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

Posted 09/11/2020
10:00 a.m.

Frederick A. Laskey
Executive Director

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

BOARD OF DIRECTORS' MEETING

To be Held Virtually on September 16, 2020
Pursuant to Governor Baker's March 12, 2020 Order
Suspending Certain Provisions of the Open Meeting Law

WebEx Meeting Link:
https://mwra.webex.com/mwra/onstage/g.php?MTID=e40a33396902dfa0f0d142e9284908ee6

Meeting number (access code): 173 581 4996

Meeting password: 0916

Time:
1:00 p.m.

AGENDA

I. APPROVAL OF MINUTES

II. REPORT OF THE CHAIR

III. REPORT OF THE EXECUTIVE DIRECTOR

IV. PERSONNEL & COMPENSATION

A. Approvals

1. PCR Amendments – September 2020
2. Appointment of Director of Waterworks
3. Appointment of Superintendent, Clinton Wastewater Treatment Plant
4. Appointment of Environmental Manager, Operations Division
5. Appointment of Systems Administrator III, MIS

V. ADMINISTRATION, FINANCE & AUDIT

A. Information

1. Delegated Authority Report – July and August 2020

A. Information (continued)

2. FY20 Fourth Quarter Orange Notebook
3. FY20 Year-End Financial Update and Summary
4. FY20 Year-End Capital Improvement Program Spending Report

B. Approvals

1. Bond Defeasance of Future Debt Service

C. Contract Awards

1. Sole Source Purchase Order Contract to Upgrade the PIMS Powerbuilder Application: Inflection Point Solutions, LLC

D. Contract Amendments/Change Orders

1. Renewable and Alternative Energy Portfolio Services: Next Grid Markets, LLC, Contract RPS-68, Amendment 2
2. Managed Security Services: NWN Corporation, Contract 7499, Amendment 2
3. Dental Insurance: Delta Dental of Massachusetts, Contract A613, Amendment 3

VI. WASTEWATER POLICY & OVERSIGHT

A. Contract Awards

1. Hayes Pump Station Rehabilitation Design and Engineering Services During Construction: Hazen and Sawyer, P.C., Contract 7162

B. Contract Amendments/Change Orders

1. Early Warning Pilot for the Resurgence of COVID-19: Biobot Analytics, Inc., OP-419, Amendment 1
2. As-Needed Resident Engineering and Resident Inspection Services: Kleinfelder Northeast, Inc., Contract 7629, Amendment 1 and Award of Task Order No. 4

VII. WATER POLICY & OVERSIGHT

A. Contract Awards

1. Top of Shafts 6, 8 and 9A Interim Improvements: National Water Main Cleaning Co., Contract 7561

A. Contract Awards (continued)

2. John J. Carroll Water Treatment Plant Sodium Hypochlorite System Modifications: Harding & Smith, LLC, Contract 7085H

3. Dam Safety Compliance and Consulting Services: GEI, Inc., Contract W328

4. Rehabilitation of Weston Aqueduct Supply Main 3, Sections W11/W12/W16/51 (Medford, Somerville, and Arlington): Albanese D&S, Inc., Contract 6544

B. Contract Amendments/Change Orders

1. Weston Aqueduct Supply Main 3: Design, Construction Administration and Resident Engineering Services: Stantec Consulting Services, Inc., Contract 6539, Amendment 2

VIII. CORRESPONDENCE TO THE BOARD

IX. OTHER BUSINESS

X. EXECUTIVE SESSION

XI. ADJOURNMENT

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Board of Directors

July 22, 2020

Pursuant to Governor Baker's March 12, 2020 Order Suspending Certain Provisions of the Open Meeting Law the July 22, 2020 meeting of the Board of Directors of the Massachusetts Water Resources Authority was held by remote participation. Vice Chair Carroll presided. Present remotely from the Board, in addition to Vice Chair Carroll, were Ms. Wolowicz and Messrs. Cotter, Foti, Pappastergion, Peña, Vitale and Walsh. Secretary Theoharides and Messrs. Cook and Flanagan were absent. MWRA staff participants included Frederick Laskey, Executive Director, Carolyn Francisco Murphy, General Counsel, David Coppes, Chief Operating Officer, Carolyn Fiore, Deputy Chief Operating Officer, Thomas Durkin, Director of Finance, Michele Gillen, Director of Administration, Andrea Murphy, Director of Human Resources, Kathleen Murtagh, Director of Tunnel Redundancy, Steven Rhode, Director of Laboratory Services, and Assistant Secretaries Ria Convery and Kristin MacDougall. The meeting was called to order at 1:03 p.m. All motions were individually made and presented for discussion and deliberation. After any discussion and deliberation, motions for which there were no objections were then consolidated for one omnibus roll call vote.

APPROVAL OF JUNE 24, 2020 MINUTES

A motion was duly made and seconded to approve the minutes of the Board of Directors' meeting of June 24, 2020.

Vice Chair Carroll called for any further discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote.

REPORT OF THE EXECUTIVE DIRECTOR

Mr. Laskey reported that Federal District Court Judge Richard G. Stearns issued a Compliance Order in the Boston Harbor case, which included a note commending MWRA staff for continuing to provide essential services to constituents throughout the ongoing Covid-19 pandemic. Mr. Laskey also noted that the Judge commented in his Order that at some point there may be discussion about whether there should be more funding related to CSOs or whether attention should be focused on non-CSO pollution. Additionally, Mr. Laskey provided Board members with brief updates on the Metropolitan Tunnel Redundancy Program and beach water quality. Mr. Laskey then thanked and recognized Mark Johnson, MWRA's Director of Waterworks, for his dedicated service to the Authority, on the occasion of his upcoming retirement. On behalf of the Board of Directors, Vice Chair Carroll thanked Mr. Johnson for his work to support MWRA communities. Finally, Mr. Laskey invited MWRA Advisory Board

Executive Director Joseph Favaloro to remark upon Advisory Board recommendations regarding the impacts of Covid-19 (ref. III A). There was brief discussion.

WATER POLICY & OVERSIGHT

INFORMATION

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

Staff made a presentation. There were questions and answers.

Vice Chair Carroll called for any further discussion or objections. Hearing none, the Vice Chair proceeded to the next agenda item. (ref. IV A.1)

APPROVALS

Emergency Water Supply Agreement with the Lynnfield Center Water District

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to execute an Emergency Water Supply Agreement with the Lynnfield Center Water District, subject to the approval of the MWRA Advisory Board, for a period of up to six months, pursuant to the Emergency Water Supply Agreement attached to the July 22, 2020 staff summary presented to the Board and filed with the records of the meeting.

Staff made a presentation.

Vice Chair Carroll called for any discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. IV B.1)

PERSONNEL & COMPENSATION

APPROVALS

PCR Amendments – July 2020

A motion was duly made and seconded to approve the amendments to the Position Control Register as presented, on a date to be determined by the Executive Director.

There were questions and answers. Staff made a presentation.

Vice Chair Carroll called for any further discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. V A.1)

Appointment of Manager, Training and Development, Administration

A motion was duly made and seconded to approve the appointment of Mr. John Porcello, Jr. to the position of Manager, Training and Development, (Non-Union, Grade 14) in the Administration Division, at an annual salary of $115,000, commencing on a date to be determined by the Executive Director.

Vice Chair Carroll called for any discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. V A.2)

ADMINISTRATION, FINANCE & AUDIT

INFORMATION

Delegated Authority Report

Committee Chair Vitale called for any discussion or questions. Hearing none, Mr. Vitale proceeded to the next agenda item. (ref. VI A.1)

CONTRACT AWARDS

Accounts Payable and Payroll Depository Services: Webster Bank, N.A., Contract F256

A motion was duly made and seconded to approve the recommendation of the Consultant Selection Committee to award Contract F256 to Webster Bank N.A., to provide accounts payable and payroll depository services and to authorize the Executive Director, on behalf of the Authority, to execute Contract F256 with no annual fees to the Authority, and with an interest rate payable to MWRA at the top end of the Federal Funds range plus 21 basis points, for a term to end on June 30, 2024.

Staff made a verbal presentation. There was brief discussion.

Committee Chair Vitale called for any discussion or objections. Hearing none, Vice Chair Carroll referred the motion to an omnibus roll call vote. (ref. VI B.1)

Janitorial Services at MWRA Western Facilities: Management and Maintenance Inc., Bid WRA-4855

A motion was duly made and seconded to approve the award of Contract WRA-4855, Janitorial Services at MWRA Western Facilities, to Facilities Management and Maintenance, Inc., through State Blanket Contract #FAC81, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed $341,280.28, for a contract term of three years.

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

Vice Chair Carroll called for any further discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. VI B.2)

Drug and Alcohol Testing and Compliance Services: OHS Training & Consulting, Inc., Contract A626

A motion was duly made and seconded to approve the recommendation of the Consultant Selection Committee to select OHS Training & Consulting, Inc. for the provision of drug and alcohol testing and compliance services, Contract A626, and to authorize the Executive Director, on behalf of the Authority, to execute said contract

with OHS Training & Consulting, Inc. in an amount not to exceed $34,200, for a term of 36 months.

There were questions and answers.

Vice Chair Carroll called for any further discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. VI B.3)

WASTEWATER POLICY AND OVERSIGHT

INFORMATION

Early Warning Pilot for the Resurgence of COVID-19

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

Vice Chair Carroll called for any further discussion or objections. Hearing none, the Vice Chair proceeded to the omnibus roll call vote. (ref. VII A.1)

OMNIBUS ROLL CALL VOTE

Vice Chair Carroll called for an omnibus roll call vote on the motions made and seconded.

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

Yes	No	Abstain
Carroll		
Cotter		
Foti		
Pappastergion		
Peña		
Vitale		
Walsh		
Wolowicz		

Voted: to approve the minutes of the June 24, 2020 Board of Directors' meeting as presented and filed with the records of this meeting;

Further, voted: to authorize the Executive Director, on behalf of the Authority, to execute an Emergency Water Supply Agreement with the Lynnfield Center Water District, subject to the approval of the MWRA Advisory Board, for a period of up to six months, pursuant to the Emergency Water Supply Agreement attached to the July 22, 2020 staff summary presented to the Board and filed with the records of the meeting (ref. IV A.1);

Further, voted: to approve the amendments to the Position Control Register as presented, on a date to be determined by the Executive Director (ref. V A.1);

Further, voted: to approve the appointment of Mr. John Porcello, Jr. to the position of Manager, Training and Development, (Non-Union, Grade 14) in the Administration Division, at an annual salary of $115,000, commencing on a date to be determined by the Executive Director (ref. V A.2);

Further, voted: to approve the recommendation of the Consultant Selection Committee to award Contract F256 to Webster Bank N.A., to provide accounts payable and payroll depository services and to authorize the Executive Director, on behalf of the Authority, to execute Contract F256 with no annual fees to the Authority, and with an interest rate payable to MWRA at the top end of the Federal Funds range plus 21 basis points, for a term to end on June 30, 2024 (ref. VI B.1);

Further, voted: to approve the award of Contract WRA-4855, Janitorial Services at MWRA Western Facilities, to Facilities Management and Maintenance, Inc., through State Blanket Contract #FAC81, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed $341,280.28, for a contract term of three years (ref. VI B.2); and,

Further, voted: to approve the recommendation of the Consultant Selection Committee to select OHS Training & Consulting, Inc. for the provision of drug and alcohol testing and compliance services, Contract A626, and to authorize the Executive Director, on behalf of the Authority, to execute said contract with OHS Training & Consulting, Inc. in an amount not to exceed $34,200, for a term of 36 months (ref. VI B.3).

ADJOURNMENT

Upon a motion duly made and seconded, it was

Voted: to adjourn the meeting.

The meeting adjourned at 2:00 p.m.

Approved: September 16, 2020

Attest: _____

Andrew M. Pappastergion, Secretary

Documents used for this meeting, referenced above, can be found here:
http://www.mwra.com/monthly/bod/boardmaterials/2020/o-2020-06-24-2.pdf

STAFF SUMMARY

TO: Board of Director
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: September PCR Amendments

COMMITTEE: Personnel and Compensation

____ INFORMATION
__X__ VOTE

Andrea Murphy, Director of Human Resources
Preparer/Title

Michele S. Gillen
Director, Administration

RECOMMENDATION:

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

DISCUSSION:

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

September PCR Amendments

There are five PCR Amendments this month.

Organizational Change

1. Title change to one vacant position in the Administration Division, MIS Department from Program Manager, MIS, Unit 6 Grade 12, to IT Security Analyst, Unit 6 Grade 11, to meet the staffing needs of the department.
2. Title change to one vacant position in the Operations Division, Equipment Maintenance Department from Program Manager, Process Control and Project Support Unit 9 Grade 29, to Project Manager, Services Contracts, Unit 9 Grade 25, to more accurately reflect the responsibilities of the position.
3. Title change to one vacant position in the Administration Division, MIS Department from Library Specialist, Unit 6 Grade 8, to Systems Analyst/Programmer III (ERP), Unit 6 Grade 11, to meet the staffing needs of the department.
4. Salary adjustment to one filled position in the Operations Division, Engineering Construction Department from Senior Program Manager, Design Information Systems, Unit 9 Grade 30, to maintain internal pay equity.

5. Title change to one vacant position in the Operations Division, Deer Island Maintenance department from Heavy Equipment Operator, Unit 3 Grade 15, to Trades Foreman, Unit 3 Grade 19, to meet the staffing needs of the department.

BUDGET/FISCAL IMPACT:

The annualized budget impact of these PCR amendments will be a maximum cost of $28,094. Staff will ensure that the cost increase associated with these PCR amendments will not result in spending over the approved FY21 Wages and Salaries budget.

ATTACHMENTS:

Old Job Descriptions
New Job Descriptions

MASSACHUSETTS WATER RESOURCES AUTHORITY
POSITION CONTROL REGISTER AMENDMENTS
FISCAL YEAR 2021

PCR AMENDMENTS REQUIRING PERSONNEL & COMPENSATION COMMITTEE APPROVAL - September 16, 2020

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
P4	MIS Administration 8610040	V	T, G	Program Manager, MIS	6	12	IT Security Analyst	6	11	$117,280	$69,694	-	$106,646	-$47,586	-	-$10,634	Title change to meet the staffing needs of the department.
P5	Equipment Maintenance Operations 24700136	V	T, G	Program Manager, Process Control and Project Support	9	29	Project Manager, Service Contracts	9	25	$128,958	$79,356	-	$110,568	-$49,602	-	-$18,390	Title change to more accurately reflect the responsibilities of the position.
PERSONNEL & COMPENSATION COMMITTEE TOTAL=					2						**TOTAL:**			-$97,188	-	-$29,024	

PCR AMENDMENTS REQUIRING BOARD APPROVAL - September 16, 2020

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
B7	MIS Administration 8610096	V	T, G	Library Specialist	6	8	Systems Analyst/Programmer III (ERP)	6	11	$80,060	$69,694	-	$106,646	-$10,366	-	$26,586	Title change to meet the staffing needs of the department.
B8	Engineering Operations 5525021	F	S	Sr. Program Manager, Design Information Systems	9	30	Sr. Program Manager, Design Information Systems	9	30	$119,503	$134,318	-	$134,318	$14,815	-	$14,815	Pay equity adjustment.
B9	Deer Island Maintenance Operations 2988021	V	T, G	Heavy Equipment Operator	3	15	Trades Foreman	3	19	$71,834	$61,156	-	$87,551	-$10,678	-	$15,717	Title change to meet the staffing needs of the department.
BOARD TOTAL =					3					**TOTAL ESTIMATED COSTS:**				-$6,229	-	$57,118	
GRAND TOTAL =					5					**TOTAL ESTIMATED COSTS:**				-$103,417	-	$28,094	

MWRA
POSITION DESCRIPTION

OLD

POSITION: Program Manager, MIS

DIVISION: Administration & Finance

DEPARTMENT: Management Information Systems (MIS)

BASIC PURPOSE:

Manages staff, multiple system projects and software maintenance activities, across an entire application portfolio, to ensure the integrity of data and the quality of integration between applications. Responsible for understanding and supporting the business environment.

SUPERVISION RECEIVED:

Works under the general supervision of the appropriate application portfolio manager (Manager of Custom Support and Support [Administrative/Financial applications] and Data Resource Manager [Water and Sewer applications]).

SUPERVISION EXERCISED:

Exercises close supervision of assigned programming staff and technical resources.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages the integration of new releases of application software package upgrades from planning through implementation using Computer Assisted Engineering (CASE) and standard project management software tools.

- Oversees the day-to-day activities of assigned staff, including Database Analysts/Programmer Analysts, Senior Systems Analysts and Programmer Analysts as well as contract programmers, temporary employees and consultants.

- Develops multiple project plans, including time, cost and resource estimates and prepares periodic status reports to management.

- Prioritizes and analyzes business request(s) for development of new systems or improvements of existing systems, and recommends software and hardware solutions consistent with information system strategic plans, using standard systems development methodologies and cost-benefit analysis techniques.

- In conjunction with user management/liaisons, determines objectives, nature, effectiveness and economics of new or improved procedures and methods related to business request(s) for development of new systems or improvements of existing systems.

- Manages user application steering committees and project team meetings.

- Participates in consultant selection, and staff hiring interviews; and conducts performance reviews.

- Develops system controls, both automated and manual, to ensure the integrity of integrated applications is maintained as the environment changes.

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

- Provides technical assistance and leadership to other staff in the development of projects and plans for the department.

- Ensures compliance with department standards for application development and maintenance.

SECONDARY DUTIES:

Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A four- (4) year college program in computer science or related field. Advanced degree is preferred; and

(B) Six (6) to eight (8) years of experience in systems development and project management, of which at least two (2) years must be in a supervisory capacity is required; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) An understanding of project management tools and techniques, CASE tools and system development methodologies, Authority computer hardware (minis, PCs and workstations), communication networks, operating systems, relational and networked databases and utility programs, and fluency with third and fourth generation languages.

(B) Proven track record of accomplishment in managing computer integration projects across multiple hardware/software platforms to solve a diversity of business requirements.

(C) Proficiency with the following required: 3rd and 4th generation languages, Oracle, Oracle Developer; and Lawson application software and UNIX (A&F systems) or Microsoft NT/2000 and Open VMS (Water & Sewer systems)

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

SPECIAL REQUIREMENTS:

None.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

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

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee occasionally works in various field settings and in an office environment. The employee regularly works near moving mechanical parts.

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

July 2002

MWRA
POSITION DESCRIPTION

NEW

POSITION: IT Security Analyst

DIVISION: Administration

DEPARTMENT: Management Information Systems (MIS)

BASIC PURPOSE:

Manages and supports the day-to-day operation of MWRA's cyber security infrastructure and its Managed Security Service Provider (MSSP) to protect and defend MWRA's information and computing assets. Investigates both potential and identified cyber security incidents. Reports cyclic operational statistics. Suggests, plans, and executes cyber security-based improvements, and consults on cyber security requirements for other IT-based projects. Builds and maintains a security testing lab. Documents and diagrams MWRA's cyber security policies and best practices for systems, applications, and architecture. Researches cyber security hardware and software products and their manufacturers, and recommends either purchase or development of enhancements that will improve the cyber security posture and secure operation of all MWRA computing systems and applications.

SUPERVISION RECEIVED:

Works under the general supervision of the Senior Program Manager, IS Security. On specific IT projects, might be supervised by a team lead or a project manager.

SUPERVISION EXERCISED:

Exercises supervision of assigned vendor resources and IT project teams.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

Information Security Management:

- Identifies and confirms reported cyber security incidents and other related issues.
- Serves as an escalation point for potential cyber security incidents, including issues raised by the Security Monitor.
- Participates in the investigations and actions being performed by the Information Security response team led by the Senior Program Manager, IS Security.
- Works closely with service providers to resolve security issues identified by their managed systems and infrastructure, in line with MWRA's incident response plan and within contract boundaries.
- Keeps well-informed of the most current technologies, services, and controls, and provides expertise to the Senior Program Manager, IS Security, and the MIS Management Team in evaluating and selecting appropriate information security solutions.

Incident and Problem Management:

- Responds to security-related events, alerts, and reported outages to correct and resolve issues.
- Investigates root cause and determine systemic solutions for identified cyber security problems.
- Completes assigned service requests.

Monitoring, Alerting, and Event Management:

- Correlates reported events from multiple systems when a potential security incident is identified; when incident is verified, promptly initiates the incident response process.
- Configures security solutions to protect MWRA assets and information, such that all pertinent events are logged and reported.
- Establishes, configures, and maintains policies for monitoring and alerting solutions, in order to ensure timely delivery of alerts to possible cyber security incidents.

Change Management:

- Makes recommendations to the Senior Program Manager, IS Security, about changes to the MWRA computing environment that can aid in the removal of vulnerabilities and

reduce the risk of exploitation that could result in cyber security incidents.

- Documents recommended changes and submits appropriately completed Request for Change (RFC) forms to MWRA Change Advisory Board with approval of the Senior Program Manager, IS Security, per MWRA policy.

Measurement & Reporting:

- Creates and maintains dashboards that allow real-time monitoring of security operations and trends.
- Assists in compiling and producing reports for multiple management levels, both ad hoc and published on various cycles.

System Administration and Performance Management:

- Supports the most secure and least risky integration and use of business applications, both internal and external, within the MWRA computing environment as required.
- Works with other MIS groups to design enhanced ticketing opportunities, in order to simplify and expedite monitoring and alerting efforts, as well as streamline incident management tasks.
- Recommends and executes ideas to improve processes based on lessons learned over time in performing assigned duties.
- Develops and executes custom scripts for administrative tasks and for easy, effective compliance with logging and alerting requirements.
- Defines and institutes necessary preventative maintenance schedules.
- Establishes and maintains a secure, isolated, and current security testing/lab environment.
- Participates in and prepares for Disaster Recovery planning and test activities.

System Documentation:

- Participates in ensuring team processes are thoroughly documented, and that all such documentation is kept up-to-date.
- Documents and maintains operating procedures to conform to MWRA standards.
- Develops, documents, and maintains system documentation for MWRA's cyber security infrastructure components.

OTHER DUTIES:

- Shares in on-call rotation and emergency response tasks as needed.
- Participates as a technical cyber security resource in implementation of new computing systems and solutions, as needed.
- Participates in occasional off-site travel, extended hours, and weekend work.
- Performs other duties as assigned.

MINIMUM QUALIFICATIONS:

Education and Experience

(A) A Bachelor's degree in Information Security, Computer Science, Engineering, or related field, and

(B) At least five (5) to seven (7) years of IT experience including at least three (3) years of experience responding to cyber security incidents, in addition to supporting, operating, implementing, configuring, and monitoring the cyber security solutions and their consoles/dashboards for an enterprise computing environment; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills, and Abilities:

(A) Advanced proficiency with firewalls, intrusion detection and prevention systems, security information and event management (SIEM) systems, log configuration and collection, email security, end-to-end web filtration, virtual private networks (VPNs), cryptography, authentication mechanisms, and mobile device security.

(B) Strong working knowledge of and demonstrated experience applying MITRE ATT&CK framework, NIST Cybersecurity Framework (CSF), and the Center for Internet Security (CIS) Benchmarks to advance cyber security protection and detection goals.

(C) Willingness and ability to learn new skills, concepts, and cyber security-related tools on an ongoing basis, as well as to consume and comprehend daily intelligence about new cyber security threats, vulnerabilities, and attacks.

(D) Keen attention to detail to detect possible signs of a security breach or cyber-attack.

(E) Ingenuity and strong problem-solving skills, in order to anticipate new threats and attacks

and to implement means to prevent or defend against them.

(F) Demonstrable proficiency with 1 or more scripting languages (such as PowerShell, any Linux shell, or Python) or programming languages.

(G) Ability to identify, analyze, and troubleshoot cyber security incidents utilizing the OSI seven-layer model.

(H) Excellent skills in technical project management, interpersonal interactions, and written and oral communication (including presentations to management, report design, and network diagrams, and system documentation).

SPECIAL REQUIREMENTS:

Able to work evening, weekends, or other hours due to emergency assignments or as part of regular on-call rotation schedule.

At least one (1) of the following foundation certifications or equivalent

- CompTIA Security+
- GIAC Security Essentials (GSEC)

Is required to hold the following certifications, or possess the ability to obtain such within 12 months from hire:

- ITIL Foundation Certification in IT Service Management version 3 or 4; and

- At least one (1) of the following intermediate certifications:
  - Any other CompTIA cybersecurity certification (like CySA+)
  - Any other SANS GIAC certification
  - Any (ISC)2 certification
  - Any ISACA certification
  - Any EC-Council certification

TOOLS AND EQUIPMENT USED:

Computer consoles and appliances; tape and disk storage systems; various network, mobile, and peripheral devices; and standard 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 to reach with hands and arms. The employee is frequently required to sit and talk or hear. The employee is occasionally required to walk; stand; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

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

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee occasionally works in computer centers, network closets, and various field settings. The employee regularly works near moving mechanical parts, and is occasionally exposed to risk of vibration and electromagnetic radiation. The employee is occasionally exposed to risk of electrical shock. The computer centers use automatically discharged chemicals to suppress fire.

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

September 2020

MWRA
POSITION DESCRIPTION

OLD

POSITION: Program Manager, Process Control & Project Support

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, PI, 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 site, 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

NEW

POSITION: Project Manager, Service Contracts

DIVISION: Operations

DEPARTMENT: Maintenance

BASIC PURPOSE:

Provides technical assistance in support of the overall maintenance program, civil design services and field-inspection services for various Operations construction and maintenance projects. Manages service contracts including oversight, development, procurement, implementation and administration for metropolitan Boston and Authority wide facilities, equipment, systems and property.

SUPERVISION RECEIVED:

Works under the general supervision of a Program Manager and Sr. Program Manager Maintenance

SUPERVISION EXERCISED:

Exercises close supervision of assigned staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Solicits input from stakeholders and develops new and modified service contracts as assigned in a timely fashion to ensure contract continuity.

- Manages assigned staff in support of service contracts and other maintenance activities.

- Prepares required documentation to procure service contracts including but not limited to: cost estimates, contract requisition, contract bid packages, prevailing wage rates, responses to bidders, bid evaluations, and staff summaries. Works with procurement staff and managers to finalize all required contract and award documentation.

- Administers assigned service contracts, including but not limited to scheduling, documenting, and tracking preventative, corrective & emergency services; documenting and tracking certificate/permit needs; and tracking project budgets.

- Analyzes Maximo data for assigned assets to evaluate equipment maintenance effectiveness and to make improvement recommendations. Works with maintenance and work coordination managers to ensure documentation is being recorded in the maintenance

management system (MAXIMO) for all assigned service contracts.

- Performs periodic site assessments/audits/inspections of work performed on assigned service contracts to ensure contract compliance. Reviews and approves invoices after confirmation that it corresponds with the work performed.

- Tracks all Operations Division service contracts to provide reports on budget and schedule updates to managers and financial staff upon request.

- Identifies the need for change orders and prepares change order documentation (PCO, Staff Summaries, CO, etc.) to meet financial shortfalls, and closes out assigned service contracts.

- Develops and administers warranty program for assigned assets.

- Defines, develops, administers and refines programs to support a pro-active maintenance environment. Guides efforts to ensure reliability and maintainability of equipment, processes, utilities, facilities and safety systems.

- Responsible for annual condition assessment and development of asset replacement strategy for assigned assets.

- Coordinates project and service contract activities with engineering consultants, contractors, manufacturers, and operations and maintenance staff as required.

- Develops conceptual sketches, field measurements and reviews manufacturer product data. Compiles designs and drawings, provides first draft layouts, and details options for review. Incorporates review comments into a final version with minimal technical guidance, supervision and direction.

- Oversees modifications to operation and maintenance documentation with respect to facility design modification and upgrades.

- Develops and maintains files and familiarity with all applicable codes, code addenda, code cases and industry standards applicable to facility equipment, buildings and grounds. Ensure that service contract documents comply.

- Provides oral and written reports detailing results of problem investigations and economic justification for proposed changes.

SECONDARY DUTIES:

- Performs related duties as required.

DESIRED MINIMUM QUALIFICATIONS:

Education and Experience:

A. A four (4) year college degree or Bachelor of Science in civil, mechanical or facilities engineering or a related field; and

B. A thorough knowledge of the operation and maintenance of large Municipal Water & Sewerage systems, facilities and equipment as normally attained through five (5) to seven (7) years of experience; or

C. Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

A. Demonstrated knowledge of building, equipment and grounds maintenance, including general and specific knowledge of installation and maintenance principles and practices.

B. Knowledge of Massachusetts bidding laws including M.G.L., Chapter 30 and Chapter 149 construction bidding regulations.

C. Demonstrated ability to procure and administer contracts used to inspect, service, and repair facilities and facility components of similar magnitude and complexity to those under MWRA responsibility.

D. Demonstrated abilities to work as part of a project team, to develop and maintain productive working relationships with external parties, and to function independently with minimal supervision.

E. Familiarity with state-of-the-art asset management strategies including reliability centered maintenance, and preventative and predictive maintenance programs.

F. Proficiency with personal computers, handheld computer devices, word processing, spreadsheets, CMMS and engineering applications software required.

G. Ability to prepare applications and obtain occupancy permits, wetland permits and historic permits from relevant local, state and federal agencies.

H. Excellent interpersonal, verbal and written communications skills required.

SPECIAL REQUIREMENTS:

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

Registered Professional Engineers license preferred.

A valid Grade II Water Treatment Operators License or Grade II Distribution Operators License, or Grade 2 Wastewater Operator's 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

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 required to stand, walk, climb or balance, stoop, kneel, crouch or crawl, and smell.

The employee must frequently lift and/or move up to 20 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, depth perception, peripheral vision and the ability to adjust focus.

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee regularly works in an office environment. The employee occasionally works near moving mechanical parts, and is occasionally exposed to outdoor weather conditions.

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

May 2017

MWRA
POSITION DESCRIPTION

OLD

POSITION: Systems Analyst/Programmer III

DIVISION: Administration & Finance

DEPARTMENT: Management Information System (MIS)

BASIC PURPOSE:

This position is responsible for analyzing, designing, developing, testing, implementing and maintaining software applications. This position is also responsible for the post implementation support including incident, performance, capacity, continuity and problem management activities. The Systems Analyst/Programmer III is responsible for the preparation, and maintenance of system documentation to be used by the IT staff and user community.

The Systems Analyst/Programmer III also serves as a team lead for assigned projects, maintains and upgrades project plans and schedules and ensures IT testing is scheduled and documented

SUPERVISION RECEIVED:

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

SUPERVISION EXERCISED:

Exercises supervision of assigned vendor resources and IT project team.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

Application Development

- Reviews application design prior to buy or build decision to ensure service levels can be met and recommend any performance enhancements prior to implementation

- Codes, configures, implements, maintains and supports, new and upgrades to software applications (in-house and third party software) and interfaces to ensure processes and functionality of the applications comply with the organization's requirements, processes and standards.

- Develops and maintains technical documentation for applications as follows:

  - Design Model - Description of the system design. Comprised of a variety of work products, potentially including a deployment model, an object model, a physical data model (PDM), a security threat model, a system overview document, and a user interface model.
  - Source Code – The program code for the system.
  - Regression Test Suite - Collection of test cases, and the code to run them in the appropriate order. The regression test suite will include a wide range of tests, including acceptance tests, unit tests, system tests, etc.
  - Installation Scripts - Code for installing the system into pre- and post-production environments.
  - Release Notes - Summarize the things to know pertaining to the current release of the system.
  - Operations Procedure - Procedures and supporting information to operate the system once it is in production including continuity and disaster recovery procedures.
  - Support Reference- Used by support staff, such as trouble shooting guides, contact information for the development team, which enables them to support end users

- Responsible for developing a release package for all systems changes when transitioning to the production environments.

Post Implementation Support

- Supports the resolution of incidents and problems with software application functionality.

- Researches and corrects problems with the system applications code during production processing in an efficient and timely manner ensuring system recovery and integrity.

- Is available to execute and carry out IT Continuity and Disaster Recovery Plans

- Is a Technical Member of the Change Advisory Board (CAB) as needed.

- Serves as team lead for assigned projects and updates/maintains project plans and schedules as required.

Mentoring & Professionalism

- Maintains professional interaction with the application development staff, user and extended IT community (i.e. project teams) to ensure adequate system functionality, promote team participation and encourage user confidence in the Application Development Staff's quality of service.

- Provides assistance to Systems Analysts/Programmer I and II personnel ensuring that all technical design work, coding and testing are done in a manner that meets or exceeds design and testing requirements and standards.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

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

(B) Five (5) to seven (7) years experience supporting enterprise wide applications as well as tier two applications.

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Extensive knowledge of programming languages, troubleshooting techniques, database structures, triggers and procedures, application server platforms, middleware and operating systems.

(B) Knowledge of the following is desirable: MS .Net, J2EE, Crystal Reporting, ORACLE 11g, SQL Server and PL/SQL.

(C) Analytical and interpersonal skills

(D) Written and oral communication skills.

SPECIAL REQUIREMENTS:

- Information Technology Infrastructure Library (ITIL) Foundation Certification is required or the ability to obtain within one year.
- Formal training or certification in programming methodologies and System Development Life Cycle methodologies is required or the ability to obtain within one year.
- Microsoft Certified Solutions Developer (MCSD) or equivalent is required or the ability to obtain within one year of scheduled training.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

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

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee occasionally works in various field settings and in an office environment. The employee regularly works near moving mechanical parts, and is occasionally exposed to risk of vibration.

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

November 2018

MWRA
POSITION DESCRIPTION

NEW

POSITION: Systems Analyst/Programmer III - (ERP) Enterprise Resource Planning

DIVISION: Administration

DEPARTMENT: Management Information System (MIS)

BASIC PURPOSE:

This position is responsible for analyzing, designing, developing, testing, implementing and maintaining software applications. This position is also responsible for the post-implementation support including incident, performance, capacity, continuity and problem management activities. The Systems Analyst/Programmer III -ERP is responsible for the preparation and maintenance of system documentation to be used by the IT staff and user community.

The Systems Analyst/Programmer III – ERP also serves as a team lead for assigned projects, maintains and upgrades project plans and schedules and ensures IT testing is scheduled and documented

SUPERVISION RECEIVED:

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

SUPERVISION EXERCISED:

Exercises supervision of assigned vendor resources and IT project team.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

Application Development

- Reviews application design prior to buy or build decision to ensure service levels can be met and recommends any performance enhancements prior to implementation

- Codes, configures, implements, maintains and supports, new and upgrades to software applications (in-house and third party software) and interfaces to ensure processes and functionality of the applications comply with the organization's requirements, processes and standards.

- Develops and maintains technical documentation for applications as follows:

- Design Model - Description of the system design. Comprised of a variety of work products, potentially including a deployment model, an object model, a physical data model (PDM), a security threat model, a system overview document, and a user interface model.
- Source Code – The program code for the system.
- Regression Test Suite - Collection of test cases, and the code to run them in the appropriate order. The regression test suite will include a wide range of tests, including acceptance tests, unit tests, system tests, etc.
- Installation Scripts - Code for installing the system into pre- and post-production environments.
- Release Notes - Summarize the things to know pertaining to the current release of the system.
- Operations Procedure - Procedures and supporting information to operate the system once it is in production including continuity and disaster recovery procedures.
- Support Reference- Used by support staff, such as trouble shooting guides, contact information for the development team, which enables them to support end users

- Responsible for developing a release package for all systems changes when transitioning to the production environments.

Post-Implementation Support

- Supports the resolution of incidents and problems with software application functionality.

- Researches and corrects problems with the system applications code during production processing in an efficient and timely manner ensuring system recovery and integrity.

- Is available to execute and carry out IT Continuity and Disaster Recovery Plans

- Is a Technical Member of the Change Advisory Board (CAB) as needed.

- Serves as team lead for assigned projects and updates/maintains project plans and schedules as required.

Mentoring & Professionalism

- Maintains professional interaction with the application development staff, user and extended IT community (i.e. project teams) to ensure adequate system functionality, promote team participation and encourage user confidence in the Application Development Staff's quality of service.

- Provides assistance to Systems Analysts/Programmer I and II personnel ensuring that all technical design work, coding and testing are done in a manner that meets or exceeds design and testing requirements and standards.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A Bachelor's degree program in management science, engineering management, computer science or related field; and

(B) Five (5) to seven (7) years experience supporting enterprise wide applications as well as tier two applications including at least three (3) years experience supporting an enterprise resource planning system such as Infor Lawson ERP or a comparable enterprise level application; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Extensive knowledge of programming languages, troubleshooting techniques, database structures, triggers and procedures, application server platforms, middleware and operating systems.

(B) Knowledge of the following is desirable: MS .Net, J2EE, Crystal Reporting, ORACLE, SQL Server and PL/SQL.

(C) Knowledge of Infor Lawson preferred.

(D) Strong analytical and interpersonal skills

(E) Excellent written and oral communication skills.

SPECIAL REQUIREMENTS:

- A valid Massachusetts driver's license.
-
- Information Technology Infrastructure Library (ITIL) Foundation Certification is required or the ability to obtain within one year.

- Formal training or certification in programming methodologies and System Development Life Cycle methodologies is required or the ability to obtain within one year.

TOOLS AND EQUIPMENT USED:

Office equipment as normally associated with the use of telephone, personal computers including

word processing and other software, copy and fax machines.

PHYSICAL DEMANDS:

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

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

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

WORK ENVIRONMENT:

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

While performing the duties of this job, the employee occasionally works in various field settings and in an office environment. The employee regularly works near moving mechanical parts, and is occasionally exposed to risk of vibration.

