driven by Deer Island (\$0.7 million) and Field Operations (\$0.5 million), due to new contract pricing retroactive to November, 2018. In addition, there was higher spending in Wastewater Operations (\$0.2 million) due to pumping during many wet weather events and in Water Operations (\$0.2 million) due to testing of the Wachusett Aqueduct Pumping Station.

Other Services

Other Services were over budget by \$0.8 million or 4.4%. The main area of overspending was for Sludge Pelletization (\$1.1 million) due to higher year-to-date quantities. This overage was offset by lower spending for Telephones (\$0.2 million) in MIS and Field Operations and in Other Services (\$0.2 million) for a number of services, including the switch from renting modems to purchasing them for the Contaminant Monitoring System in Water Quality Assurance; remediation projects managed by Real Property/Environmental Management; and timing of Technical Assistance for Lead issues in Planning.

Overtime

Overtime expenses were higher than budget by \$0.4 million or 12.9%. The over spending for the fiscal year was mainly in Wastewater Operations due to wet weather events.

Chemicals

Chemicals were higher than budget by \$0.3 million or 3.8%. The majority of the variance for Chemicals was the result of higher Sodium Hypochlorite usage at Deer Island and Wastewater Operations due to wet weather; higher Activated Carbon at Nut Island Headworks and Braintree/Weymouth Intermediate Pump Station; higher Ferric Chloride at Deer Island and Clinton; higher Sodium Bisulfite usage at Deer Island and in Wastewater Operations; and higher Sodium Hypochlorite at the Carroll Water Treatment Plant due to higher usage of Wachusett Reservoir water versus the higher quality water from the Quabbin Reservoir, which required higher dosages to disinfect the water. This is offset by lower spending for Soda Ash at Carroll Water Treatment Plant and lower Hydrogen Peroxide at Deer Island. Through March, Deer Island flows are 8.3% greater than budget and the Carroll Plant flows are 3.2% less than budgeted.

Worker's Compensation

Worker's Compensation expenses were higher than budget by \$0.1 million or 7.7%. The higher expenses were primarily due to higher compensation payments and net reserves changes (\$206,000), offset by lower administrative expenses (\$60,000) and medical payments and net reserve changes (\$5,000).

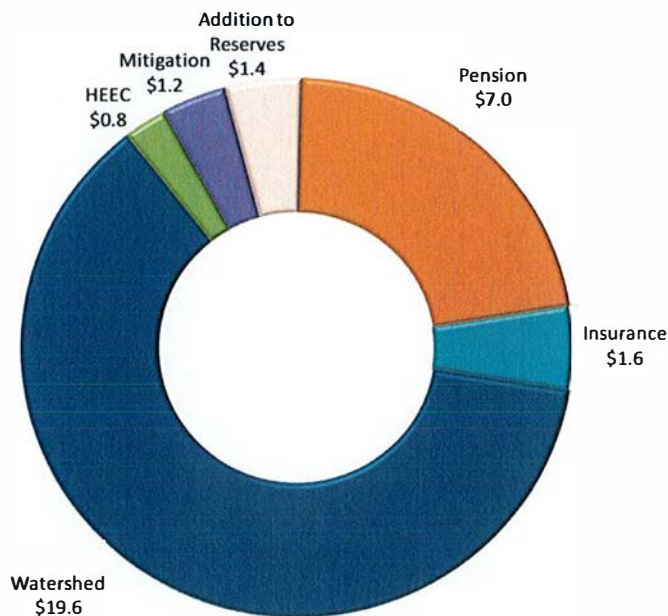
Training & Meetings

Training & Meetings expenses were slightly higher than budgeted by \$20,000 or 5.8% driven by higher spending in Field Operations, offset by lower spending in MIS.

Indirect Expenses

Year-to-date Indirect Expenses totaled \$31.6 million, which is \$0.5 million or 1.5% under budget. There are variances within the lines that comprise Indirect Expenses, including lower HEEC cable costs and Watershed costs. HEEC charges are under budget by \$0.2 million for the low voltage switchgear upgrades. Watershed costs are lower than budget by \$0.2 million due to an over-accrual at the end of FY18 on Watershed operating expenses. Staff typically need to close the fiscal year prior to receiving the final invoice from DCR, so an estimated amount is accrued based on recent history.

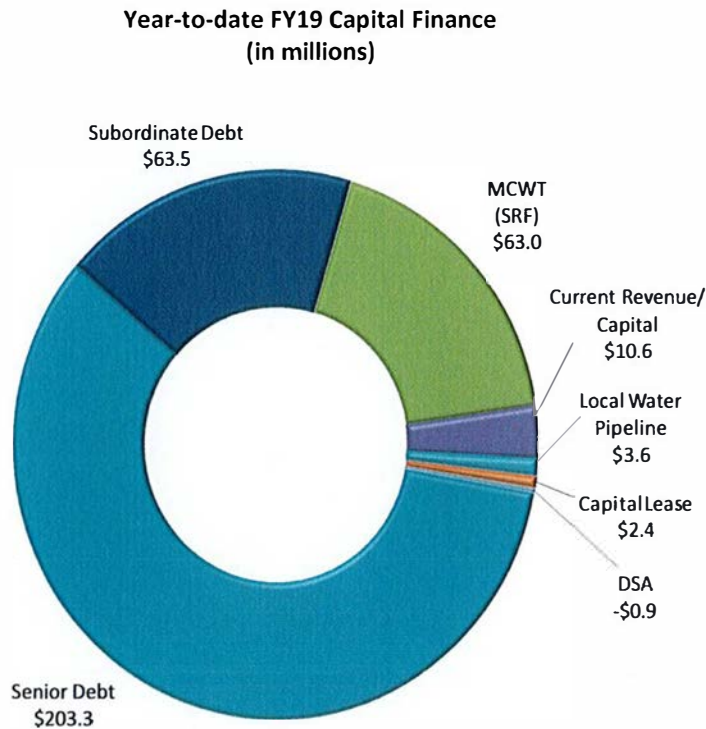
**FY19 Year-to-date Indirect Expenses-YTD
(in millions)**



Capital Financing

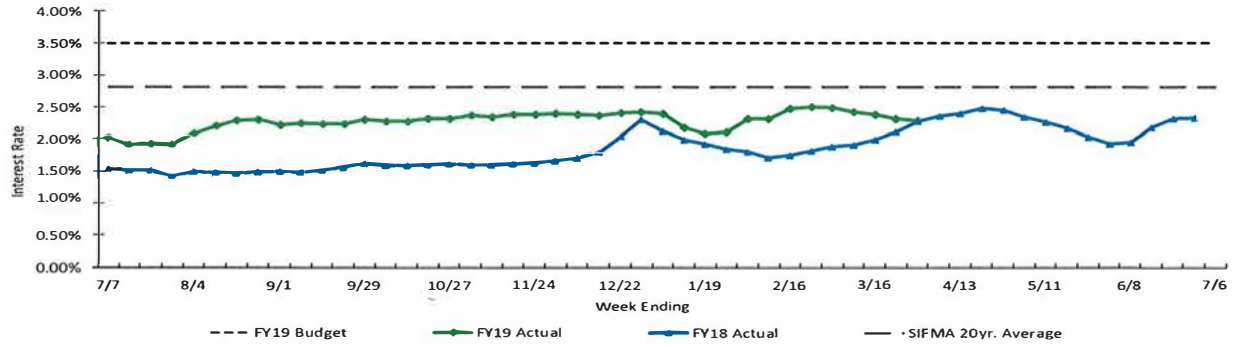
Capital Financing expenses include the principal and interest payments for fixed debt, the variable subordinate debt, the Massachusetts Clean Water Trust (SRF) obligation, the commercial paper program for the local water pipeline projects, current revenue for capital, and the Chelsea facility lease payment.

Year-to-date Capital Financing expenses for FY19 totaled \$352.6 million, which is right on budget after the transfer of \$7.1 million of year-to-date surplus to the Defeasance Account. The surplus is primarily attributable to short-term variable rates. As in the past, staff have already identified candidates for the proposed FY19 defeasance which will have favorable impacts in the FY20-23 period.



The graph below reflects the FY19 actual variable rate trend by week year-to-date against the FY19 Budget.

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



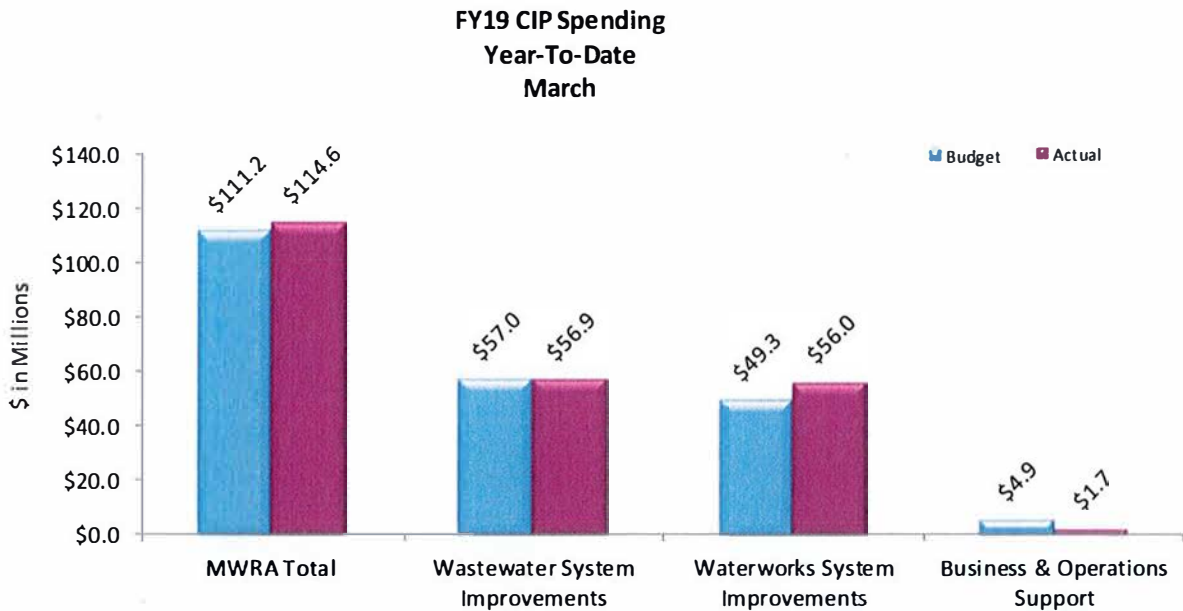
Revenue & Income

Year-to-date Revenues of \$578.7 million were over budget by \$2.8 million or 0.5%. Investment income was over budget by \$2.1 million due to favorable returns on investment income (average short-term rates were higher than budgeted: 2.40% vs. 1.75%). In addition, there were favorable variances on the income from the disposal of equipment (\$0.4 million), and for Miscellaneous Revenue (\$0.2 million).

FY19 Capital Improvement Program

Capital expenditures in Fiscal Year 2019 through March total \$114.6 million, \$3.3 million or 3.0% over budget.

After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) grant/loan program, the Local Water System Assistance loan program, and the community managed Combined Sewer Overflow (CSOs) projects, capital spending totaled \$66.3 million, \$22.8 million or 25.6% under budget.



Overall, CIP spending reflects the overspending in Waterworks Improvements (\$6.7 million) offset by underspending in Business and Operations Support (\$3.2 million) and Wastewater Improvements (\$0.1 million). Major variances in Waterworks are primarily due to greater than anticipated community requests for loans as well as contractor progress on the Southern Extra High (SEH) Section 111 Construction Phase 2, Section 56 Pipe Demolition Construction, Northern Intermediate High (NIH) Section 89 & 29 Construction Phase 1C, Wachusett Aqueduct Pumping Station, timing of watershed land purchases, partially offset by Bellevue Tank 2/Turkey Hill Painting contract awarded less than budget, additional structural repairs and antenna relocation delay, delay in notice to proceed and MBTA crossing issues for Southern Extra High (SEH) Section 111 Construction 3, and Maintenance Garage/Washbay/Storage Building due to delay in schedule.

Wastewater variances are primarily due to construction delays for the Chelsea Creek Headworks Upgrades for Channel 1 work, odor control equipment delivery and redesign of lower roofs, DI HVAC Equipment Replacement due to schedule change and re-scoping of project, Somerville Marginal In-System Storage project due to delay in Somerville design and construction awards, Winthrop Terminal Facility Variable Frequency Drive (VFD) Replacement due to motor

commissioning testing issue, Alewife Brook Pump Station Rehabilitation due to timing of final work, and Residuals Electrical and Mechanical Upgrades due to revised scope and schedule, partially offset by greater than anticipated community requests for grants and loans for the I/I Local Financial Assistance Program, contractor progress for the Gravity Thickener Rehabilitation contract, and work scheduled for FY18 that was completed in FY19 for the Reading Extension Sewer contract.

FY19 Budget and FY19 Actual Year-to-Date Variance by Program
(in millions)

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	29.8	18.1	(11.7)	-39.1%
Treatment	8.7	7.3	(1.4)	-16.4%
Residuals	1.8	0.4	(1.3)	-75.3%
CSO	2.3	1.0	(1.3)	-56.6%
Other	14.4	30.0	15.6	108.2%
Total Wastewater System Improvements	\$57.0	\$56.9	(\$0.1)	-0.2%
Waterworks System Improvements				
Drinking Water Quality Improvements	1.2	0.7	(0.6)	-45.9%
Transmission	9.3	7.9	(1.4)	-14.7%
Distribution & Pumping	25.4	27.2	1.8	7.0%
Other	13.4	20.2	6.8	50.9%
Total Waterworks System Improvements	\$49.3	\$56.0	\$6.7	13.5%
Business & Operations Support	\$4.9	\$1.7	(\$3.2)	-64.6%
Total MWRA	\$111.2	\$114.6	\$3.3	3.0%

Totals may not add due to rounding

FY19 Year-to-date Spending by Program:

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

Other Wastewater: Net overspending of \$15.6 million

- \$15.6 million for Community I/I due to greater than budgeted requests for grants and loans.

Interception & Pumping: Net underspending of \$11.7 million

- \$10.1 million for Chelsea Creek Headworks Upgrades Construction due to delays for Channel 1 work, odor control equipment delivery, and redesign of lower roofs.
- \$0.5 million for Wastewater Metering Planning/Study/Design due to police details and temporary meter work were less than anticipated.
- \$0.5 million for Remote Headworks and Deer Island Shaft Study due to delay in notice to proceed.
- \$0.5 million for Alewife Brook Pumping Station construction due to timing of final work.
- \$0.4 million for Nut Island Odor Control and HVAC Design due to delay in completion of design documents.

- This underspending was partially offset by \$0.4 million for Reading Extension Sewer and \$0.3 million for Prison Point Piping Rehabilitation for FY18 scheduled work that was completed in FY19.

Other Waterworks: Net overspending of \$6.8 million

- \$10.5 million for the Local Water System Assistance Program due to greater than anticipated loan requests, partially offset by \$2.2 million for Bellevue 2 and Turkey Hill Painting/Improvements contract being awarded less than budgeted, additional structural repairs needed, and antenna relocation delays, and \$0.9 million and \$0.4 million for delays in the notice to proceeds of the DI Water Tank Painting and Cosgrove Intake Roof Repair contracts, respectively. Also, \$0.2 million for Generator Docking Station due to delay in award.