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

September 2020

MWRA
POSITION DESCRIPTION

POSITION: Senior Program Manager (Design Information Systems)

PCR#: 5525021

DIVISION: Operations

DEPARTMENT: Engineering & Construction

BASIC PURPOSE:

Provide centralized, computer based engineering information and design services to support ongoing Operations Division maintenance, engineering and construction work. Manages all projects in assigned Programs from conceptual planning through construction contract award.

SUPERVISION RECEIVED:

Works under the general supervision of the Assistant Director, Engineering.

SUPERVISION EXERCISED:

Exercises close supervision of the internal staff as necessary, including performance reviews, to manage engineering consultant activities.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages assigned Programs including conformance to standards and procedures, staffing assignments, project scheduling and prioritization, and work product quality.

- Manages the technical information systems and computer aided design staff, including scheduling of work, assigning task priorities and providing technical guidance, including Adobe and AutoVue, as well as on plotter management tasks.

- Maintains and updates computer aided design and technical document control standards, practices and procedures to be used by MWRA personnel and consultants.

- Manages the Engineering and Construction network files, including project file integrity, space requirements, access, organization, as well as, coordination with MIS on backups, resource needs and performance improvements.

- Provides technical review of internal, consultant and contractor submittals prepared for

MWRA projects ensuring computer aided design files meet the required Authority standards.

- Participates in the in-house planning and design of various water/wastewater civil, facility repair, improvement and replacement program drawings.

- Prepares project specifications, contract documents, requests for proposals and necessary documents for goods and services needed to maintain engineering information and design services.

- Coordinates information requests with communities, government agencies, utilities, contractors. Respond to and report on External Non-Disclosure Agreement information requests.

- Utilizes document management system (currently Infostar) CAD, Adobe and AutoVue software, and incorporates updates, training and support. Ensures the filing of all engineering and construction project records per contract specifications and Authority Department Records Manager duties.

- Provides computer aided design drawing and records software technical assistance to support the interface and transfer of data between other Authority software programs including GIS, e-construction, and e-design.

- Coordinates DISC/E&C services with Deer Island TIC, Library, Records Center, Operations Engineering, GIS/Planning and MIS. Provide shared plotters management, assistance and services.

- Prepares annual and supplementary budget requests for the program.

- Participates in consultant selection procedures and contract negotiations.

- Addresses community and professional organizations on agency programs and policies, prepares reports and correspondence and maintains liaison with representatives of other agencies.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Knowledge of engineering document and drawing management principles and practices

as normally attained through a four (4) year college program in engineering, science, mathematics, computer science or related field; and

(B) Thorough understanding of engineering computer based records, drawings, information management, and technical documentation as acquired through eight (8) to ten (10) years of experience, of which a minimum of four (4) years is in a supervisory capacity. Experience in water and/or wastewater field preferred; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of water and/or wastewater unit operations design and operation, process control theory, practices and principle and computer applications.

(B) Demonstrated written and oral communication skills.

(C) Knowledge of technical engineering information systems practices and procedures, computerized database applications, computer aided drafting and business office administration practices.

SPECIAL REQUIREMENTS:

Massachusetts Registered Professional Engineer preferred

A valid Class D Massachusetts Motor Vehicle Operators 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, 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.

June 2019

MWRA
POSITION DESCRIPTION

OLD

POSITION: Heavy Equipment Operator

DIVISION: Operations

DEPARTMENT: Field Operations

BASIC PURPOSE:

Operates heavy equipment and vehicles.

SUPERVISION RECEIVED:

Works under the general supervision of the departmental Manager or Supervisor.

SUPERVISION EXERCISED:

Exercises close supervision of skilled laborers and laborers as assigned.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Operates a variety of heavy equipment such as, but not limited to, backhoe, front-end loader, pumps, generators, and pneumatic tools.
- Assists mechanics in the maintenance and repair of heavy vehicles and equipment as needed.
- Performs light maintenance independently or as part of a team. Light maintenance shall include but not limited to:
    - Inspects and troubleshoots various systems and equipment
    - Installs and retrofits/new equipment related to plant systems.
    - Modifies and/or aligns existing equipment to specifications.
    - With proper training sets up ladders, staging and rigging and utilizes hoists, jacks, dollies, lifts, etc. for proper access to job and to remove and install equipment.
    - Operates portable pumping and/or ventilation equipment to prepare a work area for access.

- Opens hatches.
- Installs safety rails.
- Conducts routine testing, lockout/tagout, operation (startup/shutdown) and adjustment of process equipment.
- Removes snow from immediate work area.

SECONDARY DUTIES:

- Promotes and participates in the cross-functional work practices.
- Trains peers and subordinates as requested.
- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Basic reading, writing, mathematical, scientific and oral communication skills normally attained through a high school education or the equivalent: and

(B) Considerable knowledge of the methods and techniques used in the maintenance and safe operation of a wide variety of heavy and/or specialized maintenance and construction equipment and vehicles as acquired through two (2) years experience; or

(C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

(A) Ability to follow oral and written instructions.

(B) Skill in the operation of listed tools and equipment.

(C) Ability to operate heavy equipment for extended periods in a variety of climatic conditions.

SPECIAL REQUIREMENTS:

Valid Massachusetts Class A Commercial Driver's License.

Department of Public Safety Hoisting Engineer's License, 1B and 2A and the ability to obtain a 4E and 4G within six months.

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

TOOLS AND EQUIPMENT USED:

Motor vehicle, specialized maintenance and construction equipment, hand tools, hoist, mobile radio.

PHYSICAL DEMANDS:

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of the 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 object, tools or controls and reach with hands and arms. The employee is frequently required to stoop, kneel, crouch or crawl. The employee is frequently required to stand, walk, talk, hear, sit, climb or balance.

The employee must regularly lift and/or move up to 60 pounds, frequently lift and/or move up to 100 pounds. Specific vision abilities required by this job include close, 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 near moving mechanical parts, is frequently exposed to wet and/or humid conditions and is occasionally exposed to fumes and airborne particles, toxic or caustic chemicals and risk of electric shock, and vibration.

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

November 2017

MWRA
POSITION DESCRIPTION

NEW

POSITION: Trades Foreman

DIVISION: Operations

DEPARTMENT: Equipment Maintenance, Facility Equipment Maintenance -West, Facility Maintenance-Metro, Deer Island

BASIC PURPOSE:

Supervises construction and facilities maintenance activities as assigned.

SUPERVISION RECEIVED:

Works under the general supervision of the Facilities Manager, Supervisor of Plant Maintenance or Sr. Program Manager.

SUPERVISION EXERCISED:

Exercises close supervision of assigned Facilities Specialists, Trades staff, OMC and Skilled Laborers.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Supervises assigned personnel in the maintenance of equipment and systems, the construction and repair of structures and in the overall care and upkeep of MWRA facilities.
- Manages various repair contracts.
- Orders materials and supplies to meet work order requirements.
- Coordinates with the other Maintenance staff to assist with the overall maintenance program, maintenance management system, and to complete specific construction, repair and maintenance activities.
- Determines the daily assignments for assigned staff and distributes work accordingly. Establishes deadlines and priorities on the basis of the maintenance schedule or emergencies.
- Provides technical input to improve task completion for assigned work orders; reports modifications made to equipment and reviews construction repair proposals.
- Assists trade and maintenance crews in troubleshooting assigned work orders and provides instruction on difficult work operations.
- Trains new personnel in plant and equipment maintenance.
- Reviews, monitors, evaluates work performed, and recommends appropriate improvements.

- Reviews assigned employee performance according to MWRA procedures.
- Monitors daily and weekly job status within the overall work plan.
- Follows established safety, operating, and emergency response procedures and policies established by MWRA.
- Promotes the MWRA Safety Program by participating in safety meetings.
- Assists other trades in the performance of their work, as required, or as assigned.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A high school diploma or GED; and

(B) Five (5) to seven (7) years of related experience in construction and maintenance with experience supervising a variety of Trade professionals; or in an equivalent position, to achieve proficiency in the following areas:

- A working knowledge of the methods, procedures and work rules relating to construction, preventive maintenance, and repair of equipment; and
- The ability to troubleshoot problems in the construction of structures and the maintenance and repair of equipment.
- Successful completion of the MWRA sponsored supervisory training program and receipt of the training certificate may be substituted for supervisory experience.

(C) Any equivalent combination of experience or education.

Necessary Knowledge, Skills and Abilities:

(A) Basic reading, writing, mathematical, and oral communication skills.

(B) Ability to plan, organize, direct, train and assign duties to subordinates, as obtained through successful completion of supervisory training or an approved substitution.

(C) A working knowledge of the occupational hazards and safety practices common to the trades and the satisfactory completion of MWRA safety training.

(D) Working knowledge of the methods, procedures and work rules relating to operations in a large industrial facility.

(E) Ability to troubleshoot problem areas relative to complex work assignments.

(F) Ability to supervise staff effectively and to establish and maintain effective working relationships with subordinates, superiors and associates.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators License.

TOOLS AND EQUIPMENT USED:

Power and hand tools, mobile radio, telephone, personal computer including word processing and other software, copy and fax machine.

PHYSICAL DEMANDS:

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

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools, or controls and reach with hands and arms. The employee 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 100 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 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.

December 2007

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Appointment of the Director, Waterworks, Operations Division

---

COMMITTEE: Personnel & Compensation

___ INFORMATION
_X_ VOTE

Andrea Murphy, Director, Human Resources
Preparer/Title

David W Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

To approve the appointment of Ms. Valerie Moran to the position of Director, Waterworks (Non-Union, Grade 16) at an annual salary of $164,000, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The Director, Waterworks position became vacant in August 2020 upon the retirement of the previous incumbent. The Director of Waterworks manages the entire Waterworks System consisting of Metropolitan Water Operations, Western Water Operations, the John J. Carroll Water Treatment Plant, the William A. Brutsch Water Treatment Facility, and the Department of Water Operations Engineering, and is the liaison to DCR's Department of Watershed Management, including reservoir operations. The Director of Waterworks also manages MWRA's SCADA, metering and monitoring programs. This position reports to the Chief Operating Officer.

Selection Process:

The position of Director, Waterworks was posted internally; a total of three highly qualified candidates submitted applications and all were referred for interviews. The Chief Operating Officer, the Deputy Chief Operating Officer and the Special Assistant for Affirmative Action conducted the interviews. Ms. Moran was selected as the best candidate for the position based on her knowledge and experience working on the MWRA water system and for her planning and vision for redundancy and emergency preparedness.

Ms. Moran has worked for 33 years at MWRA in water system operations engineering positions of increasing responsibility, supporting the metropolitan and western distribution, transmission and water quality facilities. Ms. Moran has demonstrated leadership at MWRA through many water system emergencies; most recently leading the response for the drilling accident on the Section 89 pipeline, which could have resulted in loss of the primary means of supply to six communities if not for the work of her and her staff.

In addition, Ms. Moran has been a significant contributor to water system redundancy initiatives. She was an instrumental member of the team that analyzed the City Tunnel, City Tunnel Extension and Dorchester Tunnel supply alternatives and that recommended the current Metropolitan Tunnel Redundancy program; and she was one of the presenters in subsequent public briefings. She directed the development of key water system emergency response plans that remain in effect until important redundancy projects can be implemented, including the Northern Intermediate High, Southern Extra High and Metropolitan Tunnel failure scenarios. She plays an important role in emergency training for MWRA and community water staff. She has guided the planning, design, construction and start-up for waterworks capital improvement projects from the operations and maintenance perspective for over 20 years.

Ms. Moran is well known and respected by MWRA member community staff and is among the first to be called at MWRA when they are in need. She is also an active member of the New England Waterworks Association.

Ms. Moran has a Bachelor of Science in Civil Engineering from the University of Lowell (now UMass Lowell). She is a registered Professional Engineer, holds a Grade 4 Water Distribution System Operator's license and recently passed the Grade 1 Treatment Operator license exam.

BUDGET/FISCAL IMPACT:

There are sufficient funds for this position in the FY21 Current Expense Budget.

ATTACHMENTS:

Resume of Ms. Valerie Moran
Position Description
Organization Chart

Valerie Moran, P.E.

Summary of Qualifications

- Extensive knowledge of MWRA water system, gained through 33+ years of experience
- Key contributor to the MWRA Water Redundancy Program
- Strong analytical, critical thinking and problem-solving skills
- Excellent interpersonal and communication skills with the ability to work with cross-functional teams.
- Cultivated and maintained good working relations with MWRA community water and public works personnel
- Proven ability to manage and troubleshoot activities during major water main breaks and repairs.

Professional Experience

Massachusetts Water Resources Authority,
1987 to Present

2018 – Present Deputy Director of Waterworks

- Direct, in collaboration with MWRA departments, the long-term planning for modernizing, rehabilitating and upgrading the Authority's water facilities
- Provide advice/assistance on all variety of operational, staffing, security and planning activities for the operations and maintenance of the water system to the Director of Waterworks.
- Direct Operations Engineering staff, including Process Control staff on in-house designs and contracts, working with E&C staff to ensure that Operations related design requirements are incorporated into both water and wastewater designs, improving instrumentation, automated facility controls and development and updating process control strategies.
- Manage staff designing and implementing SCADA system upgrades for the Carroll Water Treatment Plant and other water and wastewater facilities.
- Participates as a key member of hiring Waterworks management staff including development of hiring paperwork and preparation of the staff summary to the Board of Directors

- Work jointly with Enqual staff on water quality issues that affect the treatment, transmission, distribution and community water systems.
- Train MWRA staff on Emergency Action Plans concerning the hydraulics of the water system and participates on the training team for the Community Response Training
- Act as a primary resource for MWRA member communities for operational, water quality, Emergency Action Plans and other issues

2014 – 2018 Manager of Operations Engineering

- Oversee new water system project design and construction coordination, and emergency response.
- Direct hydraulic component of water system operations to ensure safe and efficient operations of the water delivery system.
- Manage staff responsible for providing continuous water service during any type of operational or physical change to the MWRA water system.
- Participate, with all departments, in the strategic planning process for the management of the MWRA water system.
- Train, supervise, motivate and evaluate Operations Engineering's highly valued engineering staff.
- Develop Emergency Response Plans (EAPs) for MWRA water system response and MWRA community connection loss EAPs. A specific example is the Metropolitan Tunnel Redundancy Emergency Action Plan
- Work closely with member communities to address their water quality and hydraulic needs

2003 – 2014 Sr. Program Manager – Operations Planning

- Authored Operations Plans and managed staff responsible for implementing the approved Operations Plans.
- Functioned as responsible person (RP) during major operations
- Developed Emergency Action Plans (EAP) for specific situations including:
  - East Boston Pumping Operation
  - Limited redundancy at selected meters (ie Meter 3, East Boston)
  - Shaft 5 isolation
- Oversaw Operations requirements during start-up of major facilities and pipelines including, testing, training creation of facility handbooks and O&M manuals

1999 – 2003 Program Manager – Operations Planning

- Created MWRA dechlorination manual
- Provide Engineering Support to the following programs:
  - Water pipeline, Valve, Metropolitan Operations, Western Operations, Customer Communities
- Review and comment at all stages of design on various MWRA water projects as well as outside contracts that affect MWRA appurtenances
- Developed contract drawings and specifications for paving, linestopping and tank cleaning contracts. Also, oversaw the execution of the contract from start to finish

1994 to 1999 Project Manager, Distribution

- Worked with Distribution Superintendent and Pipeline group to create the yearly Valve Replacement Program and the Valve Exercise Program
- Created Community Complaint Database
- Oversaw and develop Operation Plans for all Metropolitan Valve Operations

1987 to 1994 Project Engineer

- Aided in the creation of the MWRA valve database
- Assisted in the development of contract documents (plans and specifications) for various CIP and CEB projects
- Help create ties between the Distribution Section and the Metropolitan MWRA Communities

Education

Bachelor of Science: Civil Engineering
University of Lowell
1987

Registered Professional Engineer - Massachusetts
Grade 4D Drinking Water Supply Facilities Full Operator

Committees

New England Waterworks Education Committee

References

References are available upon request.

MWRA
POSITION DESCRIPTION

POSITION: Director, Waterworks

DIVISION: Operations

DEPARTMENT: Waterworks

BASIC PURPOSE:

Directs the planning, design, construction, operation and maintenance of all water supply facilities and services including reservoirs, aqueducts, pumping, distribution, water supply and treatment and transmission operations.

SUPERVISION RECEIVED:

Reports to the Chief Operating Officer, Operations Division.

SUPERVISION EXERCISED:

Exercises close supervision of Senior Managers.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Develops operational strategies for the water system. Coordinates the use of supply reservoir, aqueduct flow, power generation, flood control, pumping, distribution, treatment and transmission, water quality and other elements of water supply.

- Directs all water system operations and operations engineering to achieve safe and optimum operating efficiency of the water delivery systems.

- Directs all maintenance activities for supply reservoirs, aqueducts, power generation, flood control, treatment facilities, distribution pipelines, pumping facilities, and certain storage facilities.

- Directs the development, maintenance, and implementation of SCADA and Metering systems for assigned water and wastewater facilities, and oversees meter data collection, quality control, and total flow calculations used for allocation of MWRA's rate revenue.

NU16

- Provides input and direction for the long-term planning, design, and construction of modernizing, rehabilitating and upgrading the Authority's water facilities.

- Confers with consultants, local officials from member communities and state and federal officials on matters relating to operations and maintenance of the Waterworks.

- Reviews and evaluates managers' performance according to MWRA procedures.

- Recommends, develops and implements policies and procedures for Operations Engineering.

- 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.

- Participates in collective bargaining negotiations.

- Directs safety programs, strategic planning and policy development, employee involvement programs and supports MWRA-wide safety programs.

- Provides opportunities for technical, supervisory and managerial training and education for all department employees. Ensures that staff are trained properly to be ready to operate new facilities as they come online.

- Represents Waterworks and the Operations Division as required with the Authority's Division Directors, Executive Director and the Board of Directors.

- Acts as interagency liaison to the Massachusetts Department of Conservation and Recreation (DCR) and other government entities in regards to operations of the Waterworks Facilities.

- Administers personnel policies, provides direction, and coordinates the selection, supervision, training and evaluation of department personnel.

- Coordinates preparation of departmental staffing plan, budget and schedule and monitors the implementation of departmental objectives in keeping with budget parameters.

- 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.

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

SECONDARY DUTIES:

- Performs other related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

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

(B) Twelve (12) to fifteen (15) years of related experience, of which six (6) years must be in the design or management of a large waterworks system or other similar large operational facility with multiple supervisory levels; or

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

Necessary Knowledge, Skills and Abilities:

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

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

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

(D) Proficient in the use of personal computers and associated Microsoft Office software programs, including Word, Excel, and Power Point.

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

SPECIAL REQUIREMENTS:

- Able to respond to emergency situations 24 hours per day, seven days per week.
- A valid Massachusetts Class D Driver's License.
- Valid Massachusetts Grade I Water Treatment Operator's license OIT (or ability to obtain within 12 months).
- Valid Massachusetts Grade IV Water Distribution Operator's license (or ability to obtain within 12 months).
- Registered Professional Engineer preferred.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

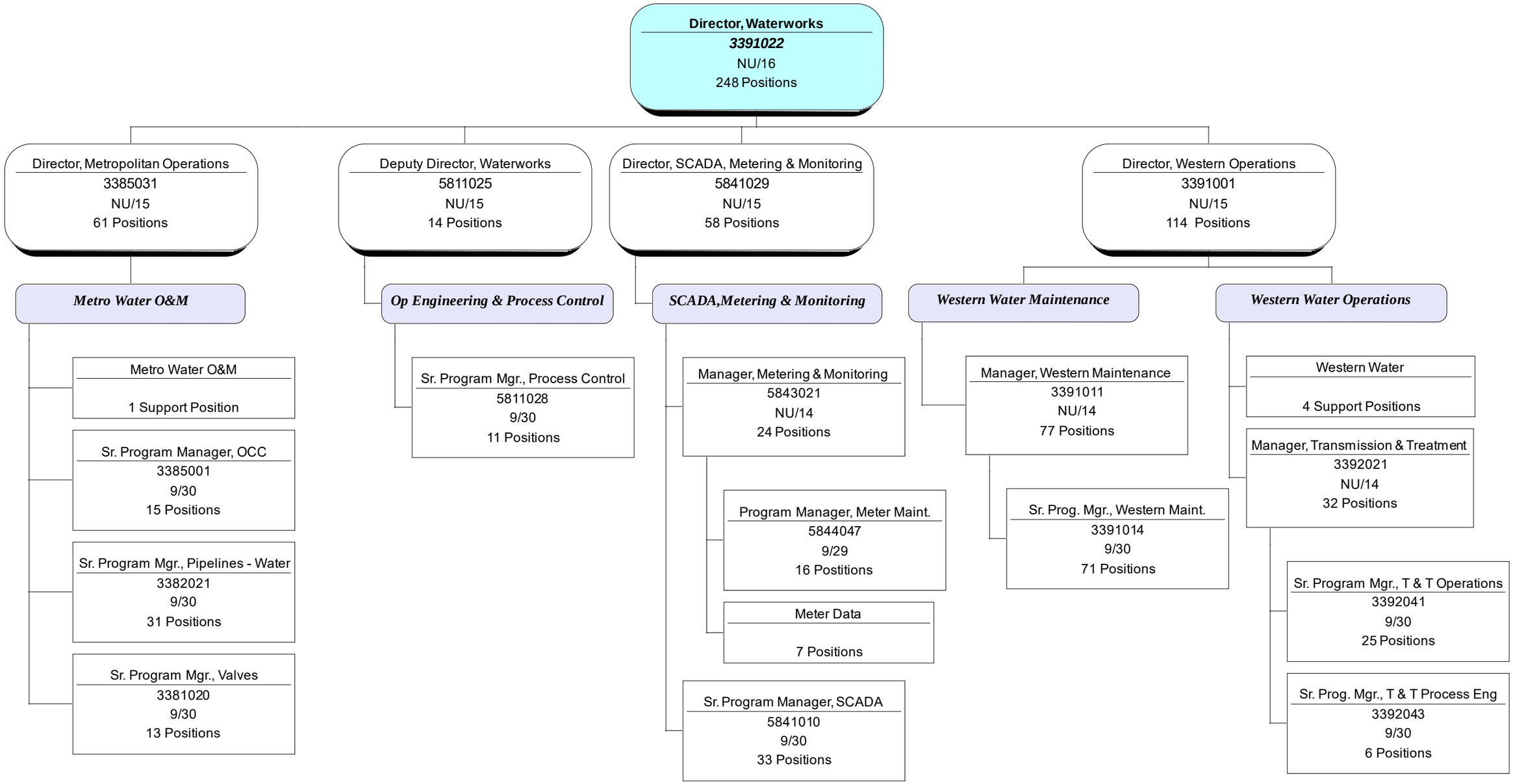
There are no requirements that weight be lifted or force be exerted in the performance of this job. Specific vision abilities required by this job include close vision, and the ability to adjust focus.

WORK ENVIRONMENT:

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

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

Director Waterwork Summary
(Includes: Waterworks O&M, SCADA and Operations Engineering)
September, 2020



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Appointment of Superintendent, Clinton Advanced Wastewater Treatment Plant Operations Division

---

COMMITTEE: Personnel & Compensation

___ INFORMATION
_X_ VOTE

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

David W Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

To approve the appointment of Mr. Keith Perrin to the position of Superintendent at the Clinton Advanced Wastewater Treatment Plant (Non-Union, Grade 14) at an annual salary of $132,000, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The Superintendent's position became vacant in August 2020 upon the retirement of the previous incumbent. The Superintendent, Clinton reports to the Director of the Deer Island Wastewater Treatment Plant. This position is responsible for all operations and maintenance of the Clinton plant and landfill operations, permit compliance, staffing, plant staff training and safety programs, and the operating and capital replacement budget. The position is also responsible for continued optimization of the phosphorus reduction facility, which started its operation last year with stricter total phosphorus limits that became effective in April 2019.

Selection Process:

The position of Superintendent, Clinton, was posted internally and externally. Five candidates, two internal and three external, were referred to the Operations Division as they met the minimum qualifications of the job description. The Director of Wastewater, the Director of Deer Island and the Manager, Operations Support conducted the interviews. Mr. Keith Perrin was unanimously selected as the best qualified candidate for the position by the hiring committee.

Mr. Perrin has 31 years of experience in the environmental field in increasing levels of responsibility with 27 years in wastewater operations and 23 of those years in a supervisory capacity. He currently works as a Shift Manager for the Deer Island Treatment Plant. Previously,

he served as an Area Supervisor at Deer Island, an Environmental and Health and Safety Officer at Tyco Electronics, and in various wastewater operator and supervisor positions at several companies before that.

Mr. Perrin has been an exemplary Shift Manager while on Deer Island and has trained numerous staff in the proper operation of this very large and complex wastewater treatment plant. He has a thorough understanding of wastewater treatment processes and the responsibility of a plant manager under the terms of a NPDES permit. He is very knowledgeable about crisis management and about advanced levels of treatment (nitrogen and phosphorus removal) like those used at the Clinton Advanced Wastewater Treatment Plant. He is familiar with computerized maintenance management systems and facility asset management. He currently oversees seven staff at Deer Island on the overnight shift. He is involved in staff training, developing standard operating procedures, succession planning and recognizes the importance of knowledge transfer to his staff. He has many years of experience managing in a unionized environment.

Mr. Perrin has a Bachelor of Science Degree with a wide range of courses in chemistry, biology and physics from the University of Massachusetts at Amherst. He has demonstrated a thorough understanding of wastewater chemistry and microbiology. He holds the required Grade 7-Full Active Wastewater Operator's license from the Massachusetts Department of Environmental Protection, along with other non-required certifications: Certified Hazardous Materials Manager and a 40-hour HAZWOPER (Hazardous Waste Operations and Emergency Response) certification.

BUDGET/FISCAL IMPACT:

There are sufficient funds for this position in the FY21 Current Expense Budget.

ATTACHMENTS:

Resume of Mr. Keith Perrin
Position Description
Organization Chart

KEITH PERRIN

ENVIRONMENTAL MANAGEMENT & WASTEWATER TREATMENT

EDUCATION:

June 1977	**Diploma** – Gloucester High School
May 1984	**BS – UMass-Amherst** (Relevant Courses: Inorganic Chemistry I & II, Organic Chemistry I & II, Biochemistry, Physics I & II, Calculus)
Nov 1986	**CEF – Certified Electroplater-Finisher** professional designation awarded by the American Electroplaters and Surface Finishers Society
Jan 1989	**License – Grade IV Industrial Wastewater Treatment Plant Operator – Mass**
May 1995	**License – Grade VI Combined Wastewater Treatment Plant Operator – Mass**
June 1999	**CHMM – Certified Hazardous Materials Manager** professional designation awarded by the Institute of Hazardous Materials Management
June 2003	**40-Hour Hazardous Waste Operations and Emergency Response**

LICENSE:

Sep 2013	**Grade 7-C Massachusetts Wastewater Treatment Plant Operator, #3712**

EXPERIENCE:

Massachusetts Water Resources Authority-Winthrop MA 12/07-Present

Wastewater treatment plant supervisor for this large municipal wastewater treatment plant which treats approximately 300 million gallons of wastewater daily. Responsible for various operation and control tasks associated with the safe and efficient operation of this state run treatment plant. Assign tasks to and otherwise manage plant operators and troubleshoot/resolve plant issues and problems as they arise.

Tyco Electronics – Stafford CT & Norwood MA 7/2005 – 12/2007

Environmental, Health, and Safety supervisor for this large manufacturer of high-end circuit boards for the military and other clients. Supervised wastewater treatment plants in two facilities. Supervised hazardous waste management and shipping in both of the chemical intensive facilities. Managed nine wastetreatment operators in both facilities for around-the-clock staffing of the treatment plants and responded to all safety and compliance issues. Managed Access waste tracking database and various other computer tasks.

O & M Incorporated – Massachusetts and Rhode Island 6/2004 – 7/2005

Operations and maintenance of superfund sites in Massachusetts and Rhode Island. Performed maintenance and monitoring of groundwater remediation systems, landfill gas collection and flare systems, and leachate collection systems. Collected samples, organized and reported data. Planned and implemented site modifications. Coordinated crews necessary to complete major work. Responded to alarms, maintained site security, and in all ways ensured the successful operation of these superfund sites.

Plating For Electronics, Inc. – Waltham MA 8/2000 – 6/2004

Environmental Manager. Responsible for all of the environmental and safety concerns of this large, modern electroplating job shop. Responsible for compliance with all applicable Federal and State environmental and safety regulations. Completed and submitted environmental and safety reports including TURA, TRI, Tier II, OSHA 300 logs and all the rest. Assisted the Manchester Corporation with the design and installation of a new wastewater treatment PLC-driven control panel. Subsequently, ran and maintained the PLC-controlled wastewater treatment plant which employs a 36-module microfiltration unit. Performed light maintenance of shop equipment including some electrical work.

KEITH PERRIN

Printed Circuit Corporation – Woburn MA 10/94 – 8/2000

Supervisor of the Wastetreatment department. Responsible for all aspects of running the Grade IV wastewater treatment plant, meeting MWRA compliance parameters and treating over 200,000 gallons per day of wastewater. Supervised, assigned work to, and directed the operations of three other operators. Managed all hazardous wastes including identification, profiling, accumulation, labeling, marking, manifesting, and shipping. Heavily involved in all cost reduction measures. Dealt directly with vendors in scheduling and performing trials on new chemistries and control devices. Dealt directly with personnel from labs and the MWRA. Ensured compliance with all RCRA regulations, and prepared compliance reports for the MWRA.

Bull HN – Brighton MA 12/92 – 10/94

Grade IV operator of Bull's Grade IV treatment plant. Responsible for all normal operations and light maintenance on this dual treatment system involving ion exchange resin columns for the high volume/low metals wastestream and a two-clarifier DTC precipitation system for the low volume/high metals wastestream

M & V Electroplating – Newburyport MA 10/91 – 11/92

Grade IV operator of M & V's Grade IV treatment plant. System included conventional two-stage cyanide destruction, chromium reduction, and hydroxide metal precipitation. Performed batch treatment of spent acid and alkaline cleaning baths, maintained equipment, and prepared reports for the city's pretreatment coordinator.

Raytheon Company Equipment Division – Waltham MA 10/90 – 10/91

Grade IV operator of Raytheon's Grade IV treatment plant, comprised of a two-clarifier coagulation/flocculation system involving chelated and nonchelated wastestreams, chrome reduction, and the use of ferric chloride as the principle coagulant and treatment chemistry. Also monitored and maintained their groundwater remediation system extracting solvents from groundwater.

Stablex RI, Inc. – Providence RI 9/89 – 10/90

Was the 2'nd shift leadman (no supervisor present) for this hazardous waste treatment, storage, and disposal facility. Was responsible for the offloading and treatment of various hazardous waste loads brought in on tanker trucks from all over New England. Batch treated various hazardous waste mixtures in 5000 gallon reaction tanks and treated the filter press effluent in a Sodium Sulfide precipitation system which included cyanide destruction and chromium reduction.

ADDITIONAL EDUCATION

May 1986	Completed correspondence course given by AESF in electroplating theory and practice.
Dec 1988	U Lowell course in Industrial Waste Treatment.
Mar 1995	Northeastern University course in Hazardous Waste Management.
May 1995	U Mass Lowell 24-Hour exam review in municipal and industrial wastewater treatment.
May 1999	Northeastern University exam review course for the Certified Hazardous Materials Manager exam.

MWRA
POSITION DESCRIPTION

POSITION: Superintendent

PCR#: 2910001

DIVISION: Operations

DEPARTMENT: Clinton Wastewater Treatment Plant

BASIC PURPOSE:

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

SUPERVISION RECEIVED:

Works under the supervision of the Director, DIWWTP (Deer Island Treatment Plant).

SUPERVISION EXERCISED:

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

ESSENTIAL DUTIES AND RESPONSIBILITIES:

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

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

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

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

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

- Approves and audits requisitions for materials and equipment.

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

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

- Oversees personnel management. Ensures that major initiatives and policy changes are properly communicated to all staff. Identifies organizational needs and proposes re-organization plans to address changing needs.

- Oversees staff productivity monitoring and continual improvement through staff skills development, strategic planning, SOPs improvements and research and implementation of technology advances. Maximizes effective use of the Maximo maintenance software and related computer programs.

- Manages the department safety programs, maximizing employee involvement, supporting the Authority-wide safety program, and making inspections. Acts as liaison to the Manager, Occupational Safety and Health. Immediately notifies Occupational Safety and Health of any safety issues or risks that need attention.

- Reviews assigned employees' performance per MWRA procedures.

- Establishes emergency response procedures and oversees training and practice drills.

- Ensures consistency and uniformity of work rules in accordance with established policies and procedures. Identifies needed improvements to work.

- Manages successful administration of collective bargaining agreement provisions to maintain harmonious labor management relations. Participates in grievance resolution, collective bargaining and contract negotiations. Serves as Step I hearing officer. Hears disciplinary actions.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

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

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

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

(D) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

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

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

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

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

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

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

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

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

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle Operators license.

A Massachusetts Grade VII Wastewater Treatment Facilities Operators license.

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

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

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

WORK ENVIRONMENT:

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

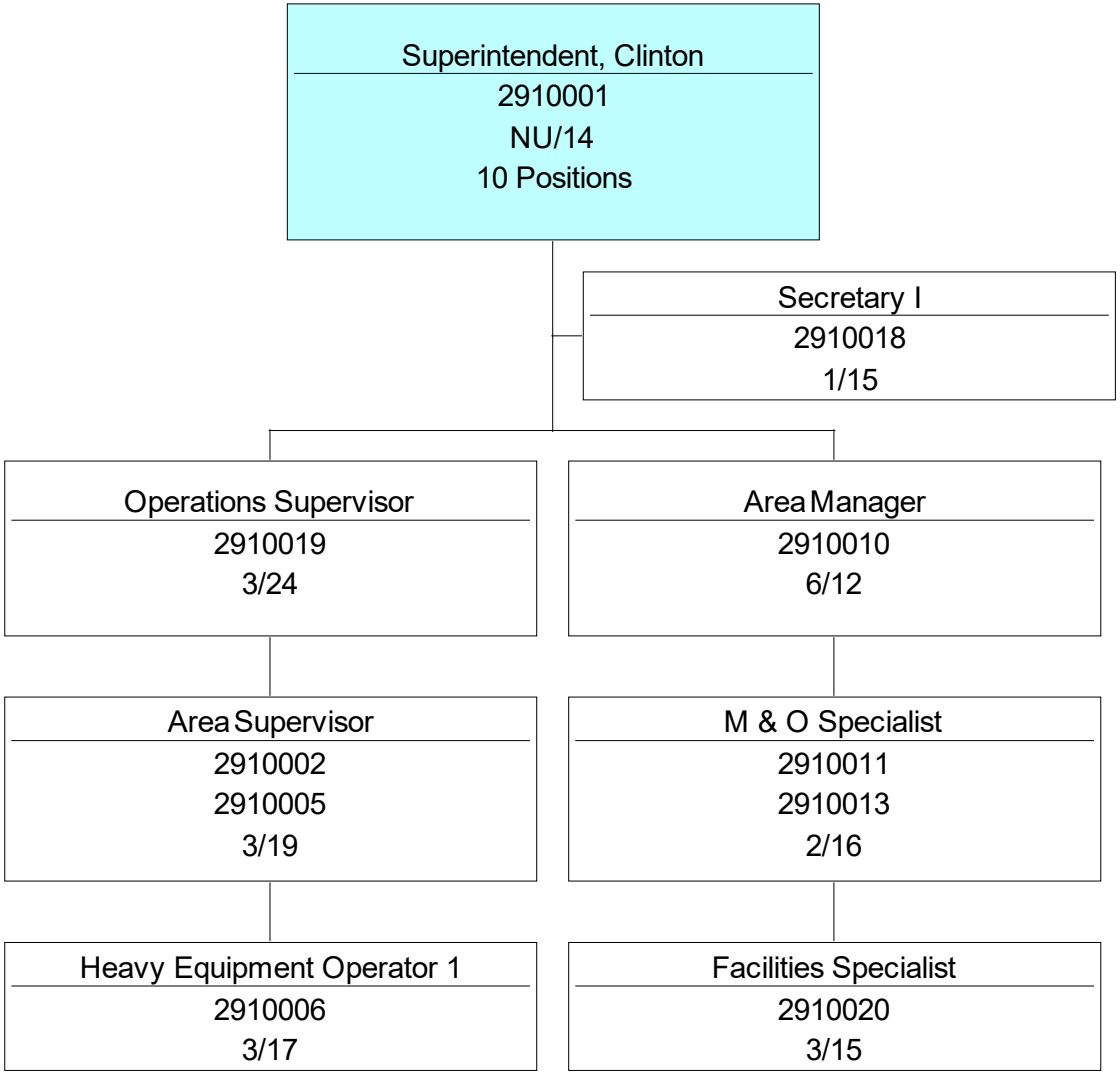
While performing the duties of this job, the employee occasionally works in outside weather conditions. The employee occasionally works near moving mechanical parts, is exposed to wet and/or humid conditions and vibration. The employee occasionally works in high, precarious places and occasionally is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

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

March 2020

Operations- Wastewater Treatment

Clinton Wastewater Treatment Plant



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Appointment of Environmental Manager, Environmental and Regulatory Affairs

---

COMMITTEE: Personnel & Compensation

____ INFORMATION
__X__ VOTE

Andrea Murphy, Director, Human Resources
Beth Card, Director, Environmental & Regulatory Affairs
Carolyn Fiore, Deputy Chief Operating Officer
Preparer/Title

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

RECOMMENDATION:

To approve the appointment of Richard Geisler to the position of Environmental Manager (Unit 9, Grade 30) in the Environmental and Regulatory Affairs Department at an annual salary of $134,318.33 commencing on a date to be determined by the Executive Director.

DISCUSSION:

The Environmental Manager position became vacant in March 2020 upon the retirement of the previous incumbent. Organizationally, this position reports to the Director, Environmental and Regulatory Affairs. The Environmental Manager is responsible for assuring environmental compliance for MWRA. The position evaluates and implements local, state, and federal environmental regulations related to MWRA facilities, infrastructure, and construction projects, and manages environmental permitting, response to hazmat incidents, and remediation of MWRA facilities. The Environmental Manager makes operational decisions based on an understanding of local, state and federal environmental regulations requirements such as the Massachusetts Contingency Plan Regulations, the Massachusetts Solid Waste Master Plan, the federal and state Clean Waters Act, and the federal and state Clean Air Act requirements.

Selection Process

MWRA posted the position of Environmental Manager both internally and externally. A total of 21 candidates applied for the position including one internal applicant. Seven external candidates were determined to be qualified and were referred for an interview. The Deputy Chief Operating Officer, the Director of Environmental and Regulatory Affairs, and the Special Assistant for Affirmative Action conducted the interviews. Upon completion of the interviews, Richard Geisler was determined to be the best candidate based on his experience, knowledge, skills and education.

Richard Geisler has approximately 25 years of professional experience working in the private sector, often on behalf of public sector clients. He is currently Vice President of Site Assessment and Remediation for RPS Group, Inc. in Boston where he provides site investigation and remediation support services for contaminated properties and redevelopment planning. He is a Licensed Site Professional and is well versed in a wide suite of environmental regulations including the Massachusetts Contingency Plan regulations. Prior to his role at RPS Group, Inc. he was a Vice President at Green Seal Environmental where he often served as the Licensed Site Professional for MWRA projects including hazardous waste site close-out efforts. He has decades of experience in emergency response, spill clean-up and oversight, development of environmental response plans, and coordinating with local, state, and federal officials on environmental response actions. Mr. Geisler has experience in managing professional staff and consultants and has previously been an environmental assessment course instructor at the University of Massachusetts.

Mr. Geisler has a Bachelor of Science degree in Geology from Norwich University in Vermont. In addition to being a Massachusetts Licensed Site Professional, Mr. Geisler is a Massachusetts Certified A/B Operator for underground storage tank systems (meaning he can serve as the owner and operator of such systems given his knowledge of state and federal requirements), and a Registered Professional Geologist in the State of New Hampshire.

BUDGET/FISCAL IMPACT:

There are sufficient funds for this position in the FY21 current expense budget.

ATTACHMENTS:

Resume of Richard Geisler
Position Description
Organization Chart

Richard P. Geisler

Education:

- Coursework toward a Masters of Business Administration, Marlboro College (2009-2011)
- Bachelor of Science in Geology, Norwich University (Military College of Vermont), Graduated 1994

Professional Licenses:

- Registered Hazardous Waste Site Cleanup Professional - Massachusetts Licensed Site Professional (L.S.P.) # 9181
- New Hampshire Licensed Professional Geologist (P.G.) #253

Professional Experience Summary:

- **RPS Group, Inc. (May 2019 - Present) – Boston, Massachusetts**
  - **Vice President of Site Assessment and Remediation**
    - Responsible for establishing RPS in the New England market and growing revenue through new client acquisitions.
    - Assist the transaction advisory services and environmental compliance teams with site investigation and remediation technical support.
    - Developing work plans and cost to closure estimates to facilitate multimillion-dollar equity and asset deals for private investors and Fortune 500 companies at properties contaminated with chlorinated solvents, heavy metals, petroleum and PFAS compounds.
    - Rendered opinions as senior LSP for the redevelopment and construction oversight of Brownfields properties in Somerville, Cambridge and Worcester under the Massachusetts Contingency Plan;
- **Green Seal Environmental, Inc. (March 2016 – May 2019) – Sagamore Beach, Massachusetts**
  - **Vice President of Environmental Services**
    - Responsible for all sales and P&L operations in the environmental services group;
    - Acted as senior LSP and closed hazardous waste sites using Permanent Solution Statements under the Massachusetts Contingency Plan MCP;
    - Oversee due diligence site assessments and investigations for private clients and regional lending institutions; and
    - Developed and mentored technical staff while ensuring client satisfaction remains the top priority.
- **Environmental Compliance Services, Inc. (2004 – March 2016) – Agawam, Massachusetts**
  - **Tropical Storm Irene Emergency Response Coordinator (August-October 2011)**
    - Acted as the environmental and hazardous materials spill coordinator for the Vermont Agency of Transportation (VTrans) Dummerston Regional Response Center during the response operation for Tropical Storm Irene.
    - Worked within the Federal Emergency Management Agency (FEMA) National Incident Management System (NIMS) and reported directly to the Regional Response Center Commander.
    - Responsible for directing all of the response actions pertaining to the assessment and containment of over 50 releases of oil and hazardous materials identified in some of the hardest hit areas of southern and eastern Vermont including VTrans Maintenance Districts 2, 4, and 6.

- Coordinated multiple crews of environmental professionals from the EPA, Coast Guard, the Vermont Compliance and Enforcement Division and local contractors to assess and contain each incident.
- This role included daily interactions with people displaced by Irene, personnel from federal, state and local authorities and personnel from local and regional planning commissions.

- **Director of Emergency Response Management**
  - Directed the daily operations and development of the company's Emergency Response Management Program;
  - Staffed and managed a 24x7x365 internal emergency response call center;
  - Established a nationwide 24/7 emergency response management network of vender contractors;
  - Monitored vender contract schedules, deliverables, change orders, and amendments;
  - Interpreted technical documents, laws and regulations;
  - Trained internal technical staff to respond and direct spill cleanup operations of oil and hazardous materials;
  - Assisted with the consolidation of company internal resources and communication systems;
  - Developed standard operating procedures for client specific handing requirements;
  - Established minimum baseline competencies across each level of production including clerical and call center operations and technical staff; and
  - Developed business in the utility, insurance and petroleum retail markets.

- **Director of Environmental Due Diligence**
  - Advised lenders and real estate investors about environmental risk management and mitigation;
  - Authored and rendered professional opinions on thousands of real estate transactions involving single property deals to multi-property and multi-state portfolio work; and
  - Responsible for all technical work, internal training, business development efforts and marketing activities for national lending clients.

- **Branch Manager/Operations Manager – Brattleboro, Vermont Office (2004-2014)**
  - As the manager for the firm's Brattleboro, Vermont office, I was responsible for all sales and P&L operations in that business unit (one million dollars of annual revenue) which included work in Vermont, New Hampshire and Massachusetts;
  - Acted as senior project manager on assessment, remediation and redevelopment projects in Vermont and Massachusetts.
  - Established a process to deliver work products to customers within or ahead of schedule in a sustainable, reproducible fashion;
  - Evaluated employee performance and creating performance improvement plans;
  - Performed work flow efficiency modeling,
  - Project cost estimating, budgeting and forecasting, and
  - Hired, trained and mentored staff.

- **University of Massachusetts at Amherst - College of Natural Resources and the Environment (2011-2017)**
  - Course Instructor/Lecturer - ENVIRSCI 465- Principles in Environmental Site Assessment
  - Developed curriculum and instructed undergraduate and graduate students in the principles of conducting environmental site assessments in accordance with the EPA All Appropriate Inquiry (AAI) rule the ASTM 1527 standard.

- **Tighe & Bond, Inc. - Project Manager/Hydrogeologist (1995-2004) – Westfield and Worcester, Massachusetts**
  - Responsibilities included conducting, coordinating and supervising the design and implementation of site assessment and subsurface investigations at sites impacted by petroleum and hazardous materials.

- Managed hydrogeological projects including landfill closure assessments, geotechnical assessments, 21E site assessments, ASTM Phase I and II investigations, risk characterization and remediation feasibility studies.
- Conducted emergency response management activities and electrical substation upgrade projects for electrical utility clients in western and central Massachusetts.

Technical Experience Summary:

- LSP of Record for Disposal Sites where oil (waste oil, fuel oils and gasoline) and/or hazardous materials (acids, MTBE, PCBs, heavy metals, chlorinated solvents and PFAS) have impacted soil, groundwater, drinking water supplies and indoor air. I have 25 years of experience working within all Phases of the MCP and managing PCB cleanup projects under the Toxic Substance Control Act (TSCA).
- Developed emergency response management procedures and training programs for Green Seal and ECS emergency responders and outside contractors, municipal emergency responders and clients.
- Oversaw and conducted hazardous building materials assessments including the collection of materials containing asbestos, lead paint and PCBs.
- Managed hundreds of projects ranging from property transfer site assessments, Brownfield redevelopment at former industrial properties, and geotechnical/environmental redevelopment.
- My remedial project management experience includes soil excavation, air sparging, soil vapor extraction, multiphase extraction, bioremediation, surfactant injection and groundwater and LNAPL recovery.
- Provided expert witness testimony in Massachusetts and New Hampshire District Courts to recoup monetary losses for clients from UST removals and emergency response management projects.
- Conducted construction management oversight, contractor supervision, and Spill Prevention Control and Countermeasure (SPCC) Planning and Training.

Certifications:

- Occupational Health and Safety Administration (OSHA) 40-hour Hazardous Waste Operator (HAZWOPR)
- Current 8-hour OSAH HAZWOPR Refresher
- OSHA 10-hour Construction Supervisor
- NIMS FEMA Incident Command System (ICS-200.B) Incident Command for Single Resource and Initial Action Incidents
- EPA Underground Storage Tank (UST) Class A/B Operator (2015-2017)

MWRA
POSITION DESCRIPTION

POSITION: Environmental Manager

PCR#:

DIVISION: Operations

DEPARTMENT: Environmental and Regulatory Affairs

BASIC PURPOSE:

Responsible for assuring environmental regulatory compliance. Evaluates and implements local, state, and federal environmental regulations related to MWRA facilities and infrastructure. Provides guidance and develops procedures for achieving and maintaining compliance with environmental requirements.

SUPERVISION RECEIVED:

Works under the general supervision of the Director of Environmental and Regulatory Affairs.

SUPERVISION EXERCISED:

Oversees staff with varying levels of experience and expertise, including Program Managers, and environmental analysts, as well as multiple contracts.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Represents the Authority in developing programs and procedures for compliance with environmental requirements and negotiating appropriate procedures for compliance and expeditious review with regulatory agencies.

- Manages environmental permitting, response to hazmat incidents, and operational decisions based on an understanding of local, state and federal environmental regulations requirements. Specifically, these include the Massachusetts Contingency Plan Regulations, Massachusetts Solid Waste Master Plan, federal and state Clean Waters Act, federal and state Clean Air Act requirements, applicable federal and state hazardous waste regulations, federal oil spill prevention regulations, and underground storage tank requirements.

- Oversees all water and sewer projects as they relate to environmental regulatory compliance. This includes oversight of air pollution and underground storage tank permitting, and development of environmental workplans and remediation plans for Authority construction projects.

- Manages the work of environmental consultants under contract to the MWRA for quality of deliverables, budget, and schedule compliance.

- Serves as a liaison to environmental regulatory agencies and provides notifications and reports as required.

- Prepares updates to MWRA operational materials to ensure work is conducted in a manner that is consistent with the Massachusetts Contingency Plan and hazardous waste regulations.

- Provides incident reporting recommendations and conducts reporting under the Massachusetts Contingency Plan and Ambient Air Quality Standards to senior managers.

- Prepares reports and technical presentations in order to brief Department Director and other senior staff on environmental compliance issues.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A Bachelor's degree in environmental science, environmental engineering or related field. A master's degree is preferred; and

(B) Eight (8) to ten (10) years of experience in interpreting or applying hazardous waste site cleanup regulations (including the Massachusetts Contingency Plan and other environmental regulations that impact MWRA operations) and in the development of compliance plans related to internal operations; including four (4) years in a supervisory capacity; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of water and wastewater treatment systems, watershed management, and environmental regulations.

(B) Excellent computer skills in Oracle, Access and Excel and working knowledge of MS Word and Power Point.

(C) Demonstrated ability to work as part of a project team, to develop and maintain productive working relationships with external parties, and to function independently with minimal supervision.

(D) Excellent written and communication skills as well as good interpersonal and organizational skills.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle license.

Required to become a Licensed Site Professional (licensed by Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals) within 12 months.

Required to obtain a Massachusetts Underground Storage Tank ClassA/B Operator Certification within 12 months.

Required to obtain an OSHA Hazardous Waste Operations and Emergency Response (HAZWOPR) 40 hour general site worker certification within 12 months.

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 is frequently required to sit, talk and hear. The employee is occasionally

required to stand and walk, stoop, kneel, crouch or crawl, taste or smell.

There are no requirements that weight be lifted or force be exerted in performance of this job, although the employee may have the opportunity to participate in field activities that involve lifting weight (e.g. water, sediment or other environmental samples) or exerting force. Specific vision requirements 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.

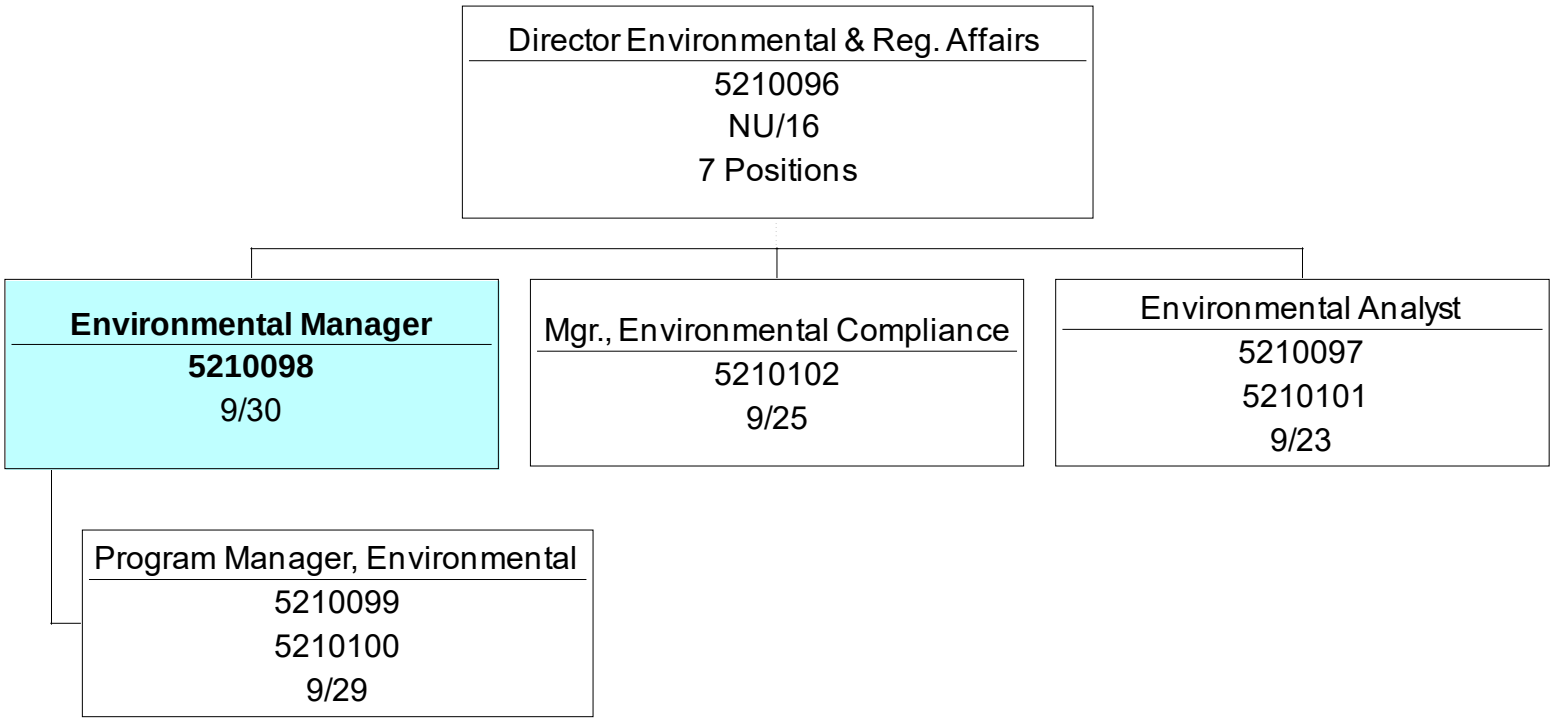
While performing the duties of this job, the employee regularly works in an office environment. The employee occasionally works in outside weather conditions. The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions and vibration. The employee 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 a moderately quiet office setting.

February 2020

Environmental & Regulatory Affairs

July, 2020



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Appointment of Systems Administrator III (Systems), MIS Department

---

COMMITTEE: Personnel and Compensation

___ INFORMATION
_X_ VOTE

Paula Weadick, MIS Director
Ken Carlson, Technical Operations Manager
Preparer/Title

Michele S. Gillen
Director of Administration

RECOMMENDATION:

To approve the appointment of Jason Ayers to the position of Systems Administrator III (Systems) (Unit 6, Grade 12), in the MIS Department, at the recommended salary of $103,155.93 commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Systems Administrator III (Systems), in the MIS department, is responsible for the management and support of MWRA's enterprise messaging environment and core network infrastructure components such as servers and storage on multiple platforms and operating systems which provide critical services and access to data throughout the Authority. This position is vacant as a result of a resignation.

The position of Systems Administration III (Systems) focuses on applications such as Exchange Email, Active Directory, Citrix, Infor/Lawson and Backup technology solutions which are key components of this role. Organizationally, the System Administrator III (Systems) reports to the Sr. Program Manager, Systems Administration.

Selection Process

This position was posted both internally and externally. Two external applicants were referred for interviews. The interviews were conducted with the Manager, Technical Operations, Sr. Program Manager, Systems Administration, and the Project Manager, Monitoring and Compliance AACU.

Upon completion of the interviews, Mr. Jason Ayers was selected as the most qualified candidate for the position based on his education and training, work experience, systems administration knowledge, and possession of the critical skills related to the job requirements. Mr. Ayers has 25 years of knowledge and experience supporting Microsoft Exchange, its dependencies such as Active Directory and the evolving messaging technologies. Mr. Ayers has a Bachelor's degree in

Accounting from Bucknell University and is currently pursuing a Master's in Computer Science at Boston University. Mr. Ayers also possesses a MCSE: Productivity Solutions Expert certification and has completed the required courses to support Microsoft Exchange.

Mr. Ayers demonstrates the dedication of continuous improvement, a skill essential to supporting the evolving IT systems of the MWRA.

The combination of his experience, skills, and knowledge make Mr. Ayers an excellent candidate for the Systems Administrator III (Systems) position.

BUDGET/FISCAL IMPACT:

There are sufficient funds in the MIS Department FY21 Current Expense Budget to fund this position. The recommended salary is in accordance with guidelines established in Unit 6's current collective bargaining agreement.

ATTACHMENTS:

Resume of Jason Ayers
Position Description
Organization Chart

Jason Ayers

Work Experience

11/2004 – 4/2020: Liberty Mutual - Principal Software/Systems Engineer
Portsmouth, NH

Senior member of the Liberty Mutual Messaging and Collaboration Engineering team. Responsible for the design, build, and support of multiple Lync deployments around the globe. Total user population of ~50k. My main area of focus is Lync federation and any other Lync Edge functionality, requiring a heavy emphasis on network trace analysis.

• Developed a multithreaded Java application to monitor Edge server connectivity.

• Senior member of the messaging operations team supporting a mixed Exchange environment of ~50k mailboxes. The Exchange environment currently consists of Exchange 2010 and 2013.

• 40K user migration from Lync 2010 to Lync 2013. My main area of focus during this project was the Lync Edge layer. 30K user migration from OCS 2007 to Lync 2010. My main area of focus during this project was the Lync Edge layer. 700 mailbox migration from Lotus Domino to Exchange 2010 using Quest Migration Manager for Exchange.

• Technical lead for: a migration from Exchange 2007 to Exchange 2010. Within the context of this project, my focus was on the design and build of HUB server role, message routing, Mailbox server role, DAG design. • a migration from Exchange 2003 to Exchange 2007. Within the context of this project, my focus was on the design and build of HUB server role, message routing, Mailbox server role, CCR cluster design.• Lead engineer for a 7k user deployment of Microsoft Live Communications Server 2005. This project also entailed integrating LCS with the PBX via Avaya's AES 4.1 gateway, building SQL 2005 shared storage cluster, and designing an IM archival solution.

• Team lead for 3k user Blackberry (BES) server environment and 500 user Goodlink server environment.

• Shared responsibility for operational support of the following technologies:
Ironport anti-spam gateways, RightFax, ForeFront, SimpleSync LDAP directory synchronization

4/2003 - 11/2004: Microsoft Corporation - Premier Support Engineer
Charlotte, NC

• Senior support professional within Microsoft Product Support. My main focus, as a member of the Microsoft Enterprise Messaging Support organization, was on messaging client/server infrastructure. I also participated in developing technical training and support articles for other members of the team. Specific areas of concentration include the following:

Outlook Web Access, MAPI client connectivity
POP3/SMTP & IMAP messaging client connectivity
Mobile Information Server
Exchange Server 2003 Activesync – PocketPC & SmartPhone, OMA, Always-Up-to-Date functionality
Network Monitor trace analysis
Exchange 2000 Instant Messaging
RPC over HTTP
ISA server configuration as it relates to messaging (OWA, RPC over TCP, RPC over HTTP, and mobility)
SSL – configuration & troubleshooting
TCP/IP – configuration and troubleshooting
Internet Information Server (IIS)

• Role consisted mainly of “hands-on” customer-facing break/fix support conducted via the telephone and remote access technologies. The Customer base consists of Microsoft Premier and Professional customers. I also had fairly heavy interaction with Microsoft Partners. In addition to break/fix, my role emphasized root cause analysis and development of action plans for resolution.

12/2000 - 3/2003: Microsoft Corporation - Alliance Support Professional / Dedicated Support Engineer
Waltham, MA & Charlotte, NC

• Alliance support was a Microsoft Premier Support offering targeted at a group of strategic customers. As an Alliance Support Professional, I acted as a dedicated Exchange support resource for large Exchange deployments. I was

responsible for providing 3rd tier technical support for all aspects of their Exchange environment. • This role required regular hands-on involvement, frequent on-site visits to customer sites, and on-call availability 24x7x365. I acted as the escalation point for my clients' mission-critical messaging issues; secondary responsibilities include troubleshooting and resolving Windows NT / 2000 issues.

Project work:
I. Technical lead for a project where we moved 30,000 Exchange users into a new organization via Move Server Wizard. II. Responsible for re-architecting the directory replication design of an Exchange organization consisting of 130+ sites. III. Responsible for defining a "best practice" configuration guide for Outlook clients.

7/1997 - 11/2000: Citizens Bank / Alltel Information Systems - Distributed Systems Analyst
Providence, RI

• My primary responsibility was group lead for electronic messaging and collaboration. In this role, I was the senior technical resource for both the Microsoft Exchange and Lotus Notes environments. The position consisted of approximately 30% reactive support and 70% proactive work centered on messaging infrastructure design and optimization. 60 Novell servers and 50 Windows NT servers. • Administrative duties included event log analysis, disaster recovery planning and test, configuration and monitoring of all messaging connectors (IMS, Site, X.400, 3rd party gateways), server installation, and routine hardware server maintenance (Compaq Proliant).

• Primary support contact for multi-site Exchange environment consisting of 5,000 mailboxes.Technical lead for migration of 2,000 mailboxes from GroupWise to Exchange and Outlook. Designed, implemented, and provided 3rd tier support for TFS connector for Exchange, TFS directory synchronization connector for Exchange, and the Outlook client deployment. Technical lead for migration of 700 mailboxes from Lotus Notes/Domino to Outlook/Exchange. Designed, implemented, and provided 3rd tier support for MS Lotus Notes connector, Notes to Exchange directory synchronization, and the Outlook client deployment.

• Designed and deployed an enterprise email anti-virus solution. Experienced in ScanMail, GroupShield, and Norton Anti-Virus products for Exchange and email Gateways.
• Technical lead for a project linking Microsoft Exchange to SYSM; scope of project included providing mail flow and directory synchronization between the two mail systems.

Education

2020-2023: Boston University
Masters Computer Science - ongoing

2018-2019: University of New Hampshire, Durham
Non-degree student, Computer Science

1989-1993: Bucknell University
Bachelor's Degree in Accounting
Lewisburg, PA

Professional Certifications

• MCSE: Productivity Solutions Expert
• Exam 70-345: Designing and Deploying Microsoft Exchange Server 2016
• Exam 70-346: Managing Office 365 Identities and Requirements
• Exam 70-347: Enabling Office 365 Services
• Microsoft Certified Technology Specialist: Microsoft Exchange 2007: Configuration
• MCSE: Windows 2000, NT4.0, & 3.51

Skills

Java, C++, HTTP, SSL, IIS, DNS	Event log analysis	VMWare, MS SQL
Ironport, Rightfax	Netmon trace analysis	Microsoft Exchange (5.5-2019)
Windbg	F5, load balancers	Network trace analysis (netmon)
Skype for Business, Microsoft Lync server, OCS, LCS	Blackberry Enterprise Server	Lotus Domino Server
Novell GroupWise	Microsoft Active Directory, Cluster Services, Windows Server	Goodlink and Good Messaging Server

MWRA
POSITION DESCRIPTION

POSITION: Systems Administrator III (Systems)

DIVISION: Administration

DEPARTMENT: Management Information Systems (MIS)

BASIC PURPOSE:

Manage and support the operation of MWRA's enterprise messaging environment as well as the organization's Active Directory network, servers and storage in a multiple platform and operating systems environment. Incorporates long-term system, operations and administration requirements in information systems planning documents. Researches vendor products and recommends purchases, development or enhancements of hardware/software that will improve the reliability and performance of systems and applications.

SUPERVISION RECEIVED:

Works under the general supervision of the Sr. Program Manager, Systems Administration . On specific IT projects may be supervised by a team lead or project manager.

SUPERVISION EXERCISED:

Exercises supervision of assigned vendor resources and IT Project Team.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

Email Administration:

- Administer and support the Authority's Email and mobile device environment consisting of multiple technologies, multiple servers and multiple locations to ensure high availability, optimum performance, and compliance with established policies.
- Configure and maintain Exchange Database Availability Groups, Window clustering, clustered settings, Cluster Quorum to ensure integrity, high availability, and to meet the failover clustering requirements.
- Administer mailboxes, distribution groups, mailbox quotas, and message queues.
- Configure, maintain, and support SMTP mail relay server and services for both internal and external messaging needs
- Administer, support and maintain integration with archiving, eDiscovery, and other business solutions.
- Configure, maintain, and test Microsoft Exchange backups.
- Exercise business continuity and disaster recovery procedures to ensure the integrity of the Email environment including database rebuilding as required.
- Maintain Exchange test environment and tests upgrades

System Administration:

- Maintain and support of MS Active Directory services, OUs, Groups and objects consisting of multi-site multiple servers to ensure proper operation and performance
- Account management, sets, maintains and reports on AD permissions and attributes.
- Support the integration of business applications requiring interaction with Active Directory via Directory Services or LDAP
- Configure, maintain, and support all file shares.
- Configure, maintain, and support internal Domain Name Systems & services to ensure high availability.
- Support and maintain DHCP high availability.
- Maintain and support internal Certificate Services. Support business applications in process of certificate type identification. Sign and issue internal certificates as required
- Maintain test environment and test upgrades
- Participates and prepares for Disaster Recovery planning and test activities.

Servers:

- Supports and performs all System Management functions for current operating systems supporting MWRA data processing environments.
- Development of scripts to perform administrative tasks.

Storage:

- Responsible for support of current storage and backup systems
- Develops and implements backup scripts and jobs for all MWRA systems
- Conducts backups for current operating environments. Maintains onsite backup records and logs. Restores files and file systems as needed.

Incident, Problem, and Service Management:

- Respond to events, and reported outages to correct and resolve issues
- Investigate root cause and determine systemic solutions for identified environment problems
- Responds to assigned service requests.

System Documentation:

- Documents and maintains operating procedures to conform to MWRA standards
- Develops capacity management reports for capacity planning efforts
- Develop, document, and maintain system documentation for MWRA's email networks, servers and storage environments

System Performance Monitoring, and Management:

- Daily monitoring of event and system logs of the email environment for problems, error conditions and troubleshoots problems to ensure high availability.
- Monitors networks, servers and storage for event management and coloration
- Monitor mailbox quotas, message queues, mailbox volumes, threshold limits, utilization and availability events to ensure integrity of email system.

- Review system and event logs of the Email Gateway for problems and error conditions, and troubleshoots to ensure high availability.
- Establish preventative maintenance schedules.
- Perform service and replication checks across enterprise domain controllers.
- Monitor daily performance and troubleshoot file services to ensure stable and healthy environment.
- Monitor and troubleshoot all DNS functions such as scavenging to ensure proper operation.
- Keeps abreast of the latest technologies and solutions, and provides expertise to the MIS Management Team in evaluating and selecting appropriate solutions.

OTHER DUTIES:

- Shares in on-call rotation and emergency response tasks as needed.
- Participates as a technical resource in implementation of new solutions as needed.
- Participates in occasional off-site travel, extended hours and weekend work.
- Perform related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience

(A) A Bachelor's degree computer science, engineering or related fields; and

(B) Seven (7) to nine (9) year experience implementing and administering Exchange in an enterprise environment; and

(C) Five (5) to seven (7) years experience supporting and administering a Microsoft Active Directory enterprise network environment, or;

(D) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Advanced proficiency with Microsoft Exchange. Demonstrated technical experience supporting Exchange 2010 or above, SMTP, email gateway products and services. Knowledge and experience with SPF, DKIM, and DMARC.
(B) Advanced proficiency with Microsoft Active Directory, Group Policy, Kerberos, and LDAP. Demonstrated technical experience supporting Microsoft Operating Systems including Domain Name System, DHCP, Registry Editor, DFS, WINS, IIS, File Services and Certificate services.
(C) Strong skills with Microsoft scripting languages such as VBScript and PowerShell.
(D) Proficiency with Backup and recovery technology and methodologies.
(E) Ability to setup and configure communications systems hardware and software.
(F) Strong understanding of Network Storage, SAN environment, and virtualization such as vSphere ESX/ESXi.
(G) Ability to troubleshoot problems utilizing the OSI seven-layer model.

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

SPECIAL REQUIREMENTS:

- ITIL Foundation Certification in IT Service Management version 3 or 4 is required or the ability to obtain within 12 months; and
- And at least two of the following certification within one year:
  Microsoft Certified Solutions Expert (MCSE); Productivity, with a focus on Exchange
  Microsoft Certified Solution Expert: Core Infrastructure
  VMware Data Center Virtualization Certifications: VCAP – Data Center Administration

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

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

WORK ENVIRONMENT:

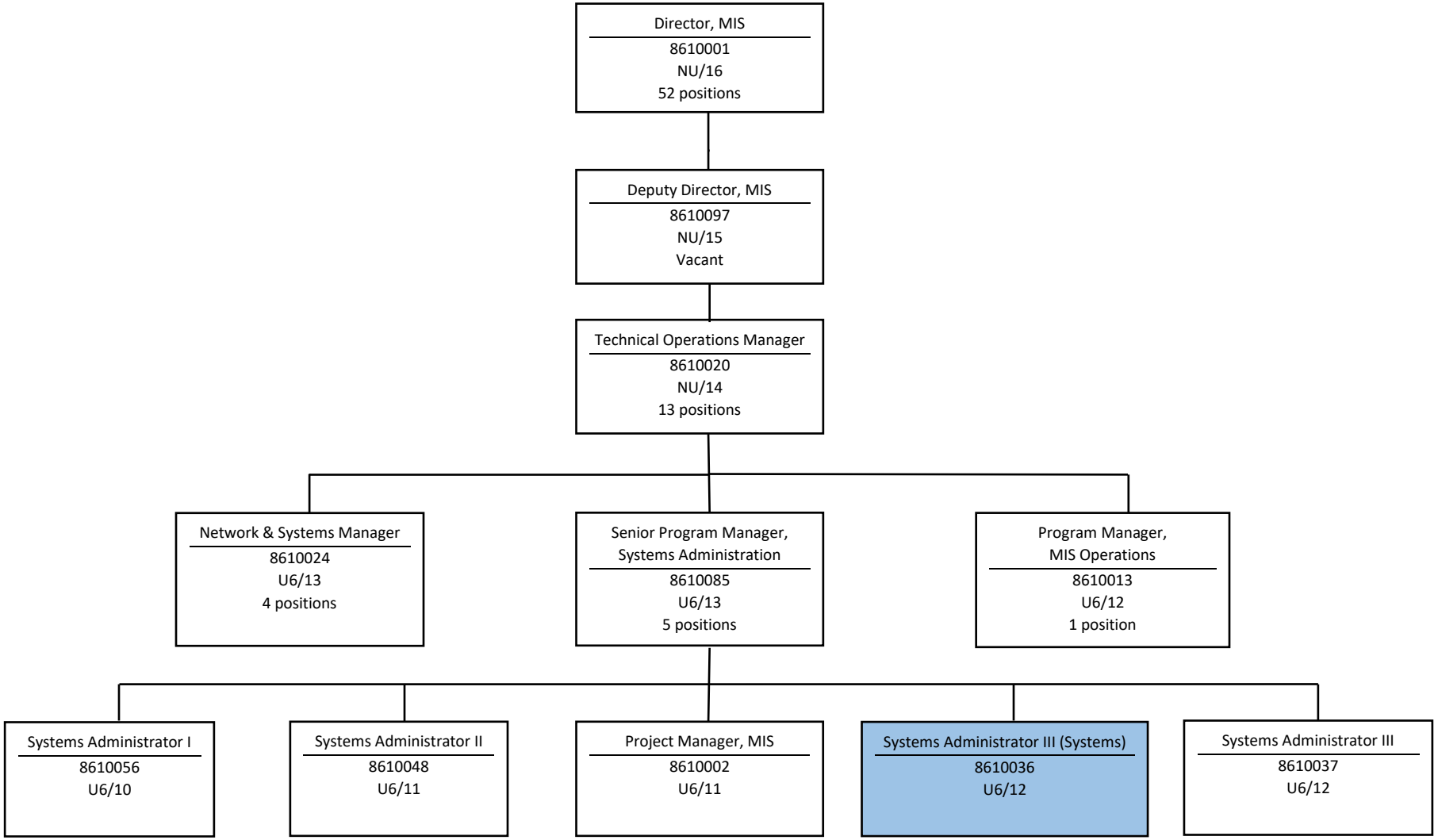
The work characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

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

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

MIS Department, Administration Division

September 2020



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Delegated Authority Report – July and August 2020

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

Michele S. Gillen
Director, Administration

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

Douglas J. Rice
Director of Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period July 1 – August 31, 2020.