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

- Overspending of \$2.1 million for Southern Extra High (SEH) Section 111 Construction 2 and \$0.2 million for Construction 1, \$1.7 million for Section 56 Pipe Demolition, \$0.4 million for Northern Intermediate High (NIH) Section 89 & 29 Phase 1C, \$0.1M for Phase 1B, and due to contractor progress, and \$0.2 million for Section 50/57 Water and Sections 21/20/10 Sewer Design ESDC/REI and \$0.2 million NIH Section 89 & 29 Replacement Design due to consultant progress of work. Also, \$0.2 million for Cathodic Protection Shafts E & L due to timing of initial work.
- This overspending was partially offset by underspending of \$1.9 million for SEH Construction 3 due to delay in notice to proceed and issue with MBTA crossing, \$0.5 million for Section 23, 24, 47 Final Design CA/RI due to pending City of Newton MOA for pipe replacement and delayed gas line relocation, \$0.5 million for Peabody Pipeline Design/ESDC due to project being terminated, and \$0.2 million for Section 14 Water Main Relocation (Malden) due to FY19 scheduled work completed in FY18.

Business & Operations Support: Net underspending of \$3.2 million

- \$1.2 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to timing of task order work, \$0.1 million for the Maximo Upgrade due to timing of final work, and \$1.4 million for timing of MIS initiatives.

Wastewater Treatment: Net underspending of \$1.4 million

- \$1.6 million for HVAC Equipment Replacement Construction due to schedule change and project being re-scoped, \$0.8 million for Winthrop Terminal Facility VFD Replacement Construction due to motor commissioning testing problem, \$0.5 million for Clinton Roofing Rehabilitation due to delay in start of work, \$0.3 million for Radio Repeater System Upgrade 1 due to delayed award and specification change, and \$0.2 million for Chemical Tanks and Digester Pipe Rehabilitation due to schedule change, partially offset by overspending of \$2.3 million for Gravity Thickener Rehabilitation due to contractor progress.

Waterworks Transmission: Net underspending of \$1.4 million

- \$1.4 million for Maintenance Garage/Wash Bay/Storage Building for schedule delay, \$0.4 million for Commonwealth Avenue Pumping Station Design Construction Administration/Resident Inspection due to change in construction notice to proceed, \$0.3 million for WASM 3 MEPA/Design/CA/RI for test pit work that was delayed, and \$0.3 million for Chestnut Hill Emergency Pumping Design/CA due to updated notice to proceed.
- This underspending was partially offset by overspending of \$0.6 million for timing of Watershed Land purchases, \$0.4 million for Rosemary Brook Siphon Building Repair for FY18 work invoiced in FY19, and \$0.4 million for Wachusett Aqueduct Pumping Station Construction due to contractor progress.

Residuals: Net underspending of \$1.3 million

- Underspending of \$1.3 million for Electrical and Mechanical Improvements due to delay in award as a result of combining electrical and mechanical contracts and adding drum dryer replacements to scope of work, \$0.1 million for Pellet Conveyance Piping Relocation, partially offset by \$0.1 million for Sludge Tank and Silo Coating due to work scheduled for FY18 completed in FY19.

Combined Sewer Overflow: Net underspending of \$1.3 million

- \$1.4 million for Somerville Marginal In-System Storage due to the delay of the City of Somerville design and construction awards.

Drinking Water Quality Improvements: Net underspending of \$0.6 million

- \$0.5 million for timing of task order work and \$0.1 million for the Cosgrove Boat Storage Facility due delay in contract award.

Construction Fund Balance

The construction fund balance was \$50.8 million as of the end of March. Commercial Paper/Revolving Loan availability was \$222 million to fund construction projects.

ATTACHMENTS:

Attachment 1 – Variance Summary March 2019

Attachment 2 – Current Expense Variance Explanations

Attachment 3 – Capital Improvement Program Variance Explanations

ATTACHMENT 1
FY19 Actuals vs. FY19 Budget

	March 2019 Year-to-Date				
	Period 9 YTD Budget	Period 9 YTD Actual	Period 9 YTD Variance	%	FY19 Approved
EXPENSES					
WAGES AND SALARIES	\$ 78,629,796	\$ 75,128,632	\$ (3,501,164)	-4.5%	\$ 107,032,021
OVERTIME	3,359,399	3,792,488	433,089	12.9%	4,447,554
FRINGE BENEFITS	15,577,183	14,855,936	(721,247)	-4.6%	21,173,571
WORKERS' COMPENSATION	1,816,957	1,957,403	140,446	7.7%	2,422,609
CHEMICALS	7,989,766	8,295,445	305,679	3.8%	10,830,452
ENERGY AND UTILITIES	16,890,625	18,191,484	1,300,859	7.7%	22,868,632
MAINTENANCE	22,984,226	21,775,115	(1,209,111)	-5.3%	32,258,727
TRAINING AND MEETINGS	340,099	359,688	19,589	5.8%	455,770
PROFESSIONAL SERVICES	5,477,127	4,356,738	(1,120,389)	-20.5%	7,675,976
OTHER MATERIALS	4,254,868	3,467,696	(787,172)	-18.5%	7,381,098
OTHER SERVICES	17,130,868	17,884,849	753,981	4.4%	23,065,411
TOTAL DIRECT EXPENSES	\$ 174,450,914	\$ 170,065,474	\$ (4,385,437)	-2.5%	\$ 239,611,821
INSURANCE	\$ 1,574,294	\$ 1,577,605	\$ 3,311	0.2%	\$ 2,099,064
WATERSHED/PILOT	19,804,820	19,566,035	(238,785)	-1.2%	26,406,427
HEEC PAYMENT	1,040,122	807,420	(232,702)	-22.4%	1,386,832
MITIGATION	1,210,696	1,210,696	-	0.0%	1,614,262
ADDITIONS TO RESERVES	1,411,351	1,411,351	-	0.0%	1,881,797
RETIREMENT FUND	7,000,000	7,000,000	-	0.0%	7,000,000
POST EMPLOYEE BENEFITS	-	-	-	---	5,574,152
TOTAL INDIRECT EXPENSES	\$ 32,041,283	\$ 31,573,108	\$ (468,176)	-1.5%	\$ 45,962,534
STATE REVOLVING FUND	\$ 64,600,419	\$ 62,991,084	\$ (1,609,335)	-2.5%	\$ 89,380,363
SENIOR DEBT	203,282,304	203,282,304	-	0.0%	272,633,982
CORD FUND	-	-	-	---	-
DEBT SERVICE ASSISTANCE	(944,726)	(944,726)	-	0.0%	(944,726)
CURRENT REVENUE/CAPITAL	10,649,994	10,649,994	-	0.0%	14,199,991
SUBORDINATE MWRA DEBT	69,060,609	69,060,609	-	0.0%	92,032,292
LOCAL WATER PIPELINE CP	3,562,797	3,562,797	-	0.0%	4,750,396
CAPITAL LEASE	2,412,795	2,412,795	-	0.0%	3,217,060
DEBT PREPAYMENT	-	-	-	---	7,100,000
VARIABLE DEBT	-	(5,529,876)	(5,529,876)	---	-
HEEC CABLE CAPACITY RESERV	-	-	-	---	-
DEFESANCE ACCOUNT	-	7,139,211	7,139,211	---	-
TOTAL DEBT SERVICE	\$ 352,624,192	\$ 352,624,192	\$ -	0.0%	\$ 482,369,358
TOTAL EXPENSES	\$ 559,116,389	\$ 554,262,774	\$ (4,853,613)	-0.9%	\$ 767,943,713
REVENUE & INCOME					
RATE REVENUE	\$ 554,281,650	\$ 554,281,650	\$ -	0.0%	\$ 739,042,200
OTHER USER CHARGES	6,804,314	6,889,897	85,583	1.3%	9,328,768
OTHER REVENUE	5,009,021	5,644,492	635,471	12.7%	6,013,635
RATE STABILIZATION	-	-	-	---	-
INVESTMENT INCOME	9,786,619	11,881,071	2,094,452	21.4%	13,559,110
TOTAL REVENUE & INCOME	\$ 575,881,604	\$ 578,697,110	\$ 2,815,506	0.5%	\$ 767,943,713

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY19 Budget YTD March	FY19 Actuals YTD March	FY19 YTD Actual vs. FY19 Budget		Explanations
			\$	%	
Direct Expenses					
Wages & Salaries	78,629,796	75,128,632	(3,501,163)	-4.5%	Wages and Salaries are under budget by \$3.5 million. Year to date, there have been 20 fewer average FTEs (1,135 versus 1,155 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions, and lower leave balance accruals contributed to Regular Pay being under budget.
Overtime	3,359,399	3,792,488	433,088	12.9%	Higher spending mainly in Wastewater Operations for wet weather events.
Fringe Benefits	15,577,183	14,855,936	(721,247)	-4.6%	Lower than budget mainly in Health Insurance of \$678,000, due to fewer than budgeted participants in health insurance plans, increased contribution by external new hires vs. lower contribution rates of staff retiring, and the shift from family to individual plans which are less expensive.
Worker's Compensation	1,816,957	1,957,403	140,446	7.7%	The higher expenses were due to an unfavorable budget variance in Compensation payments and reserves of \$206,000, offset by favorable budget variances for Administrative Expenses of \$60,000 and Medical payments and reserves of \$5,000. Due to the uncertainties of when spending will happen, the budget is spread evenly through out the year.

**ATTACHMENT 2
Current Expense Variance Explanations**

Total MWRA	FY19 Budget YTD March	FY19 Actuals YTD March	FY19 YTD Actual vs. FY19 Budget		Explanations
			\$	%	
Chemicals	7,989,766	8,295,445	305,678	3.8%	Overspending for Sodium Hypochlorite of \$263,000; DITP & Wastewater Ops due to wet weather and at CWTP due to rainy fiscal year, we have been using more water from Wachusett Reservoir vs. the higher quality water from Quabbin Reservoir, which has required higher dosing to disinfect the water; Ferric Chloride of \$222,000 at DITP and Clinton; Activated Carbon of \$162,000 for the unbudgeted replacement of carbon at Nut Island Headworks and Braintree Weymouth IPS for odor control; Sodium Bisulfite of \$69,000 at DITP and Wastewater Ops. This is offset by underspending in Soda Ash of \$275,000 at CWTP and Clinton; and Hydrogen Peroxide of \$127,000 at DITP. DITP flows are 8.3% higher than the budget and CWTP flows are 3.2% less than the budget through March. It is important to note that Chemicals variances are also based on deliveries which in general reflect the usage patterns. However, the timing of deliveries is an important factor.
Utilities	16,890,625	18,191,484	1,300,858	7.7%	Overspending in Electricity of \$1.2 million primarily at DITP (\$732,000) and Field Operatoins (\$484,000) due to pricing; Diesel Fuel of \$70,000 in Wastewater Ops and at DI due to timing of deliveries.

**ATTACHMENT 2
Current Expense Variance Explanations**

Total MWRA	FY19 Budget YTD March	FY19 Actuals YTD March	FY19 YTD Actual vs. FY19 Budget		Explanations
			\$	%	
Maintenance	22,984,226	21,775,115	(1,209,111)	-5.3%	<p>Services were underspent by \$660,000 and Materials were underspent by \$549,000.</p> <p>Services: Underspending in Building & Grounds Services of \$659,000 is driven by FOD (\$742,000); Pipeline Services of \$147,000 driven by Metro Maintenance for the timing of manhole rehab work (\$176,000); and Specialized Equipment Services of \$102,000 driven by Emergency Preparedness (\$131,000). These are offset by overspending in P&M Services of \$332,000 driven by DITP (\$486,000).</p> <p>Materials: Underspending in Electrical Materials of \$441,000 driven by Deer Island (\$325,000) and Metro Maintenance (\$115,000); P&M Materials of \$260,000 driven by Deer Island (\$288,000) and Water Operations (\$265,000), and offset by overspending in Metro Maintenance (\$211,000) and FOD Admin (\$50,000); and HVAC Materials of \$199,000 driven by Deer Island (\$218,000). These are offset by overspending in Special Equipment Materials of \$203,000 driven by FOD (\$210,000).</p>
Training & Meetings	340,099	359,688	19,589	5.8%	<p>Driven by overspending in Field Operations, offset by underspending in MIS.</p>
Professional Services	5,477,127	4,356,738	(1,120,390)	-20.5%	<p>Underspending in Other Professional Services of \$394,000 in HR for Training and the Pay Equity Study, Law, Operations, and Finance; Computer System Consultants of \$247,000 in MIS; Engineering Services of \$212,000 in Operations primarily at Reservoir Ops for timing of dam asset maintenance plans and DITP for timing of study of biosolids exemptions for MWRA pellets as relative to MDAR regulations; Lab & Testing Analysis of \$180,000 in EnQual Wastewater and Lab Services; and Legal Services of \$163,000 in Law and HR.</p>

**ATTACHMENT 2
Current Expense Variance Explanations**

Total MWRA	FY19 Budget YTD March	FY19 Actuals YTD March	FY19 YTD Actual vs. FY19 Budget		Explanations
			\$	%	
Other Materials	4,254,868	3,467,696	(787,172)	-18.5%	Lower than budgeted spending in Computer Hardware of \$873,000 in MIS for timing of the roll out of PC replacements; Equipment/Furniture of \$251,000 in Operations for timing of water quality equipment; and furniture at DITP. This is offset by higher than budgeted spending in Vehicle Purchases/Replacements of \$245,000 in Ops Admin; Lab & Testing Supplies of \$84,000 in Laboratory Services; and Postage of \$61,000 for timing of replenishment of the postage meter in the mailrooms.
Other Services	17,130,868	17,884,849	753,981	4.4%	Higher than budgeted spending for Sludge Pelletization of \$1.1 million due to higher year-to-date quantities. This is offset by lower spending for Telephone/Data Services of \$235,000 in MIS and FOD, and Other Services of \$114,000 for a number of services, including the switch from renting modems to purchasing them for the Contaminant Monitoring System in Water Quality Assurance; remediation projects managed by Real Property/Environmental Management; and timing of Technical Assistance for Lead issues in Planning.
Total Direct Expenses	174,450,914	170,065,474	(4,385,443)	-2.5%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY19 Budget YTD March	FY19 Actuals YTD March	FY19 YTD Actual vs. FY19 Budget		Explanations
			\$	%	
Indirect Expenses					
Insurance	1,574,294	1,577,605	3,311	0.2%	Higher claims than budgeted of \$51,000, offset by lower premiums of \$47,000.
Watershed/PILOT	19,804,820	19,566,035	(238,785)	-1.2%	Lower Watershed Reimbursement of \$239,000 due to over accrual at the end of FY18 as compared to the actual amount paid in the first quarter of FY19.
HEEC Payment	1,040,122	807,420	(232,702)	-22.4%	Lower than budgeted spending on special projects related to the HEEC cable.
Mitigation	1,210,696	1,210,696	-	0.0%	
Addition to Reserves	1,411,351	1,411,351	-	0.0%	
Pension Expense	7,000,000	7,000,000	-	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	32,041,283	31,573,107	(468,176)	-1.5%	
Debt Service					
Debt Service	353,568,918	353,568,918	-	0.0%	\$7.1 million for lower than budgeted variable rate, and a combination of lower cost of borrowing and assumed versus actual borrowing terms for SRF funds.
Debt Service Assistance	(944,726)	(944,726)	-	0.0%	
Total Debt Service Expenses	352,624,192	352,624,192	-	0.0%	
Total Expenses	559,116,389	554,262,773	(4,853,619)	-0.9%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY19 Budget YTD March	FY19 Actuals YTD March	FY19 YTD Actual vs. FY19 Budget		Explanations
			\$	%	
Revenue & Income					
Rate Revenue	554,281,650	554,281,650	-	0.0%	
Other User Charges	6,804,314	6,889,897	85,583	1.3%	Higher DITP water costs of \$99,000.
Other Revenue	5,009,021	5,644,492	635,471	12.7%	\$396,000 for disposal of surplus materials and Miscellaneous Revenue of \$169,000 primarily associated with worker's compensation reimbursement for older claims.
Investment Income	9,786,619	11,881,071	2,094,452	21.4%	Investment Income is over budget mostly due to short term rates higher than budget (2.40% vs.1.75% budget).
Total Revenue	575,881,604	578,697,110	2,815,506	0.5%	
Net Revenue in Excess of Expenses	16,765,215	24,434,337	7,669,125		