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 JULY 1 - 31, 2020

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	07/14/20	**CHELSEA CREEK HEADWORKS UPGRADE** FURNISH AND INSTALL THREE REINFORCED CONCRETE FOUNDATIONS CONSTRUCTED TO FLOOD PROTECTION ELEVATION AND RESET THE EXISTING GRANITE CURBING ADJACENT TO THE NEW FOUNDATIONS; FURNISH AND INSTALL SIX CAST-IN-PLACE REINFORCED CONCRETE LIGHT POLE FURNISH AND INSTALL A FESTOON AIR HOSE SUPPORT SYSTEM FOR THE NEW 2-TON PNEUMATICALLY DRIVEN BRIDGE CRANE AND HOIST TO REPLACE THE EXISTING AIR HOSE CARRIER SYSTEM; FURNISH AND INSTALL ADDITIONAL BRACING ON THE DOWNSTREAM SIDE OF THE CATENARY SCREEN FRAMING FOR FALL PROTECTION; CITY OF CHELSEA WILL REIMBURSE CONTRACTOR FOR LABOR, EQUIPMENT AND MATERIALS NEEDED TO REPAIR 10-INCH WATER MAIN IN MARGINAL STREET; PERFORM DEMOLITION OF THE WET SCRUBBERS IN COMPLIANCE WITH THE OSHA'S PROCEDURES FOR LEAD IN CONSTRUCTION AND THE APPROVED LEAD MANAGEMENT PLAN.	7161	37	BHD/BEC 2015, A JOINT VENTURE	$169,097.00
C-2.	07/21/20	**DORCHESTER INTERCEPTOR SEWER (SECTIONS 240/241/242) REHABILITATION DESIGN CA/REI SERVICES** ADDITIONAL LEVEL OF EFFORT TO SUPPORT THE CITY OF BOSTON COMMENTS AND PROVIDE REVISED DRAWINGS AND PROVIDE SUPPLEMENTAL INFORMATION TO SUPPORT MASSACHUSETTS DEP REVIEWS; EXTEND CONTRACT TERM BY SIX MONTHS FROM OCTOBER 21, 2021 TO APRIL 21, 2022.	7512	1	CDM SMITH, INC.	$61,478.00
C-3.	07/21/20	**SOUTHERN EXTRA HIGH PIPELINE - SECTION 111 (DEDHAM NORTH)** INCREASE POLICE DETAIL SERVICES ALLOWANCE; REMOVE THE EXISTING NON-COMPLIANT GUARDRAIL; FURNISH AND INSTALL MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) APPROVED GUARDRAIL ON SAWMILL LANE.	7504	13	P. GIOIOSO AND SONS, INC.	$77,910.00
C-4.	07/23/20	**GRAVITY THICKENER REHABILITATION DEER ISLAND TREATMENT PLANT** FURNISH AND INSTALL 1/2-INCH THICK NEOPRENE SKIMMER BLADES IN LIEU OF THE STANDARD 3/8-INCH THICK BLADE AS WELL AS 2-INCH X 2-INCH X 1/4-INCH STAINLESS STEEL ANGLE FOR THE SKIMMER BLADES IN LIEU OF STANDARD 2-INCH X 1/2-INCH STAINLESS STEEL FLAT BAR FOR GRAVITY THICKENER NO.'S 3, 5 AND 6; FURNISH AND INSTALL ADDITIONAL CONDUIT, WIRE AND FITTINGS AT THE GRAVITY THICKENER NO. 3, 5 AND 6 TO ACCOMMODATE THE TORQUE MONITORING BOX AND THE MECHANICAL SHEAR PIN SYSTEM; FURNISH AND INSTALL A 24-INCH TALL BAFFLE SECTION IN LIEU OF THE SPECIFIED 12-INCH TALL SECTION IN THE VICINITY OF THE SCUM BOX FOR GRAVITY THICKENER NO'S 3, 5 AND 6; REMOVE THE FOUR 15-INCH FEEDWELL SUPPORT RODS IN GRAVITY THICKENER NO. 1, FURNISH TWENTY-FOUR 24-INCH FEEDWELL SUPPORT RODS IN LIEU OF THE SPECIFIED FEEDWELL SUPPORT RODS FOR GRAVITY THICKENER NO.'S 1 AND 6; FURNISH AND INSTALL TWELVE ADDITIONAL CONTROL WIRES BETWEEN THE INPUT/OUTPUT CABINET AND EACH GRAVITY THICKENER NO.'S 3, 5 AND 6 LOCAL CONTROL PANELS; SHIFT A TOTAL OF 34 DOWELS TO AVOID SUBSURFACE OBSTRUCTIONS, INSTALL 17 SUPPLEMENTAL DOWELS AND SIX SUPPLEMENTAL U-BARS AT THE GRAVITY THICKENER NO. 4'S CONCRETE PEDESTALS; FURNISH AND INSTALL A NEW 316 STAINLESS STEEL 3/4-INCH LINE BOX FITTING ON CONDUIT EJ:LV.C-490.	7428	7	WALSH CONSTRUCTION COMPANY II, LLC	$58,786.32
C-5.	07/23/20	**VALVE AND PIPE REPLACEMENT - CLINTON WASTEWATER TREATMENT PLANT** AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR THE VALVE AND PIPE REPLACEMENT AT THE CLINTON WASTEWATER TREATMENT PLANT FOR A TERM OF 460 CALENDAR DAYS.	7372	AWARD	HARDING & SMITH, LLC	$476,000.00

CONSTRUCTION/PROFESSIONAL SERVICES DELEGATED AUTHORITY ITEMS AUGUST 1 - 31, 2020

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	08/04/20	**CHEMICAL TANK RELINING AND PIPE REPLACEMENT DEER ISLAND TREATMENT PLANT** FURNISH AND APPLY STEEL-FILLED EPOXY PUTTY ON THE INTERIOR SURFACE OF SODIUM BISULFITE STORAGE TANK 1 AND SODIUM HYPOCHLORITE STORAGE TANK 3; REMOVE THE EXISTING 30-INCH DIAMETER MANWAY AND FABRICATE AND INSTALL A NEW MANWAY ON THE ROOF OF SODIUM BISULFITE STORAGE TANK 1.	7373	1	WALSH CONSTRUCTION COMPANY II, LLC	$30,585.40
C-2.	08/17/20	**DIESEL GENERATOR MAINTENANCE JOHN J. CARROLL WATER TREATMENT PLANT** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: PREVENTIVE MAINTENANCE; UNSPECIFIED MAINTENANCE AND REPAIR SERVICES; REPLACEMENT PARTS AND AUTHORIZED MANUFACTURER'S REPRESENTATIVE SERVICES.	OP-364	2	KNM HOLDINGS, LLC d/b/a AUTHORIZED SERVICES OF NEW ENGLAND	($100,417.60)
C-3.	08/17/20	**ELEVATOR MAINTENANCE SERVICES AT VARIOUS FACILITIES** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: NON-EMERGENCY AND EMERGENCY REPAIR SERVICES, REPLACEMENT PARTS AND CONSUMABLE MATERIALS.	OP-356	2	BBE CORPORATION	($51,339.94)
C-4.	08/17/20	**DEER ISLAND TREATMENT PLANT PUMP REFURBISHMENT** DELETE THE REQUIREMENT TO PERFORM REPAIRS INSIDE THE PUMP VOLUTE.	S581	2	A.W. CHESTERTON COMPANY	($51,279.00)
C-5.	08/17/20	**PHASE 9 SEWER MANHOLE REHABILITATION** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: DELETE THE REQUIREMENT TO REHABILITATE MANHOLE #18 ON REVERE BEACH PARKWAY AND 11 SEWER MANHOLES ON MOUNT AUBURN STREET, CAMBRIDGE; SEWER MANHOLE #1 ON BROADWAY AND BOW STREET, EVERETT; COMMODITY PRICE ADJUSTMENT ALLOWANCE; POLICE DETAIL SERVICES.	OP-387	2	INLAND WATERS, INC.	($42,361.36)
C-6.	08/17/20	**HVAC SYSTEMS MAINTENANCE WESTERN OPERATIONS** FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: BOILER AND HOT WATER SYSTEM REPAIRS; FAN DRIVE BELT AND COMPONENT REPLACEMENTS; AC, DEHUMIDIFIER AND HEAT PUMP SYSTEM REPAIRS; WAPS, ICCF AND WQL SYSTEMS REPAIRS; CLINTON WWTP SYSTEM REPAIRS; UNSPECIFIED MAINTENANCE AND REPAIR; REPLACEMENT PARTS WITH MARK-UP AND FACTORY AUTHORIZED SERVICE REPRESENTATIVE.	OP-367	1	ENE SYSTEMS, INC.	($25,689.27)
C-7.	08/17/20	**HVAC SYSTEMS MAINTENANCE** INCREASE FACTORY AUTHORIZED REPRESENTATIVE SERVICES ALLOWANCE.	OP-403	1	ENE SYSTEMS, INC.	$50,000.00
C-8.	08/17/20	**MISCELLANEOUS FENCING INSTALLATIONS AND REPAIRS** INCREASE IN MATERIALS ALLOWANCE; INCREASE LABOR HOURS; EXTEND CONTRACT TERM BY 180 CALENDAR DAYS FROM OCTOBER 25, 2020 TO	6760Y	1	R.A.D. CORP.	$85,000.00

PURCHASING DELEGATED AUTHORITY ITEMS JULY 1-31, 2020

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	COMPANY	FINANCIAL IMPACT
P-1.	07/07/20	**PURCHASE OF THREE HEWLETT PACKARD BLADE SERVERS WITH FIVE YEARS OF SUPPORT** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER UNDER STATE CONTRACT #ITC47 FOR THREE HEWLETT PACKARD BLADE SERVERS WITH FIVE YEARS OF SUPPORT.	WRA-4847Q	HUB TECHNICAL SERVICES, LLC	$59,886.27
P-2	07/07/20	**GARTNER IT EXECUTIVE + DELEGATE SUBSCRIPTION** AWARD OF A ONE-YEAR PURCHASE ORDER UNDER STATE CONTRACT #ITS59 FOR GARTNER IT EXECUTIVE + DELEGATE SUBSCRIPTION FOR THE SERVICE PERIOD OF JULY 1, 2020 THROUGH JUNE 30, 2021, WHICH PROVIDES TIMELY, STRATEGIC ADVICE ON IT MATTERS.		GARTNER, INC.	$108,283.00
P-3	07/07/20	**PURCHASE OF 200 HEWLETT PACKARD PROBOOK LAPTOPS** AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT #ITC47 TO THE LOWEST RESPONSIVE BIDDER FOR 200 HEWLETT PACKARD PROBOOK LAPTOPS.	WRA-4852Q	FIRSTWORLD USA INC.	$163,636.00
P-4	07/07/20	**PURCHASE OF ONE YEAR OF SCADA SOFTWARE MAINTENANCE** AWARD OF A ONE-YEAR SOLE SOURCE PURCHASE ORDER FOR SCADA SOFTWARE MAINTENANCE.		GE DIGITAL, LLC	$180,364.17
P-5	07/07/20	**PURCHASE ORDER FOR 18 MICROSOFT SQL SERVER ENTERPRISE LICENSES WITH THREE YEARS OF SOFTWARE ASSURANCE** AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT #ITS58 FOR 18 MICROSOFT SQL SERVER ENTERPRISE LICENSES WITH THREE YEARS OF SOFTWARE ASSURANCE.	WRA-4864Q	CDW-G LLC	$254,880.00
P-6	07/14/20	**EMERGENCY SPILL RESPONSE TRAINING** AWARD OF A TWO-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR EMERGENCY SPILL RESPONSE TRAINING .		TIGER TRAINING CORPORATION	$55,000.00
P-7	07/14/20	**PURCHASE OF 53 GAS SENSORS** AWARD OF A SOLE SOURCE PURCHASE ORDER FOR 53 HYDROGEN SULFIDE, OXYGEN AND COMBUSTIBLE GAS SENSORS FOR DEER ISLAND.		MINE SAFETY APPLIANCE C/O NEPONSET CONTROLS, INC.	$110,540.50
P-8	07/21/20	**LEVEL 2 CERTIFIED WATER/WASTEWATER MAINTENANCE TECHNICIAN CERTIFICATION TRAINING** AWARD OF A SOLE SOURCE PURCHASE ORDER FOR LEVEL 2 CERTIFIED WATER AND WASTEWATER MAINTENANCE TECHNICIAN CERTIFICATION TRAINING.		INTERNATIONAL MAINTENANCE INSTITUTE	$26,750.00
P-9	07/21/20	**ONE LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY INSTRUMENT** AWARD OF A PURCHASE ODER TO THE LOWEST RESPONSIVE BIDDER FOR ONE LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY INSTRUMENT FOR IN-HOUSE PFAS SAMPLING OF WASTEWATER.	WRA-4824	THERMO ELECTRON NORTH AMERICA, LLC	$240,463.20
P-10	7/28/2020	**SYSTEM AUDITS OF THE CONTINUOUS EMISSIONS MONITORING SYSTEM** AWARD OF A THREE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR SYSTEM AUDITS OF THE CONTINUOUS EMISSIONS MONITORING SYSTEM AT THE THERMAL/POWER PLANT AT THE DEER ISLAND TREATMENT PLANT.	WRA-4854Q	AIR TOX ENVIRONMENTAL COMPANY, INC.	$9,250.00
P-11	07/28/20	**MAINTENANCE AND SUPPORT OF CISCO SMARTNET SWITCHES** AWARD OF A ONE-YEAR PURCHASE ORDER UNDER STATE CONTRACT #ITT50 TO THE LOWEST RESPONSIVE BIDDER FOR MAINTENANCE AND SUPPORT OF CISCO SMARTNET SWITCHES THAT PROVIDE NETWORK CONNECTIVITY FOR THE TIME PERIOD OF AUGUST 1, 2020 THROUGH JULY 31, 2021.	WRA-4874Q	EPLUS TECHNOLOGY, INC.	$87,830.90
P-12	07/28/20	**PURCHASE OF ONE NEW TEN-WHEEL DIESEL-POWERED DUMP TRUCK** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ONE REPLACEMENT TEN-WHEEL DIESEL-POWERED DUMP TRUCK.	WRA-4857	BOSTON FREIGHTLINER, INC.	$155,864.00

PURCHASING DELEGATED AUTHORITY ITEMS AUGUST 1-31, 2020

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	**08/17/20**	**MICOSOFT PREMIER SERVICES, WEB ACCESS AND TECHNICAL SUPPORT** AWARD OF A ONE-YEAR PURCHASE ORDER UNDER STATE CONTRACT #ITS58 TO THE LOWEST RESPONSIVE BIDDER FOR MICOSOFT PREMIER SERVICES, WEB ACCESS AND TECHNICAL SUPPORT FOR THE PERIOD AUGUST 15, 2020 THROUGH AUGUST 14, 2021.	**WRA-4712Q**		**INSIGHT PUBLIC SECTOR, INC.**	**$71,578.40**
P-2	**08/17/20**	**SUPPLY AND DELIVERY OF AQUA AMMONIA** AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF AQUA AMMONIA FOR THE CARROLL WATER TREATMENT PLANT.	**WRA-4858**		**BORDEN & REMINGTON CORPORATION**	**$160,103.20**
P-3	**08/17/20**	**PURCHASE OF ONE NEW FRONT-END LOADER AND ONE NEW BRACKHOE LOADER** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ONE REPLACEMENT FRONT-END LOADER AND ONE REPLACEMENT BACKHOE.	**WRA-4856**		**SOUTHWORTH-MILTON, INC.**	**$271,800.00**
P-4	**08/17/20**	**SUPPLY AND DELIVERY OF HYDROFLUOROSILICIC ACID** AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF HYDROFLUOROSILICIC ACID FOR THE CARROLL. WATER TREATMENT PLANT.	**WRA-4859**		**UNIVAR SOLUTIONS USA, INC.**	**$345,217.06**
P-5	**08/17/20**	**PURCHASE OF TEN NEW CHEVROLET EQUINOX SPORT UTILITY VEHICLES AND THREE NEW ALL ELECTRIC CHEVROLET BOLT SPORT UTILITY VEHICLES** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER UNDER STATE CONTRACT VEH98 FOR THE PURCHASE OF TEN NEW CHEVROLET EQUINOX SPORT UTILITY VEHICLES AND THREE NEW ALL ELECTRIC CHEVROLET BOLT SPORT UTILITY VEHICLES, ALL REPLACEMENT VEHICLES.	**WRA-4860**		**LIBERTY CHEVROLET, INC.**	**$432,152.00**
P-6	**08/17/20**	**PURCHASE OF 13 NEW PICKUP TRUCKS, ONE CARGO VAN, AND ONE TRANSIT PASSENGER VAN** AWARD OF TWO SEPARATE PURCHASE ORDERS UNDER STATE CONTRACT VEH98 TO THE LOWEST RESPONSIVE BIDDERS FOR 13 NEW PICKUP TRUCKS, ONE CARGO VAN, AND ONE TRANSIT PASSENGER VAN.	**WRA-4875**		**GORDON CHEVROLET, INC.** **LIBERTY CHEVROLET, INC.**	**$423,001.90** **$336,772.00**
P-7	**08/20/20**	**AMENDMENT TO JANITORIAL SERVICES** AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT FAC81 FOR JANITORIAL SERVICES AT THE CHELSEA FACILITY.	**WRA-4776**	**1**	**STAR BUILDING SERVICES, INC.**	**$44,200.00**

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: FY20 Fourth Quarter Orange Notebook

COMMITTEE: Administration, Finance & Audit

X INFORMATION
____ VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Stephen Estes-Smargiassi, Director, Planning & Sustainability
Preparer/Title

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

RECOMMENDATION:

For information only. The Quarterly Report on Key Indicators of MWRA Performance (the Orange Notebook) is prepared at the close of each quarter of the fiscal year.

DISCUSSION:

The Orange Notebook presents performance indicators for operational, financial, workforce, and customer service parameters tracked by MWRA management each month. No presentation is planned for the Orange Notebook at the Board meeting.

The effects of the pandemic and MWRA's response to protect staff and slow its spread have clearly impacted a number of performance indicators, with reductions in productivity beginning in March and extending through most of the fourth quarter. Next quarter's notebook is expected to show the return to full field staffing that occurred in late June.

Deer Island Maintenance

The reduction in staff on site during fourth quarter from COVID-19-related safety protocols caused the yearly Preventive Maintenance metric to drop down to 94 percent, above the Industry Benchmark of 90 percent, but below MWRA's Best in Class target of 100 percent. This is the first year in over a decade when the yearly achievement dipped below the Best in Class benchmark (page 5). Despite the staffing limitations, Critical Equipment availability of 99.8 percent was above the industry benchmark of 97 percent (page 6).

Metering

As indicated in the third quarter Orange Notebook, restrictions on the use of meter maintenance staff due to COVID-19 quarantine and safety practices resulted in a significant increase in wastewater meters not providing flow data either due to battery failure or needed maintenance. As a result, data from April and May were insufficient to accurately develop flow estimates: in May, less than 50 percent of flow data was captured by meters. MWRA staff worked with the Advisory Board to develop an alternative mechanism to develop flow numbers based on historical

wastewater flow data and changes in community water use. With the return to full staffing in June, meter availability quickly rose back to over 85 percent (pages 8 and 15).

Water system meters are powered by line voltage rather than batteries and the meters themselves are less likely to require maintenance. Thus, MWRA's target for water flow calculated based on meters is 100 percent; this quarter, 99.48 percent of billed water use was based on actual metered measurements (page 8).

Water Distribution Valves and Wastewater Pipeline and Structures Maintenance

The reduction in lower priority maintenance activities due to the reduced availability of staff is most evident in the Water Distribution Valve and Wastewater Pipeline and Structures metrics, all of which show a reduction in activity during the fourth quarter. Valve exercising and replacement activities, and wastewater pipeline inspections and cleaning all slowed down during the quarter, and did not meet their annual goals. With the return to full staffing in late June, staff anticipate performance closer to target in the next quarter (pages 9 and 10).

Overtime

With the staffing changes for COVID-19 safety, overtime was reduced. Within the Field Operations functions, overtime ended the fiscal year $615,000 under the $3.1 million budget. At Deer Island, overtime ended the fiscal year $78,000 over the $1.4 million budget. This was due primarily to earlier overtime related to the HEEC cable outage. The outage lasted 18 days versus the five days anticipated: spending was $140,000 versus $30,000 budgeted. The rest of the year was under budget (page 44).

Sick Leave Usage

The effect of COVID-19 on sick leave usage was markedly different than anticipated in MWRA's pandemic plan. Rather than experiencing higher usage – the plan anticipated up to 40 percent of staff being out during the peak of the pandemic – usage was actually lower than previous years, probably due to efforts at keeping staff safe and staff not coming to the office. Sick leave usage during April and May was less than half that experienced in previous years (page 44).

Cost of Electricity

Year-to-date total cost of electricity for the Deer Island Wastewater Treatment Plant was 11.3 percent ($1,080,850) lower than budgeted through May. Even though the total electricity purchased was on target (+0.6 percent) through May, the total energy unit price was 11.8 percent lower than target (Page 1).

MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

Fourth Quarter FY2020

Q1	Q2	Q3	Q4

Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
September 16, 2020

Board of Directors Report on Key Indicators of MWRA Performance
Fourth Quarter FY20

Table of Contents

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

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

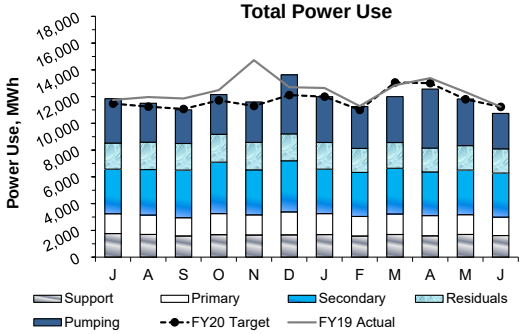
September 16, 2020

OPERATIONS AND MAINTENANCE

Deer Island Operations

4th Quarter - FY20

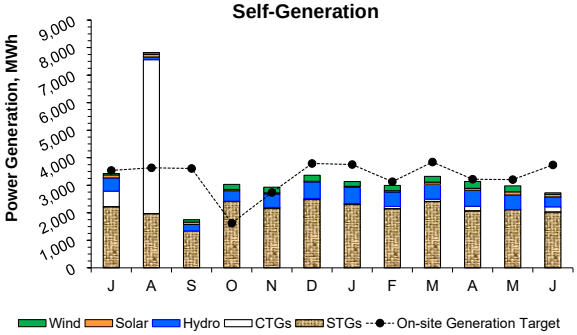
Total Power Use



Total power usage in the 4th Quarter was 2.5% below target as the Total Plant Flow was 1.9% below target with the 4 year average plant flow. Power usage was similar to or below target in all process areas during the quarter. **Overall, total power usage in FY20 was on target (+0.8%) while total plant flow was 2.7% above the 4 year average plant flow target.**

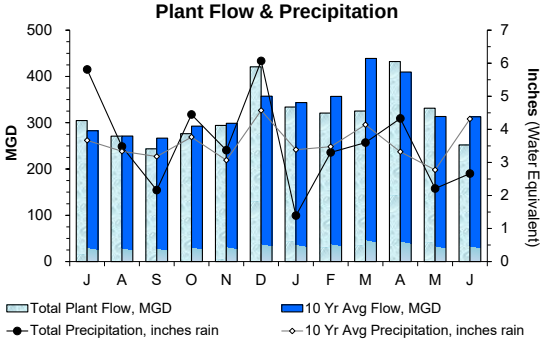
Note: Power usage projections are based on 4 year averages.

Self-Generation



Power generated on-site during the 4th Quarter was 13.0% below target. CTGs generation fell below target by 30.7% as the FY20 budget estimate, based on generation data from FY15 to FY18, had included more CTG operation during storms, maintenance testing, and during extended utility cable maintenance outage periods, which did not occur to the same extent as expected this the quarter. STGs generation was 21.9% below target as digester gas production was lower than expected and due to reduced generation from not being able to operate the steam system in summer mode this quarter as a result of the CTG Auto Voltage Regulator (AVR) upgrade and an equipment issue with the BP-STG. Hydro Turbine generation was 47.5% above target. Generation from the Solar Panels was 2.1% below target, while Wind Turbine generation was 28.5% above target. **Overall, power generation was 2.0% above target for FY20.**

Plant Flow & Precipitation

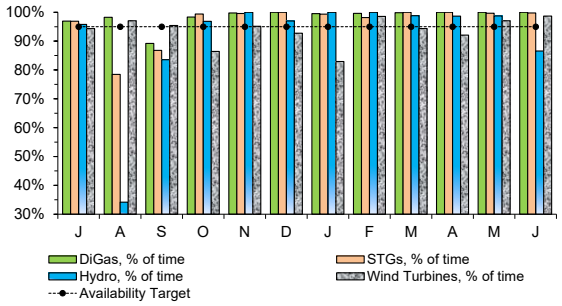


Total Plant Flow for the 4th Quarter was on target (-2.0%) with the budgeted 10 year average plant flow (338.5 MGD actual vs. 345.3 MGD expected) even though precipitation was 12.0% below target (9.20 inches actual vs. 10.41 inches expected). Total Plant Flow was 1.9% lower than the 4 year average plant flow used for energy budget projections. **Total Plant Flow in FY20 (10 year average) was 3.5% below target while precipitation was on target (-0.4%).**

Note: Plant Flow and precipitation projections are based on 10 year averages but are 4 year averages for the energy budget projections.

Self-Generation Equipment On-Line

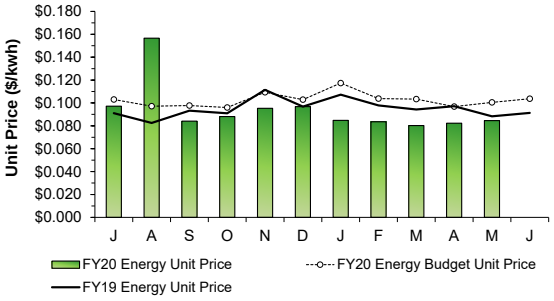
(% of Time in Operation)



The DiGas system, STGs, Hydro Turbines, and Wind Turbines all met or exceeded the 95% availability target for the 4th Quarter.

Total Electricity Pricing

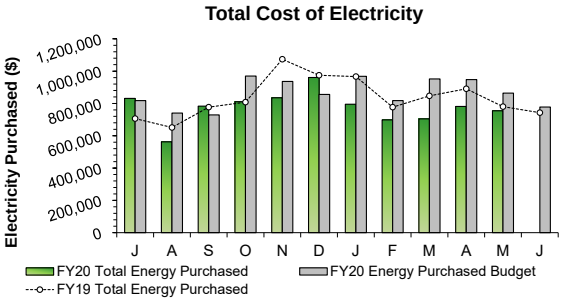
(includes spot energy price, ancillary costs, and NSTAR's transmission & distribution costs)



Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual Total Energy Unit Price in May (the most current invoice available) was 15.9% below target with budgetary estimates. The actual total energy unit price in June is not yet available as the complete invoices have not been received. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

Note: Only the actual energy prices are reported. Therefore, the dataset lags by one (1) month due to the timing of invoice receipt and review.

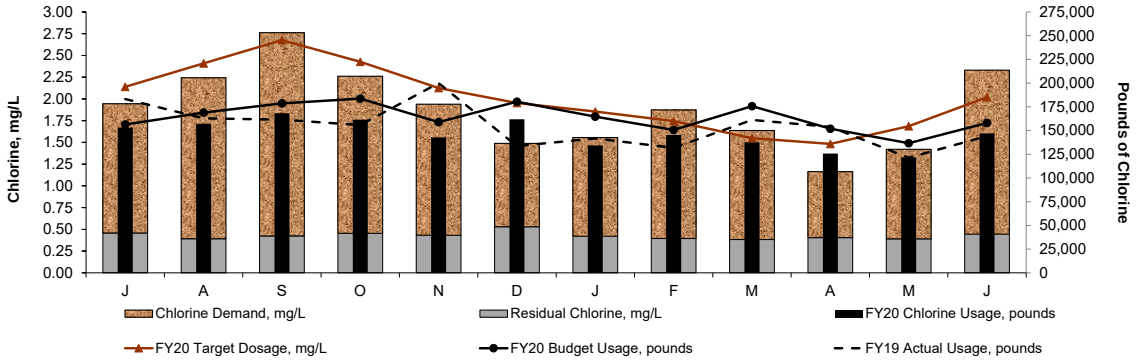
Total Cost of Electricity



The Electricity cost data for Electricity Purchased in June is not yet available. Year-to-date Total Cost of Electricity is $1,080,850 (11.3%) lower than budgeted through May. Even though the Total Electricity Purchased was on target (+0.6%) through May, the Total Energy Unit Price was 11.8% lower than target.

Note: Only months with complete Electricity Purchased data are reported. Therefore, the dataset lags by one (1) month due to the timing of invoice receipt and review.

Deer Island Sodium Hypochlorite Use



The disinfection dosing rate in the 4th Quarter was 5.0% below target with budgetary estimates. Actual sodium hypochlorite usage in pounds of chlorine was also 11.7% lower than expected as the 4 year average plant flow used for estimating the hypochlorite usage target was 1.9% lower than expected. DITP maintained an average disinfection chlorine residual of 0.41 mg/L this quarter with an average dosing rate of 1.64 mg/L (as chlorine demand was 1.22 mg/L). **Overall in FY20, disinfection dosing was 6.0% below target and sodium hypochlorite usage in pounds of chlorine was 10.6% below target.**

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

Secondary Blending Events

Month	Count of Blending Events	Count of Blending Events Due to Rain	Count of Blending Events Due to Non-Rain-Related Events	Secondary, as a Percent of Total Plant Flow	Total Hours Blended During Month
J	4	4	0	99.6%	10.26
A	2	2	0	99.3%	7.64
S	1	1	0	99.8%	2.45
O	3	3	0	99.0%	11.13
N	1	1	0	99.6%	4.81
D	2	2	0	99.4%	17.99
J	0	0	0	100.0%	0.00
F	0	0	0	100.0%	0.00
M	1	1	0	99.4%	7.45
A	3	3	0	99.8%	7.64
M	2	2	0	99.9%	3.89
J	1	1	0	99.99%	1.12
Total	20	20	0	99.7%	74.38

99.9% of all flows were treated at full secondary during the 4th Quarter. There were six (6) secondary blending events due to high plant flows resulting from heavy rain. These blending events resulted in a total of 12.65 hours of blending and 37.26 MGal of primary-only treated effluent with secondary effluent. The Maximum Secondary Capacity for the entire quarter was 700 MGD.

Overall in FY20, 99.7% of all flows were treated at full secondary. There were a total of 20 separate secondary blending events in FY20; all due to high plant flows resulting from heavy rain, and on occasion in combination with significant snow melt during winter and early spring. These secondary blending events combined produced a total of 74.4 hours of blending and 409.3 MGal of flow blended with secondary effluent.

Secondary permit limits were met at all times during the 4th Quarter and during the entire FY20.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

The plant achieved an instantaneous peak flow rate of 911.8 MGD during the morning of May 1. This peak flow occurred during a storm event that brought 0.80 inches of precipitation to the metropolitan Boston area. Overall, Total Plant Flow in the 4th Quarter was 2.0% below target with the 10 year average plant flow estimate for the quarter.

The MWRA has an on-going project to inspect, and eventually rehabilitate, the shafts that transport wastewater between the remote headworks facilities and the DITP. In order to support the inspections, the remote headworks facilities were temporarily shut down to perform physical and remote inspections. DITP worked closely with Wastewater Operations staff during the Chelsea Creek Headworks Facility shutdown on May 22. Flow at the facility was diverted to the Caruso Pump Station to the Winthrop Terminal Facility at the Deer Island Treatment Plant for approximately 4.5 hours from 3:00 AM to 7:30 AM, when the diurnal flows were at the lowest levels, to allow the contractor to inspect the Chelsea Creek Headworks Facility effluent channels and to remotely inspect the effluent shaft.

Work on the Winthrop Terminal Facility (WTF) VFD (Variable Frequency Drive) and Synchronous Motor Replacement project was started by the contractor in 2018 and entails the demolition of existing older obsolete equipment (electrical systems, motors and VFDs on each of the six (6) raw wastewater pumps). The pumps are currently powered by 600 volts service and will be changed to 4,160 volts, consistent with other major pumps in both the South System Pump Station (SSPS) and the NMPS. The upgrade for WTF Pump #4 began on May 18 and continued through the remainder of June. To date, work has been completed on three (3) of the six (6) pumps (#6, #2, and #5).

Staff and contractors performed testing on North Main Pump Station pump #9 on June 18 to evaluate whether the pump rebuild in December 2019 (which included a new epoxy coating of the pump casing) has resulted in improved performance. Pressure and power use readings were taken as the pump #9 flow rate was varied. Our preliminary operating data showed a 17-20% performance inprovement when normalized to kwh/MGD (pre- vs. post-repairs). The final report from the contractor is currently pending completion.

Deer Island Operations & Maintenance Report (continued)

Environmental/Pumping:
June's average daily North System influent plant flow of 164.84 MGD set a new low flow record for the month of June dating back to plant startup in July 1998. The previous low flow record for the month of June (167.30 MGD) was recorded in 2016.

Secondary Treatment:
Annual turnaround maintenance that is typically performed on Train #2 at the Cryogenic Oxygen Facility in April was postponed until July, as the contractor has suspended all non-essential work activities and travel due to the nation-wide shutdown response to the COVID-19 pandemic.

Odor Control:
The internal lining for carbon adsorber (CAD) unit #3 in the East Odor Control (EOC) Facility and for unit #6 in the West Odor Control (WOC) Facility were recoated in June. The CADs were refilled with new carbon media and the units were placed in operation. CAD unit #8 in the East Odor Control (EOC) Facility and unit #1 in the West Odor Control (WOC) Facility were taken offline on June 23 and emptied of carbon media. These CAD units will remain offline pending the completion of contractor maintenance (recoating).

Residuals Treatment:
The rehabilitation of Gravity Thickener #4 under the major Gravity Thickener Rehabilitation project was completed in mid-April. Gravity Thickener #3 was given to the contractor at the end of April to begin rehabilitation work. DITP has six (6) gravity thickeners used to concentrate sludge that is generated from the primary treatment process, and scum that is generated from all treatment processes. The sludge and scum thickening equipment and five (5) of the six (6) Fiberglass-Reinforced Plastic (FRP) domed covers have reached the end of their useful lives and are in need of replacement. This rehabilitation project will upgrade all six (6) gravity thickeners including complete replacement of each tank's sludge and scum thickening equipment as well as replacement of five (5) of the six (6) FRP dome covers (the FRP domed cover for Gravity Thickener #2 has already been replaced). Additionally, critical components which were previously fabricated from carbon steel, including the center columns and center cages, will now be fabricated from type 316 stainless steel in order to provide superior protection against hydrogen sulfide gas which is present in high concentrations in this highly corrosive environment. The entire rehabilitation project is anticipated to take nearly three (3) years to complete in 2021. The rehabilitation of Gravity Thickeners #1, #2, and #4 has now been completed.

Energy and Thermal Power Plant:
Overall, total power generated on-site accounted for 25.2% of Deer Island's total power use for Quarter 4 and 28.6% for FY20. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 24.1% of Deer Island's total electrical power use for the quarter and 23.8% for FY20.

The 1.2 MW BP-STG had been out of service since May 22 due to a problem with a proprietary electrical component. The unit remained offline until June 29 after the failed component was able to be replaced. There was no impact on gas utilization and potentially a slight reduction in generation in late June as the main steam turbine generator was able to compensate for the BP-STG outage. The small BP-STG does provide additional generation from mid-June through September because it allows utilization of additional steam from the boiler when less heat is required over the summer.

The 100 kW solar panel array mounted on the rooftop of the Residuals Odor Control (ROC) Facility failed on May 31 due to an issue with the inverter unit which allows the electricity generated by the solar array to be transmitted to the DITP electrical grid. Operation of this solar panel array should be restored pending receipt and replacement of the failed inverter unit. Electricity generated by the ROC Facilitly solar array typically comprises 12% to 13% of the total solar generation. All other solar array units at the DITP were not impacted by this issue and are in operation.

During routine maintenance on Hydro Turbine #2 on June 17, the service contractor found an issue with the runner blade assembly. Further investigations into this issue are currently ongoing. This turbine will remain unavailable until the unit can be repaired. Hydro Turbine #2 was only being placed into operation intermittently as needed since October 2019 when Hydro Turbine #1 was returned to operation after being refurbished. There will be no reduction in hydro turbine generation due to the unavailability of this turbine as the operation of a single hydro turbine unit provides the same level of energy generation as would the operation of both turbine units during typical daily flow conditions.

Clinton Operations & Maintenance Report

Dewatering Building
Maintenance replaced a pulsation dampener on #3poylmer pump. Maintenance staff repaired suction valve on #1 gravity thickener. Operation staff dewatered and cleaned #1 gravity thickener. Staff also washed down #2 gravity thickener. Contractor replaced a leaking hot water pipe in belt filter press room.

Chemical Building
Maintenance installed 1-1/2'' make up water solenoid for the soda ash machine. Maintenance staff cleaned soda ash feed line. Maintenance staff fabricated a new sodium bisulfite line for bisulfite repair. Contractor performed official inspection and certification of the Penn Valley Pumps installed to pump soda ash slurry form the soda ash machine. Clinton staff and contractor successfully completed the dye test on the sodium bisulfite system. Contractor repaired skimmer arm assembly on #1 final clarifier.

Aeration Basins
Operations staff cleaned pH and DO probes. Maintenance staff changed oil and belts in all Aerzen compressors.

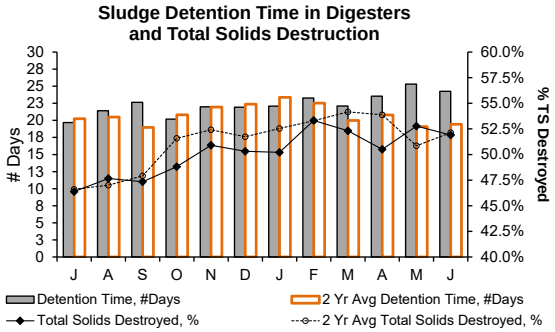
Phosphorus Building
Maintenance staff acid washed all three disk filters, cleaned troughs, and inspected all nozzles. Staff removed and replaced gaskets on five disk filter cartridges.

Headworks
Maintenance staff replaced coupling on # 2 grit bucket elevator motor. Maintenance checked, cleaned & lubricated all equipment in upper grit. They also cleaned and welded grit screw. Contractor replaced a leaking pipe section and plugged fittings on a head works 1" condensate line.

Digester Building
Maintenance staff they checked all equipment for proper operation. Contractor replaced hot water tubes and sludge tubes on # 2 digester sludge heater.

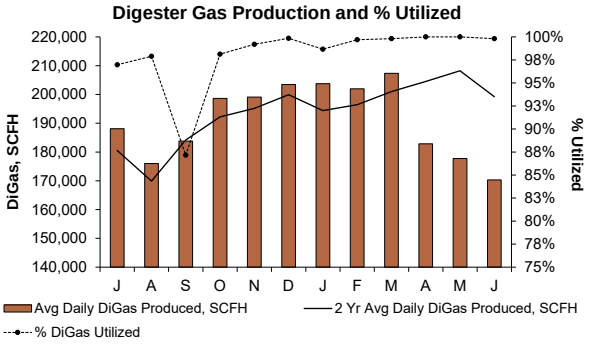
Deer Island Operations and Residuals

4th Quarter - FY20



Total solids (TS) destruction following anaerobic sludge digestion averaged 51.7% during the 4th Quarter, similar to the 2 year average of 52.3%. The lower destruction is attributed to higher-than-expected secondary waste sludge, which is more difficult to break down during sludge digestion. Sludge detention time in the digesters was 24.4 days as DI operated with an average of 8.0 digesters. **Overall in FY20, TS destruction averaged 50.2%, similar to the 2 year average of 51.2%. Sludge detention time was 22.4 days, 7.4% higher than the 2 year average of 20.8 days.**

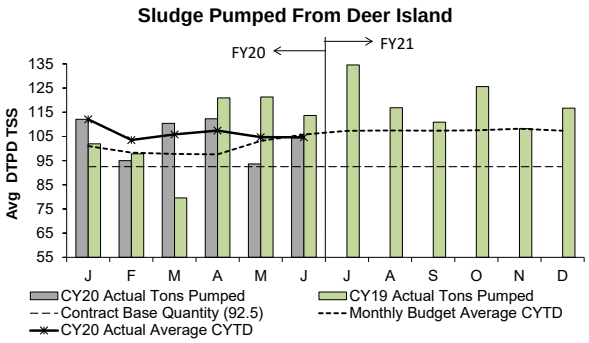
Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting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



The Avg Daily DiGas Production in the 4th Quarter was 13.2% below target with the 2 Year Avg Daily DiGas Production due to much lower-than-expected primary sludge production which breaks down more readily during anaerobic sludge digestion. On average, 99.9% of all the DiGas produced in the quarter was utilized at the Thermal Power Plant (TPP). **Overall in FY20, the Avg Daily DiGas Production was 1.4% below target, with an average of 98.1% utilization of DiGas at the Thermal Power Plant.**

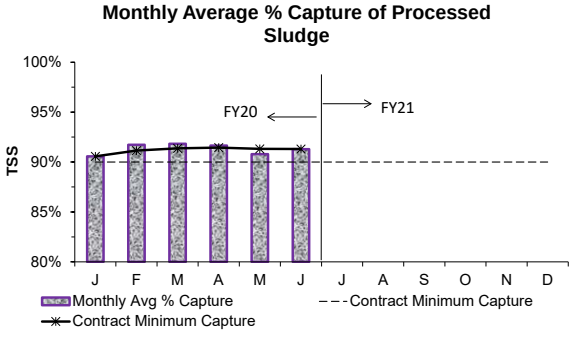
Residuals Pellet Plant

New England Fertilizer Company (NEFCO) operates the MWRA Biosolids Processing Facility (BPF) in Quincy under contract. MWRA pays a fixed monthly amount for the calendar year to process up to 92.5 DTPD/TSS as an annual average. The monthly invoice is based on 92.5 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional payments are made on any quantity above the base amount. On average, MWRA processes more than 92.5 DTPD/TSS each year (FY20's budget is 107.4 DTPD/TSS and FY21's budget is 107.9 DTPD/TSS).

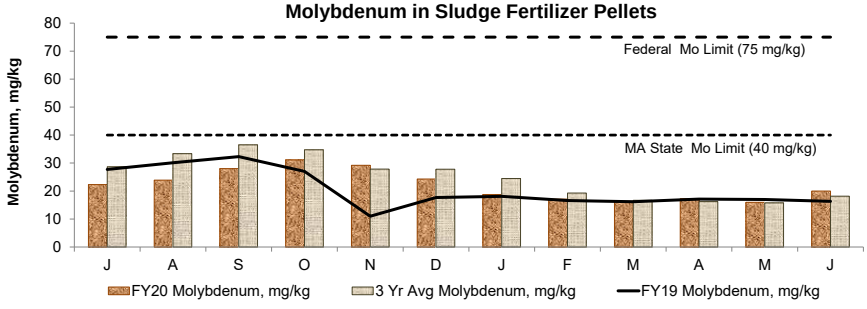


The average quantity of sludge pumped to the Biosolids Processing Facility (BPF) in the 4th Quarter was 103.5 TSS Dry Tons Per Day (DTPD) - 9.1% below target with the FY20 budget of 113.9 TSS DTPD for the same period. Sludge delivered to the BPF was lower than expected during the quarter mainly due to lower-than-expected overall sludge production in addition to inventory shifts in the digested sludge holding tanks on DITP.

The CY20 average quantity of sludge pumped through June is 104.6 DTPD - 1.1% below target compared with the CY20 average budget of 105.8 DTPD during the same time period.



The contract requires NEFCO to capture at least 90.0% of the solids delivered to the Biosolids Processing Facility. The average capture for the 4th Quarter was 91.2% and the CY20 to date average capture is 91.3%.



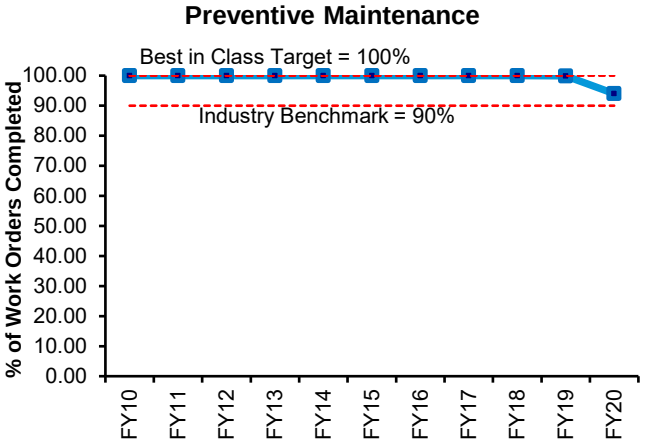
Copper, lead, and molybdenum (Mo) are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer. Molybdenum-based cooling tower water is a significant source of Mo in the sludge fertilizer pellets. The Federal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

The levels have been below the DEP Type 1 limit for all three (3) metals. For Mo, the level in the MWRA sludge fertilizer pellets during the 4th Quarter averaged 17.7 mg/kg, 6% above the 3 year average, 56% below the MA State Limit, and 76% below the Federal Limit.

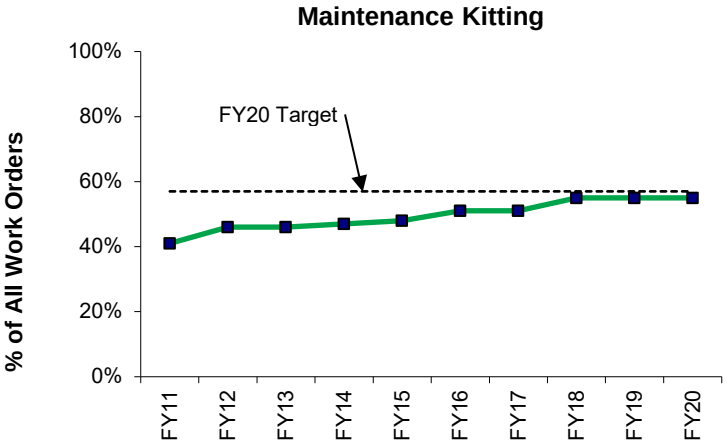
Deer Island Yearly Maintenance Metrics

4th Quarter - FY20

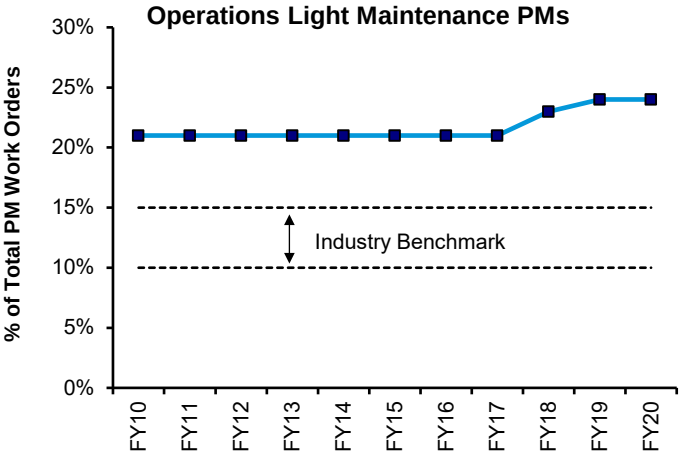
Proactive and Productivity Measures



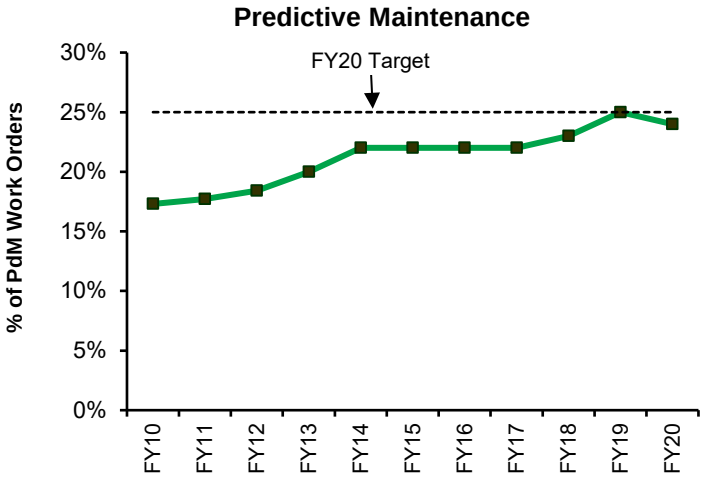
The industry benchmark is 90% for Preventive Maintenance (PM) completion. Upon reaching the 90% goal in FY05, the target goal was increased to the "Best in Class" Target of 100% PM completion. Reliability-Centered Maintenance (RCM) and PM optimization efforts have continued since FY01. PM completion rate was 94% in FY20. This year's decrease is because of limited staff onsite after March 13, 2020, due to COVID-19.



Preventive Maintenance (PM) inventory items were loaded into Maximo to assign spare parts for equipment to PM work orders. DITP reached the PM kitting goal of 100%. In FY11 a new graph (above) was developed to track kitting of all maintenance work orders in an effort to increase wrench time. Staff continues to fine-tune the process to "kit" all maintenance work orders. Kitting is considered a best practice by maintenance and reliability professionals. It entails staging parts necessary to complete maintenance work. Kitting allows maintenance staff to spend more time "turning the wrench" and less time waiting for parts at the stockroom window. Kitting for FY20 was 55%, below DITP's goal of 57%. Kits were prepared, but because of limited staff due to COVID-19, work was delayed.



The percentage of preventive maintenance work order hours completed by Operations staff (non maintenance staff) increased from less than 1% in January 2002 to the current level of 24% in FY20. DITP reached the industry benchmark range of 10-15% in April 2003 and has exceeded the goal through FY20. Operations completes approximately 625 PM work orders per month. Operations work percentage stayed on track as operations was fully staffed and not limited by COVID-19.

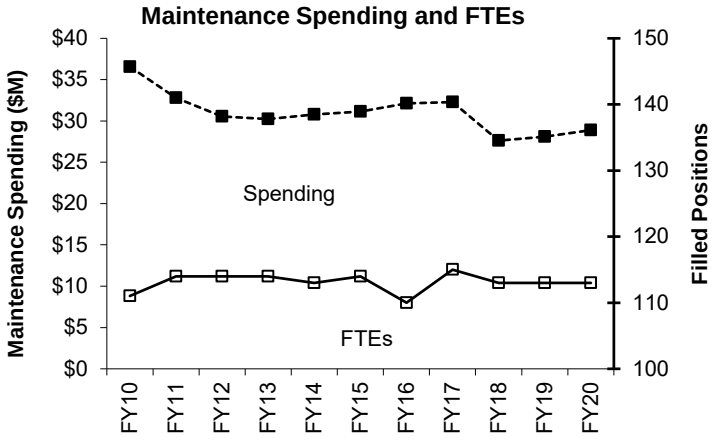


Predictive maintenance has steadily increased from 2% in FY03 to 24% in FY20, DITP's was below FY20 goal of 25%. This percentage in predictive maintenance was achieved through the expanded use of lubrication, vibration, thermography, and acoustic ultrasonic testing techniques. The Condition Monitoring Group continually reviews and investigates new opportunities and initiatives to expand condition monitoring testing and analysis. This year's decrease is because of limited staff onsite after March 13, 2020, due to COVID-19.

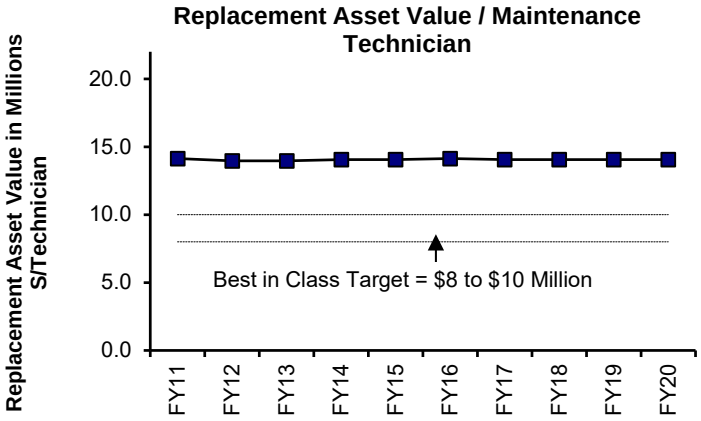
Deer Island Yearly Maintenance Metrics

4th Quarter - FY20

Overall Maintenance Program Measures

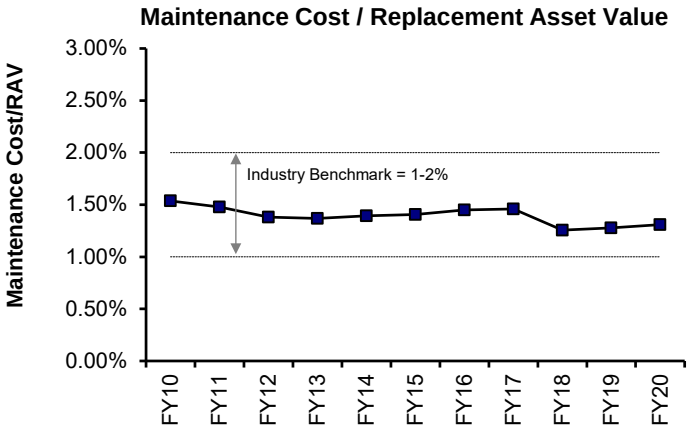


DITP's Maintenance staff is currently at 113 FTE's. Maintenance has been successful in meeting its goals through implementation of numerous maintenance efficiencies including: Operations staff performing light maintenance, cross-functional training and flexibility, and Reliability-Centered Maintenance.

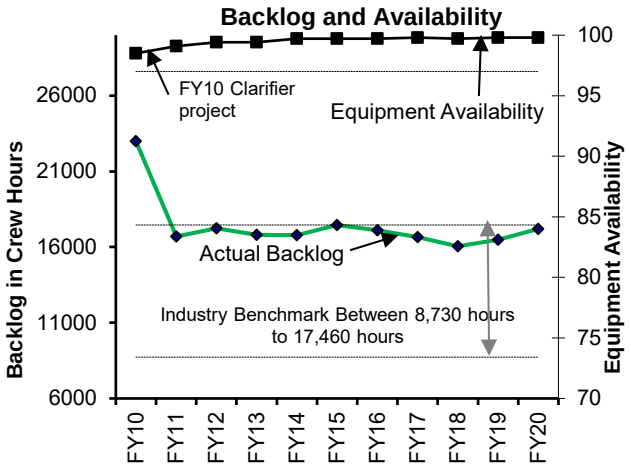


DITP adopted a "best in class" target of $8-$10 Million/Technician for maintenance staffing. DITP remains above this Best in Class target range. However, as the plant ages and additional equipment replacements are expected, DITP management will reassess staffing as needed.

The Maintenance Spending graph shows actual annual maintenance spending and significant CIP asset replacements (equipment costs only). Maintenance budgeting continues to evaluate plant assets and requirements for replacement of obsolete equipment to ensure the plant operates at maximum efficiency. In FY20, overall spending increased slightly from FY19 due to some large Maintenance Projects; Winthrop Terminal Facility VFD/Motor Replacements (2), Gravity Thickener Rebuilds (3), MCC Switchgear Replacements, Exterior Door Contract and PICS Upgrades.



The industry benchmark for annual maintenance spending is between 1% to 2% of replacement asset value, currently DITP is at 1.32%. The plant's replacement asset value is calculated at approximately $2.4 billion dollars. DITP's current maintenance spending is within the industry benchmark. As the plant ages and equipment replacement is required, spending is expected to increase. DITP Maintenance CEB spending is $22.4 million coupled with CIP spending of $6.5 million, totaling $28.9 million.



Industry benchmark for Equipment Availability is 97%. Deer Island has exceeded this benchmark over for the last ten years. In FY20 the availability was 99.8%. The high percentage in Equipment Availability during FY20 is due to redundancy of equipment and effective/efficient maintenance practices.

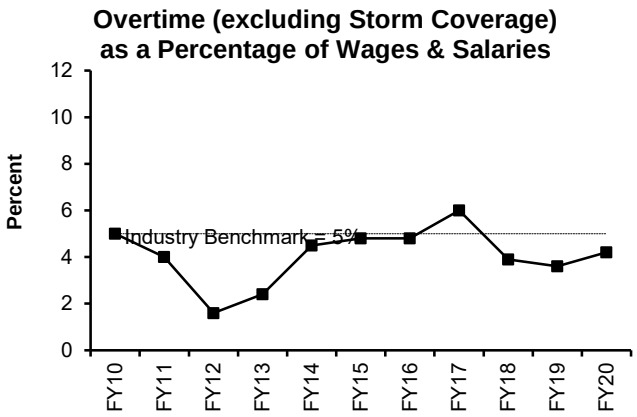
Industry Benchmark for Backlog is between 8,730 to 17,460 hours for maintenance based on current staffing, the total average backlog for FY20 was 17,194 hours, which is within the industry benchmark.

Although we are in acceptable Backlog range, we did increase from last year. Maintenance was above the industry benchmark for the last three months of FY20, due to limited staff onsite after March 13, 2020 due to COVID-19.

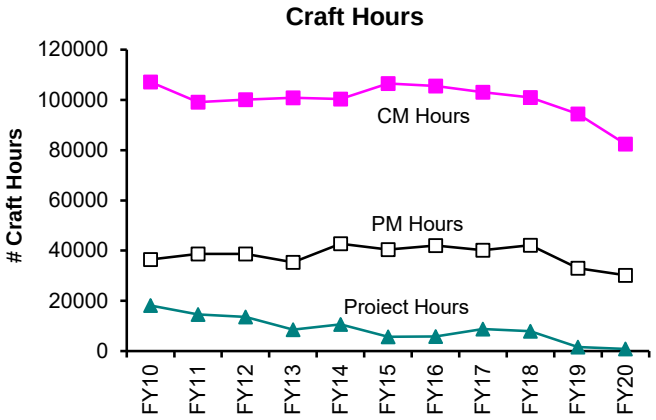
Deer Island Yearly Maintenance Metrics

4th Quarter - FY20

Overall Maintenance Program Measures (cont.)



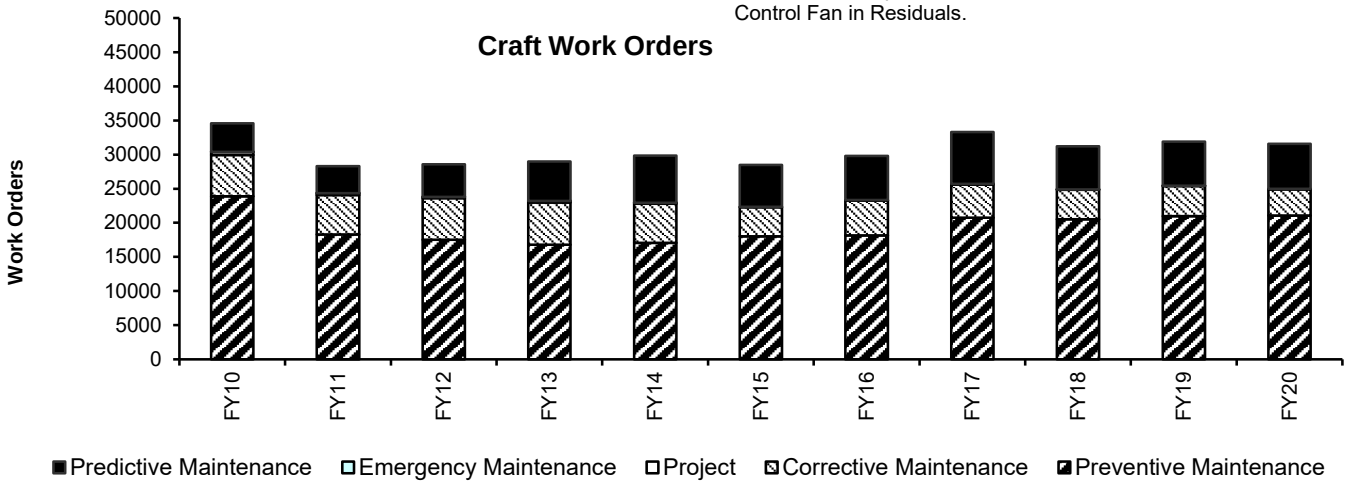
Management continues its effort to keep overtime below the industry benchmark. DITP maintenance overtime was 4.2% for FY20. Management has taken steps to reduce overtime spending by limiting overtime to repair critical equipment and systems only. DITP has been on or under Industry Benchmark every year except FY17, due to the increase in overtime for the Eversource Cable Outage.



Continued optimization of the Preventive Maintenance (PM) program through the transfer of some light maintenance tasks from Maintenance to Operations staff (24% of PM work orders in FY20), elimination of duplicate work orders, combining some PM's, increasing PM frequency due to equipment history and performance along with limited staff onsite due to COVID-19 has resulted in a decrease in PM hours in FY20.

This years decrease in CM and Project hours is because of limited staff onsite after March 13, 2020 due to COVID-19.

Maintenance did complete some significant maintenance work in the first 3 quarters of FY20: Exterior Door Contract, Overhaul of Norwalk Compressor #3, Installation of new Wash Press Screw, Installation of High Pressure W3 Strainers, Installation of Rebuilt RWW Pump #9 in North Main Pump Station and the Installation of the 52,000 CFM Odor Control Fan in Residuals.



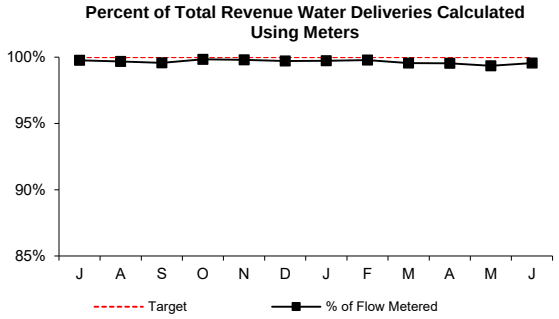
During FY20, the overall number of work orders decreased by 300 from the previous year. The decrease in work orders was due to COVID-19 and the Planning Department increasing frequency time between PM's/Pdm's based on trending of real time data and previous failure rates.

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

Operations Division Metering & Reliability

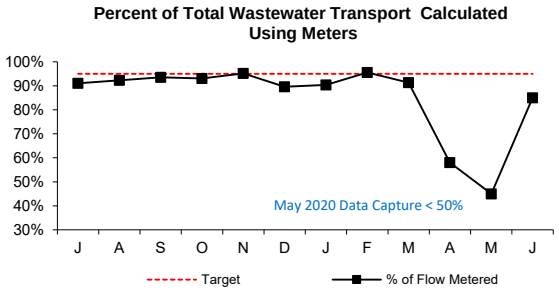
4th Quarter - FY20

WATER METERS



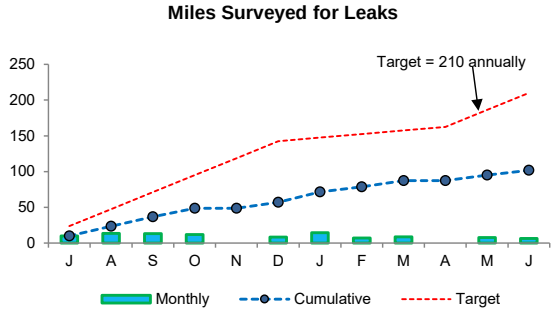
The target for revenue water deliveries calculated using meters is 100%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. During Q4 of 2020, 0.52% of the billed water flow was estimated. 99.48% was based on meter actuals. The entirety of this value was from instrumentation failure.

WASTEWATER METERS



During to the COVID staffing limitations in the month of April and May, all preventative maintenance confined space entries were postponed. Because of this the data capture rate in April was approximately 57% and in May was <50%. The MWRA Advisory Board approved the use of historical average data billing in April and May 2020. The data capture rate improved steadily during the month of June as meter crews were able to catch up on maintenance and replace batteries, and was up to >90% by the end of the month for an average monthly data capture rate up approximately 85%.

WATER DISTRIBUTION SYSTEM PIPELINES



During Q4 14.35 miles of water mains were inspected. The total inspected for the fiscal year to date is 101.71. Below target due to staffing shortage and community support work during FY20.

Leak Backlog Summary

Month	J	A	S	O	N	D	J	F	M	A	M	J	Totals
Leaks Detected	5	1	1	6	0	3	3	2	2	0	1	0	24
Leaks Repaired	2	3	2	3	2	0	7	1	2	1	0	1	24
Backlog	9	7	6	9	7	10	6	7	7	6	7	6	n/a

During the 4th Quarter, one new leak was detected, and two were repaired. Refer to FY20 Leak Report below for details. Also, community service ranging from individual leak location to hydrant surveys were conducted for: Cambridge, Malden, Medfod, Newton, Revere and Stoneham and Swampscott.

4th Quarter - FY20 Leak Report

Date Detected	Location of Leaks	Repaired
07/19/19	Ocean Ave., @ Revere St., Revere	07/31/19
07/29/19	Wadsworth Rd., Dow St., Arlington	07/31/19
07/16/19	Watham St. @ Concord Ave., Lexington	08/14/19
07/24/19	#1098 Waltham St., Lexington	08/14/19
08/11/19	South Street Court, Medford	08/12/19
09/04/19	Pearl St. @ Center St. Malden	09/04/19
07/08/19	River St. Bridge @ Memorial Dr., Cambridge	09/05/19
10/09/19	Essex St. @ Highland St., Chelsea	10/09/19
10/14/19	Mass Ave. @ Appleton Pl., Arlington	10/24/19
10/15/19	Alewife Brook Sewer P.S. Somerville	10/16/19
10/30/19	Felton St. @ Water St., Waltham	11/05/19
10/16/19	Stone Zoo, Pond St., Stoneham	11/06/19
12/16/19	Linden St. @ Waverly Oaks Rd., Waltham	01/07/20
12/16/19	#271 Waverly Oaks Rd., Waltham	01/08/20
12/16/19	#1010 Pleasant St., Belmont	01/14/20
01/05/20	#429 Pleasant St., Belmont	01/16/20
01/06/20	Madison St. @ Main St., Malden	01/06/20
01/15/20	Comm. Ave. @ Lexington St., Newton	01/16/20
10/23/19	Concord Ave. @ April Lane, Lexington	01/29/20
02/02/20	Lynnway @ Harding St., Lynn	02/02/20
02/26/20	Diminios Sub Shop, Winthrop Ave., Revere	03/02/20
03/01/20	#685 Revere Beach Reservation, Revere	03/09/20
03/17/20	B.C. Train Stop Commonwealth Ave., Newton	04/06/20
05/27/20	#129 Medford St., @ Canal St., Malden	06/15/20

Date Detected	Location of Leaks/Unrepaired
06/08/15	Allandale Rd. @ Grove St., Brookline, Sect 78, located acoustically. Not surfacing. No redundancy.
06/17/15	Washington St. at East St., Dedham; Sect 77, located acoustically. Not surfacing. Need redundant SEH pipeline to enable isolation.
07/01/16	241 Forest St. Winchester, Sect 89, leaking blow off valve. Not surfacing. Need redundant NIH pipeline to enable isolation.
12/04/16	1025 W Roxbury Pkwy, Brookline, Sect 95, located acoustically. Not surfacing. Leaking blow off valve. No redundancy.
12/04/16	710 Ashland St/Summer St. Lynn, Sect 91. Not surfacing. Leaking emergency connection valve between MWRA and LWSC systems. LWSC has difficulty isolating 16" main.
07/20/17	Mystic Valley Parkway, Medford. Not surfacing.

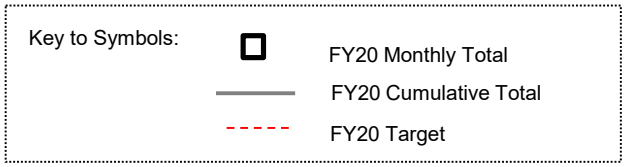
Water Distribution System Valves

4th Quarter - FY20

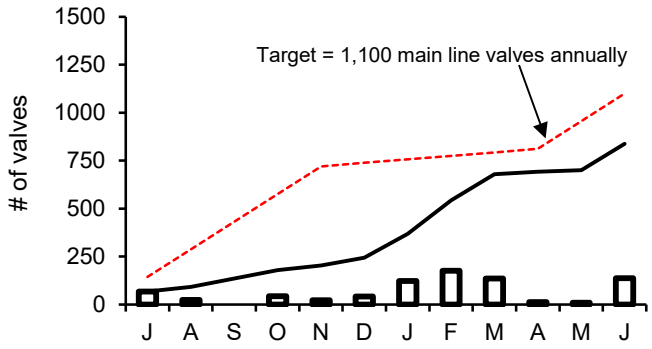
Background

Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in roadway locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but is often displaced during the construction season. This is due to the fact that a large number of construction contracts involving rehabilitation, replacement, or new installation of water lines, requires valve staff to operate valves and assist with disinfection, dechlorination, pressure-testing, and final acceptance. Valve exercising can also be impacted due to limited redundancy in the water system; valve exercising cannot be performed in areas where there is only one source of water to the community meters or flow disruptions will occur.

Type of Valve	Inventory #	Operable Percentage	
		FY20 to Date	FY20 Targets
Main Line Valves	2,159	96.5%	95%
Blow-Off Valves	1,317	98.6%	95%
Air Release Valves	1,380	95.0%	95%
Control Valves	49	100.0%	95%

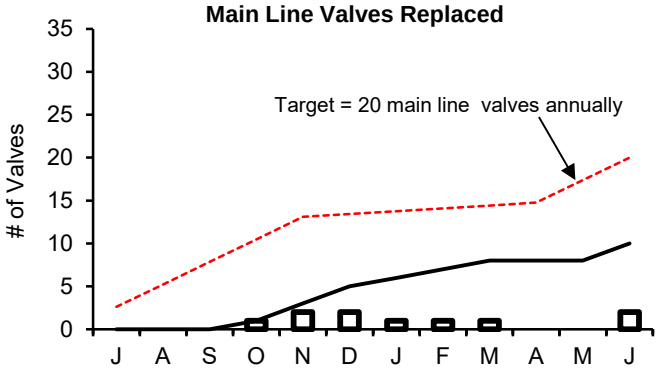


Main Line Valves Exercised



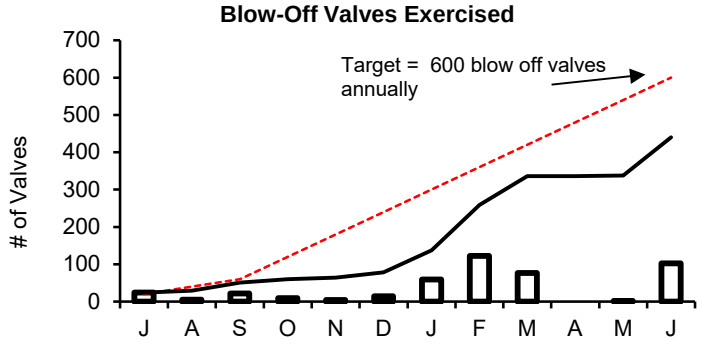
During the 4th Quarter of FY20, 158 main line valves were exercised. The total exercised for the fiscal year to date is 838. Below YTD target due to high priority CIP project (WASM 1) and Covid 19.

Main Line Valves Replaced



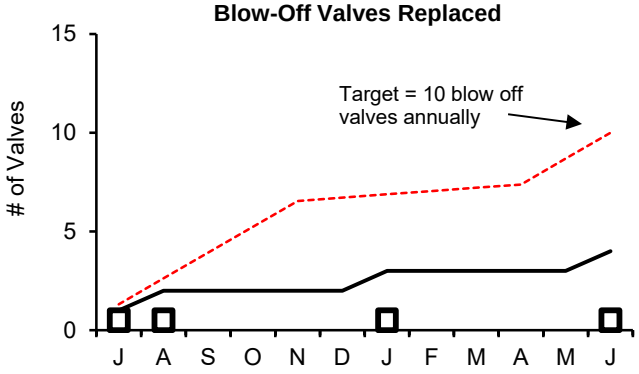
During the 4th Quarter of FY20, there were two main line valves replaced. The total replaced for the fiscal year to date is ten. Below YTD target due to isolation & permit issues, and Covid 19.

Blow-Off Valves Exercised



During the 4th Quarter of FY20, 104 blow off valves were exercised. The total exercised for the fiscal year to date is 440. Below YTD target due to high priority CIP project (WASM 1) and Covid 19.

Blow-Off Valves Replaced



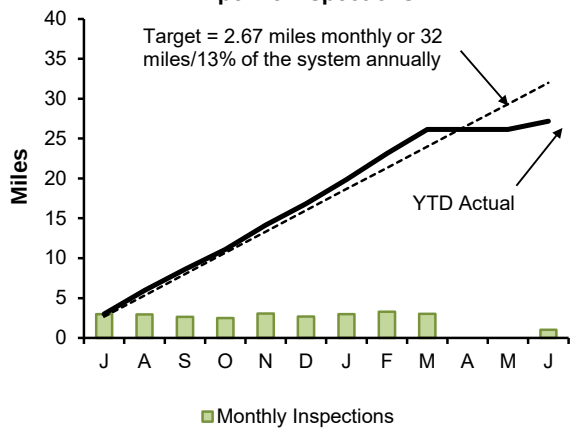
During the 4th Quarter of FY20, there was one blow off valve replaced. The total replaced for the fiscal year to date is four. Below YTD target due to isolation & permit issues, and Covid 19.

Wastewater Pipeline and Structure Inspections and Maintenance

4th Quarter - FY20

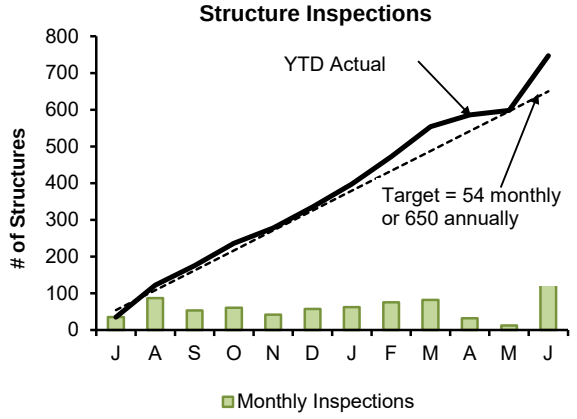
Inspections

Pipeline Inspections



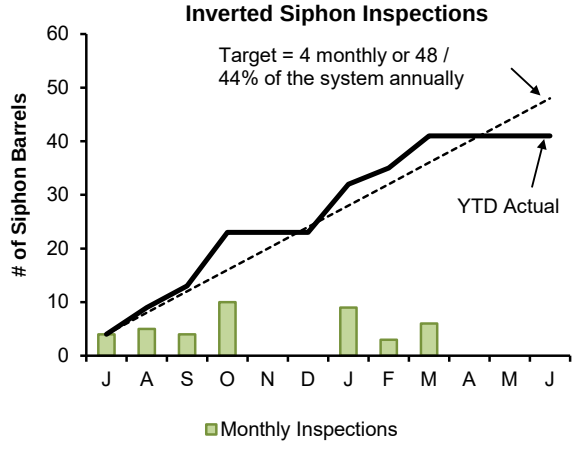
Due to the Covid 19 Virus, staff were limited to working only during the month of June. This resulted in reducted inspection numbers for this quarter. Staff internally inspected 1.04 miles of pipe. The year to date total is 27.18 miles. No Community Assistance was provided.

Structure Inspections



Staff inspected the 36 CSO structures and performed 157 other additional manhole/structure inspections during this quarter. The year to date total is 747 inspections.

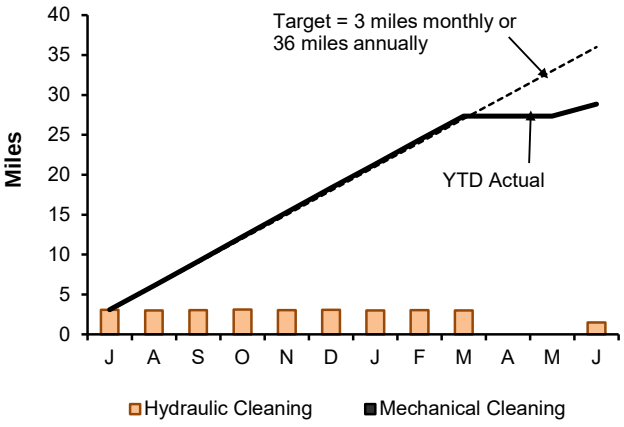
Inverted Siphon Inspections



Staff did not perform any siphon inspections this quarter. The year to date total is 41.

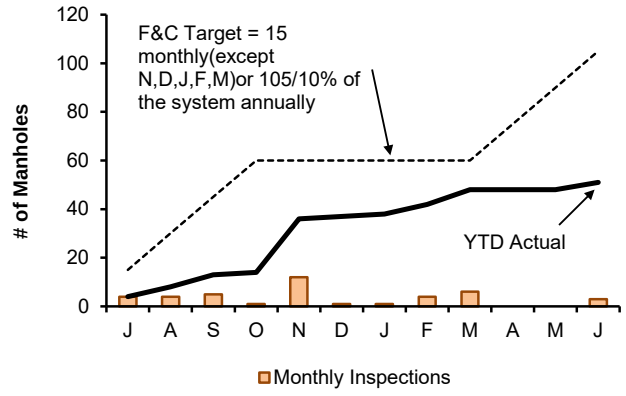
Maintenance

Pipeline Cleaning



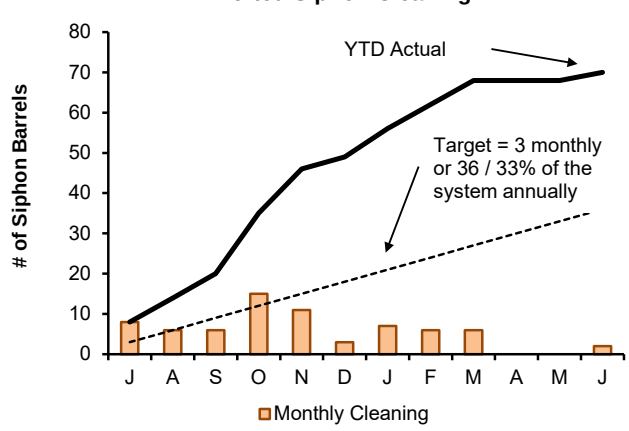
Due to the Covid 19 Virus, staff were limited to working only during the month of June. This resulted in reducted cleaning numbers for the quarter. Staff cleaned 1.5 miles of pipe, and removed 1 yard of grit. The year to date total is 28.85 miles. No Community Assistance was provided.