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

	FY19 Budget YTD March	FY19 Actuals YTD March	YTD Actuals vs. Budget		Explanations
			\$	%	
Wastewater					
Interception & Pumping (I&P)	\$29,789	\$18,127	(\$11,662)	-39.1%	<u>Underspending</u> Chelsea Creek Headworks Upgrades - Construction and REI: \$10.2M (due to timing of odor control equipment delivery, delay in commissioning channel 1 and redesign of lower roofs) Wastewater Meter System Planning/Study/Design: \$481k (police details and temporary meter work were less than anticipated) Remote Headworks & Deer Island Shaft Study: \$458k (schedule shift) Alewife Brook Pump Station Rehab - Construction: \$454k (due to timing of final work) Nut Island Odor Control & HVAC Design/CA/REI: \$439k (delay in completion of design documents) Wastewater Central Monitoring Design and Programming Services, and Equipment/Hardware: \$316k (timing of work and purchases) <u>Offset Overspending</u> Interceptor Renewal 1, Reading Extension Sewer - Construction: \$374k, Prison Point Pipeline Rehabilitation - Design/CA/RI: \$262k and DeLauri Pump Station Screens & Security Upgrades: \$198k (work scheduled for FY18 performed in FY19) Alewife Brook Pump Station Final Design/CA/REI: \$140k (greater than anticipated resident engineering services)
Treatment	\$8,686	\$7,258	(\$1,429)	-16.4%	<u>Underspending</u> HVAC Equipment Replacement - Construction: \$1.6M (contract being re-scoped) WTF VFD Replacement - Construction: \$788k (due to motor commissioning testing problem) Clinton Roofing Rehabilitation: \$478k (schedule shift) Radio Repeater System Upgrades - Phase 1: \$250k (award delayed and was less than budgeted) Chemical Tanks and Digester Pipe Rehabilitation: \$167k (schedule change) <u>Offset Overspending</u> Gravity Thickener Rehab: \$2.3M (contractor progress) Phosphorus Removal - Construction: \$170k (work scheduled for FY18 performed in FY19)

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

	FY19 Budget YTD March	FY19 Actuals YTD March	YTD Actuals vs. Budget		Explanations
			\$	%	
Residuals	\$1,778	\$439	(\$1,339)	-75.3%	<u>Underspending</u> Electrical Improvements \$717k and Mechanical Improvements \$600k (scope of work incorporated into Electrical, Mechanical, & Drum Replacements contract and schedule shift) Pellet Piping Relocation: \$138K (schedule shift) <u>Offset Overspending</u> Sludge Tank & Silo Coating: \$115k (due to work scheduled for FY18 completed in FY19)
CSO	\$2,295	\$997	(\$1,299)	-56.6%	<u>Underspending</u> Somerville Marginal In-System Storage: \$1.4M (shift in Somerville design and construction schedule) <u>Offset Overspending</u> CSO Performance Assessment: \$166k (timing of executed task orders)
Other Wastewater	\$14,426	\$30,039	\$15,613	108.2%	<u>Overspending</u> I/I Local Financial Assistance: \$15.6M (greater than budgeted requests for grants and loans)
Total Wastewater	\$56,975	\$56,860	(\$115)	-0.2%	
Waterworks					
Drinking Water Quality Improvements	\$1,231	\$666	(\$565)	-45.9%	<u>Underspending</u> Technical Assistance: \$426k (timing of task order work)
Transmission	\$9,276	\$7,915	(\$1,361)	-14.7%	<u>Underspending</u> Maintenance Garage/Wash Bay/Storage Building: \$1.4M (schedule shift) Commonwealth Avenue Pump Station Improvements - Design/CA/RI: \$362k (CA & RI services delayed as a result of change in construction notice to proceed) WASM 3 - MEPA/Design/CA/RI: \$291k (test pits work delayed) Chestnut Hill Emergency Pump Station Improvements - Design/CA/RI: \$289k (delay in award) <u>Offset Overspending</u> Watershed Land Acquisition: \$600k (timing of land purchases) Rosemary Brook Siphon Building Repair: \$386k (timing of final payment) Wachusett Aqueduct Pump Station - Construction: \$368k (due to project progress)

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

	FY19 Budget YTD March	FY19 Actuals YTD March	YTD Actuals vs. Budget		Explanations
			\$	%	
Distribution & Pumping	\$25,444	\$27,215	\$1,772	7.0%	<u>Overspending</u> NHS - Revere & Malden Pipeline Section 56 Pipe Demolition - Construction: \$1.7M, NIH Section 89/29 Redundancy Phase 1B and 1C: \$552k, and Section 89/29 Replacement - Design: \$154k, SEH Redundancy Pipeline Section 111 - Construction Phase 1 & 2: \$2.2M, and Sections 50 & 57 Water & 21/20/19 Sewer Rehab - Design/CA/RI: \$241k, (all due to project progress) Cathodic Protection of Shafts E&L: \$183K (timing of work) <u>Offset Underspending</u> SEH Redundancy Pipeline Section 111 - Construction Phase 3: \$1.5M (due to delay in notice to proceed) New Connecting Mains CP3 (Sect 23,24,47) - Final Design/CA/RI: \$511k (pending City of Newton MOA for pipe replacement and delayed utility relocation) Peabody Pipeline Design/ESDC/REI: \$478k (contract terminated) Section 14 Water Pipe Relocation (Malden): \$180k (work scheduled for FY19 performed in FY18)
Other Waterworks	\$13,366	\$20,171	\$6,806	50.9%	<u>Overspending</u> Local Water Pipeline Financial Assistance Program: \$10.5M (greater than budgeted requests for loans), and Carroll Water Treatment Plant SCADA Upgrades - Design/Programming RE services: \$147K (consultant progress) <u>Offset Underspending</u> Bellevue II & Turkey Hill Water Tanks Repainting: \$2.2M (award less than budgeted) Deer Island Water Tank Repainting : \$943k, Cosgrove Intake Roof Replacement: \$400k and Generator Docking Station: \$228k (schedule shifts)
Total Waterworks	\$49,317	\$55,968	\$6,650	13.5%	
Business & Operations Support					
Total Business & Operations Support	\$4,941	\$1,749	(\$3,192)	-64.6%	<u>Underspending</u> MIS Projects: \$1.5M (due to timing of work) As-Needed Technical Assistance: \$1.2M (due to timing of task order work) FY19-23 Major Lab Instrumentation: \$166k (timing of equipment purchases)
Total MWRA	\$111,233	\$114,576	\$3,343	3.0%	

**Attachment 4
FY19 Budget vs. FY19 Projection**

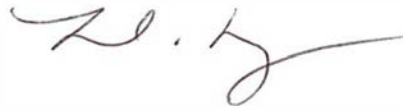
TOTAL MWRA	FY19 Budget	FY19 Projection	Change FY19 Budget vs FY19 Projection	
			\$	%
EXPENSES				
WAGES AND SALARIES	\$ 107,032,021	\$ 102,619,538	\$ (4,412,483)	-4.1%
OVERTIME	4,447,554	5,037,646	590,092	13.3%
FRINGE BENEFITS	21,173,571	19,982,295	(1,191,276)	-5.6%
WORKERS' COMPENSATION	2,422,609	2,422,609	-	0.0%
CHEMICALS	10,830,452	11,051,809	221,357	2.0%
ENERGY AND UTILITIES	22,868,633	23,825,873	957,240	4.2%
MAINTENANCE	32,258,727	32,119,639	(139,088)	-0.4%
TRAINING AND MEETINGS	455,770	454,135	(1,635)	-0.4%
PROFESSIONAL SERVICES	7,675,976	6,967,286	(708,690)	-9.2%
OTHER MATERIALS	7,381,098	7,077,726	(303,372)	-4.1%
OTHER SERVICES	23,065,410	23,953,492	888,082	3.9%
TOTAL DIRECT EXPENSES	\$ 239,611,821	\$ 235,512,050	\$ (4,099,771)	-1.7%
INSURANCE	\$ 2,099,064	\$ 2,067,643	(31,421)	-1.5%
WATERSHED/PILOT	26,406,427	25,164,427	(1,242,000)	-4.7%
HEEC PAYMENT	1,386,832	1,203,255	(183,577)	-13.2%
MITIGATION	1,614,262	1,614,262	-	0.0%
ADDITIONS TO RESERVES	1,881,797	1,881,797	-	0.0%
RETIREMENT FUND	7,000,000	7,000,000	-	0.0%
ADDITIONAL PENSION DEPOSIT	-	-	-	-
POSTEMPLOYMENT BENEFITS	5,574,152	5,574,152	-	0.0%
TOTAL INDIRECT EXPENSES	\$ 45,962,534	\$ 44,505,536	\$ (1,456,998)	-3.3%
STATE REVOLVING FUND	\$ 89,380,358	\$ 84,227,800	(5,152,558)	-5.8%
SENIOR DEBT	272,633,979	272,633,979	-	0.0%
SUBORDINATE DEBT	92,032,294	92,032,294	-	0.0%
LOCAL WATER PIPELINE CP	4,750,393	3,077,647	(1,672,746)	-35.2%
CURRENT REVENUE/CAPITAL	14,200,000	14,200,000	-	0.0%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	7,100,000	7,100,000	-	0.0%
VARIABLE RATE SAVINGS	-	(6,373,170)	(6,373,170)	-
DEFEASANCE ACCOUNT	-	-	-	-
DEBT SERVICE ASSISTANCE	(944,726)	(944,726)	-	0.0%
TOTAL DEBT SERVICE	\$ 482,369,358	\$ 469,170,884	\$ (13,198,474)	-2.8%
TOTAL EXPENSES	\$ 767,943,713	\$ 749,188,470	\$ (18,755,243)	-2.5%
REVENUE & INCOME				
RATE REVENUE	\$ 739,042,200	\$ 739,042,200	-	0.00%
OTHER USER CHARGES	9,328,768	9,328,768	-	0.0%
OTHER REVENUE	6,013,635	6,444,796	431,161	7.2%
RATE STABILIZATION	-	-	-	-
INVESTMENT INCOME	13,559,110	16,119,110	2,560,000	18.9%
TOTAL REVENUE & INCOME	\$ 767,943,713	\$ 770,934,874	\$ 2,991,161	0.4%

VARIANCE:

\$ 21,746,405 \$ 21,746,405

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 20, 2019
SUBJECT: Retirement System Update



COMMITTEE Administration, Finance & Audit

INFORMATION
 VOTE

Thomas J. Durkin
Director, Finance

At the February 20, 2019 meeting, the Board of Directors requested an update on the MWRA Employees' Retirement System. The update focuses on the system's asset allocation strategy, particular investments, fees and performance.

RECOMMENDATION:

For information only.

DISCUSSION:

The MWRA Employees' Retirement System (Retirement System) is a public contributory defined benefit plan created by the Enabling Act that created the MWRA. Employees of MWRA are members except the remaining 43 who as former MDC employees, retained their membership in the State Employees Retirement System. As of the latest valuation report of January 1, 2018, there are 582 retired participants and beneficiaries receiving retirement benefits, 42 inactive participants with a vested right to benefits, 64 participants entitled to a refund of their employee contributions, and 1,000 active participants.

The Retirement System is overseen by a Board of Trustees. The makeup of the Board was defined in the Enabling Act in 1984 and subsequently amended in 2006 to increase the number of Trustees from three to five. The Trustees are MWRA Board of Directors Secretary Andrew Pappastergion, MWRA Board of Directors' appointment Thomas Durkin, elected member James Flemming, elected member Kevin McKenna, and the fifth member chosen by the other four members, Frank Zecha.

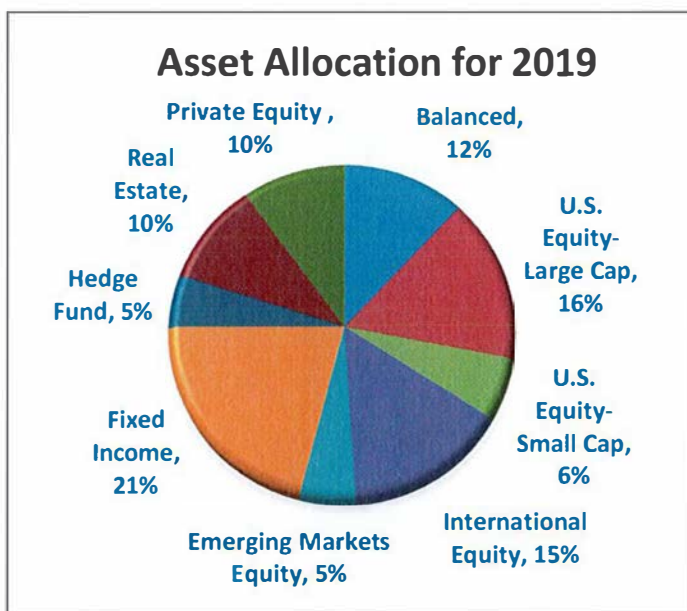
The investment pool has grown over the years. Starting in 1986 with \$0.303 million, and by December 31, 2018 the fund had grown to \$509.2 million (preliminary). Contributions to the fund come from three sources, member contributions accounting for 22%, MWRA's annual employer/plan sponsor contribution accounting for 12%, and investment income accounting for 66%.

Every two years the Retirement System will engage an actuary firm to conduct an actuarial valuation report of the system. The most recent valuation report was performed as of January 1, 2018. The net pension liability was calculated to be \$21.0 million. This is the difference between the actuarial value of the liability for benefits to be paid and the market value of the assets of the system. On an actuarial basis, the Retirement System is 95% funded.

Each year the regulatory authority for Massachusetts public retirement systems, the Public Employees Retirement Administration Commission (PERAC) publishes a report on the 104 retirement systems it oversees. The most recent report of December 31, 2017 reports that the MWRA Retirement System was the most funded system followed by Leominster at 90.1% and MassPort at 89.6%.

Actuaries use many assumptions to calculate the liability and asset values contained in their report. Perhaps most significant is the assumed rate of return earned on the investment portfolio. For many years the MWRA Retirement System assumed 8%. This assumption was supported by the actual investment returns but in 2015 due to lower returns and the view that returns would likely be lower in the future, the assumption was lowered to 7.75%. In 2017 the assumption was further reduced to 7.50%. Because this rate is used to discount the future value of the assets, the lower the rate, the lower the asset value and the higher the net pension liability. The Retirement System will adopt an actuarial assumed rate of return that is not so high as to be unattainable resulting in underachievement and actuarial losses but not so low as to understate expected long-term estimates of investment returns resulting in unnecessarily high annual contributions by MWRA.