Manhole Rehabilitation



Staff conducted 3 frame and cover replacements this quarter. The year to date total is 51.

Inverted Siphon Cleaning

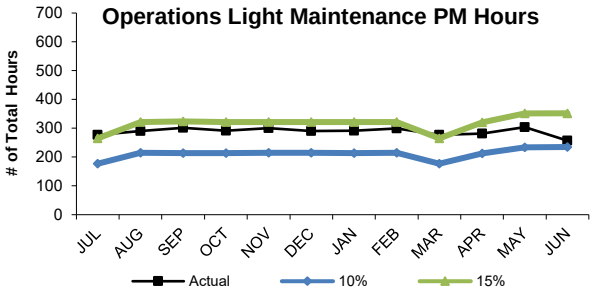


Staff cleaned 2 siphon barrels this quarter. Year to date total is 70.

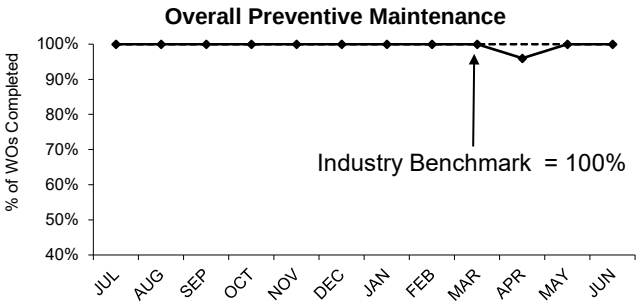
Field Operations' Metropolitan Equipment & Facility Maintenance

4th Quarter - FY20

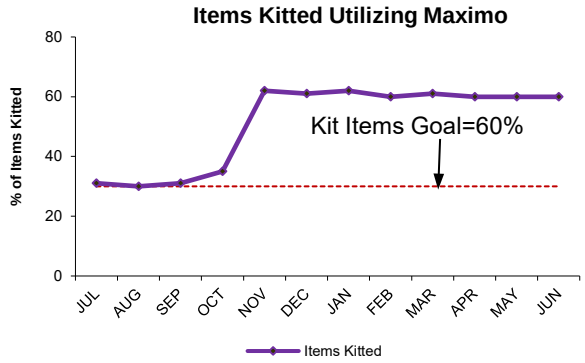
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion was raised to 100% for Fiscal Year 2010. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus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



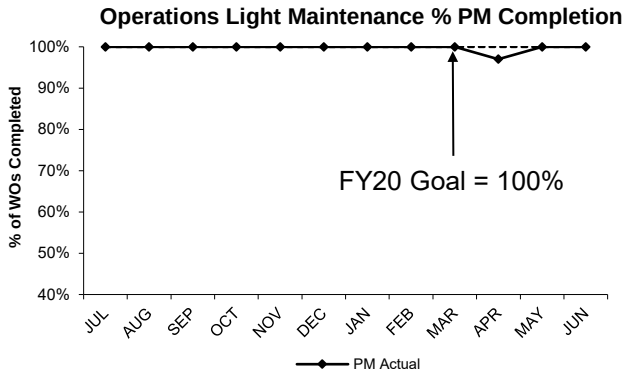
Operations staff averaged 281 hours of preventive maintenance during the 4th Quarter, an average of 12% of the total PM hours for the 4th Quarter, which is within the industry benchmark of 10% to 15%.



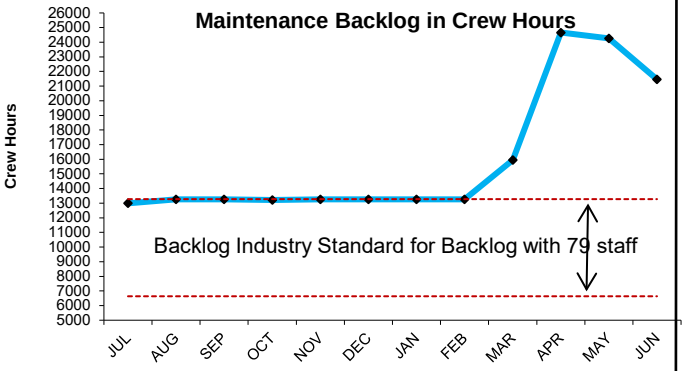
The Field Operations Department (FOD) preventive maintenance goal for FY20 is 100% of all PM work orders. Staff completed an average of 99% of all PM work orders in the 4th Quarter. The slight decrease is due to reduced staffing levels due to COVID19



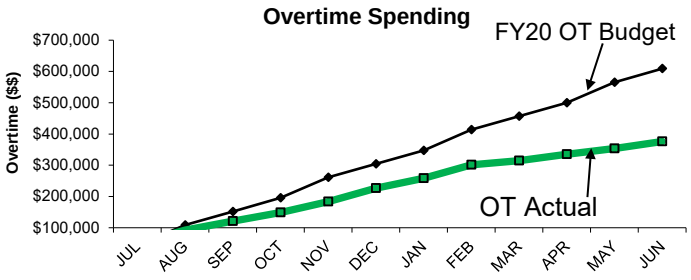
Operations' FY20 maintenance kitting goal has been set at 60% of all work orders to be kitted. Kitting is the staging of parts or material neccesary to complete maintenance work. In the 4th Quarter, 60% of all applicable work orders were kitted. This resulted in more wrench time and increased productivity.



Wastewater Operations complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY20 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 99% of PM work orders in the 4th Quarter. The slight decrease is due to reduced staffing levels due to COVID19



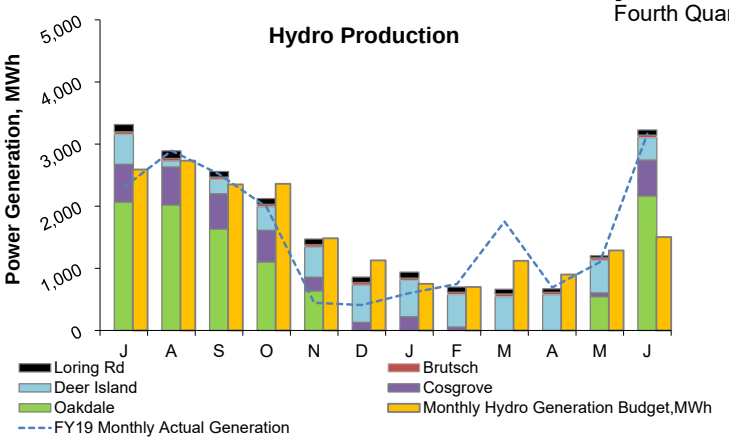
The 4th Quarter backlog average is 23,463 hours. Management's goal is to continue to control overtime and still stay within the industry benchmark of 6,636 to 13,275 hours. The slight increase is due to reduced staffing levels due to COVID19



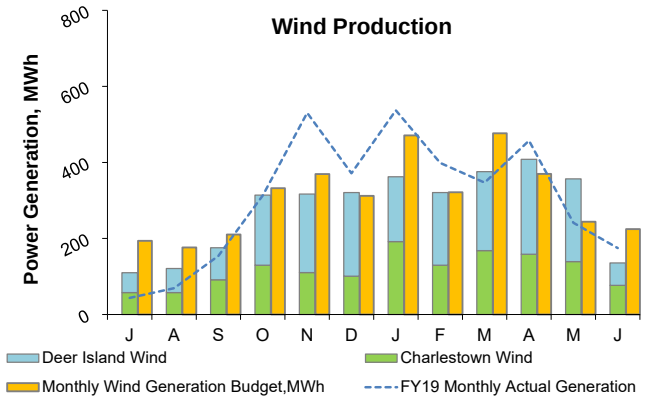
Maintenance overtime was $30k under budget for the 4th Quarter. Overtime was used for critical maintenance repairs and wet weather events. The overtime budget for FY20 is $609k and is $233k under budget for the fiscal year.

Renewable Electricity Generation: Savings and Revenue

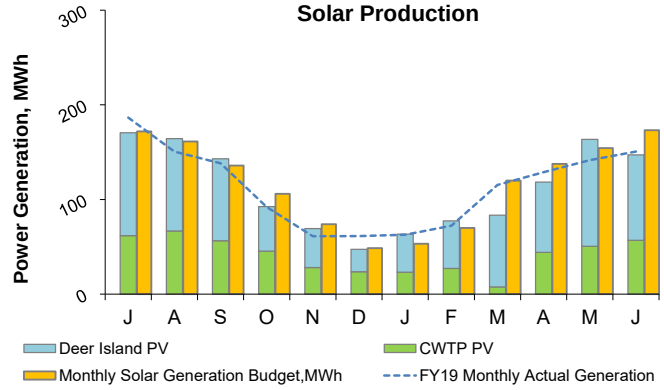
Fourth Quarter - FY20



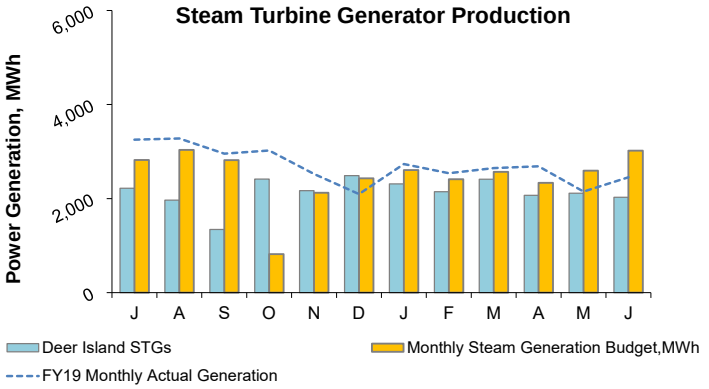
In the 4th quarter of FY20, the renewable energy produced from all hydro turbines totaled 5,102 MWh; 38% above budget[3]. The total energy produced to-date in FY20 is 20,620 MWh; 9% above budget[3].
The total savings and revenue[2] to date in FY20 (actuals through May[1]) is $873,271 ; 7% above budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).



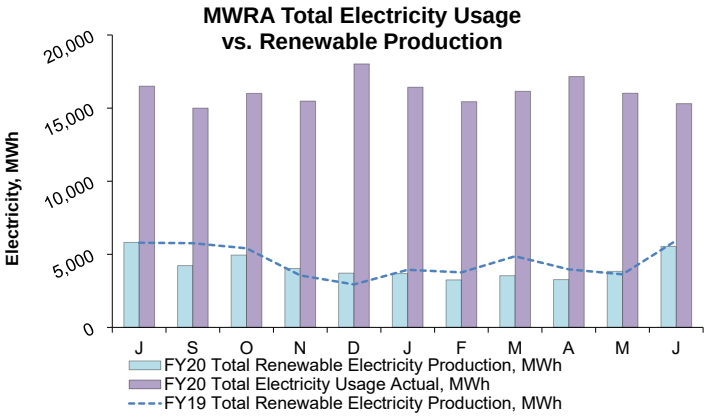
In the 4th quarter of FY20, the renewable energy produced from all wind turbines totaled 901 MWh; 7% above budget[3] . The total energy produced to-date in FY20 is 3,317 MWh; 10% below budget[3].
The total savings and revenue[2] to date in FY20 (actuals through May[1]) is $443,848 ; 14% below budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).

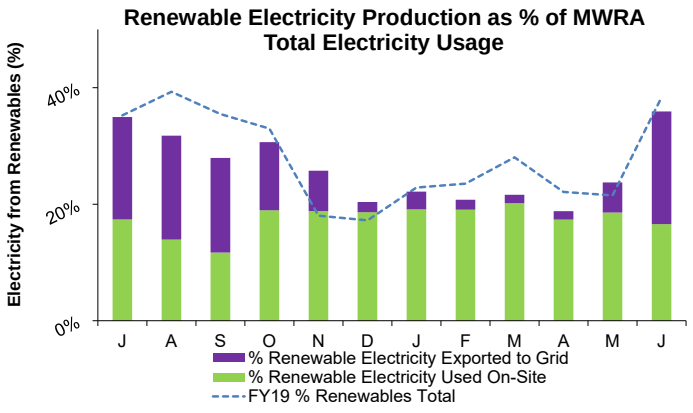


In the 4th quarter of FY20, the renewable energy produced from all solar PV systems totaled 429 MWh; 8% below budget[3] . The total energy produced to-date in FY20 is 1,351 MWh; 4% below budget[3].
The total savings and revenue[2] to date in FY20 (actuals through May[1]) is $240,418 ; 49% above budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).



In the 4th quarter of FY20, the renewable energy produced from all steam turbine generators totaled 6,211 MWh; 22% below budget[3]. The total energy produced to-date in FY20 is 25,683 MWh; 13% below budget[3].
The total savings and revenue[2] to date in FY20 (actuals through May[1]) is $2,215,072 ; 19% below budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).



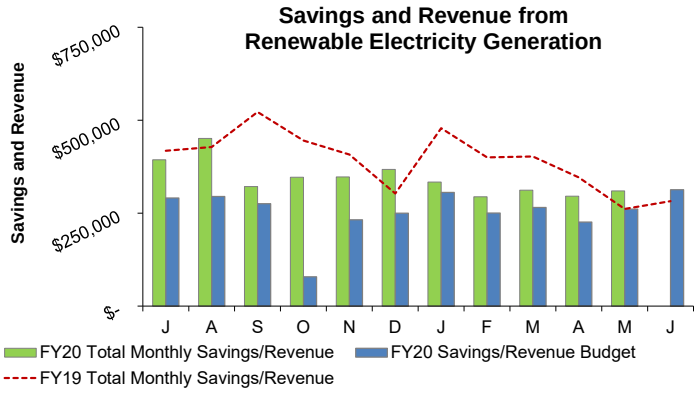


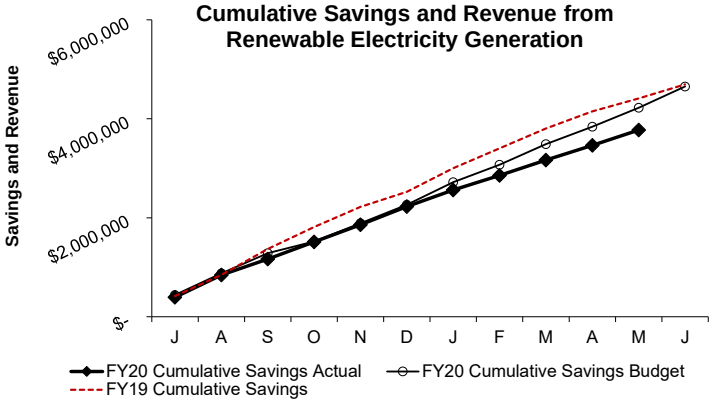
In FY20, MWRA's electricity totalgeneration by renewable resources was 50,971MWh. MWRA's total electricity usage was approximately 193,572 MWh. The MWRA total electricity usage is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and used on-site at these facilities. Approximately 99% of FOD electrical accounts are accounted for by actual billing statements; minor accounts that are not tracked on a monthly basis such as meters and cathodic protection systems are estimated based on this year's budget.
In FY20, green power generation represented approximately 26% of total electricity usage. All renewable electricity generated on DI is used on-site (this accounts for more than 50% of MWRA renewable generation). Almost all renewable electricity generated off-DI is exported to the grid.

Notes:
1. Only the actual energy prices are being reported. Therefore, some of the data lags up to 2 months due to timing of invoice receipt.
2. Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.
3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.

Renewable Electricity Generation: Savings and Revenue

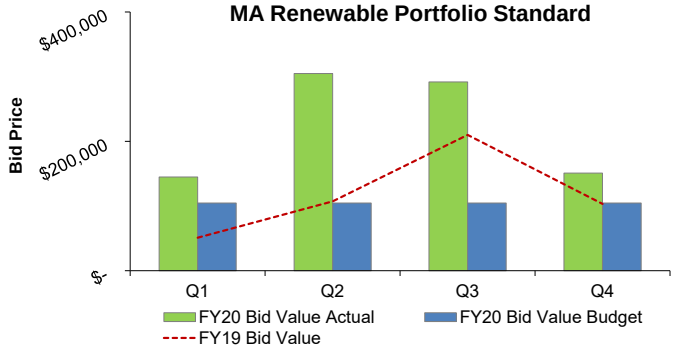
Fourth Quarter- FY20

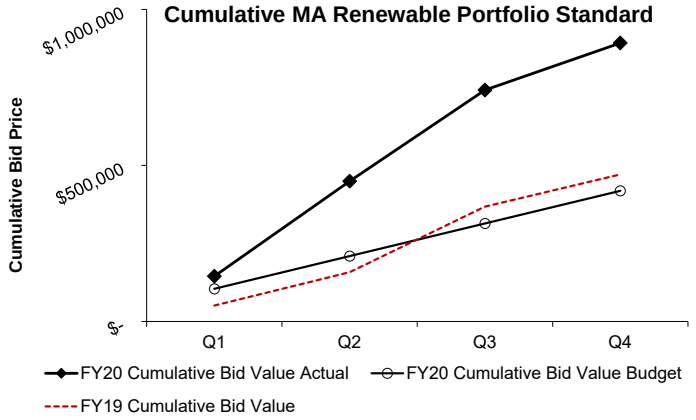




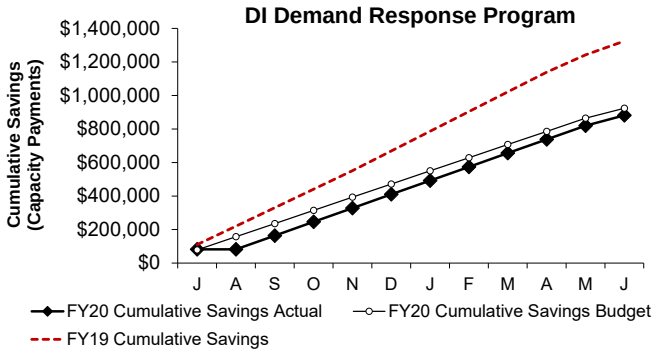
Savings and revenue from MWRA renewable electricity generation for the first eleven months of FY20 (actuals only through May[1]) is $3,772,610 which is 11% below the budget[3].

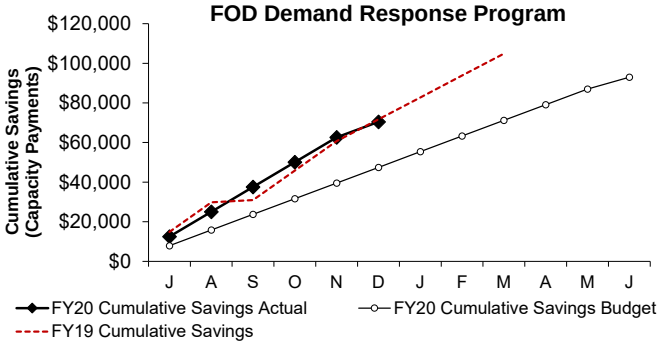
Savings and revenue[2] from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS RECs).
The use of DITP digester gas as a fuel source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





Bids were awarded during the 4th Quarter[1] from MWRA's renewable energy assets; 5,083 Q4 CY2019 Class I Renewable Energy Certificates (RECs), 1,597 Q4 CY2019 Class II RECs, and 36 Q4 CY2019 Solar RECs were sold for a total value of $150,816 RPS revenue; which is 44% above budget[3] for the Quarter. This is mostly due to Class I REC prices being over 100% above the budget for the quarter.
REC values reflect the bid value on the date that bids are accepted. Cumulative bid values reflects the total value of bids received to date.



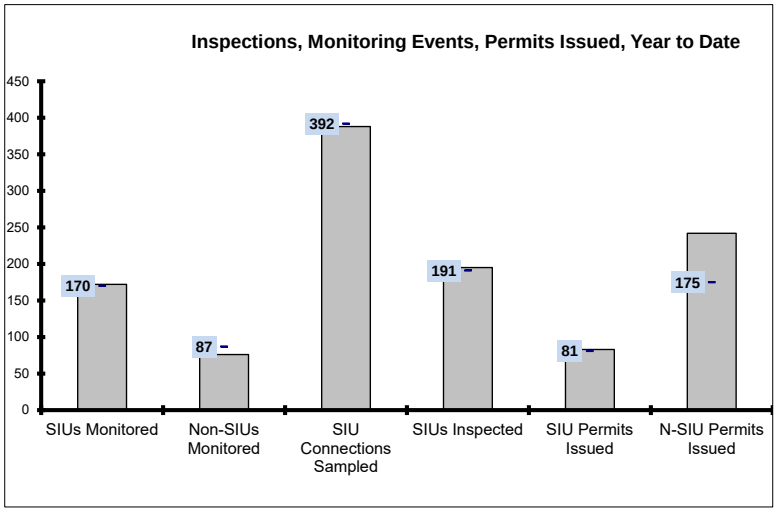


Currently Deer Island, JCWTP, and Loring Rd participate in the ISO-New England Demand Response Programs[4]. By agreeing to reduce demand and operate the facility generators to help reduce the ISO New England grid demand during periods of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates the generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. FY20 Cumulative savings (Capacity Payments only) through June[1] total $881,286 for DI and payments for FOD total $70,438 through December[1].

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

Toxic Reduction and Control

4th Quarter - FY20



Significant Industrial Users (SIUs) are MWRA's highest priority industries due to their flow, type of industry, and/or their potential to violate limits. SIUs are defined by EPA and require a greater amount of oversight. EPA requires that all SIUs *with flow* be monitored at least once during the fiscal year.

The "SIU Monitored" data above, reflects the number of industries monitored; however, many of these industries have more than one sampling point and the "SIU Connections Sampled" data reflect samples taken from multiple sampling locations at these industries.

Due to the COVID-19 pandemic, all field operations (sampling and inspections) were put on hold on March 20,2020 and resumed in mid-June 2020. All of TRAC's inspections and permitting goals were met this fiscal year. Given the unique circumstances presented in 2020, TRAC sampled as many locations as possible, given time constraints and business closures.

Number of Days to Issue a Permit

	0 to 120		121 to 180		181 or more		Permits Issued	
	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU
Jul	2	19	0	0	0	0	2	19
Aug	4	21	0	4	1	0	5	25
Sep	7	16	0	0	0	0	7	16
Oct	6	19	0	1	0	1	6	21
Nov	5	17	0	2	0	0	5	19
Dec	9	12	0	3	0	1	9	16
Jan	4	16	0	3	0	0	4	19
Feb	7	25	0	3	0	0	7	28
Mar	4	5	0	1	1	2	5	8
Apr	5	22	0	1	0	2	5	25
May	9	19	3	0	0	0	12	19
Jun	14	14	2	2	0	11	16	27
% YTD	92%	85%	6%	8%	2%	7%	83	242

EPA requires MWRA to issue or renew 90 percent of SIU permits within 120 days of receipt of the application or the permit expiration date - whichever is later. EPA also requires the remaining 10 percent of SIU permits to be issued within 180 days.

In the 4th quarter of FY20, 43 permits were issued, 16 of which were SIUs. Fourteen of the SIU permits were issued within the 120-day timeframe.

In total, 325 permits were issued during the fiscal year with 83 being SIUs. Ninety-two percent of the SIU permits were issued within 120 days. Seven were issued beyond the 120-day timeframe. Late payment of permit fees accounted for most of the late issuances. However, timely availability of data for the permit processing - especially for new permittees and construction dewatering permits did result in several permits being issued beyond the 120-day timeframe.

For the Clinton Sewer Service area, no SIU permit was issued in this quarter and none in the fiscal year. There were also 45 Municipal permits issued during the fiscal year. In FY20, a new group permit for Dental Discharges was created. TRAC issued 714 of these group permits.

EPA Required SIU Monitoring Events
for FY20: 170
YTD : **172**

Required Non-SIU Monitoring Events
for FY20: 87
YTD : **76**

SIU Connections to be Sampled
For FY20: 392
YTD: **388**

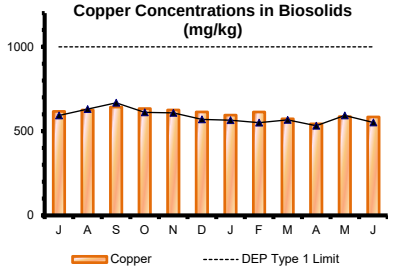
EPA Required SIU Inspections
for FY20: 191
YTD: **195**

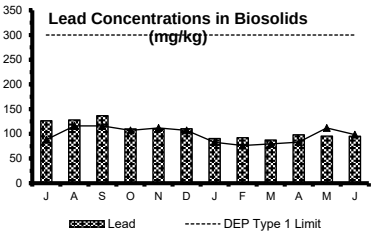
SIU Permits due to Expire
In FY20: 81
YTD: **83**

Non-SIU Permits due to Expire
for FY20: 175
YTD: **242**

TRAC's annual monitoring and inspection goals are set at the beginning of each fiscal year but they can fluctuate due to the actual number of SIUs. Monitoring of SIUs and Non-SIUs is dynamic for several reasons, including: newly permitted facilities; sample site changes within the year requiring a permit change; non-discharging industries; a partial sample event is counted as an event even though not enough sample was taken due to the discharge rate at the time; and, increased inspections leading to permit category changes requiring additional monitoring events.

SIU and Non-SIU permits are issued with durations of two to five years, depending on the category of industry, varying the number of permits that expire in a given year. In May, TRAC reviewed all SIU inspections completed to date for the fiscal year and reclassified any SIU inspection that met





Copper, lead, and molybdenum are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer.
Overall, copper and lead levels remain relatively constant, below the DEP Type 1 Limit, and within the range of values over the past several years.

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

Field Operations Highlights

4th Quarter – FY20

Western Water Operations and Maintenance

- Carroll Water Treatment Plant: Due to COVID restrictions, staff maintained physical and social distance from each other throughout the fourth quarter. Field staff operated on an A/B rotation during this period, and returned to full staffing at the end of June. Staff replaced several broken lamps and sleeves in the UV system and supported Calgon in the trial of a new style lamp with a lower pressure rating.

Metro Water Operations and Maintenance

With COVID restrictions, Valve and Pipeline crews operated on an A/B rotation list throughout the fourth quarter of FY20 until June 22nd when the program transitioned back to full staffing.

- Valve Program: Valve operations to support in-house work included isolation, dewatering and reactivation of the Shaft 9-A line to support a blow-off retrofit. Dewatering to support a valve installation on Section 8. Also, tap and install a corporation stop for a new air valve installation on Section 8. Support of CIP work included the Commonwealth Avenue Pump Station project with flushing, sampling, activation of Section 75, activation of the yard piping at the East Station, and support with disinfection, installation of insertion valves by a contractor and a test shutdown.

- Water Pipeline Program: Staff completed the replacement of a 24-inch gate valve at the Edgell Road Pumping Station in Framingham. Staff completed the replacement of a 24-inch gate valve on Section 8, Marginal Street in Chelsea. Staff completed a blow-off retrofit project on the Shaft 9-A line in Medford. Staff completed a project to install a new air valve and chamber on Section 8 at Williams Street in Chelsea. Staff also completed the installation of a mounting pad for new energy storage batteries at Brattle Court Pumping Station.

Wastewater Operations & Maintenance

Wastewater and Water Operations Control Center (OCC) staff remained on a rotational A/B list until 6/20/20 when they transitioned back to full staffing. The limited staff in the OCC do a complete wipe down of phones, radios and touchable surfaces after every shift and keep a log.

- CSO Assessment: Operations staff attended monthly CSO Assessment coordination and notification meetings with the City of Cambridge, as well as a general meeting with Engineering, ENQUAL, Operations Engineering and Metering staff to discuss the details of existing metering, what is lacking, how data can be monitored during storm events and responded to in a timely manner,

- Training: There was no training done by Wastewater Operations due to COVID during the quarter.

Metro Equipment and Facility Maintenance

Painters: Taking advantage of the unoccupied building, staff prepped and painted a number of areas in the Chelsea Administration Building.

Metering

Water: Meter Data began tracking how the Commonwealth recommendations for sheltering in place has affected the demand in the fully supplied water communities. In general, most residential communities saw demand increases as the stay at home order was in effect, while larger commercial/college communities saw sharp decreases. In addition, a hot and dry June pushed system demand in residential communities even higher, with some communities seeing a nearly 30% increase in June compared to 3 year averages.

Wastewater: In response to COVID, starting in mid-March, Meter Maintenance personnel suspended all preventative maintenance, including replacing batteries. Because of this, many batteries died and data capture rate dropped to well under 50%. Staff made several presentations in June to the MWRA Advisory Board which approved the use of 3-year average flows, adjusted for the COVID water use changes, for billing in the months of April and May.

Upon returning to full staffing in June, the meter maintenance crews were quickly able to catch up on preventative and corrective maintenance requirements. The data capture rate steadily increased resulting an 85% data capture rate for the month. Currently our data capture rate is over 90%.

TRAC

Compliance and Enforcement

- TRAC issued 26 Notices of Violation, two Notices of Noncompliance and one Extension Letter. Compliance and Enforcement staff worked remotely during the quarter. They spent an increased amount of time working with industries through email and telephone conversations to remind them of reporting requirements and tracking industries that are not operating during the pandemic. Compliance staff

are only issuing Notices of Violation for discharge violations which resulted in a lower number of NOVs issued during the fourth quarter.

Inspections and Permitting

- This quarter TRAC issued a total of 112 MWRA 8(m) Permits allowing companies to work within MWRA easements. Permits issued this quarter were issued in an average of 115 days from the date the application for 8(m) permit was received by the MWRA.

- TRAC staff conducted 7 Annual SIU and 2 other inspections. Annual SIU Inspections are required under TRAC's EPA approved Industrial Pretreatment Program. Other inspections include inspections for enforcement, permit renewal, NSIU, follow-up, temporary construction dewatering sites, group/combined permit audits, out-of-business facility reviews, and surveys.

- 104 MWRA Sewer Use Discharge Permits (Permits) were issued and/or renewed to its sewer users. All remaining Dental Discharges permits were issued during the fourth quarter. In total, 712 permits were issued to dental facilities.

- Two permits were issued in Clinton. One permit was issued within 90 days of the application. One permit was issued more that 90 days from receipt due to late payment of the permit fee by the company.

Monitoring

- During the fourth quarter, TRAC completed 43 SIU monitoring events, 7 NSIU monitoring events and 200 other events including Clinton NPDES sampling, Clinton Local Limits sampling, Clinton Landfill sampling, Sudbury Aqueduct monitoring, Cosgrove and Oakdale NPDES sampling, Carrol Water Treatment Plant Compliance sampling for discharge to Marlborough, Special Sulfide sampling, Muni sampling and CSO Hypochlorite Tank chemical sampling.

Environmental Quality-Water

Regulatory and Non-Regulatory Sampling Programs

- Due to COVID, MWRA requested flexibility in its regulatory sampling schedule; DEP approved spreading sampling outside the traditional monitoring period. As a result, staff collected quarterly samples from 33 sites for MWRA's Disinfection Byproducts Program and 27 samples for Optimum Water Quality Parameters (OWQP) program throughout April and May.

- Recognizing the risks of improper sampling due to the potential of regular samplers being unavailable, in April, staff finalized and distributed visual guides to coliform collection and chlorine residual testing. MassDEP distributed the guides as a "best management practice" to all public water systems through their program director email distribution. Staff also developed cooler labels for community and MWRA staff to place on their drinking water sampling coolers.

- COVID19 Coordination with DEP/EPA: MWRA staff held an online biweekly meeting with DEP and EPA throughout the quarter. MWRA provided updates on planning, operations and regulatory sampling programs and monthly compliance reporting.

Community Support

- In 2019, DEP encouraged all public water systems to collect voluntary PFAS samples at finished water locations, and for repeat samples raw water locations, to better understand PFAS presence in drinking water across Massachusetts. MWRA staff provided sampling and laboratory assistance to most partially-supplied communities.

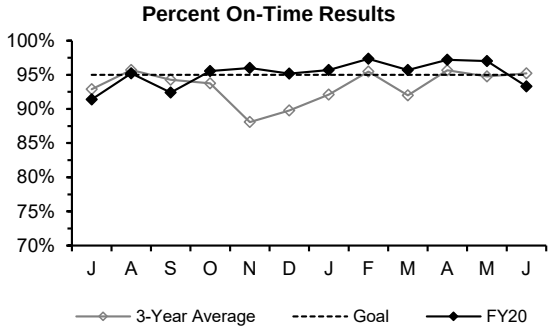
Environmental/Chemical Contract Management

- Given COVID related concerns about supply chain reliability, staff provided weekly updates on bulk chemical supply conditions. All chemical inventories are at acceptable levels and vendors are not experiencing any issues with manufacture, distribution, or transport.

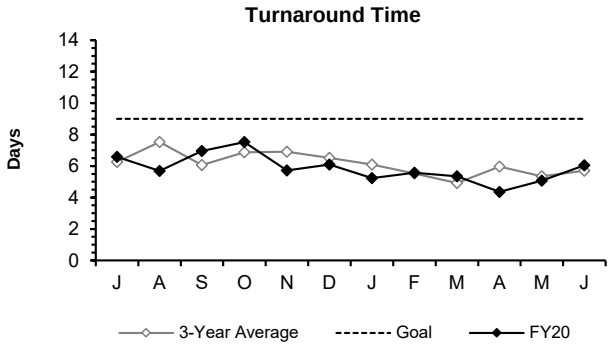
Environmental Quality-Wastewater

- Staff scaled back water column surveys to comply with COVID safety protocols while conducting permit-required Ambient Monitoring. Staff conducted annual flounder and three routine water column surveys in April to June, some delayed due to COVID, and one red tide rapid response survey in June. Ship availability delayed the hard-bottom benthic survey from mid-June into early July. Staff participated in an OMSAP subcommittee meeting evaluating issues related to pharmaceuticals and personal care products (PPCPs), and submitted an interim request for modification to Ambient Monitoring following earlier OMSAP recommendations. Seasonal CSO Receiving Water monitoring in variance waters continued, at a reduced level of effort due to COVID safety restrictions. Biweekly harborwide monitoring was on hold due to COVID but restarted June 23.

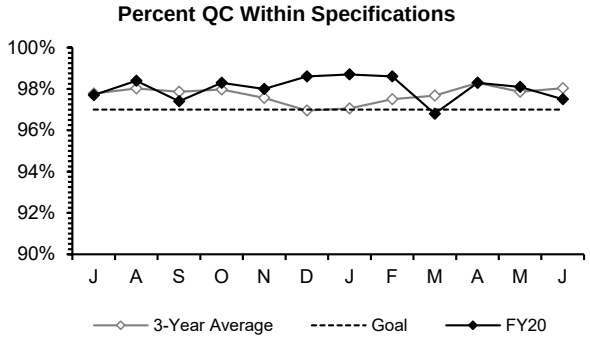
Laboratory Services
4th Quarter - FY20



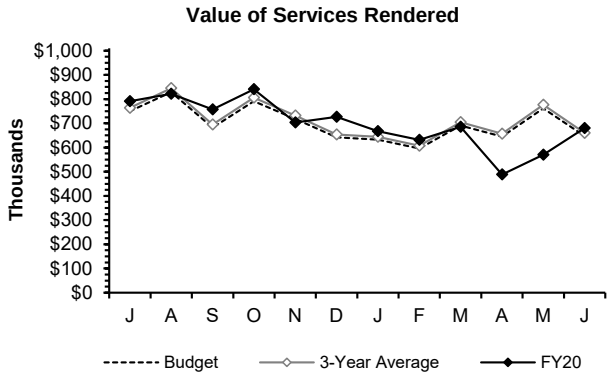
The Percent On-Time measurement fell below the 95% goal for June due to reduced staffing.



Turnaround Time met the 9-day goal.



Percent of QC tests meeting specifications met the 97% in-house goal.



Value of Services Rendered recoverd to the annual budget projection in June.

Highlights:

Performance: Met Turnaround Time, Percent on time and Percent QC within Specification indicators for the quarter at reduced staffing level. Value of Services Rendered was limited by a reduced level of staffing within the lab and other MWRA departments.

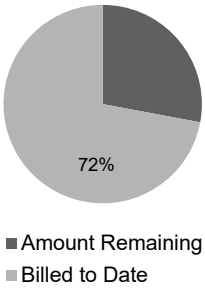
School Lead Program: During FY20, MWRA's lab completed 901 tests from 84 schools and childcare facilities in 33 communities. Additionally we completed 94 tests for the DPH program, and 1866 tests for other drinking water projects in FY20. Since 2016, MWRA's Laboratory has conducted over 37,000 tests from 487 schools and daycares in 44 communities.

Special Request: Tested samples from Colonial Water Company (Dover) in response to a boil order there, at the request of Mass DEP. The lab that Colonial normally uses does not accept samples on Sundays.