An investment strategy is developed to best achieve the investment goal of the Retirement System. With the assistance of its consultant New England Pension Consultant (NEPC), the Trustees create an asset allocation strategy. The strategy employs several different asset classes beyond the traditional “stocks and bonds.” The strategy employs real estate, private equity and other asset classes to best achieve the assumed rate of return with the appropriate level of risk. The chart below illustrates the current asset allocation strategy.



Within each asset class, individual investment management firms are hired. The process for selection of investment managers is regulated by PERAC. For each managed investment, a request for proposals is issued and responses are formerly reviewed by NEPC. After considering NEPC’s review, the Retirement System Trustees will award a management contract.

Management fees depend on the type of investment management required. For an index fund, a manager’s primary task is to replicate the index. In this case a fee of 0.05% is typical. In the case of Private

Equity investments, managers are charged with developing investment opportunities. This might include investigating specific firms within an industry and finding possible investments. Each investment is researched and could require active consultation including serving on the firm's board of directors. These management fees can be 2.0% plus 20% on investment returns. PERAC reports in its most recent report that the average fee for Massachusetts retirement systems was 0.54%. The MWRA Retirement System paid 0.64%.

The MWRA as plan sponsor and the Retirement System Trustees as fiduciaries of the invested assets are working together to meet the challenge of achieving full funding in 2026 and beyond at the lowest cost. The current economic climate poses challenges.


The last quarter of calendar year 2018 was particularly challenging for investors. Positive investment earnings for the first three quarters of the year were reversed resulting in the first year-end negative return for the MWRA Employees' Retirement System investment portfolio in ten years. The Standard and Poor's 500 index and the Dow Jones Industrial Average index fell for the first time in three years. Non-US Equities, particularly Emerging Markets equity also fell.

The Federal Reserve Open Market Committee (FOMC) held the target range for the federal funds rate at 2.25%-2.50% at its January 30, 2019 meeting. The FOMC dropped the phrase "further gradual increases" from its post meeting statement and added "it will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate." This is a change from the policy of gradual increases of the past several years.

The volatility and uncertainty facing institutional investors across all asset classes requires careful consideration of the MWRA Employees' Retirement System investments.

Staff will provide a presentation describing the current investment strategy.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 17, 2019
SUBJECT: Sole Source Purchase Order for One Year of Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System
Infor Inc.

COMMITTEE: Administration, Finance, & Audit

 INFORMATION

 X VOTE


Thomas Durkin

Director, Finance

Russell J. Murray, MIS Director
Giri Narayanan, App & Sys Development Manager
Douglas J. Rice, Director, Procurement
Preparer/Title


Michele S. Gillen

Director, Administration

RECOMMENDATION:

To approve the award of a sole source purchase order contract for the annual maintenance and support of the integrated financial, procurement and human resources/payroll management system to Infor Inc. and to authorize the Executive Director to execute said purchase order contract in an amount not to exceed \$452,792.57 for a period of one year, from June 1, 2019 through May 31, 2020.

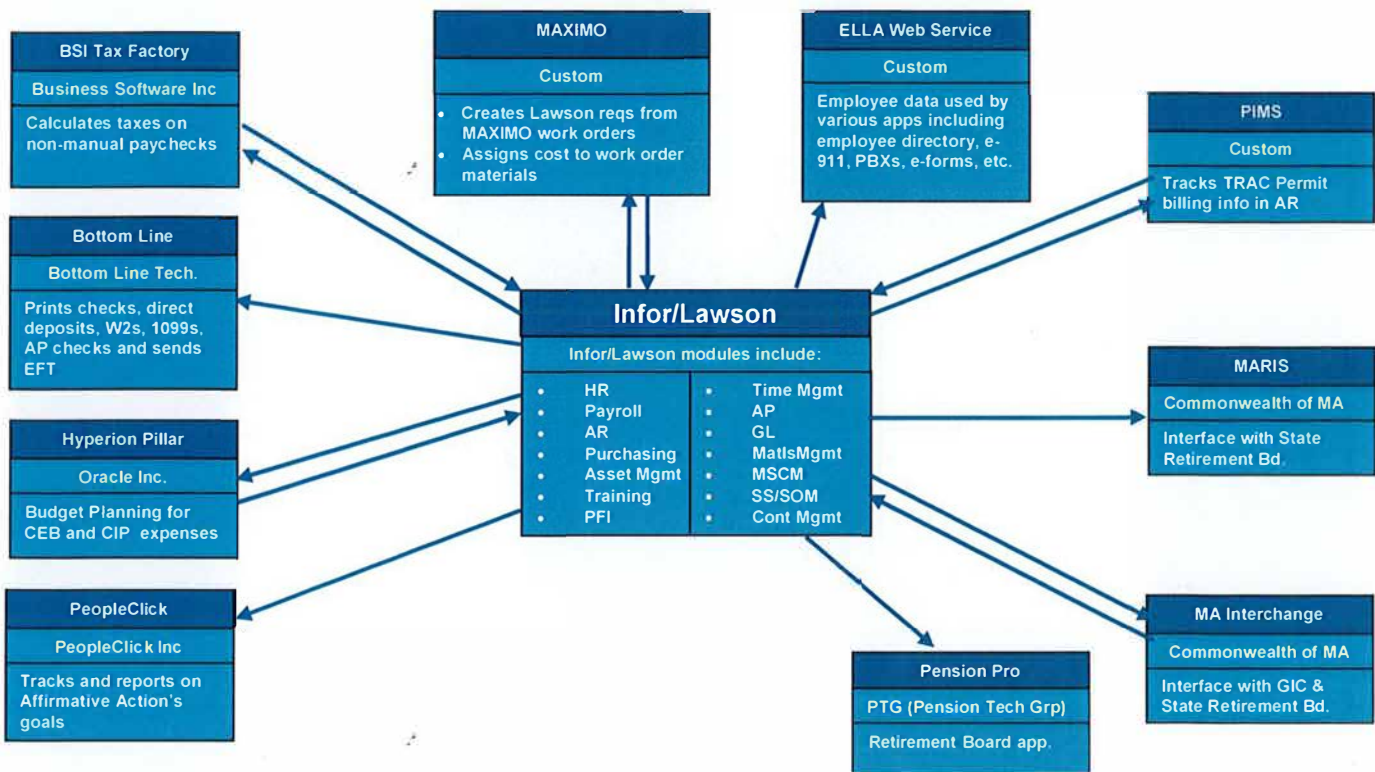
DISCUSSION:

On March 24, 1999, the Board of Directors approved Contract 6362 with Lawson Associates (now Infor Inc.) to implement an integrated financial and procurement management system. In May 2000, the implementation of a Human Resources/Payroll module was included as part of the Lawson System. Today, this set of application modules represents the core administrative and financial management functionality for the MWRA (Human Resources, Payroll, Finance, Procurement, and Materials Management).

In October 2012, as part of an effort to reduce the use of customized applications, use more off-the-shelf products and respond to the MIS 5-Year Strategic Plan recommendations (including enhancing e-Procurement functionality and reducing paper), the Board of Directors approved the implementation of the Strategic Sourcing, Supplier Order Management and Contracts Management modules.

The illustration on the next page shows the significant Infor/Lawson modules in use and interfaces with other applications.

Infor/Lawson Dependent Systems



This maintenance and support agreement is an essential tool to protect the MWRA's Lawson software investment. The Lawson support agreement ensures that the MWRA receives vendor support including:

- Access to the Infor Support Portal which provides product patches, version releases, software upgrades, documentation, "How To" assistance, remote diagnosis, priority case queuing, e-mail notifications, web discussion groups, and electronic self-service case logging, tracking and management.
- Access to support engineers twelve hours a day, five days a week and twenty-four hour, seven day a week support for critical issues.

Staff have thoroughly reviewed the sole source nature of this procurement. Infor Inc. is the manufacturer of this software and while there are third party vendors who provide support for various applications, they do not have the ability to change standard code or provide upgrades or fixes to the application. This ability is important to the MWRA to ensure that it is able to maximize its use of Lawson.

Non-renewal of the maintenance and support agreement would place the MWRA at risk since no further support will be provided on the existing applications. Therefore, staff recommend that the MWRA renew the annual maintenance agreement to provide ongoing support for the Lawson System.

BUDGET/FISCAL IMPACT:

This year's request of \$452,792.57 represents a 6% increase over last year's not-to-exceed amount of \$427,162.80. There are sufficient funds available in the FY19 CEB and the Proposed FY20 for this renewal.

MBE/WBE PARTICIPATION:

Infor Inc. is not a certified Minority or Woman Owned business.

STAFF SUMMARY



TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 17, 2019
SUBJECT: Arbitrage Rebate Compliance Services
PFM Asset Management LLC
Contract F251

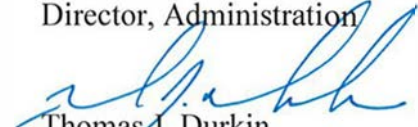


COMMITTEE: Administration, Finance & Audit

VOTE
 INFORMATION


Michele S. Gillen
Director, Administration

Matthew R. Horan, Treasurer 
Sean R. Cordy, Sr. Financial Analyst 
Preparer/Title


Thomas J. Durkin
Director, Finance

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract F251 to PFM Asset Management LLC for Arbitrage Rebate Compliance Services, and to authorize the Executive Director, on behalf of the Authority, to execute contract F251 in an amount not to exceed \$124,500 and for a term of three years from the Notice to Proceed.

DISCUSSION:

MWRA issues tax-exempt revenue bonds to finance the cost of its capital improvement program and to refund outstanding bonds for economic benefit. As an issuer of tax-exempt debt, the Authority is required to comply with arbitrage rebate regulations promulgated by the Internal Revenue Service (IRS). The arbitrage rebate regulations provide limits on the amount of income MWRA can receive on the investment of tax-exempt bond related funds. This restriction is known as the arbitrage yield and is calculated when the bonds are issued. Any interest earnings in excess of the limit must be rebated to the IRS every five years starting from the issuance date of the bonds. In addition to the IRS requirement, MWRA's General Bond Resolution requires that rebate calculations be completed on an annual basis, and any estimated amount due be set aside to make the next five-year payment to the IRS.

Calculations are required for all outstanding tax-exempt debt which currently total 13 senior and seven subordinate debt issuances, two commercial paper notes and the revolving loan. These calculations, particularly for refunding bonds, are very complex and require a strong understanding of the IRS regulations.

Over the last several years, MWRA has taken advantage of the low interest rates and refunded outstanding bonds for interest rates savings. While these lower interest rates have benefited MWRA with a lower cost of debt, they have also resulted in reductions to the arbitrage yields on the bonds. As investment rates increase MWRA's ability to retain those higher earnings will be limited by the lower arbitrage yields. In addition to the base services, this procurement includes a new task to assist staff in developing a planning tool to assist in selecting investments to limit arbitrage rebate liability.

Procurement Process:

The procurement process to select the consultant to provide Arbitrage Rebate Compliance Services utilized a one step Request for Qualification Statements and Proposals (RFQ/P), which was issued on February 27, 2019. In addition to MWRA's standard procurement advertising requirements, copies of the advertisement were sent directly to eight firms. Four firms, Arbitrage Rebate Compliance Services (ACS) BLX Group LLC (BLX), Hawkins Delafield and Wood (Hawkins) and PFM Asset Management LLC (PFM), submitted proposals on March 22, 2019.

Proposals were evaluated in accordance with weighted criteria and the recommendation for award is to the proposer that had the highest overall ranking. Proposals were evaluated by using the following criteria: Cost (35 points), Qualifications and Key Personnel (30 points), Experience and Past Performance (20 points), and Capacity/Organization, Management and Technical Approach (15 points). The proposals for Arbitrage Rebate Compliance Services were ranked as follows:

Final Ranking	Proposer	Proposed Cost	Total Rank	Points
1	PFM	\$ 124,500	5	413
2	BLX	\$ 142,550	13	352
3	Hawkins	\$ 138,950	16	338
3	ACS*	\$ 90,925	16	336

Notes: To equalize the cost among the proposers, the Proposed Cost does not include project familiarization task in the amount of \$10,000. Total Rank represents the sum of the individual Selection Committee members' rankings. The firm receiving the highest number of points is assigned a "1"; the firm receiving the next highest number of points is assigned a "2", and so on.

*Note: Corrections (mathematical) made.

After review of the all the proposals the Selection Committee ranked PFM's proposal first. PFM proposed a strong team with a significant amount of experience in performing arbitrage rebate calculations. PFM made a business decision to cap their fees on the allowance work at \$5,000, which is \$20,000 less than the \$25,000 allowed under the RFQ/P. Although ACS, BLX and Hawkins proposed a strong team and also demonstrated significant experience related to arbitrage rebate calculations, the Selection Committee believe that PFM's proposal provided the best value for MWRA. BLX and Hawkins both provided costs which were higher than that proposed by PFM and ACS. BLX's proposal included the highest per calculation cost. The Selection Committee had some concerns about the experience level of the staff members Hawkins proposed to complete the calculations. While ACS proposed a lower overall cost, the Selection Committee had some concern about the firm's past performance. PFM has provided these services to MWRA

for the last six years and has done an excellent job. PFM has sufficient capacity and demonstrated the necessary skills to complete work required under this contract. The Selection Committee voted unanimously to recommend award to PFM. PFM is the marketing name for a group of affiliated companies. This staff summary recommends award to PFM Asset Management LLC, one of the affiliated companies. MWRA currently receives financial advisor services under contract F247 from PFM Financial Advisors LLC which is also a PFM affiliated company.

BUDGET/FISCAL IMPACT:

There are sufficient funds in the Proposed FY19 CEB to pay for the work under this contract and will be included in future CEBs.

MBE/WBE PARTICIPATION:

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



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

Telephone: (617) 242-6000
Fax: (617) 788-4899
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WASTEWATER POLICY & OVERSIGHT COMMITTEE MEETING

to be held on

Wednesday, April 17, 2019

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

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

Time: Immediately following AF&A Committee

AGENDA

A. Information

1. Compliance with New NPDES Permit Phosphorus Requirements at the Clinton Wastewater Treatment Plant
2. Operations and Maintenance of the Fore River Pelletizing Plant

B. Contract Awards

1. Preferred Service Agreement for the Combustion Turbine Generators at the Deer Island Treatment Plant: PW Power Systems, Inc.

C. Contract Amendments/Change Orders

1. Technical Assistance Consulting Services - Deer Island Treatment Plant: AECOM Technical Services, Inc., Contract 7503, Amendment 1
2. CSO Post-Construction Monitoring and Performance Assessment: AECOM Technical Services, Inc., Contract 7572, Amendment 1

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Wastewater Policy and Oversight Committee

March 20, 2019

A meeting of the Wastewater Policy and Oversight Committee was held on March 20, 2019 at the Authority headquarters in Charlestown. Committee Vice Chair Walsh presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cotter, Foti, Pappastergion, Peña and Vitale. Committee Chair Flanagan and Mr. Cook were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Carl Leone, Stephen Estes Smargiassi, David Duest, Richard Adams, Brian Driscoll and Kristin MacDougall. The meeting was called to order at 10:20 a.m.

Information

Infiltration/Inflow Local Financial Assistance Program Annual Update

Staff made a presentation. (Ms. Wolowicz left and returned to the meeting.) There were questions and answers. Mr. Walsh requested that future updates include information about rainfall over a five year period.