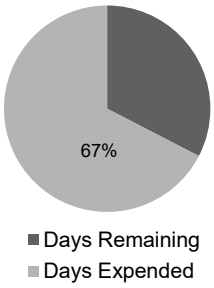
CONSTRUCTION PROGRAMS

Projects In Construction
4th Quarter– FY20

Money



Time

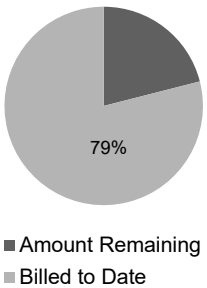


Southern Extra High Pipeline Section 111

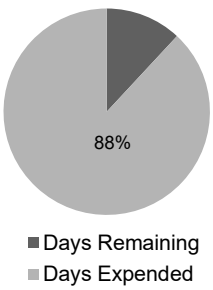
Project Summary: This project consists of 6,800 linear feet of 36-inch water main in Dedham and Westwood and includes pipe jackings at the Dedham Corporate MBTA Station and at the MassDOT Route 95 East Street Rotary.

Notice to Proceed: 10-Aug-2018 *Contract Completion:* 31-May-2021
Status and Issues: As of June, Crew 1 continued assisting Hayward Baker by removing spoils from piles drilled at the receiving pit area for the MBTA Crossing. Crew 2 installed erosion mats and silt socks on the North and South Slopes on the I-95 crossing and installed a concrete thrust block for a 45 degree bend at Station 52+72. They also loamed and seeded the island at the top of Allied Drive and East St. Rotary.

Money



Time



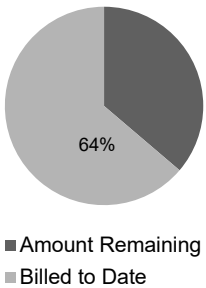
Chelsea Creek Headworks Upgrade

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

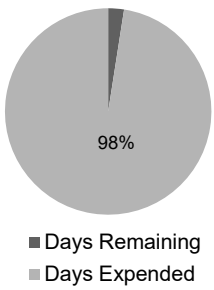
Notice to Proceed: 22-Nov-2016 *Contract Completion:* 21-Nov-2020

Status and Issues: As of June, the Contractor worked on cleaning Channel 2 for chain replacement, then disassembled and removed the flights and cut and removed the existing chain from the channel. In addition, they worked on saw cutting and demolition for the new HVAC openings in the Odor Control Room and dewatered and cleaned the grit pit for grit pods 1 and 2.

Money



Time



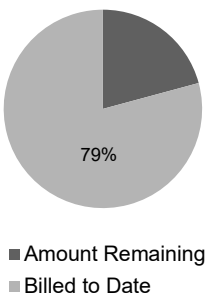
Cottage Farm & Gillis PS Roof Replacement

Project Summary: This project involves the replacement of the rubber roofing membrane system at the Cottage Farm CSO and the Gillis Pumping station.

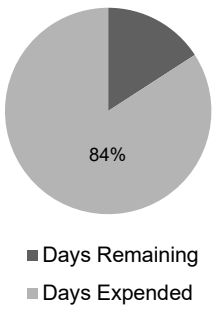
Notice to Proceed: 10-Jul-2019 *Contract Completion:* 9-Jul-2020

Status and Issues: As of June, the Contractor began the installation of lightning and ground protection including adhering copper clips for copper cable along the flat roof and provided a protective install between dis-similar metals (copper wire and anodized aluminum flashing). They installed ground plates at NW and NE corners of the flat roof and installed a copper ground at SW corner.

Money



Time



Commonwealth Ave Pump Station Improvements

Project Summary: This project will provide a new connection to the station from two low service pipelines in Commonwealth A venue and add low service pumps so that the City of Newton can be supplied in the event of a City Tunnel failure.

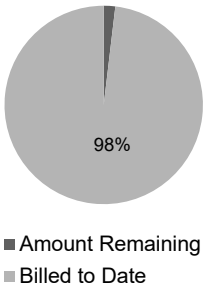
Notice to Proceed: 28-Feb-2019 *Contract Completion:* 30-Sep-2020

Status and Issues: As of June, the Contractor installed frames and covers on Vault D, insertion valves, new structures in the median, and grates on the new catch basins. They patched pavement from Vault B to the edge of Commonwealth Ave, and created an opening for a new exhaust louver and control damper in the East Pump Station Electrical Room.

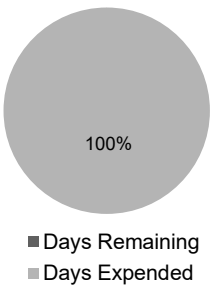
Projects In Construction

4th Quarter– FY20

Money



Time



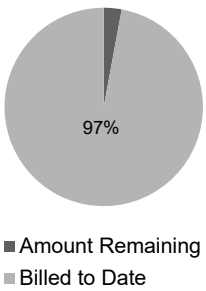
NIH Section 110 - Stoneham

Project Summary: This project consists of the replacement of 14,000 linear feet of 48-inch diameter transmission main in the Town of Stoneham.

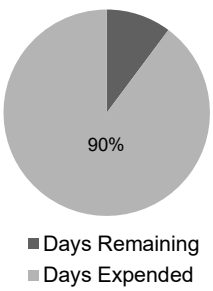
Notice to Proceed: 5-Sep-2017 *Contract Completion:* 1-Jun-2020

Status and Issues: As of June, the Contractor completed the installation of pavement markings on various streets with new overlay pavement. They cleaned all catch basins on DCR roadways and investigated leaks on Town of Stoneham water mains discovered by MWRA Leak Detection, and replaced sewer service to No 18 South Street.

Money



Time



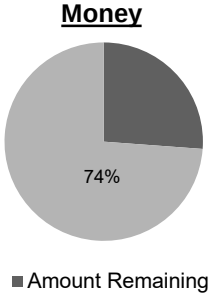
Capital Improvements at the Biosolids Facility

Project Summary: This project involves the replacement of nine mechanical conveyors and ancillary equipment, as well as three sludge processing rotary dryer drums.

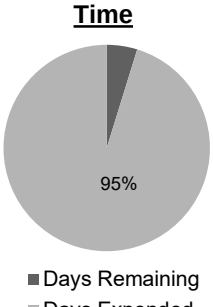
Notice to Proceed: 9-Apr-19 *Contract Completion:* 21-Aug-20

Status and Issues: As of June, the Contractor completed the installation of the T6 separator B and MCC 7. The MCC 8 install is on-going and MCC 3 labelling is 100% complete.

Money



Time



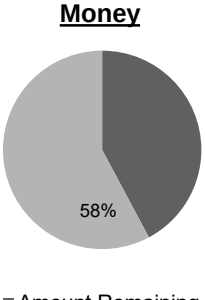
Winthrop Terminal VFD and Motor

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

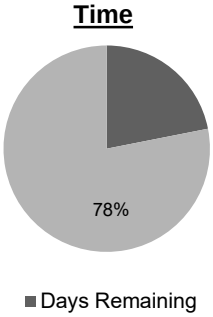
Notice to Proceed: 16-Jun-2016 *Contract Completion:* 12-Sep-2020

Status and Issues: VFD/Motor No 4 installation on-going.

Money



Time



Gravity Thickener Rehabilitation

Project Summary: This project involves the upgrade of all six gravity thickeners, including the complete replacement of each tank's sludge and scum thickening equipment and 5 of the 6 FRP dome covers.

Notice to Proceed: 11-May-2018 *Contract Completion:* 4-Feb-2021

Status and Issues: As of June, the Contractor completed the resurfacing of the GT-3 tank walls and 90% of the tank wall coatings. In addition they installed 60% of the mechanism.

CSO CONTROL PROGRAM

4th Quarter – FY19

All 35 projects in the Long-Term CSO Control Plan were complete as of December 2015 in compliance with Schedule Seven. Of the $910.1 million budget in the FY19 CIP for the CSO Control Program, approximately $6.5 million remain to be spent. On April 17, 2019, the MWRA Board of Directors authorized Amendment 1 to CSO Contract 7572 in the amount of $931,490 (described below), increasing the remaining amount to be spent on CSO control to approximately $7.4 million.

Project/Item	Status as of June 30, 2019
BWSC Dorchester Interceptor Inflow Removal	MWRA's CIP and the MOU/FAA with BWSC included $5.4 million for additional inflow removal from the BWSC Dorchester Interceptor system in the South Dorchester Bay Sewer Separation area, of which $1.7 million was transferred to the BWSC MOU/FAA CSO account and $1.6 million of that was withdrawn by BWSC to fund related design and construction work. On May 17, 2017, MWRA's Board of Directors authorized removing the remaining $3.8 million from the BWSC MOU/FAA (which ended on June 30, 2017) and including this funding amount in a separate, 4-year financial assistance agreement with BWSC effective July 1, 2017. The new agreement limits MWRA financial assistance to reimbursement of the eligible costs of BWSC construction work reviewed and approved by MWRA, up to $3.8 million. BWSC recently completed sewer system evaluations and is preparing a construction contract for inflow removal that it plans to submit to MWRA for eligibility approval this fall.
City of Cambridge Memorandum of Understanding and Financial Assistance Agreement	The City of Cambridge attained substantial completion of its last project, CAM004 Sewer Separation, in December 2015 in compliance with Schedule Seven, and attained substantial completion of related surface restoration work by the end of 2017. MWRA made a final transfer of funds to the Cambridge CSO account in December 2017, in the amount of $1,254,551, to cover eligible costs through June 30, 2018, when the 22 year-old, $100.2 million MOU/FAA ended. Cambridge continues to support ongoing MWRA review of the construction contracts Cambridge managed under the CSO MOU and Financial Assistance Agreement. Staff expect to complete the review and issue a final eligibility certification by September 30, 2019.
MWRA CSO Performance Assessment – Contract 7572	MWRA issued the Notice to Proceed with the contract for CSO Post-Construction Monitoring and Performance Assessment to AECOM Technical Services, Inc., in November 2017. The contract includes CSO inspections, overflow metering, hydraulic modeling, system performance assessments and water quality compliance assessments, culminating in the submission of a report verifying attainment of court-ordered levels of CSO control to EPA and DEP in December 2020, in compliance with the last milestone in Schedule Seven. MWRA issued progress reports on the performance assessment on November 30, 2018 and May 3, 2019, and plans to issue a third progress report in October 2019. The issued progress reports presented the analyses of rainfall and CSO meter data collected in the periods April 15 - June 30, 2018 and July 1 – December 31, 2018, respectively. The third progress report will cover the data collection period of January 1 – June 30, 2019. Upgrade and improved calibration of MWRA's hydraulic model is underway and will be complete by August 31, 2019, allowing a comparison of model predicted and field measured CSO discharges, which will be presented in the October 2019 semiannual progress report. Model recalibration and verification will bring the meter results and model predictions closer together to gain assurance of the accuracy of the model in predicting CSO discharges and verifying attainment of the Long Term Control Plan's typical year levels of CSO control. AECOM also continues to conduct investigations at several outfalls where metered CSO discharges differ from historical model predictions. On April 17, 2019, the MWRA Board of Directors approved Amendment 1 to Contract 7572 in the amount of $931,470. The amendment adds receiving water quality modeling of the Lower Charles River/Charles Basin and the Alewife Brook/Upper Mystic River in lieu of water quality data statistical analyses; extends temporary CSO metering to June 2020 at 36 CSO regulators; and provides for the eventual transfer of the temporary meters at regulators tributary to MWRA CSO outfalls for MWRA's long-term use in complying with expected CSO public notification requirements. MWRA continue to collect water quality data in CSO affected waters, with emphasis in the Charles River and Alewife Brook/Upper Mystic River, in part to support AECOM's receiving water modeling.

CIP Expenditures

4th Quarter – FY20

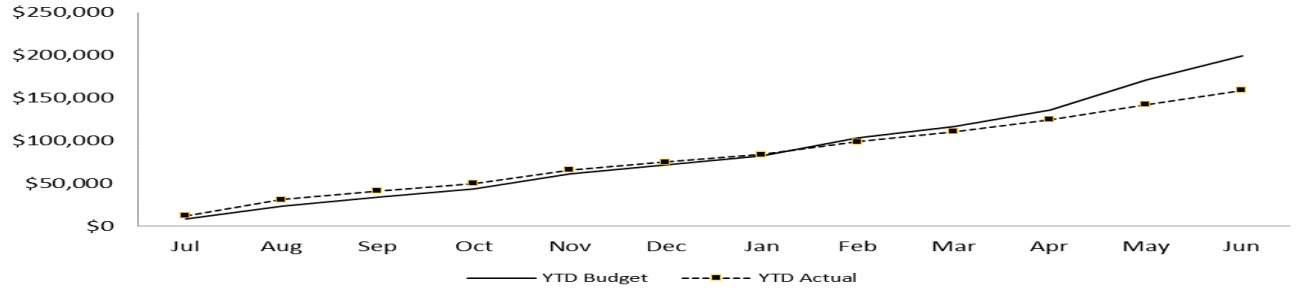
FY20 Capital Improvement Program Expenditure Variances through June by Program ($ in thousands)				
Program	FY20 Budget Through June	FY20 Actual Through June	Variance Amount	Variance Percent
Wastewater	122,504	97,234	(25,270)	-21%
Waterworks	64,166	58,054	(6,111)	-10%
Business and Operations Support	12,477	3,733	(8,744)	-70%
Total	$199,147	$159,021	($40,125)	-20%

Project underspending within Wastewater was due to updated schedules for the DI Primary and Secondary Clarifier Construction, Prison Point CSO Rehab Construction, Nut Island Odor Control and HVAC Improvements, Dorchester Interceptor Sewer Construction, Dorchester I/I Removal Construction, DI Motor Control Center Switchgear Replacement,, Somerville Marginal In-System Storage, Wastewater Metering Equipment Replacement, DI Radio Repeater Upgrade Phase 2, vibration issue on VFD No. 5 for the Winthrop Terminal Facility VFD Replacement Construction and project scope change for the Clinton Valves and Pipe Replacement project. This underspending was partially offset by timing of community requests for grants and loans for the Infiltration/Inflow (I/I) Program, contractor progress and ESDC for the Residuals Electrical, Mechanical, and Drum Dryer Replacements, Pellet Conveyance Piping Relocation, award greater than budgeted for Sections 191/192 Rehab, work anticipated in FY19 that was completed in FY20 for the Clinton Roofing Rehabilitation, and contractor progress on the DI Gravity Thickener and Overflow Pipe. Project underspending in Waterworks was due to, updated schedules for New Connecting Mains CP-3 Sections 23, 24 & 47 Rehab, less than anticipated consultant progress and reduction in scope for Section 50/57 Water and Section 21/20/19 Sewer Design, and schedule changes for CP-1 Shafts 6,8, and 9A, CP-7 Existing Facilities Modifications, and CWTP Ancillary Modifications. This was partially offset by contractor progress for SEH Section 111 Construction 3, timing of community loan requests, work anticipated in FY19 that was completed in FY20 for the Bellevue 2/Turkey Hill Tank Painting and Cosgrove Intake Roof Repair, and timing of final work for the Wachusett Aqueduct Pumping Station Design/CA/REI contract.

Budget vs. Actual CIP Expenditures

($ in thousands)

Total FY20 CIP Budget of $199,147



Construction Fund Management

All payments to support the capital program are made from the Construction Fund. Sources of fund in-flows include bond proceeds, commercial paper, SRF reimbursements, loan repayments by municipalities, and current revenue. Accurate estimates of cash withdrawals and grant payments (both of which are derived from CIP spending projections) facilitate planning for future borrowings and maintaining an appropriate construction fund balance.

Cash Balance as of 6/30/20	$141.5 million
Unused capacity under the debt cap:	$1.53 billion
Estimated date for exhausting construction fund without new borrowing:	Aug-20
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper/Revolving loan outstanding: Commercial paper capacity / Revolving Loan	$128 million $350 million

* Cash based spending is discounted for construction retainage.

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results and UV Absorbance

4th Quarter – FY20

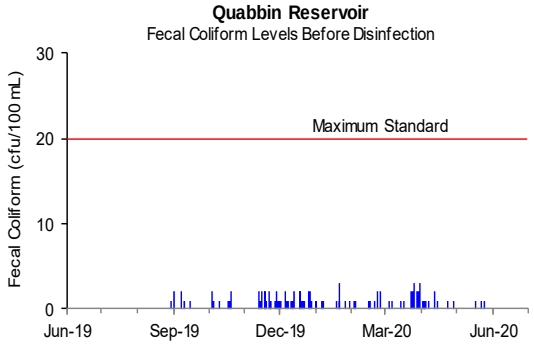
Source Water – Microbial Results

Total coliform bacteria are monitored in both source and treated water to provide an indication of overall bacteriological activity. Most coliforms are harmless. However, fecal coliform, a subclass of the coliform group, are identified by their growth at temperatures comparable to those in the intestinal tract of mammals. They act as indicators of possible fecal contamination. The Surface Water Treatment Rule for unfiltered water supplies allows for no more than 10% of source water samples prior to disinfection over any six-month period to have more than 20 fecal coliforms per 100mL.

Sample Site: Quabbin Reservoir

Quabbin Reservoir water is sampled at the William A. Brutsch Water Treatment Facility raw water tap before being treated and entering the CVA system.

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

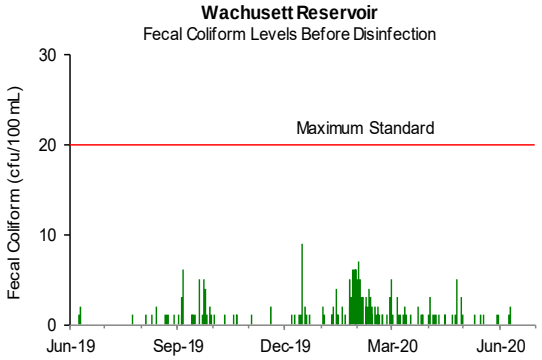


Sample Site: Wachusett Reservoir

Wachusett Reservoir water is sampled at the CWTP raw water tap in Marlborough before being treated and entering the MetroWest/Metropolitan Boston systems.

In the wintertime when smaller water bodies near Wachusett Reservoir freeze up, many waterfowl will roost in the main body of the reservoir - which freezes later. This increased bird activity tends to increase fecal coliform counts. DCR has an active bird harassment program to move the birds away from the intake area.

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

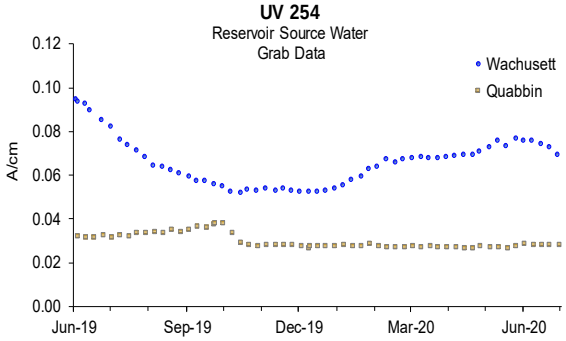


Source Water – UV Absorbance

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

Quabbin Reservoir UV-254 levels are currently around 0.28 A/cm at the end of the quarter.

Wachusett Reservoir UV-254 levels are currently around 0.69 A/cm at the end of the quarter.



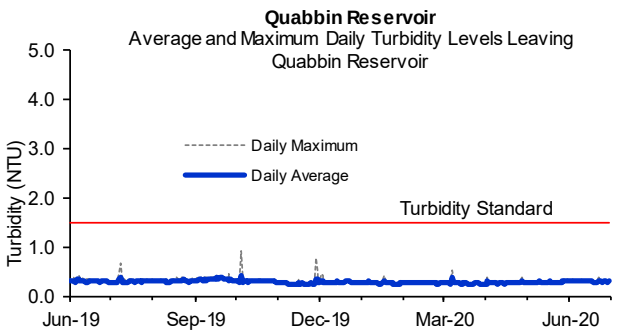
Source Water – Turbidity

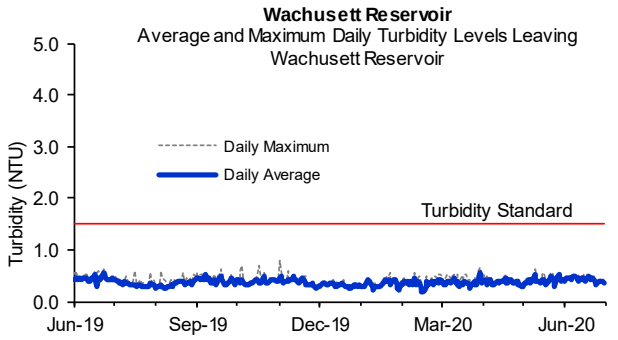
4th Quarter – FY20

Turbidity is a measure of suspended and colloidal particles including clay, silt, organic and inorganic matter, algae and microorganisms. The effects of turbidity depend on the nature of the matter that causes the turbidity. High levels of particulate matter may have a higher disinfectant demand or may protect bacteria from disinfection effects, thereby interfering with the disinfectant residual throughout the distribution system.

There are two standards for turbidity: all water must be below five NTU (Nephelometric Turbidity Units), and water only can be above one NTU if it does not interfere with effective disinfection.

Turbidity of Quabbin Reservoir water is monitored continuously at the Brutsch Water Treatment Facility (BWTF) before UV and chlorine disinfection. Turbidity of Wachusett Reservoir is monitored continuously at the Carroll Water Treatment Plant (CWTP) before ozonation and UV disinfection. Maximum turbidity results at Quabbin and Wachusett were within DEP standards for the quarter.



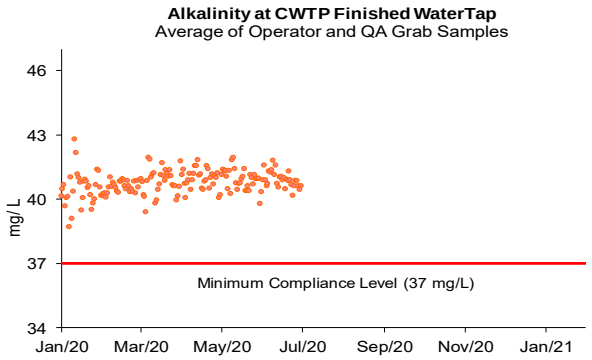


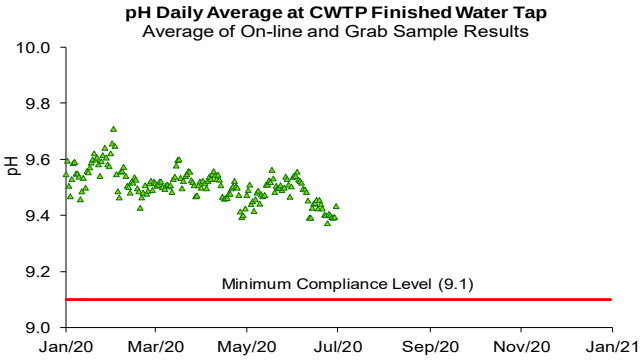
Treated Water – pH and Alkalinity Compliance

MWRA adjusts the alkalinity and pH of Wachusett water at CWTP to reduce its corrosivity, which minimizes the leaching of lead and copper from service lines and home plumbing systems into the water. MWRA tests finished water pH and alkalinity daily at the CWTP's Fin B sampling tap. MWRA's target for distribution system pH is 9.3; the target for alkalinity is 40 mg/l. Per DEP requirements, CWTP finished water samples have a minimum compliance level of 9.1 for pH and 37 mg/L for alkalinity. Samples from 27 distribution system locations have a minimum compliance level of 9.0 for pH and 37 mg/L for alkalinity. Results must not be below these levels for more than nine days in a six month period. Distribution system samples are collected in March, June, September, and December.

Each CVA community provides its own corrosion control treatment. See the CVA report: www.mwra.com/water/html/awqr.htm.

Second quarter distribution system samples were collected over a course of six weeks. Distribution system sample pH ranged from 9.4 to 9.7 and alkalinity ranged from 40 to 42 mg/L. No sample results were below DEP limits for this quarter.





Treated Water – Disinfection Effectiveness

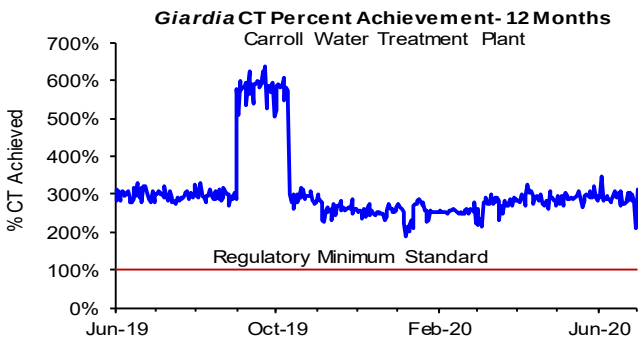
4th Quarter – FY20

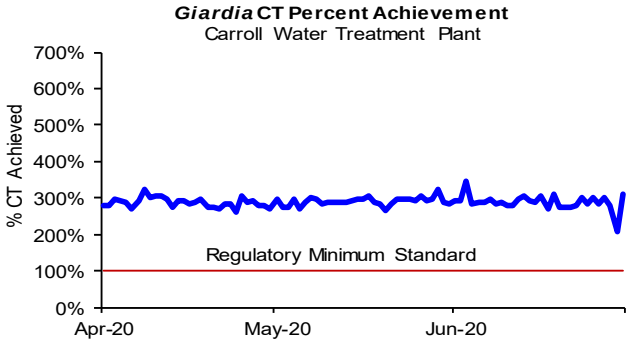
At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA calculates inactivation rates hourly and reports *Giardia* inactivation at maximum flow and *Cryptosporidium* inactivation at minimum UV dose. MWRA must meet 100% of required CT and IT.

CT achievement for *Giardia* assures CT achievement for viruses, which have a lower CT requirement. For *Cryptosporidium*, there is also an "off-spec" requirement. Off-spec water is water that has not reached the full required UV dose or if the UV reactor is operated outside its validated ranges. No more than 5% off-spec water is allowed in a month.

Wachusett Reservoir – MetroWest/Metro Boston Supply:

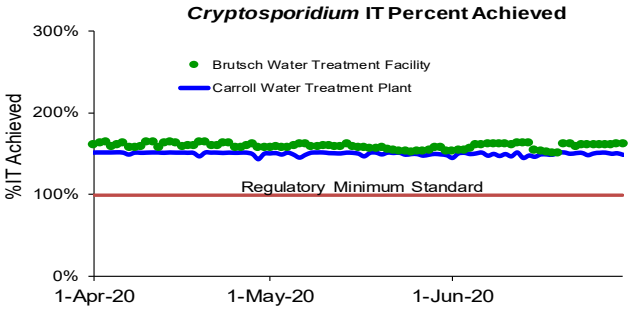
- Ozone dose at the CWTP varied between 2.0 to 2.8 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- *Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.
- The ozone dose was proactively increased from early September 2019 to mid October 2019 in response to a *Chrysosphaerella* algae bloom. This is visible in the top left graph.
- .

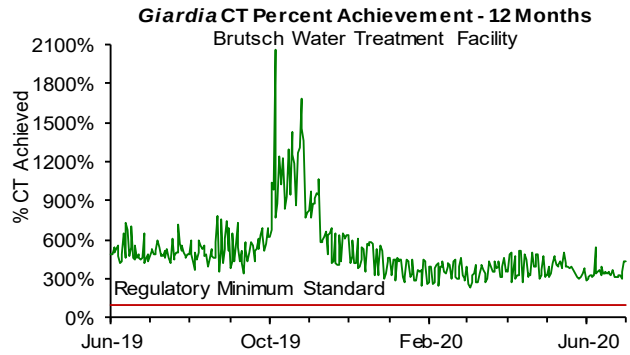


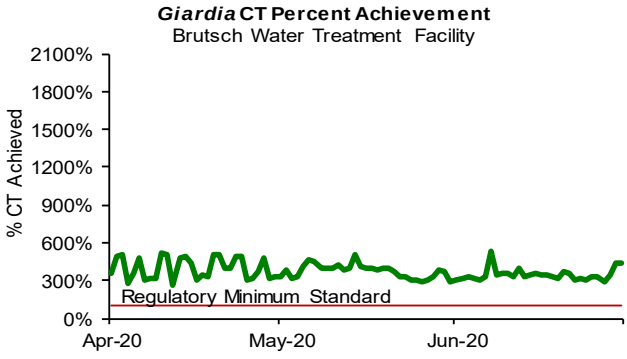


Quabbin Reservoir (CVA Supply) at: Brutsch Water Treatment Facility

- The chlorine dose at BWTF is adjusted in order to achieve MWRA's seasonal target of 0.75 - 0.85 mg/L (November 1 – May 31) and 0.85 - 1.05 mg/L (June 1 – October 31) at Ludlow Monitoring Station.
- The chlorine dose at BWTF varied between 1.3 to 1.5 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system for the quarter.
- *Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.







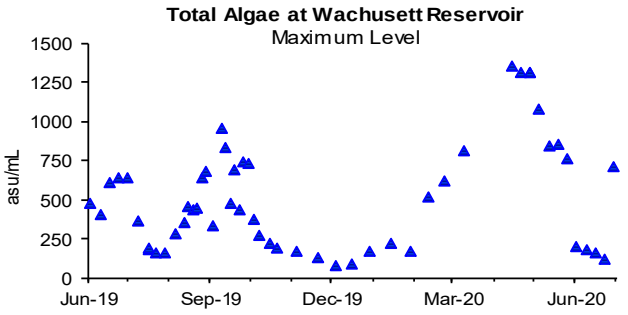
Source Water - Algae

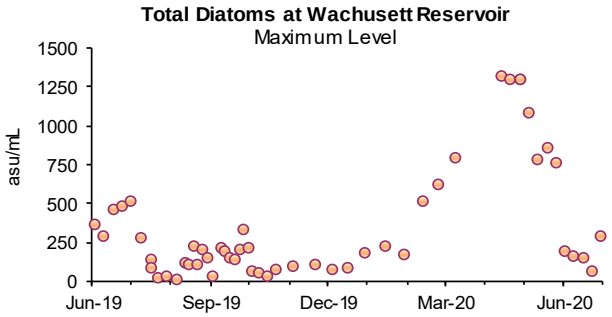
4th Quarter – FY20

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

Taste and odor complaints at the tap may be due to algae, which originate in source reservoirs, typically in trace amounts. Occasionally, a particular species grows rapidly, increasing its concentration in water. When *Synura*, *Anabaena*, or other nuisance algae bloom, MWRA may treat the reservoirs with copper sulfate, an algaecide. During the winter and spring, diatom numbers may increase. While not a taste and odor concern, consumers that use filters may notice a more frequent need to change their filters.

In the 4th quarter, no taste and odor complaints which may be related to algae were reported from the local water departments.





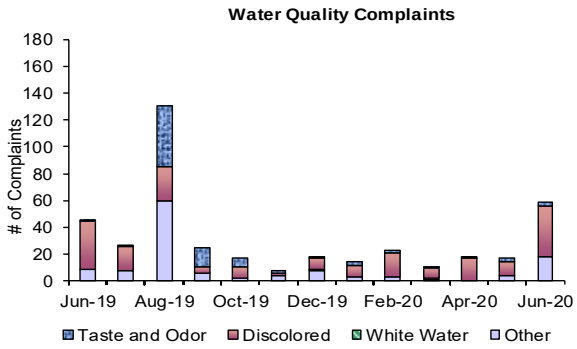
Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

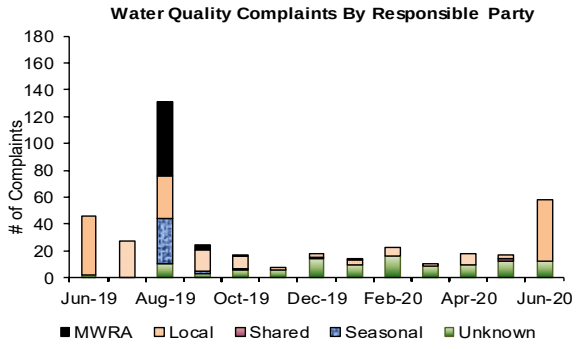
MWRA collects information on water quality complaints that typically fall into four categories: 1) discoloration due to MWRA or local pipeline work; 2) taste and odor due to algae blooms in reservoirs or chlorine in the water; 3) white water caused by changes in pressure or temperature that traps air bubbles in the water; or 4) "other" complaints including no water, clogged filters or other issues.

MWRA routinely contacts communities to classify and tabulate water complaints from customers. This count, reflecting only telephone calls to towns, probably captures only a fraction of the total number of customer complaints. Field Operations staff have improved data collection and reporting by keeping track of more kinds of complaints, tracking complaints to street addresses and circulating results internally on a daily basis.

Communities reported 94 complaints during the quarter compared to 253 complaints from 4th Quarter of FY19. Of these complaints, 65 were for "discolored water", 7 were for "taste and odor", and 22 were for "other". Of these complaints, 57 were local community issues, 2 were a shared MWRA and community related issue, and 35 were unknown in origin.

In June, Marblehead reported twenty-six water quality complaints due to an ongoing construction project. Eighteen of these complaints were from discolored water.





Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

4th Quarter – FY20

While all communities collect bacteria samples and chlorine residual data for the Total Coliform Rule (TCR), data from the 44 systems that use MWRA's Laboratory are reported below.

The MWRA TCR program has 141 sampling locations. These locations include sites along MWRA's transmission system, water storage tanks and pumping stations, as well as a subset of the community TCR locations.

Samples are tested for total coliform and *Escherichia coli (E.coli*). *E.coli* is a specific coliform species whose presence likely indicates potential contamination of fecal origin.

If *E.coli* are detected in a drinking water sample, this is considered evidence of a potential public health concern. Public notification is required if repeat tests confirm the presence of *E.coli* or total coliform.

Total coliform provide a general indication of the sanitary condition of a water supply. If total coliform are detected in more than 5% of samples in a month (or if more than one sample is positive when less than 40 samples are collected), the water system is required to investigate the possible source/cause with a Level 1 or 2 Assessment, and fix any identified problems.

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

Highlights

In the 4th Quarter, 4 of the 6,145 community samples (0.10% system-wide) submitted to MWRA labs for analysis tested positive for total coliform (May: Boston; June: Framingham, Lexington, Winthrop). Three of the 1,996 Shared Community/MWRA samples (0.15%) tested positive for total coliform (June: Lexington, Spot Pond Tank). No sample tested positive for *E.coli*. Only 0.3% of the Fully Served community samples had chlorine residuals lower than 0.2 mg/L for the quarter.

NOTES:

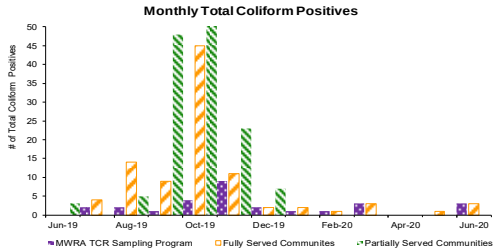
a) MWRA total coliform and chlorine residual results include data from community locations. In most cases these community results are indicative of MWRA water as it enters the community system; however, some are strongly influenced by local pipe conditions. Residuals in the MWRA system are typically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

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

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

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

e) MADEP determined that five Somerville total coliform samples collected from one routine sample site (sampling period from October through November) were invalid and not representative of the distribution system. Therefore, they are not represented in the table.



			Total Coliform # Samples (b)	Total Coliform # (%) Positive	*E.coli* # Positive	Assessment Required
MWRA	a	MWRA Locations	405	2 (0.49%)	0	
		Shared Community/MWRA sites	1591	1 (0.06%)	0	
		Total: MWRA	1996	3 (0.15%)	0	No
Fully Served		ARLINGTON	169	0 (0%)	0	
		BELMONT	104	0 (0%)	0	
		BOSTON	779	1 (0.13%)	0	No
		BROOKLINE	220	0 (0%)	0	
		CHELSEA	168	0 (0%)	0	
		DEER ISLAND	52	0 (0%)	0	
		EVERETT	169	0 (0%)	0	
		FRAMINGHAM	240	1 (0.42%)	0	No
		LEXINGTON	118	1 (0.85%)	0	No
		LYNNFIELD	18	0 (0%)	0	
		MALDEN	231	0 (0%)	0	
		MARBLEHEAD	72	0 (0%)	0	
		MARLBOROUGH	126	0 (0%)	0	
		MEDFORD	204	0 (0%)	0	
		MELROSE	126	0 (0%)	0	
		MILTON	101	0 (0%)	0	
		NAHANT	28	0 (0%)	0	
		NEWTON	276	0 (0%)	0	
		NORTHBOROUGH	48	0 (0%)	0	
		NORWOOD	99	0 (0%)	0	
		QUINCY	312	0 (0%)	0	
		READING	130	0 (0%)	0	
		REVERE	180	0 (0%)	0	
		SAUGUS	104	0 (0%)	0	
		SOMERVILLE	252	0 (0%)	0	
		SOUTHBOROUGH	30	0 (0%)	0	
		STONEHAM	91	0 (0%)	0	
		SWAMPSCOTT	50	0 (0%)	0	
		WALTHAM	216	0 (0%)	0	
		WATERTOWN	120	0 (0%)	0	
		WESTON	45	0 (0%)	0	
		WINTHROP	75	1 (1.33%)	0	No
		Total: Fully Served	*4953*	*4 (0.08%)*		
Partially Served	c	BEDFORD	57	0 (0%)	0	
		CANTON	91	0 (0%)	0	
		HANSCOM AFB	33	0 (0%)	0	
		NEEDHAM	123	0 (0%)	0	
		PEABODY	216	0 (0%)	0	
		WAKEFIELD	132	0 (0%)	0	
		WELLESLEY	113	0 (0%)	0	
		WILMINGTON	87	0 (0%)	0	
		WINCHESTER	84	0 (0%)	0	
		WOBURN	195	0 (0%)	0	
CVA	d	SOUTH HADLEY FD1	61	0 (0%)	0	
		Total: CVA & Partially Served	*1192*	*0 (0.0%)*		
		Total: Community Samples	*6145*	*4 (0.07%)*		

Chlorine Residuals in Fully Served Communities

	2019							2020					
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
% <0.1	0.0	0.2	0.3	0.7	1.1	1.7	0.2	0.1	0.1	0.1	0.1	0.0	0.1
% <0.2	0.1	0.7	1.3	2.3	3.3	3.3	1.5	0.4	0.2	0.2	0.2	0.3	0.4
% <0.5	0.9	2.5	4.5	7.2	8.7	7.7	4.1	2.0	1.5	1.1	1.6	1.3	1.5
% <1.0	3.2	7.0	11.0	14.9	17.8	12.6	7.3	3.9	2.9	3.5	4.6	4.0	4.3
% ≥1.0	96.8	93.0	89.0	85.1	82.2	87.4	92.7	96.1	97.2	96.5	95.4	96.0	95.7

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

4th Quarter – FY20

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

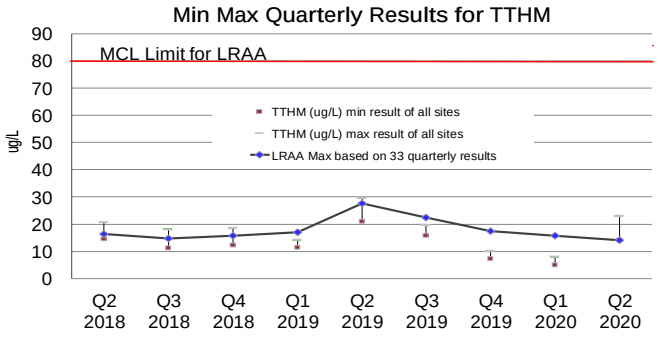
The locational running annual average calculated quarterly at each individual sampling location must be below the Total HAA5 or Total TTHM MCL standard. The charts below show the highest and lowest single values for all sites, and the LRAA of the highest location each quarter.