Contract Awards

*** Centrifuge Services at the Deer Island Treatment Plant: Alfa Laval, Inc., Contract S580**

Staff made a verbal presentation. There was discussion and questions and answers.

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

*** Combined Heat and Power Study, Deer Island Treatment Plant: Black & Veatch Corp., Contract 6963A**

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

* Committee recommendation approved by the Board on March 20, 2019

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

* Biosolids Processing Facility Capital Improvements: IPC Lydon, LLC, Contract 7153

Staff made a presentation. (Ms. Wolowicz left and returned to the meeting.)


There was discussion and questions and answers.

The Committee recommended approval (ref. WW B.3).

The meeting adjourned at 11:09 a.m.

* Committee recommendation approved by the Board on March 20, 2019

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 17, 2019
SUBJECT: Compliance with New NPDES Permit Phosphorus Requirements at the Clinton Wastewater Treatment Plant

COMMITTEE: Wastewater Policy & Oversight

X INFORMATION
 VOTE

David F. Duest, Director, Deer Island WWTP
Larry Thomas, Superintendent, Clinton WWTP
Betsy Reilley, Director, Environmental Quality
Preparer/Title


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

RECOMMENDATION:

For information only.

BACKGROUND:

The Clinton Wastewater Treatment Plant provides advanced wastewater treatment for the Town of Clinton and the Lancaster Sewer District. The plant provides secondary treatment using an activated sludge process in combination with advanced nutrient removal and dechlorination. The plant has a peak flow rate of 12 mgd. Residual materials are pressed, transported and disposed of in an MWRA-owned landfill located within the Town of Clinton. The plant operates under a National Pollution Discharge Elimination System (NPDES) permit and discharges into the South Branch of the Nashua River. A new permit was issued in December 2016 which became effective on March 1, 2017. The new permit included more stringent permit limits for phosphorus that went into effect on April 1, 2019. This staff summary provides an update on MWRA's successful compliance with this requirement.

DISCUSSION:

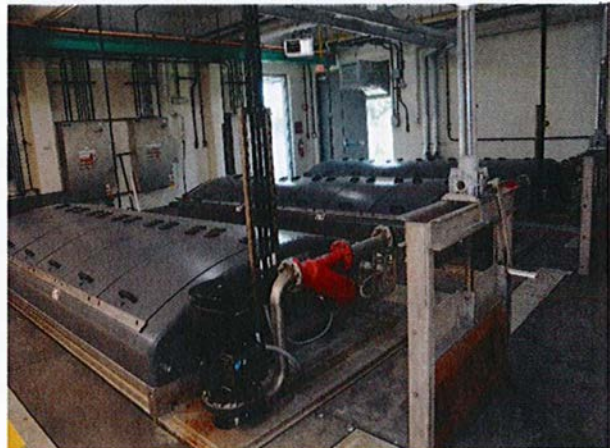
The new NPDES permit included a number of new provisions such as specific requirements for Co-Permittees naming Clinton and Lancaster partners with MWRA in the NPDES permit with specific roles and responsibilities, more detailed requirements for Operations and Maintenance of MWRA's sewer interceptor in Clinton, weekly and monthly effluent loading limits for biochemical oxygen demand and total suspended solids, the prohibition of aluminum in the treatment processes, testing method changes, revised copper discharge limits, and more stringent total phosphorus effluent concentration and loading limits.

The new phosphorus permit limitations became effective April 1, 2019 and require summer monthly discharge concentration and loading limits for phosphorus of 0.15 mg/L and 3.8 pounds per day, respectively, and new winter monthly discharge concentration and loading limits of 1.00 mg/L and 25.1 pounds per day, respectively.

MWRA was aware of the proposed phosphorus limits as far back as 2010 and planned, designed, and had started construction of a new phosphorus reduction facility in order to comply with the new proposed limits. On October 16, 2013, the Board approved the award of Contract 7377 to Fay, Spofford & Thorndike, LLC, (now Stantec Consulting Services, Inc.), to design, and provide construction administration and resident engineering services for the new facilities. On February 10, 2016, the Board approved the award of Construction Contract 7411 to Daniel O'Connell & Sons, Inc. and staff issued a Notice to Proceed on March 22, 2016. The facility was deemed substantially complete in May 2018, well ahead of the April 1, 2019 deadline. Photos of the new phosphorus reduction facility are depicted below.

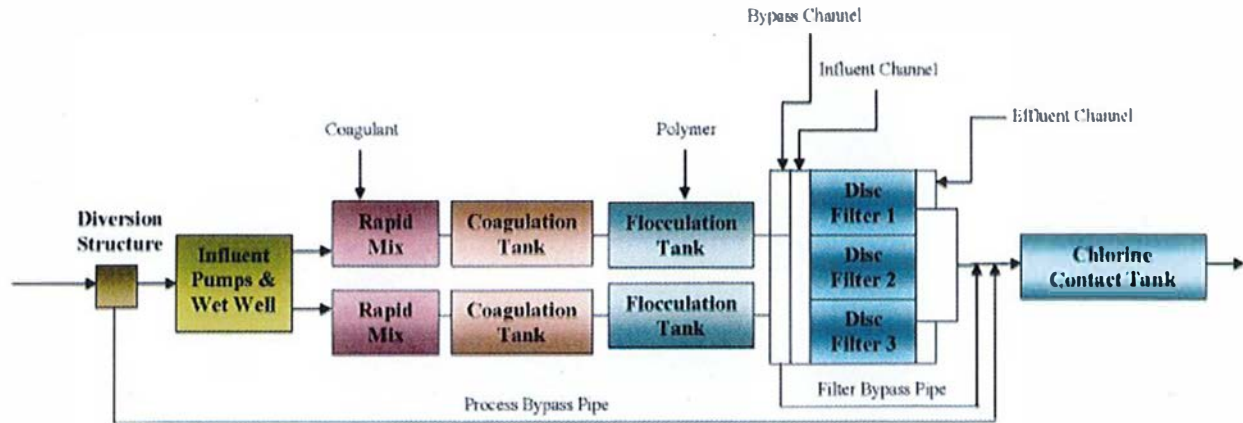


Phosphorus Reduction Facility



Disc Filters

The new facility uses chemical precipitation, by addition of ferric chloride and polymer, followed by disc filters to remove phosphorus from the effluent stream prior to disinfection, dechlorination and final discharge to the Nashua River. The phosphorus treatment process is depicted below.



Since substantial completion was declared in May 2018 staff performed process optimization testing of all segments of the new process, varying chemical dosing rates to achieve optimal removal at the lowest cost. A number of minor system modifications and improvements were made to improve the reliability of the system. The system has operated well despite one minor failure in November during the high flow periods that resulted from significant rains. Plant flows during this period were 88% higher than the average design flow and while the effluent concentration for the week was within permitted levels, the loadings were out of compliance. Besides the higher flow, the permit exceedance was partially attributed to a disc filter failure. Since that time staff have modified inspection procedures to minimize the risk of this type of failure in the future.

The facility was shut down for the winter for several months due to the ability to meet winter permit limits without additional treatment and restarted in February in order to meet the April 1 compliance date. Operation stabilized quickly and has continued to provide effluent quality meeting the new phosphorus limits. The average total phosphorus concentration achieved in March was 0.07 mg/L in comparison to the 0.15 mg/L permit limit. Since April 1, process testing performed daily by plant operations staff have shown results consistently below 0.05 mg/L, well within the compliance limits.

BUDGET/FISCAL IMPACT:

Operations and Maintenance costs for the phosphorus facilities are estimated to be \$130,000 annually. The costs of operations are included in the FY19 and FY20 Current Expense Budget. The cost for construction of the facility was \$7.5 million.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: April 17, 2019
SUBJECT: Operations and Maintenance of the Fore River Pelletizing Plant



COMMITTEE: Wastewater Policy & Oversight

X INFORMATION
 VOTE

David F. Duest, Director, Deer Island
Carl Pawlowski, Manager, Residuals Operations
Preparer/Title


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

The Pelletizing Plant Operations and Maintenance contract expires on December 31, 2020. Staff are reviewing the current contract provisions and evaluating changes in contract terms in order to ensure competitive bids are received and to assure the successful firm will continue to provide a high level of service operating and maintaining this important asset. This update provides some history of contract operations of the facility, considerations for future contract provisions, and emerging contaminant regulatory challenges.

RECOMMENDATION:

For information only.

BACKGROUND:

Residuals collected by primary and secondary treatment at Deer Island are processed in the egg-shaped anaerobic digesters. The remaining residuals (liquid sludge), after digestion, are temporarily stored on Deer Island and then pumped seven miles through a pipeline to MWRA's Pelletizing Plant located in the Fore River Staging Area in Quincy (pictured at the right). At this facility, the digested sludge is dewatered in centrifuges and then dried in thermal dryers (as shown in Figures 2 and 3 below). The resulting pellets are beneficially marketed and used as a Class A Exceptional Quality fertilizer



Figure 1: MWRA's Pelletizing Plant

and are currently distributed throughout the northeast and eastern United States with 27% distributed within Massachusetts in 2018.

Existing Solids Process Flow Diagram

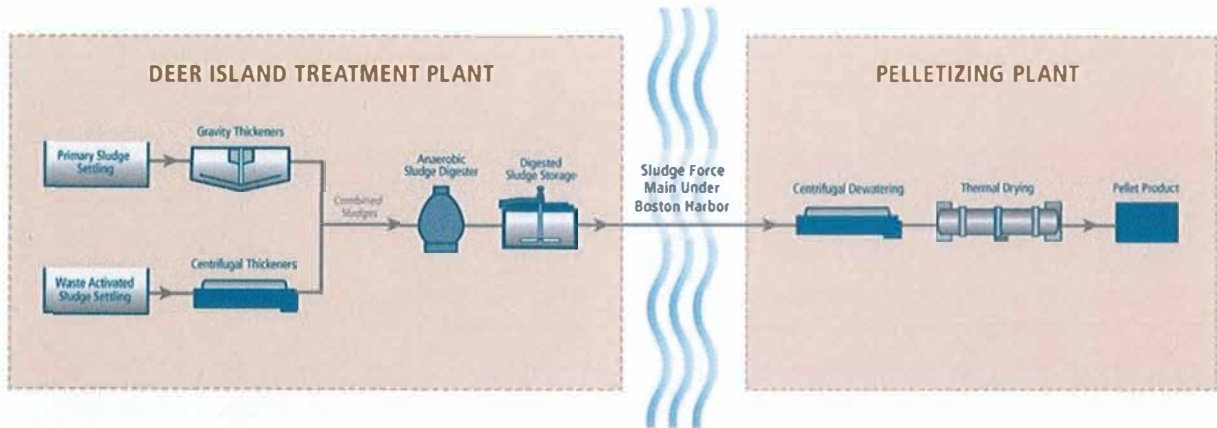
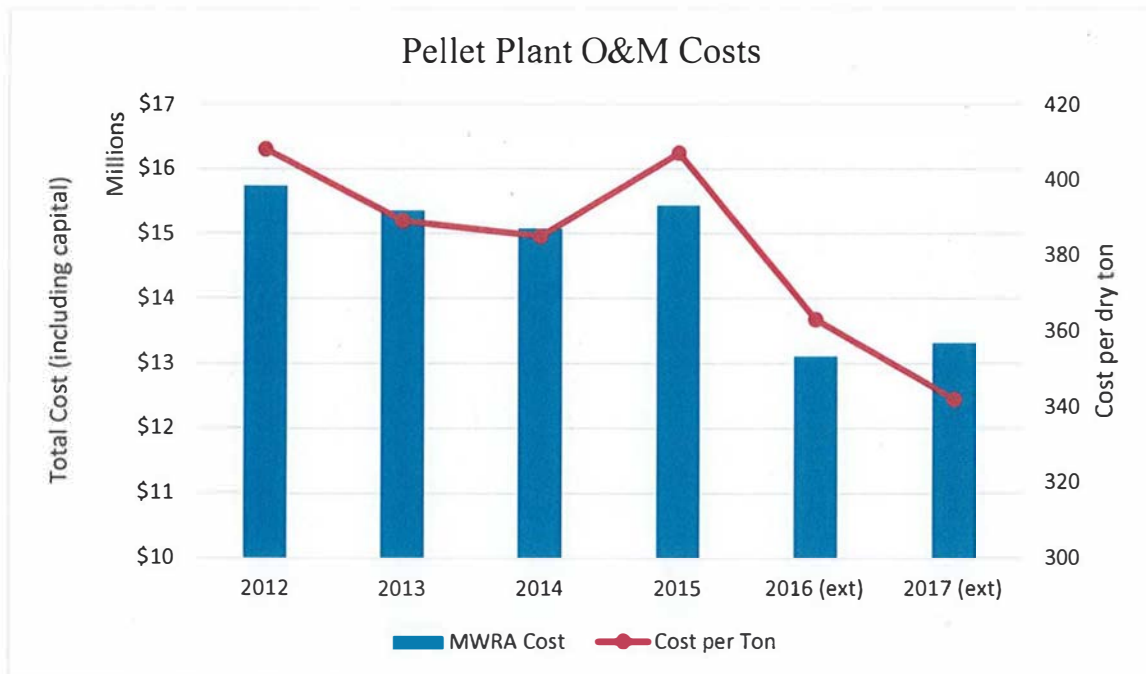


Figure 2: Dewatering Centrifuges



Figure 3: Thermal Dryers

In December 1991, MWRA began operation of the Pelletizing Plant following a competitive procurement process that resulted in MWRA awarding the first ten-year operations and maintenance contract to the New England Fertilizer Company (“NEFCo”). The successor contract, also competitively bid, was awarded to NEFCo in 2001 and ran through the end of 2015. In March 2015, the Board of Directors approved Amendment 1 to the contract for a five-year extension with NEFCo at negotiated reduced rates. These lower rates have afforded the MWRA roughly 14% in savings. See the graph below of showing the total costs of the contract over the last 6 years.



On average, NEFCo converts approximately 105 dry tons per day of digested sludge to fertilizer pellets. Production rates have varied annually from 99 dry tons per day to 110 dry tons per day over the life of the contract. NEFCo is also responsible for the pelletizing plant’s maintenance and is required to return a fully operating plant back to MWRA at the close of the contract. MWRA is responsible for capital improvements up to the commitments stated in Amendment 1, which includes mechanical and electrical improvements, painting and coating work. Replacement of three out of six drum dryers are being completed separately from the NEFCo contract under MWRA’s capital budget.

Originally, MWRA decided to contract out this operation because it involved the use of a newer treatment technology, and involved developing and maintaining national markets for a Class A fertilizer product, tasks unlike anything that existing staff had ever been involved with. In addition, there were only limited U.S. installations of this technology (the Quincy facility was among the first five built in this country). While today there are many more “dryer facilities” – approximately 25 – throughout the country, there still remain only a few firms that specialize in the operation and maintenance of these facilities.

DISCUSSION:

The existing Operations and Maintenance contract with NEFCo runs through the end of calendar year 2020. Staff are preparing contract documents now with the intention of recommending award of a new contract to the Board of Directors in the first quarter of calendar year 2020 in order to provide a smooth transition, should there be a change in contract operating firm. This will allow a new firm time to develop marketing strategies and arrange contracts well in advance of the expiration of the existing contract.

In advance of the contract's expiration, MWRA staff began preliminary planning by performing a Condition Assessment. That study, completed in 2010, showed that the Pelletizing Plant is generally in excellent condition with no significant capital equipment change outs required over the next 20 years assuming continued maintenance.

The next step in the planning process was to conduct a Residuals Technology Options Assessment to determine if any changes were needed in the current residuals processing area. That study concluded MWRA's current processes for residuals treatment are still cutting edge and utilize technologies that other treatment plants have been moving toward to increase process efficiency. Only one longer-term improvement was identified for further study: replacing the existing 50 dry-ton per day capacity dryers with larger, more efficient dryers with double the capacity. Following up on that recommendation, a separate independent study was conducted on two installations of existing larger-scale dryers. While the larger dryers were determined to be more efficient than those currently in use at the MWRA pelletizing plant, the payback was considered too long (approximately 30 years) to justify the expense given the existing dryer trains are in generally good working order.

With this precursory work completed, MWRA has been evaluating the provisions to include in the next contract. Staff have contracted with Brown and Caldwell under an existing technical assistance contract to evaluate other recent contract awards around the country for comparison to MWRA's contract for potential improvements to existing language, terms and compensation. The study results are expected by the end of FY19.

Based on staff review of the past two contracts, staff believe very few changes may be necessary. Important aspects of the current contract that work well include:

- A contract duration of at least 15 years. The duration encourages firms to invest in the facility to help improve their profits over the term of the contract. The 15-year term provides enough time for a firm to invest in capital, improve energy and operating efficiency, and ultimately results in lower operating costs. A shorter contract duration might not encourage contract operators to make efficiency changes.
- The current contract has a baseline quantity of 92.5 dry tons per day. MWRA pays the contract operator a guaranteed fixed fee for this quantity plus an additional fee for excess quantities. MWRA is evaluating historical sludge generation quantities from Deer Island to determine if any changes to baseline quantity are recommended.
- The current contract requires the contract operator to achieve a minimum of 90% solids capture to maximize pellet production, and minimize solids recycle and reprocessing at Deer Island.
- To provide a fair and equitable cost adjustment over the long term of the contract, specific line items are adjusted based on actual market indices to minimize risk to MWRA and the contractors when they bid on this contract.
- The contract requires the firm to report quarterly on all maintenance activity. This allows MWRA staff to track equipment history and stay in touch with the condition of the plant.

- The current contract requires the contractor to provide a minimum wage and to provide minimum license requirements for specific staff positions.
- The contractor is responsible for defining capital projects, creating the bid specifications by hiring a third party engineering firm, and then providing resident engineering and inspection services and engineering services during construction to evaluate submittals and claims/change orders. In the current contract, the contractor is paid a flat fee for design and engineering services during construction based on 15% of the contract value at award. A separate 10% resident engineering fee is charged throughout the life of the construction contract based on the approved capital program. If change orders are granted, the firm does not receive any additional fee. Staff are evaluating structuring the capital program similar to the current contract with minor modifications. Staff are also evaluating MWRA taking over the entire capital program.
- As with any operating contract, the contractor is responsible for maintaining all permits and compliance with those permits.
- The current contract required that the firm must be financially stable given the duration of the contract and must have an excellent safety record to be considered for contract award.

The next contract should include terms similar to the current contract in that the winning bidder will accept the facility "as is." It will be up to the MWRA to provide sufficient information for the competing bidders to examine equipment within the facility to determine short-term and long-term preventive maintenance and equipment replacement needs.

MWRA staff have and will continue to encourage experienced contract operators to bid on the next contract. Staff have already received several inquiries. Staff expect to advertise this contract by the fall and hope to return to the Board of Directors with a recommendation to award in early 2020.

REGULATORY CHALLENGES:

While most regulations associated with MWRA's NPDES permit relative to biosolids have been stable, there have been several regulatory changes and challenges that could impact the future of biosolids production and the award of any future contract.

Massachusetts Department of Agriculture (DAR) regulations, finalized in January 2018, regulate plant nutrient application requirements on lands of the Commonwealth. This regulation restricts the land application of phosphorus-containing material depending on localized soil tests by the end user. While the regulation is directed toward the user of such products, it could impact future sales of MWRA pellets, which contain phosphorus, within the state. To date it has not. MWRA continues to try to engage DAR on alternative approaches for implementation of this regulation.

Per- and polyfluoroalkyl substances (PFAS) are a category of emerging contaminants of concern in the environment. These are a class of chemicals typically associated with manufacturing of non-stick coatings, water proofing and stain proofing treatments. They have also been associated with certain fire-fighting foams. The EPA has issued health advisories of 70 parts per trillion for two of

the perfluorinated compounds in drinking water. In addition, MassDEP is contemplating a drinking water maximum contaminant level for PFAS as well as new soil limits within the Massachusetts Contingency Plan rules.


Recently, regulatory and public concern relative to PFAS has extended to the land application of biosolids. In Massachusetts, MassDEP has focused its attention to data gathering – increased monitoring and reporting for any new or renewed permits issued around biosolids. MassDEP plans to use this data to evaluate the issue before any limits may be set on these contaminants of concern. In Maine, the Maine Department of Environmental Protection has taken a more aggressive stand on the issue and on March 22, 2019, issued a moratorium on the land application of biosolids within the state. Biosolids generators are ordered to develop monitoring plans, and conduct testing. The results of those tests must be submitted to MaineDEP for consideration relative to screening concentrations they have published for three specific PFAS compounds. Land application within Maine cannot resume until approved by the Department. Currently 25% of MWRA biosolids are land applied within the state of Maine.

MWRA continues to follow these regulatory actions and their impacts on the pelletizing operations and specifically how the actions may impact the new Operations and Maintenance contract.

BUDGET/FISCAL IMPACT:

The FY19 current expense budget includes \$13,292,288 for Contract S345. MWRA will budget accordingly for future fiscal years to fund the operation of the Pelletizing Plant.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 17, 2019
SUBJECT: Preferred Service Agreement for the Combustion Turbine Generators
at the Deer Island Treatment Plant
PW Power Systems, Inc.

COMMITTEE: Wastewater Policy & Oversight

 INFORMATION

 X VOTE

Phillip Szottfried, P.E., Sr. Program Manager, I&C
Richard J. Adams, Manager, Engineering Services
David Duest, Director, Deer Island WWTP
Preparer/Title


Michele S. Gillen

Director, Administration


David Coppes, P.E.

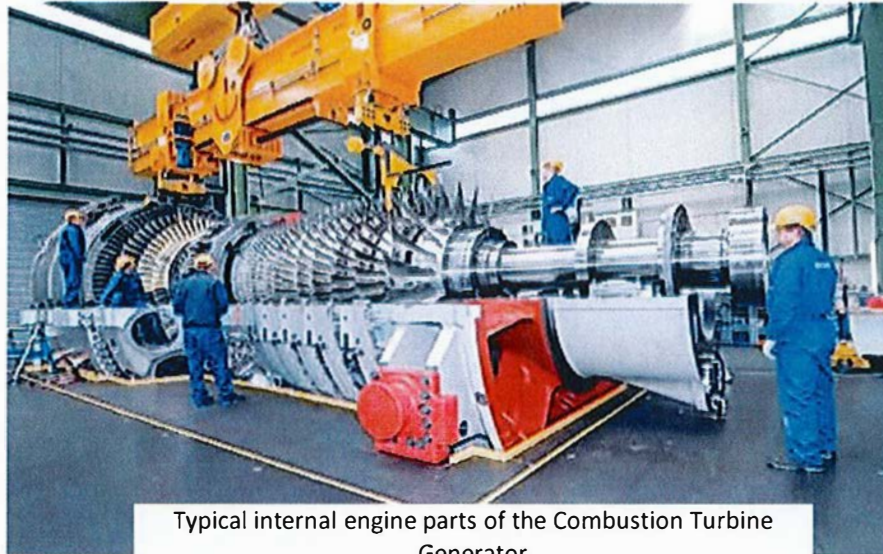
Chief Operating Officer

RECOMMENDATION:

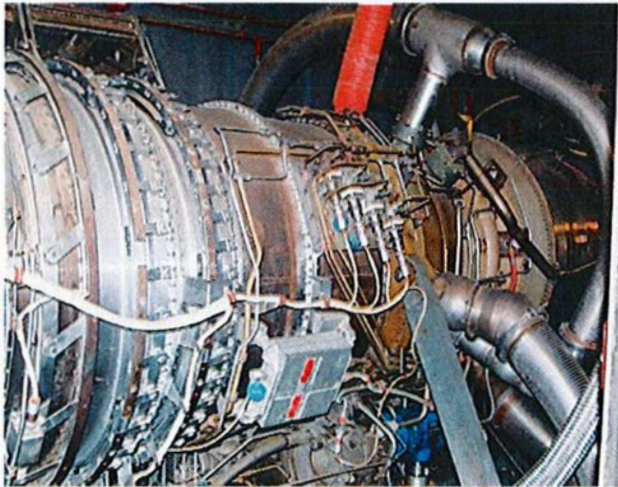
To approve the award of a Preferred Service Agreement to provide technical support, emergency repair services and spare parts for the combustion turbine generators at the Deer Island Treatment Plant to the original equipment manufacturer, PW Power Systems, Inc. (formerly Pratt & Whitney), and to authorize the Executive Director, on behalf of the Authority, to execute said contract for an amount not to exceed \$490,760.00 for a period of three years.

BACKGROUND:

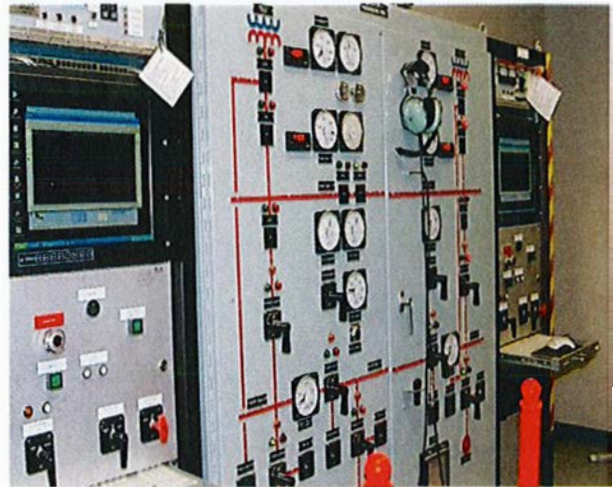
As part of MWRA's National Pollutant Discharge Elimination System (NPDES) permit, the MWRA is required to provide a 100% back-up power source for the Deer Island Treatment Plant. In addition to two high-pressure steam boilers, which meet thermal demands of the plant and drive two steam turbine generators, the Thermal/Power Plant houses two combustion turbine generators (CTGs). These Pratt & Whitney CTGs are essentially aircraft derivative design jet engines, brought on-line in 1995, capable of generating 26 megawatts of backup power each. The CTGs serve a critical role in keeping the plant operational during storm events, power system interruptions and during peak-power demand periods in the summer, and in meeting demand response program requirements.



Typical internal engine parts of the Combustion Turbine Generator



Close-up view of one section of the core of the turbine



One set of control panels

DISCUSSION:

Periodic maintenance is necessary to ensure that the CTGs operate reliably and efficiently. MWRA employs a two-component maintenance strategy for its CTGs. One component is a competitively bid maintenance contract, which, for the most part, addresses many of the routine, mechanical-type tasks (e.g., replacing air filters, lubrication, repairing fuel and/or water leaks, etc.).

The second component is a "Preferred Service Agreement" with the original equipment manufacturer, PW Power Systems, Inc., which addresses the more complex and technical maintenance and repair needs of the CTGs. There are critical proprietary control programs that need to function properly and certain components require alignment that must be maintained or re-established to original factory tolerances. There are other important and

complex components that can deteriorate through normal operation and must be replaced with original manufacturer's parts. Ensuring that the CTGs will start and operate without interruption is of paramount importance in maintaining NPDES compliance.

In May 2005, MWRA entered its first Preferred Service Agreement with PW Power Systems. This form of the manufacturer's agreement identifies the MWRA as a priority customer when diagnostic troubleshooting or on-site field service is required. PW Power Systems' technicians travel the globe servicing its client base. MWRA's priority status ensures that critical response times will be met which has proven to be instrumental during a number of severe wet-weather events during the past several years.

The agreement provides MWRA with a comprehensive program of customer support that includes calibration of critical sensors and identification of all immediate-need maintenance requirements (many of which would then be performed by MWRA's current CTG maintenance contractor).

Of the recommended \$490,760 for this agreement, MWRA's committed cost for three years is \$215,760. The agreement will cost \$70,500 in the first year and increase approximately 2% in years 2 and 3. Equipment audits will be performed in years 1 and 3 for each unit. PW Power Systems will also perform a software audit and provide 80 hours of technical support each year.

Also included in the total not-to-exceed amount of this agreement are two allowance categories. One for \$125,000 is for unanticipated on-site field technician support, including up to three weeks of support for the upcoming Eversource cable tie-in. The other, a \$150,000 allowance, has been provided for spare parts. Approximately \$75,000 of this amount has been allotted for liquid fuel modulating valves. The in-service valves are functioning, but need to be sent out for recertification. The spare valves will allow this to take place without affecting the availability of the CTGs. These allowances are not-to-exceed amounts and will only be utilized as needed.

Staff recommend that MWRA continue to contract directly with PW Power Systems under a Preferred Service Agreement. This will ensure that MWRA will continue to receive the fastest response in critical situations; the best technical advice and troubleshooting/repair services available; and a reliable supply of the highly specialized and complex replacement components when needed. The Director of Procurement has approved the sole source nature of this procurement.


BUDGET/FISCAL IMPACT:

Sufficient funds for the first portion of this purchase order are included in the FY19 CEB. Appropriate funding will be included in subsequent Proposed CEB requests for the remaining term of this agreement.

MBE/WBE PARTICIPATION:

PW Power Systems, Inc. is not a certified Minority- or Women-owned business.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 17, 2019
SUBJECT: Technical Assistance Consulting Services – Deer Island Treatment Plant
AECOM Technical Services, Inc.
Contract 7503, Amendment 1


COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE

David F. Duest, Director, Deer Island WWTP
Richard J. Adams, Manager, Engineering Services
Preparer/Title


Michele S. Gillen

Director of Administration


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 7503, Technical Assistance Consulting Services – Deer Island Treatment Plant, with AECOM Technical Services, Inc., extending the contract term by 639 calendar days, from July 1, 2019 to March 31, 2021, with no increase in contract amount.

BACKGROUND:

Over the past 19 years, MWRA has awarded a series of as-needed technical assistance contracts to supplement in-house staff on high priority or unanticipated projects for the Deer Island and Clinton Treatment Plants, and to provide expertise on assignments requiring specialized engineering disciplines. Under Contract 7503 and previous technical assistance contracts at the plant, MWRA has issued task orders for a wide variety of final design and inspection services, including:

- Internal and external chemical tank inspections;
- Mechanical system upgrades;
- Electrical system upgrades;
- Roof replacement for multiple buildings;
- Corrosion evaluation on various process equipment; and
- Miscellaneous upgrades at the Clinton Wastewater Treatment Plant

One project for which the technical assistance contracts have been used to provide design preparation and engineering services during construction is the rehabilitation of the six gravity thickener units, which is currently being constructed under Contract 7428 (Gravity Thickener

Rehabilitation – Deer Island Treatment Plant). Contract 7428, was approved by the Board of Directors on April 18, 2018 to Walsh Construction Company II, LLC in the amount of \$19,633,050 with a May 11, 2018 Notice to Proceed. The major components of Contract 7428 include the replacement of the mechanical, control and electrical systems for all six gravity thickener units, the replacement of five Fiberglass Reinforced Plastic (FRP) dome covers (the FRP dome cover for Gravity Thickener No. 2 was replaced under a previous contract) and miscellaneous gravity thickener site improvements consisting of new exterior walkways and access driveways. Contract 7428 also includes the replacement of glass-lined piping and valves associated with Digested Sludge and Gas Storage Tank No. 1.

DISCUSSION:

Due to the nature of the rehabilitation design, which included in-kind replacement of the gravity thickener equipment and FRP dome covers, and given that there are six nearly identical gravity thickeners allowing for use of standard details and scope, staff made the decision to utilize one of the technical assistance contracts for this project. The design work was started under a prior technical assistance contract, also with AECOM, which expired October 17, 2015.

As the design progressed, it was determined that there was in fact a high level of complexity to the work and specialized expertise required for the work associated with concrete repair, coating system replacement, and the FRP dome cover. The scope of work needed to be expanded to incorporate remote gravity thickener control capabilities, replacement of corroded electrical receptacles and lighting fixtures, three new exterior walkways and two additional access driveways. These scope changes were identified by staff as the design progressed and further inspections of the condition of the gravity thickener were undertaken. The scope was further modified to incorporate changes to standards recently implemented by the FRP Institute and the glass lining industry. The replacement of the glass-lined piping and valves associated with Digested Sludge and Gas Storage Tank No. 1 was also subsequently added to the scope of work.

The design was finalized by AECOM under the current technical assistance contract 7503. To date, task orders totaling \$557,000 have been executed for the rehabilitation of the gravity thickeners (\$457,000 for design services and \$100,000 for engineering services during construction). Staff anticipate that one additional task order will be necessary to provide the specialized engineering services during construction that cannot be done by in-house staff through the completion of Contract 7428.

Wherever possible, engineering services during construction (primarily consisting of reviewing submittals and responding to Contractor-generated requests for information) have been and will continue to be handled by in-house staff. Consultant services will primarily be used for addressing specialty submittals and requests for information related to concrete repair, coating system replacement and the replacement of the FRP dome covers. To date, staff have reviewed 60% of the submittals and responded to 40% of the requests for information that have been generated under Contract 7428. Effective utilization of technical assistance contracts and in-house staff have resulted in design and engineering services during construction costs being approximately 4.8% of construction costs for Contract 7428, which compares favorably to the industry average of 20%. In-house staff will continue to be utilized as much as possible to perform engineering services during construction for the remainder of Contract 7428.

This Amendment

The time extension included in this amendment will enable specialized engineering services during construction to be provided through the completion of Contract 7428, which is scheduled for February 4, 2021. These services will be provided through a task order, which is pending execution. No task order work will be authorized under Contract 7503 for any project other than the Gravity Thickener Rehabilitation contract.

Contract 7503 spending to date is \$657,112. Of this, \$176,404 has been allocated for the gravity thickener project. Examples of projects that the remaining \$480,708 have been utilized for are as follows: Engineering Services During Construction for the Winthrop Terminal Facility Variable Frequency and Motor Replacements, design for the Deer Island Maintenance Coating Contract, Engineering Services During Construction for the Thermal/Power Plant Fuel Oil Upgrade project, and a conceptual analysis to relocate the Eversource marine cable from the Reserve Channel.

CONTRACT SUMMARY:

	<u>AMOUNT</u>	<u>TIME</u>	<u>DATED</u>
Original Contract Amount:	\$1,600,000	1,095 Calendar Days	7/11/2016
Amendment 1:	\$0.00	639 Calendar Days	Pending
Adjusted Contract Amount:	\$1,600,000	1,734 Calendar Days	


BUDGET/FISCAL IMPACT:

Amendment 1 is for a time extension only and will have no budget/fiscal impact.

MBE/WBE PARTICIPATION:

There were 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: April 17, 2019
SUBJECT: CSO Post-Construction Monitoring and Performance Assessment
AECOM Technical Services, Inc.
Contract 7572, Amendment 1

COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE

John P. Colbert, P.E. Chief Engineer
Betsy Reilley, Director, Environmental Quality
David A. Kubiak, P.E., Sr. Program Manager, E&C
Jeremy R. Hall, Project Manager, E&C
Preparer/Title



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

This staff summary provides an update on discussions with the Massachusetts Department of Environmental Protection ("DEP") and the U.S. Environmental Protection Agency, Region 1 ("EPA") regarding MWRA's CSO post-construction monitoring and performance assessment and the CSO variances to Massachusetts Water Quality Standards for the Lower Charles River and the Alewife Brook/Upper Mystic River. As an outcome of these discussions, this staff summary proposes changes to the scope, cost and time of Contract 7572.

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to Contract 7572, CSO Post-Construction Monitoring and Performance Assessment with AECOM Technical Services, Inc., in the amount of \$931,490 increasing the contract amount from \$2,921,215 to an amount not to exceed \$3,852,705 and increasing the contract term by 365 days from April 7, 2021 to April 7, 2022.

DISCUSSION:

Since commencement of Contract 7572 in November 2017, AECOM has provided professional engineering services to support MWRA's compliance with the last milestone in the Federal District Court schedule. The milestone requires MWRA to submit, by December 2020, the results of a three-year performance assessment of its Long-Term Combined Sewer Overflow (CSO) Control Plan (the "LTCP") to demonstrate that it has achieved compliance with the levels of control ("as to frequency of CSO activation and as to volume of discharge") specified in the LTCP. Contract 7572 services include extensive metering at CSO regulators; rainfall analyses; hydraulic modeling; quantification and evaluation of remaining CSO discharges relative to the court ordered levels of control; and updated characterization and analyses of remaining CSO impacts.

Staff have held extensive discussions with DEP and EPA to establish an acceptable approach to the CSO performance assessment, which will allow the regulatory agencies to make determinations about whether MWRA has met the terms of the Court Order. MWRA's performance assessment plan included assessment of remaining CSO water quality impacts against the LTCP predicted impacts through statistical analysis of water quality data collected from the Charles River and Alewife Brook/Upper Mystic River. In these discussions, DEP and EPA have maintained that MWRA must conduct receiving water quality modeling (in lieu of water quality statistical analyses currently included in the CSO performance assessment) to characterize water quality conditions and remaining CSO impacts in the Lower Charles River and the Alewife Brook/Upper Mystic River, and must continue to conduct overflow metering.

The discussions with DEP and EPA have resulted in assurances that the CSO variances for the Lower Charles River and the Alewife Brook/Upper Mystic River will be reissued by DEP. During the variance period, long-term water quality standards determinations will continue to be evaluated. Also in these discussions, MWRA has requested that the CSO variances be reissued on September 1, 2019, for a 5-year period to August 31, 2024. Discussions to date with DEP and EPA indicate that variance conditions would include most of the maintenance, water quality monitoring and reporting requirements of past variances, but would also add requirements for receiving water model evaluations, additional system optimization, and metering and public notification of CSO discharges. The formal variance extension process (including MWRA's request, public comment and hearing, and EPA review) will commence by the end of this month (April 2019).

Amendment 1 will increase Contract 7572's scope of services for out-of-scope work to 1) add receiving water quality modeling for the Lower Charles River and the Alewife Brook/Upper Mystic River; 2) extend temporary metering at certain combined sewer overflow (CSO) outfalls and overflow regulators through June 2020; and 3) provide for transfer of overflow meters associated with MWRA's CSO outfalls to the Authority at the end of the temporary metering program for its long-term use.

Receiving Water Quality Modeling of the Lower Charles River and the Alewife Brook/Upper Mystic River

\$558,363

Under Contract 7572, AECOM was tasked with performing statistical analyses of hundreds of receiving water quality data points collected by MWRA. The statistical analyses were intended to determine whether remaining CSO discharges to the Lower Charles River and the Alewife Brook/Upper Mystic River are meeting the LTCP predicted levels of compliance with Class B ("fishable/swimmable") bacterial water quality standards. During development of the LTCP for these waters in 2002-2004, receiving water quality modeling performed by MWRA's CSO planning consultant¹ predicted that the LTCP projects for these waters would reduce CSOs to the point of not contributing to exceedances of Class B bacterial standards at least 98% of the time. The statistical analyses would supplement the demonstration of compliance with the LTCP CSO discharge frequency and volume levels for these variance waters.

In accordance with the contract scope of services, AECOM prepared a statistical analysis plan, developed a pilot analysis for the Alewife Brook, and assisted MWRA in presenting the plan and pilot study findings to DEP and EPA. The analyses were designed to show updated water quality

¹ M&E, which is now AECOM.

conditions and verify the percentage of time CSOs contribute to bacterial standards exceedance, which was the key basis for DEP's B(cso) determinations for other CSO affected waters in 1998.

It is DEP's and EPA's position that MWRA needs to show other, site-specific CSO impact assessments in order to meet the Clean Water Act requirements for review of the CSO performance assessment and to support water quality standard determinations and respective long-term CSO control decisions for the Charles and the Alewife/Upper Mystic. DEP and EPA have maintained that MWRA must utilize receiving water quality modeling consistent with what had been done when initially developing the 1997 LTCP and when the LTCP projects for the Charles River and the Alewife Brook were reassessed and modified in the early 2000s, in lieu of statistical analyses. According to DEP and EPA, in addition to characterizing water quality conditions and the duration of bacterial standards exceedance, MWRA must assess the stand-alone impacts of CSO discharges (in the absence of other pollution sources), show site-specific impacts within the water body, determine the relative impacts of CSOs and assess the water quality benefits of reducing and eliminating CSOs. Staff believe such assessments will be needed, in any event, to support variance extensions past 2020 and/or an eventual re-designation of water quality standards.

The discussions with DEP and EPA have led MWRA to seek a five-year extension to the CSO variances, from expiration of the current variances on August 31, 2019 to August 31, 2024. This timeframe would avoid violations of the Water Quality Standards by virtue of CSO discharges from MWRA (and Cambridge and Somerville) while MWRA develops, calibrates and verifies updated receiving water quality models for the Lower Charles River and the Alewife Brook/Upper Mystic River, and produces the model assessment required by DEP and EPA. As part of this strategy, MWRA would forego the statistical analyses for receiving water quality models. While discussions regarding the five-year variance are ongoing, at an April 9, 2019 meeting between MWRA and the agencies it was understood that the groups are nearing consensus.

The proposed water quality modeling will concentrate on simulating *Enterococcus* and *E. coli* in the variance waters due to loadings from CSOs, stormwater discharges and upstream boundaries. The models will be based on previously developed water quality models of these areas and will be updated with recent data and calibrated with receiving water quality data currently being collected by MWRA.

Staff recommend that water quality model development, calibration and simulations be performed under Contract 7572 in lieu of the currently contracted statistical analyses. AECOM can do this work most cost-effectively because it did the past modeling for MWRA and can update the original models it has in its possession. The unspent funds in the statistical analyses task will offset a portion of the modeling cost. Time and services beyond the current contract duration and scope are required to build the updated models and perform initial modeling required by DEP and EPA. MWRA is continuing to evaluate the availability of data and make determinations about what additional monitoring is needed to support model development and implementation. This process will dictate the timelines for submitting various model and assessment reports to DEP and EPA. In addition, AECOM will provide as-needed assistance to MWRA following submission of the CSO Performance Assessment Report and the Receiving Water Model Report. As a result of this on-going need and work, staff recommend that Contract 7572 be extended by 1 year from April 7, 2021 to April 7, 2022.

Extend Temporary Overflow Metering at 36 CSO Regulators

\$317,109

Following CSO regulator inspections by AECOM, and as AECOM developed a detailed temporary metering plan, staff agreed to modify the contract's baseline metering plan to increase the number of meter locations from the 33 most active CSO regulators² to all 57 potentially active regulators. The additional meters confirm MWRA's understanding of CSO activity at these regulators, improve the hydraulic model calibration, and help gain further assurance of DEP's and other stakeholders' confidence in the model's CSO discharge predictions. To keep within the contract budget, the modified metering plan also changed the metering period from its original planned end date of June 2020 to May 2019. The temporary meters were installed and operational at all 57 locations as of April 15, 2018. Staff are confident that accurate calibration of the hydraulic model – the key intended purpose of the overflow data – will be accomplished with the meter data collected during the frequent and substantial rainfall events of 2018, after previous years of drought conditions.

On March 1, 2019, AECOM removed 21 of the 57 temporary meters from service where AECOM and MWRA determined that adequate data had been collected for model calibration and additional meter data would not be needed for other purposes. At the other 36 locations, staff recommend that the meters remain in place through June 2020. These meters will support the receiving water modeling and other requirements of the expected CSO variance extensions for the Lower Charles River and the Alewife Brook/Upper Mystic River and the identification and evaluation of site-specific regulator adjustments that can improve system performance and help meet the LTCP levels of control. Maintaining these meters also responds to DEP's position that MWRA's post-construction monitoring of CSO overflows should continue through the performance assessment.

The cost associated with extending temporary metering at the 36 locations includes meter equipment rental, field maintenance, data collection (from the temporary meters and from permanent system meters), quantification of CSO discharges from the data, and validation of the measured discharges by correlating to other system operating conditions and rainfall. The cost also includes associated data management, coordination with AECOM's metering subcontractor (ADS) and with MWRA and the CSO communities where community overflow meters also exist, and reporting. AECOM will also continue to maintain through June 2020 three rain gauges it installed to supplement the 17 permanent rain gauges that provide rainfall input to the hydraulic model.

Purchase Flow Meters Associated with MWRA Outfalls

\$56,018

Staff recommend purchasing the temporary meters located at 15 CSO regulators associated with MWRA outfalls at the end of the extended temporary metering program in June 2020. These meters will support MWRA's compliance with near real-time CSO reporting and public notification requirements expected to be included in proposed state legislation, in the conditions of extensions to the Lower Charles River and Alewife/Brook/Upper Mystic River CSO variances, and, potentially, in future NPDES Permit renewals. CSO metering and public notification requirements are being required of CSO permittees regionally and nationally. They are included in the NPDES permits issued to the cities of Chelsea and Somerville for their CSO outfalls and are expected to be included in the Boston Water and Sewer Commission and City of Cambridge permit renewals. The temporary meters MWRA would purchase from ADS include 17 Triton Flow

² MWRA's hydraulic model had predicted no activation in the Typical Year at the other 24 regulators.

Meters, 21 flow sensors, 3 level sensors and 3 tide gate inclinometers. MWRA will be able to obtain this equipment at a significant cost savings because it is already installed and in use. The typical useful life of meters within a wastewater system is 10 to 15 years. Data management and reporting methodologies will be determined from the specific requirements of the variances/permits and state regulations, when promulgated.

	Contract Amount	Contract Time	Contract End Date
Original Contract	\$ 2,921,215	41 Months	4/7/2021
Proposed Amendment 1	931,490	12 Months	
Adjusted Contract	\$ 3,852,705	53 Months	4/7/2022

Amendment 1 increases the contract amount by 32%.

BUDGET/FISCAL IMPACT:

The FY19 CIP includes a budget of \$2,924,295 for Contract 7572. Including this amendment for \$931,490, the adjusted contract amount will be \$3,852,705 or \$928,410 over budget. This amount will be absorbed within the five-year CIP spending cap.

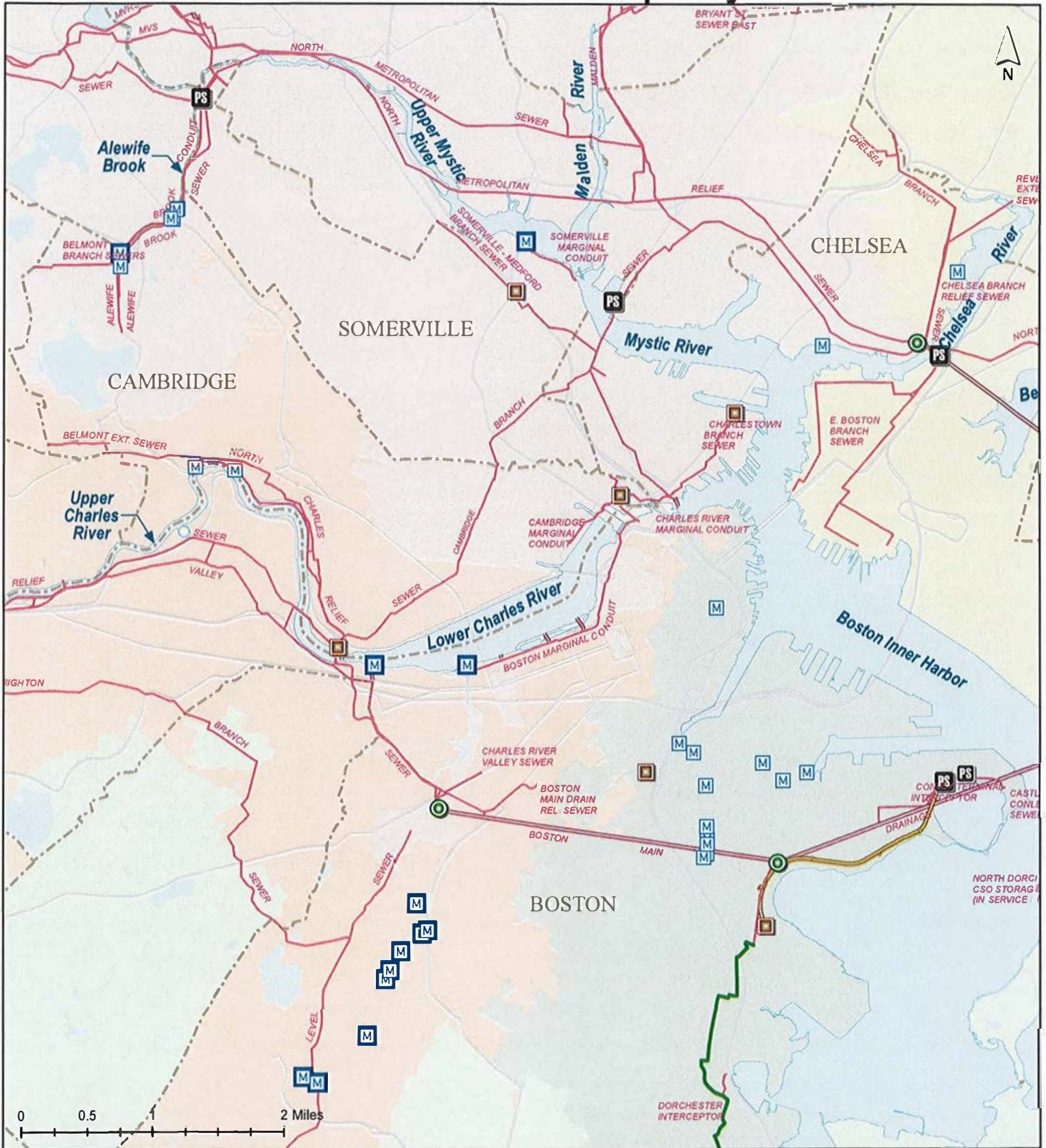
MBE/WBE PARTICIPATION:

The contractual MBE and WBE participation requirements of 0% and 4.0%, respectively, remain unchanged by this amendment.

ATTACHMENTS:

Attachment A – Map of variance waters, MWRA CSO outfalls and extended temporary meter locations

Attachment A - Map of Variance Waters, MWRA CSO Outfalls and Extended Temporary Meter Locations



Headworks Tributary Areas

- Chelsea Creek Headworks
- Columbus Park Headworks
- Nut Island Headworks
- Ward Street Headworks
- Winthrop Terminal Facility

- CSO Facilities
- Headworks
- Treatment Plants
- Pump Stations

- Interceptors
- Sewer Tunnels
- Town Boundaries
- Major Roads
- Open Water

- Temporary Meter to Purchase
- Temporary Meter to Remain

Note: Due to scale, all meters are not visible.



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

Telephone: (617) 242-6000
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BOARD OF DIRECTORS' MEETING

Chair: M. Beaton
Vice-Chair: J. Carroll
Secretary: A. Pappastergion
Board Members:
C. Cook
K. Cotter
P. Flanagan
J. Foti
B. Peña
H. Vitale
J. Walsh
J. Wolowicz

to be held on

Wednesday, April 17, 2019

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

Time: 1:00 p.m.

AGENDA

- I. APPROVAL OF MINUTES**
- II. REPORT OF THE CHAIR**
- III. REPORT OF THE EXECUTIVE DIRECTOR**
- IV. BOARD ACTIONS**

A. Approvals

1. PCR Amendments – April 2019 (ref. P&C B.1)

B. Contract Awards

1. Resident Engineering and Inspection Services for Towable Generator Docking Stations: Arcadis U.S., Inc., Contract 7024 (ref. W B.1)
2. Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System: Infor Inc. (ref. AF&A B.1)
3. Arbitrage Rebate Compliance Services: PFM Asset Management LLC, Contract F251 (ref. AF&A B.2)
4. Preferred Service Agreement for the Combustion Turbine Generators at the Deer Island Treatment Plant: PW Power Systems, Inc. (ref. WW B.1)

C. Contract Amendments/Change Orders

1. Technical Assistance Consulting Services - Deer Island Treatment Plant: AECOM Technical Services, Inc., Contract 7503, Amendment 1 (ref. WW C.1)
2. CSO Post-Construction Monitoring and Performance Assessment: AECOM Technical Services, Inc., Contract 7572, Amendment 1 (ref. WW C.2)

V. OTHER BUSINESS

VI. CORRESPONDENCE TO THE BOARD

VII. EXECUTIVE SESSION

A. Litigation:

1. BHD/BEC, JV 2015 v. MWRA, Suffolk Superior Court No. 1884CV03477; Contract 7157, Wachusett Aqueduct Pumping Station: Settlement Authority for Claims
2. CSO Assessment - U.S. v. M.D.C., et al., USDC No. 85-0489-RGS
3. Richard DaPrato v. MWRA, Suffolk Superior Court. No. 2015CV3687D; Supreme Judicial Court No. 12651: Status of Proceedings (verbal update)

VIII. ADJOURNMENT

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Board of Directors

March 20, 2019

A meeting of the Board of Directors of the Massachusetts Water Resources Authority was held on Wednesday, March 20, 2019 at the Authority headquarters in Charlestown. Chair Beaton presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cotter, Foti, Pappastergion, Peña, Vitale and Walsh. Messrs. Cook and Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Executive Director, Carolyn Francisco Murphy, General Counsel, David Coppes, Chief Operating Officer, Carolyn Fiore, Deputy Chief Operating Officer, Thomas Durkin, Director of Finance, Michele Gillen, Director of Administration, Bethany Card, Director of Environmental and Regulatory Affairs, Stephen Cullen, Director, Wastewater and Assistant Secretaries Ria Convery and Kristin MacDougall. The meeting was called to order at 1:15 p.m.

APPROVAL OF FEBRUARY 20, 2019 MINUTES

Upon a motion duly made and seconded, it was

Voted: to approve the minutes of the Board of Directors' meeting of February 20, 2019 as presented and filed with the records of the meeting.

REPORT OF THE CHAIR

Chair Beaton presented a budgetary and legislative update and highlighted the Municipal Vulnerability Preparedness Program. He commended MWRA for its ongoing work on vulnerability analysis.

REPORT OF THE EXECUTIVE DIRECTOR

Mr. Laskey updated the Board on the Town of Burlington's application to join the MWRA water system and EPA's concurrence with MWRA's proposed TRAC regulation changes. Mr. Laskey also informed the Board of the date for the scheduled SJC oral

argument in the DaPrato matter and of an upcoming agreement relating to battery storage at Brattle Court.

On behalf of BWSC and the City of Boston, Mr. Vitale thanked MWRA staff for their assistance during a large fire and a water main break that occurred in March 2019.

MWRA staff presented an overview of the federal court action against the City of Quincy relating to its small municipal separate storm sewer system and sanitary sewer overflow discharges. They also made a presentation on MWRA's Southern Sewer System. There were questions and answers.

APPROVALS

Memorandum of Agreement Between the Authority and the City of Newton:

Rehabilitation of Sections 23, 24 and 47 Water Mains, Contract 6392

Upon a motion duly made and seconded, it was

Voted: to authorize the Executive Director, on behalf of the Authority, to execute a Memorandum of Agreement with the City of Newton, substantially in the form as presented and filed with the records of the meeting, related to reimbursement to the Authority for construction costs associated with the replacement of a City of Newton 20-inch diameter water main.

PCR Amendments - March 2019

Upon a motion duly made and seconded, it was

Voted: to approve an amendment to the Position Control Register (PCR) as presented and filed with the records of the meeting.

Appointment of Assistant Contracts Manager, Administration Division

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Ms. Rebecca Tearte to the position of Assistant Contracts Manager, Administration Division (Unit 6, Grade 12) at an annual salary of \$103,157.30 commencing on a date to be determined by the Executive Director.

Appointment of Manager, Employment, Human Resources

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Ms. Susan Carter to the position of Manager, Employment, (Non-Union, Grade 14) in the Administration Division, at the recommended annual salary of \$117,300, commencing on a date to be determined by the Executive Director.

Appointment of Senior Program Manager, Engineering and Construction

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Ms. Ester Lwebuga to the position of Senior Program Manager (Unit 9/Grade 30) in the Engineering & Construction Department, at an annual salary of \$130,406.15, commencing on a date to be determined by the Executive Director.

Appointment of Program Manager - Data Management, Environmental Quality

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Romesh Stanislaus, Ph.D., to the position of Program Manager, Data Management (Unit 9, Grade 29) in the Environmental Quality Department, at an annual salary of \$112,433.12 commencing on a date to be determined by the Executive Director.

Appointment of Program Manager, Meter Data and Engineering, Planning Department

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Mr. Michael M. Greeley to the position of Program Manager, Meter Data and Engineering (Unit 9, Grade 29), in the Planning Department, at an annual salary of \$112,433.12, commencing on a date to be determined by the Executive Director.

Recommendations for Non-Union Pay Equity Adjustments

Upon a motion duly made and seconded, it was

Voted: to accept the recommendations of the pay equity consultant Hirsch Roberts Weinstein LLP and approve the salary adjustments summarized in

Attachment B, "List of Recommended Salary Adjustments" commencing on a date determined by the Executive Director.

CONTRACT AWARDS

Centrifuge Services at the Deer Island Treatment Plant: Alfa Laval, Inc., Contract S580

Upon a motion duly made and seconded, it was

Voted: to approve the award of Contract S580, Centrifuge Services, Deer Island Treatment Plant, to the lowest responsive bidder, Alfa Laval, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$649,750, for a contract term of 730 calendar days from the Notice to Proceed.

Combined Heat and Power Study, Deer Island Treatment Plant: Black & Veatch, Corporation, Contract 6963A

Upon a motion duly made and seconded, it was

Voted: to approve the recommendation of the Consultant Selection Committee to award Contract 6963A, Combined Heat and Power Study, Deer Island Treatment Plant, to Black & Veatch Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the amount of \$1,149,500 for a contract term of 15 months from the Notice to Proceed.

Biosolids Processing Facility Capital Improvements: IPC Lydon, LLC, Contract 7153

Upon a motion duly made and seconded, it was

Voted: to approve the award of Contract 7153, Capital Improvements, Biosolids Processing Facility, to the lowest responsible and eligible bidder, IPC Lydon, LLC. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$8,681,776, with a contract term of 500 calendar days from the Notice to Proceed.

Program Support Services for the Metropolitan Tunnel Redundancy Program: JCK Underground, Inc., Contract 7655

Upon a motion duly made and seconded, it was

Voted: to approve the recommendation of the Consultant Selection Committee to award Contract 7655, Program Support Services for the Metropolitan Tunnel Redundancy Program to JCK Underground, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said Contract in an amount not to exceed \$10,247,877 for a contract term of 60 months from the Notice to Proceed. In addition to the initial 60-month term, the Authority may elect to exercise options to renew the contract for two additional 24-month terms subject to further approval of the Board of Directors.

CONTRACT AMENDMENTS/CHANGE ORDERS

Southern Extra High Pipeline - Section 111 (Dedham North): P. Gioioso and Sons, Inc., Contract 7504, Change Order 6

Upon a motion duly made and seconded, it was

Voted: to authorize the Executive Director, on behalf of the Authority, to approve Change Order 6 to Contract 7504, Southern Extra High Pipeline - Section 111 (Dedham North), with P. Gioioso and Sons, Inc., for an amount not to exceed \$90,000, increasing the contract amount from \$17,470,556.70 to \$17,560,556.70, with no increase in contract term.

Further, voted: to authorize the Executive Director to approve additional change orders as may be needed to Contract 7504 in an amount not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

Main Line Adjustment Project, Fore River Railroad: J.F. White Contracting Co., Contract FRR32, Change Order 2

Upon a motion duly made and seconded, it was

Voted: to authorize the Executive Director, on behalf of the Authority, to approve Change Order 2 to Contract FRR32, Fore River Railroad Main Line Adjustment Project, with J.F. White Contracting Co., for a lump sum credit amount of (\$277,515.06), decreasing the contract amount from \$2,671,056.64 to \$2,393,541.58, and increasing the contract term by 121 days from January 30, 2019 to May 17, 2019.

Further, voted: to authorize the Executive Director to approve additional change orders as may be needed to contract FRR32 in an amount not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

Lead Market Participant Services for the Deer Island Treatment Plant: Direct Energy Business Marketing, LLC, Amendment 1

Upon a motion duly made and seconded, it was

Voted: to authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to Purchase Order 1145919, Demand Response Lead Market Participant Services, with Direct Energy Business Marketing, LLC, (Direct Energy) to increase the amount provided to Direct Energy from five percent of the revenue received from ISO New England to ten percent, and to extend the term by one year from June 1, 2019, to May 31, 2020.

EXECUTIVE SESSION

It was moved to enter executive session to discuss litigation and thereafter to return to open session solely for the purpose of adjournment. Upon a motion duly made and seconded, a roll call vote was taken in which the members were recorded as follows:

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Beaton		
Carroll		
Cotter		
Foti		
Pappastergion		
Peña		
Vitale		
Walsh		
Wolowicz		

Voted: to enter executive session for the purpose of discussing strategy

with respect to litigation, in that such discussions may have a detrimental effect upon the negotiating positions of the Authority.

* * * *

EXECUTIVE SESSION

* * * *

The meeting returned to open session and adjourned at 2:10 p.m.

Approved: April 17, 2019

Attest:

Andrew M. Pappastergion, Secretary