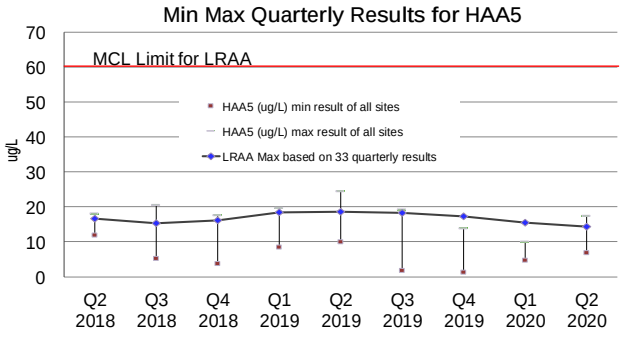
Partially served and CVA communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their individual results. The chart below combines data for all three CVA communities data (Chicopee, Wilbraham and South Hadley FD1). Although, they are separately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

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

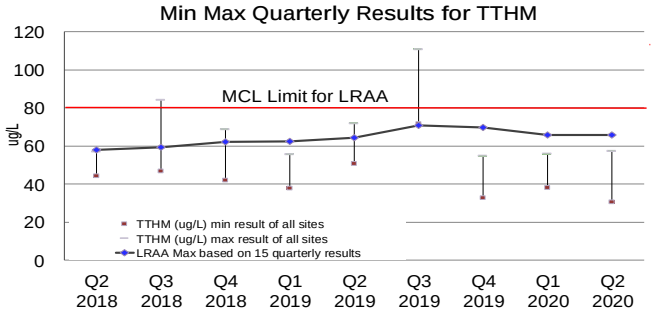
The LRAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remain below current standards. The Max LRAA in the quarter for TTHMs = 15.7 ug/L; HAA5s = 15.4 ug/L. The current RAA for Bromate = 0.0 µg/L. During the Q4 2019 sampling, one CVA location exceeded an HAA5 Operational Evaluation Level. While this does not result in a violation this requires an analysis and review of their water system and a report to MADEP. No LRAA exceedances or violations occurred for Q1 and Q2 of 2020 for any of the CVA communities. MWRA and the CVA communities continue to closely monitor and manage the disinfection process to minimize DBP production.

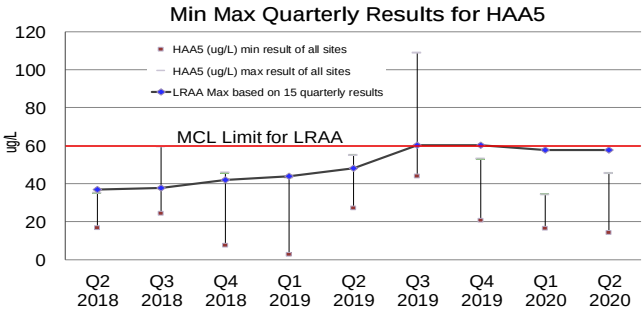
MetroBoston Disinfection By-Products





CVA Disinfection By-Products (Combined Results)





Water Supply and Source Water Management

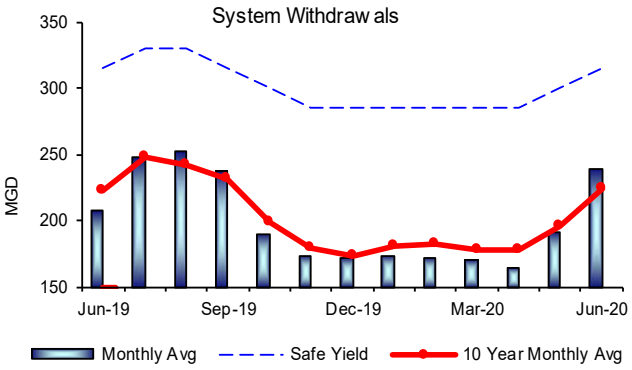
4th Quarter – FY20

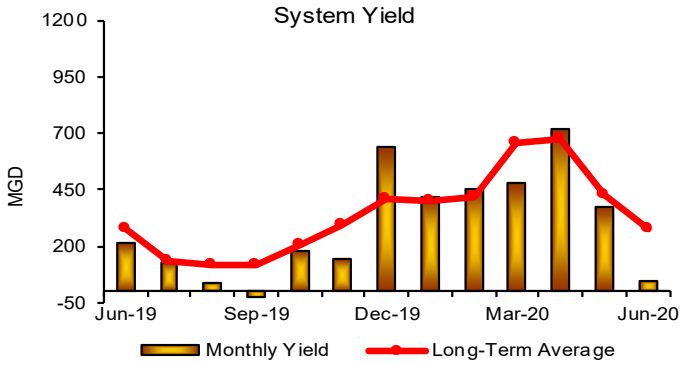
Background

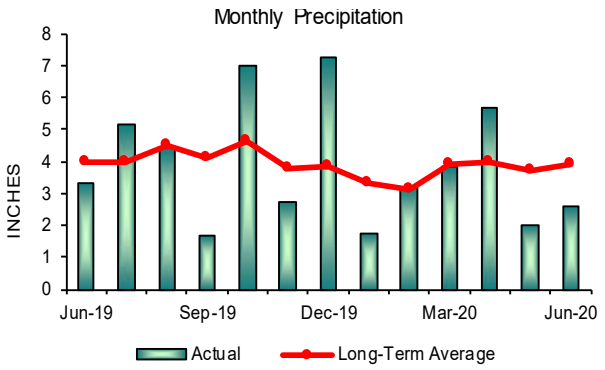
A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir was designed to effectively supply water to the service areas under a range of climatic conditions and has the ability to endure a range of fluctuations. Wachusett Reservoir serves as a terminal reservoir to meet the daily demands of the Greater Boston area. A key component to this reservoir's operation is the seasonal transfer of Quabbin Reservoir water to enhance water quality during high demand periods. On an annual basis, Quabbin Reservoir accounts for nearly 50% of the water supplied to Greater Boston. The water quality of both reservoirs (as well as the Ware River, which is also part of the System Safe Yield) depend upon implementation of DCR's DEP-approved Watershed Protection Plans. System Yield is defined as the water produced by its sources, and is reported as the net change in water available for water supply and operating requirements.

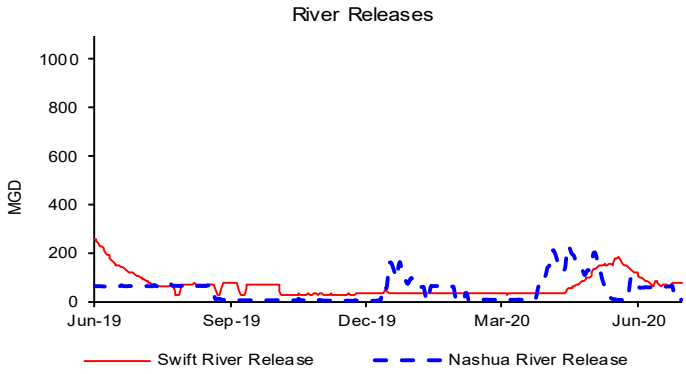
Outcome

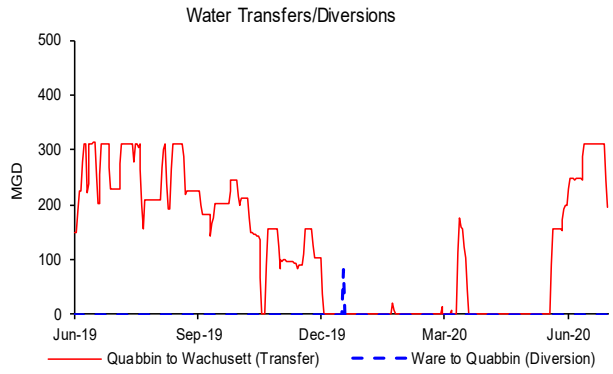
The volume of the Quabbin Reservoir was at 96.9% as of June 30, 2020; a 0.1% increase for the quarter, which represents an addition of 154 million gallons of storage and an increase in elevation of 0.02' for the quarter. System withdrawal, precipitation and yield were below their respective long term quarterly averages.

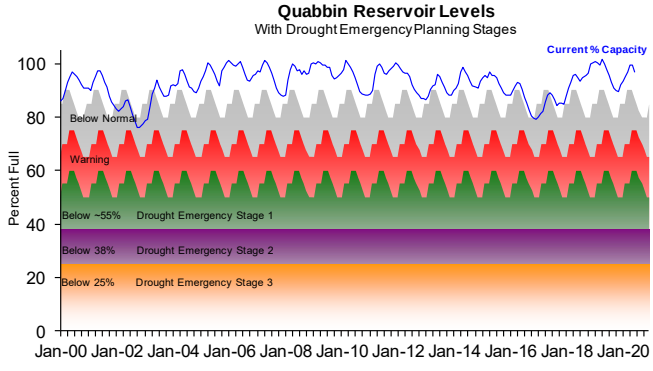












WASTEWATER QUALITY

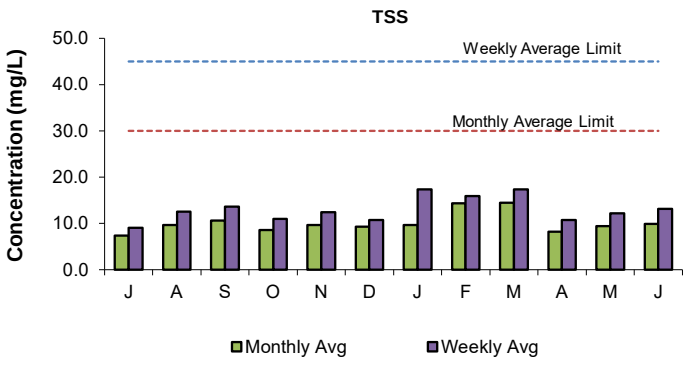
NPDES Permit Compliance: Deer Island Treatment Plant

4th Quarter - FY20

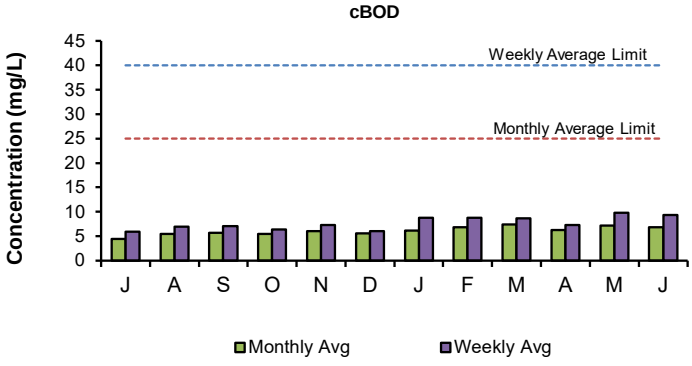
NPDES Permit Limits

Effluent Characteristics		*Units*	*Limits*	*April*	*May*	*June*	*4th Quarter Violations*	*FY20 YTD Violations*
Dry Day Flow (365 Day Average):		mgd	436	290.5	288.0	282.9	0	0
cBOD:	Monthly Average	mg/L	25	6.3	7.2	6.8	0	0
	Weekly Average	mg/L	40	7.3	9.8	9.3	0	0
TSS:	Monthly Average	mg/L	30	8.2	9.4	9.9	0	0
	Weekly Average	mg/L	45	10.8	12.2	13.2	0	0
TCR:	Monthly Average	ug/L	456	0.0	0.0	0.0	0	0
	Daily Maximum	ug/L	631	0.0	0.0	0.0	0	0
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	20.0	124.0	28.0	0	0
	Weekly Geometric Mean	col/100mL	14000	7.0	10.0	7.0	0	0
	% of Samples >14000	%	10	0.0	1.0	0.0	0	0
	Consecutive Samples >14000	#	3	0.0	0.0	0.0	0	0
pH:		SU	6.0-9.0	6.3-6.9	6.4-6.9	6.3-6.9	0	0
PCB, Aroclors:	Monthly Average	ug/L	0.000045	UNDETECTED			0	0
Acute Toxicity:	Mysid Shrimp	%	≥50	>100	>100	>100	0	0
	Inland Silverside	%	≥50	>100	>100	>100	0	0
Chronic Toxicity:	Sea Urchin	%	≥1.5	100	100	100	0	0
	Inland Silverside	%	≥1.5	100	100	50	0	0

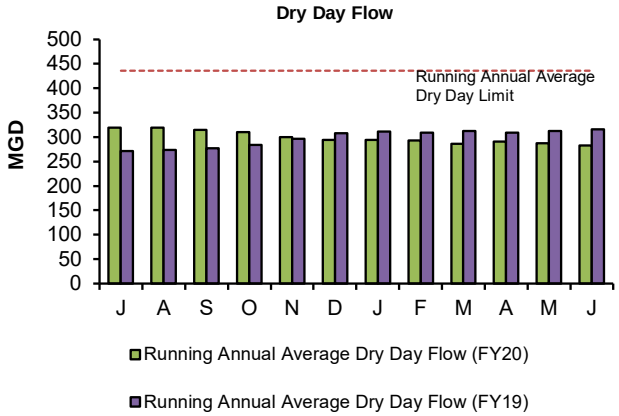
There have been no permit violations in FY20 to date at the Deer Island Treatment Plant (DITP).



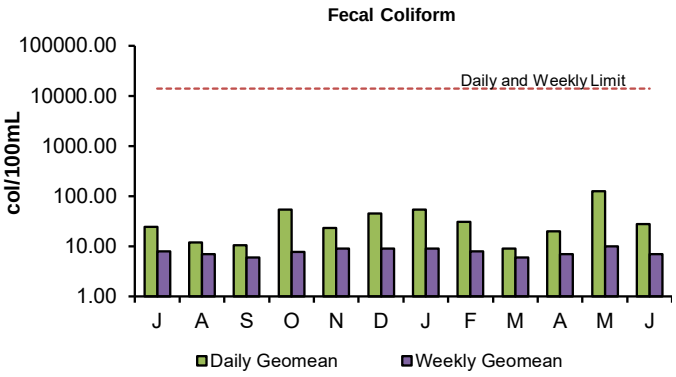
Total Suspended Solids (TSS) in the effluent is a measure of the amount of solids that remain suspended after treatment. All TSS measurements for the 4th Quarter were within permit limits.



Carbonaceous Biochemical Oxygen Demand (cBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials in the environment. All cBOD measurements for the 4th Quarter were within permit limits.



Running Annual Average Dry Day Flow is the average of all dry weather influent flows over the previous 365 days. The Dry Day Flow for the 4th Quarter was well below the permit limit of 436 MGD.



Fecal Coliform is an indicator for the possible presence of pathogens. The levels of these bacteria after disinfection show how effectively the plant is inactivating many forms of disease-causing microorganisms. In the 4th Quarter, all permit conditions for fecal coliform were met.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant

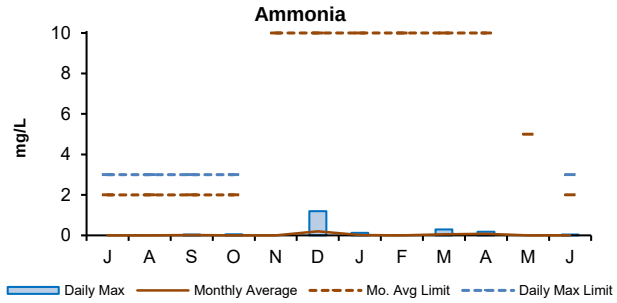
4th Quarter - FY20

NPDES Permit Limits

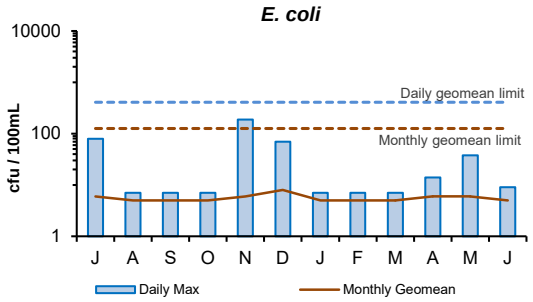
Effluent Characteristics		*Units*	*Limits*	*April*	*May*	*June*	*4th Quarter Violations*	*FY20 YTD Violations*
Flow:	12-month Rolling Average:	mgd	3.01	2.44	2.42	2.38	0	3
BOD:	Monthly Average:	mg/L	20	0.90	1.00	1.50	0	0
	Weekly Average:	mg/L	20	1.50	1.60	1.60	0	0
TSS:	Monthly Average:	mg/L	20	2.50	2.30	2.00	0	0
	Weekly Average:	mg/L	20	2.90	2.80	2.40	0	0
pH:		SU	6.5-8.3	6.8-7.4	7.1-7.6	7.3-7.7	0	0
Dissolved Oxygen:	Daily Average Minimum:	mg/L	6	10.00	9.10	8.20	0	0
E. Coli:	Monthly Geometric Mean:	cfu/100mL	126	6	6	5	0	0
	Daily Geometric Mean:	cfu/100mL	409	14	38	9	0	0
TCR:	Monthly Average:	ug/L	17.6	0.13	0.13	0.13	0	0
	Daily Maximum:	ug/L	30.4	4.00	4.00	4.00	0	0
Copper:	Monthly Average:	ug/L	11.6	3.52	5.36	6.27	0	0
	Daily Maximum:	ug/L	14.0	3.52	5.36	8.10	0	0
Total Ammonia Nitrogen: June 1st - October 31st	Monthly Average:	mg/L	2.0	0.08	0.00	0.01	0	0
	Daily Maximum:	mg/L	3.0	0.18	0.00	0.04	0	0
Total Phosphorus: April 1st - October 31st	Monthly Average:	ug/L	150	41	68	74	0	0
	Daily Maximum:	ug/L	RPT	85	143	129	0	0
Acute Toxicity+:	Daily Minimum:	%	≥100	N/A	N/A	>100	0	0
Chronic Toxicity+:	Daily Minimum:	%	≥62.5	N/A	N/A	62.5	0	0

There were three permit violations in FY20 at the Clinton Treatment Plant.
1st Quarter: There were three permit violations in the first quarter. The 12-month rolling average flow exceeded the limit of 3.01 MGD due to excessive rains in the region in late 2018.
2nd Quarter: There were no permit violations in the 2nd Quarter.
3rd Quarter: There were no permit violations in the 3rd Quarter.
4th Quarter: There were no permit violations in the 4th Quarter.

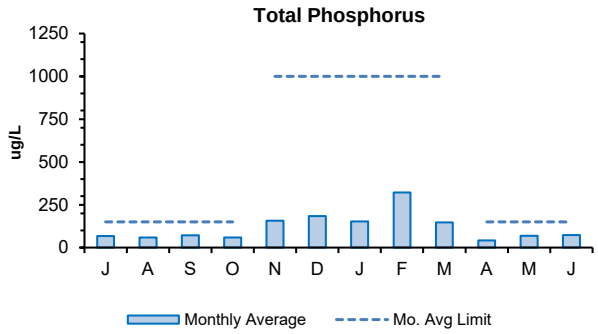
+ Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



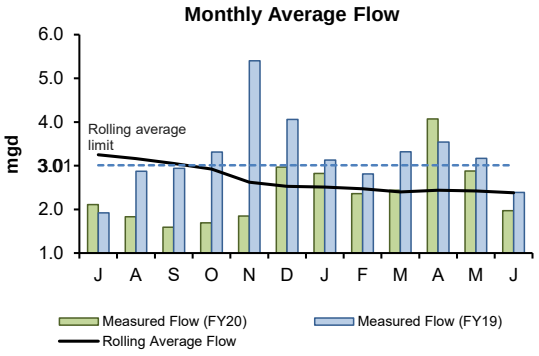
The 4th Quarter's monthly average and daily maximum concentrations of ammonia were below the permit limits. The monthly average and daily maximum limits for the 4th Quarter are variable, as low as 2.0 and 3.0 mg/L respectively. The permit limits are most stringent from June to October when warm weather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



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



The 4th Quarter's monthly average concentrations for total phosphorus were below permit limits. The new seasonal permit limits went into effect April 1, 2019.

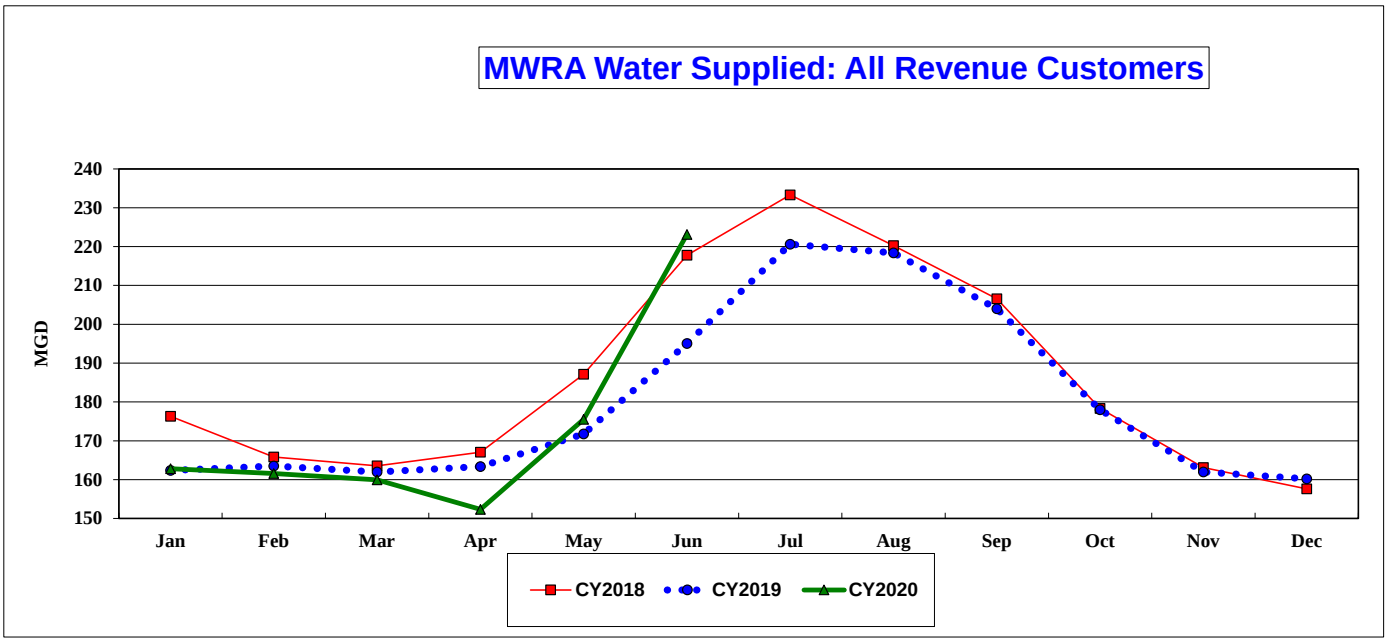


The graph depicts the rolling annual average monthly flow, measured in million gallons per day, exiting the plant.
The 12-month rolling average flows during the 4th Quarter were below the permit limit.

COMMUNITY FLOWS AND PROGRAMS

Customer Water Use

4th Quarter - FY20



MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2018	176.294	165.841	163.539	167.056	187.145	217.776	233.321	220.268	206.586	178.340	163.125	157.612	179.695	186.553
CY2019	162.367	163.492	161.984	163.350	171.773	195.025	220.621	218.376	203.996	177.998	161.941	160.207	169.662	180.220
CY2020	162.804	161.557	159.930	152.336	175.530	223.143	0.000	0.000	0.000	0.000	0.000	0.000	172.504	172.504

MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Total	Annual Total
CY2018	5,465.125	4,643.548	5,069.719	5,011.695	5,801.508	6,533.267	7,232.949	6,828.310	6,197.590	5,528.550	4,893.739	4,885.979	32,524.861	68,091.978
CY2019	5,033.385	4,577.769	5,021.508	4,900.488	5,324.952	5,850.742	6,839.258	6,769.663	6,119.890	5,517.952	4,858.240	4,966.431	30,708.844	65,780.279
CY2020	5,046.925	4,685.154	4,957.836	4,570.086	5,441.415	6,694.297	0.000	0.000	0.000	0.000	0.000	0.000	31,395.712	31,395.712

The June 2020 Community Water Use Report was recently distributed to communities served by the MWRA waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2020 water use will be used to allocate the FY2022 water utility rate revenue requirement.

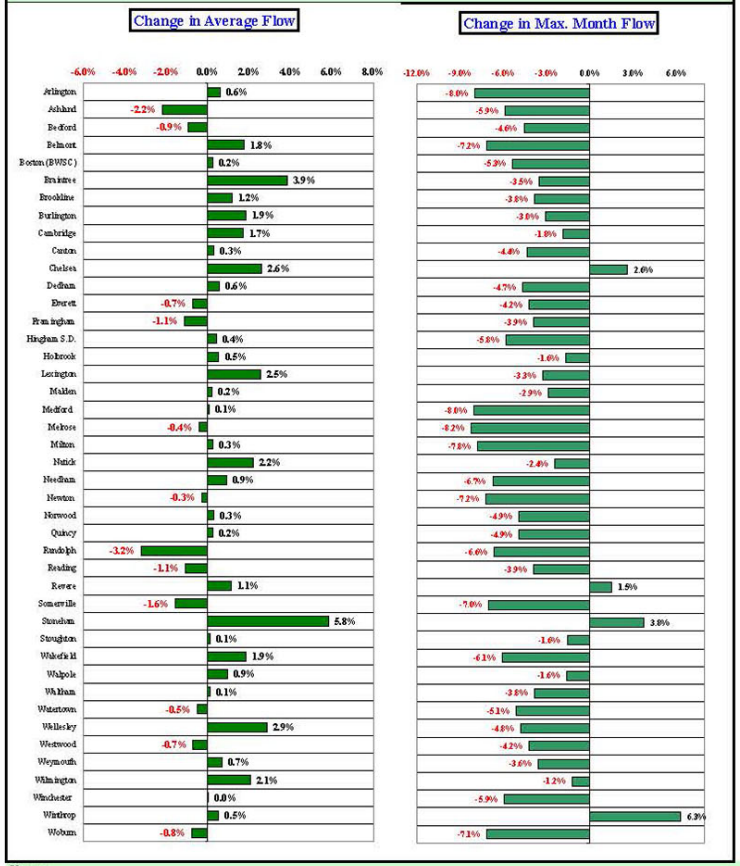
MWRA customers used an average of 189.6 mgd in the 4th quarter (Apr-Jun) of FY2020. This is an increase of 7.1 mgd or 3.9% compared to the 4th quarter of FY2019.

Community Wastewater Flows

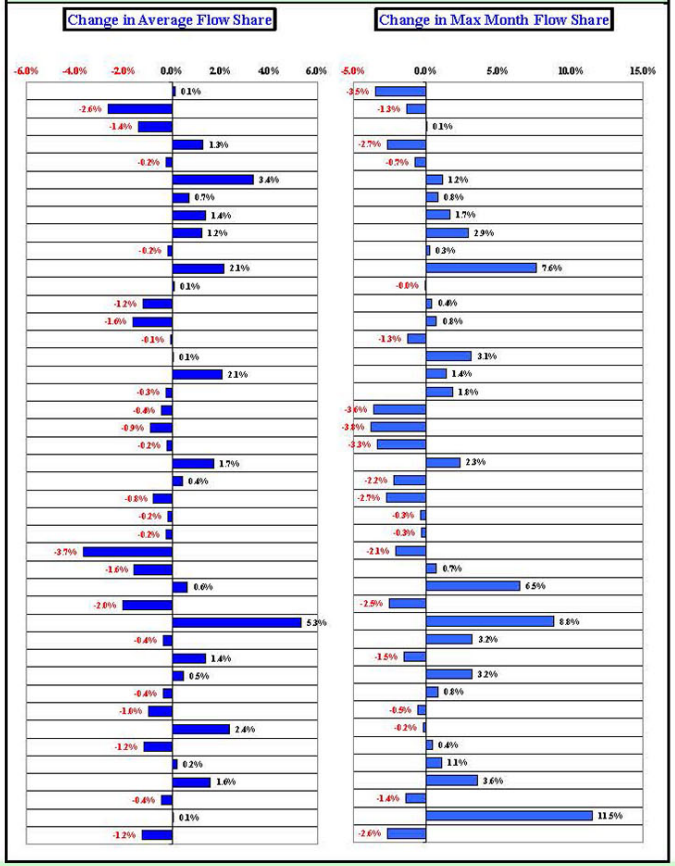
4th Quarter – FY20

How Projected CY2020 Community Wastewater Flows Could Effect FY2022 Sewer Assessments [1,2,3]

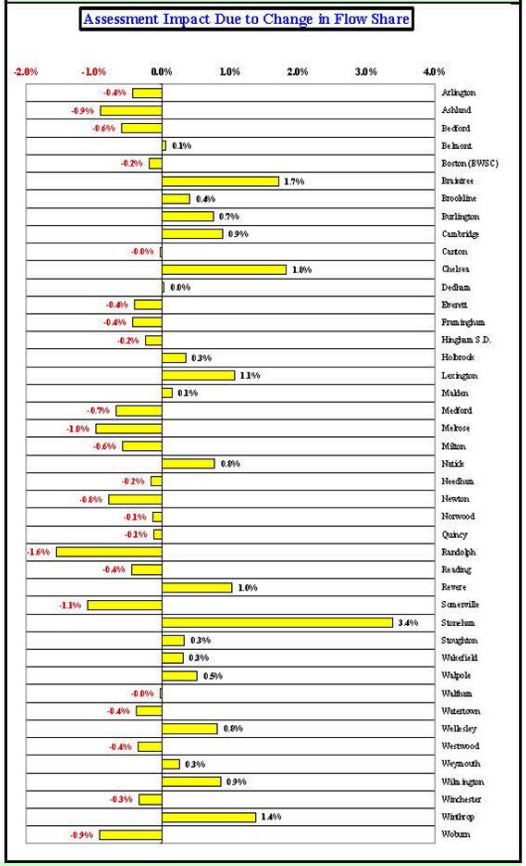
The flow components of FY2022 sewer assessments will be calculated using a 3-year average of CY2018 to CY2020 wastewater flows compared to FY2021 assessments that used a 3-year average of CY2017 to CY2019 wastewater flows.



But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the RELATIVE change in CY2018 to CY2020 flow share compared to CY2017 to CY2019 flow share, compared to all other communities in the system.



The chart below illustrates the change in the TOTAL BASE assessment due to FLOW SHARE CHANGES. [4]



Notes:

[1] MWRA uses a 3-year flow average to calculate sewer assessments. Three-year averaging smoothes the impact of year-to-year changes in community flow share, but does not eliminate the long-term impact of changes in each community's relative contribution to the total flow.

[2] Based on actual flows for 2017 to 2019, and January to March, and June 2020 (as of 08/20/20). April & May 2020 based on the average of three prior years, adjusted for April & May 2020 water use. July-December 2020 based on the average of the three prior years.

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

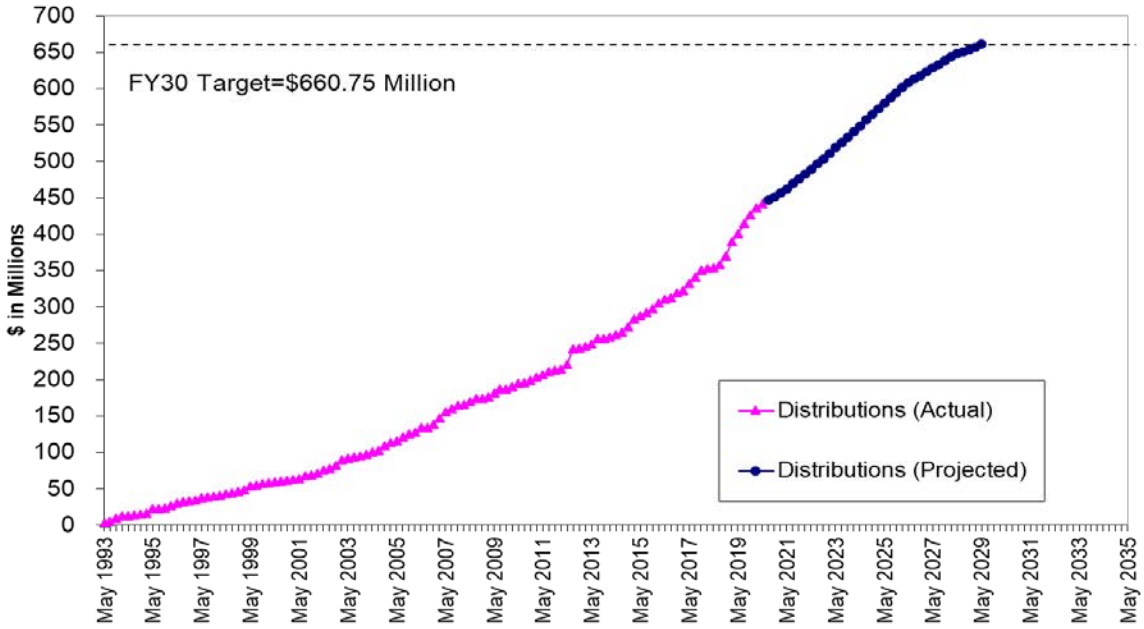
[4] Represents ONLY the impact on the total BASE assessment resulting from the changes in average and maximum wastewater FLOW SHARES.

Community Support Programs
4th Quarter – FY20

Infiltration/Inflow Local Financial Assistance Program

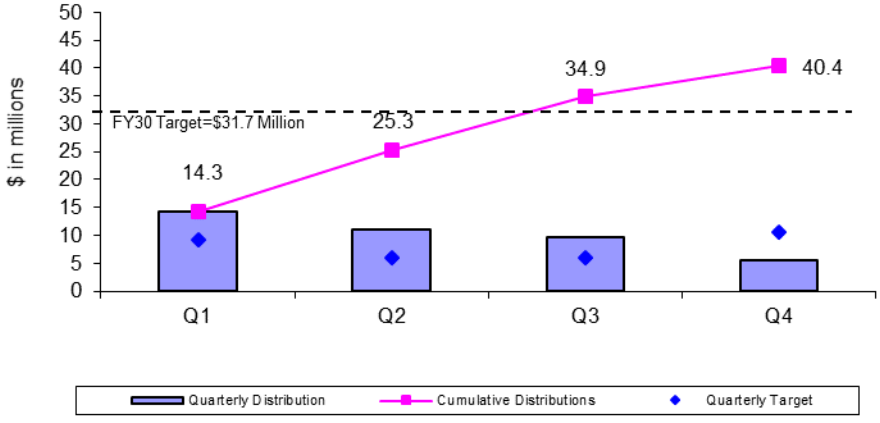
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides $760.75 million in grants and interest-free loans (average of about $20 million per year from FY93 through FY30) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned collection systems. Eligible project costs include: sewer rehabilitation construction, pipeline replacement, removal of public and private inflow sources, I/I reduction planning, engineering design, engineering services during construction, etc. I/I Local Financial Assistance Program funds are allocated to member sewer communities based on their percent share of MWRA's wholesale sewer charge. Phase 1-8 funds (total $300.75 million) were distributed as 45% grants and 55% loans with interest-free loans repaid to MWRA over a five-year period. Phase 9 through 12 funds (total $360 million) are distributed as 75% grants and 25% loans with interest-free loans repaid to MWRA over a ten-year period. Phase 13 provides an additional $100 million in loan-only funds (not yet included in the graph of distributions below).

I/I Local Financial Assistance Program Distribution FY93-FY30



During the 4th Quarter of FY20, $5.5 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Brookline, Framingham, and Winthrop. Total grant/loan distribution for FY20 is $40.4 million. From FY93 through the 4th Quarter of FY20, all 43 member sewer communities have participated in the program and $441 million has been distributed to fund 605 local I/I reduction and sewer system rehabilitation projects. Distribution of the remaining funds has been approved through FY30 and community loan repayments will be made through FY40. All scheduled community loan repayments have been made.

FY20 Quarterly Distributions of Sewer Grant/Loans

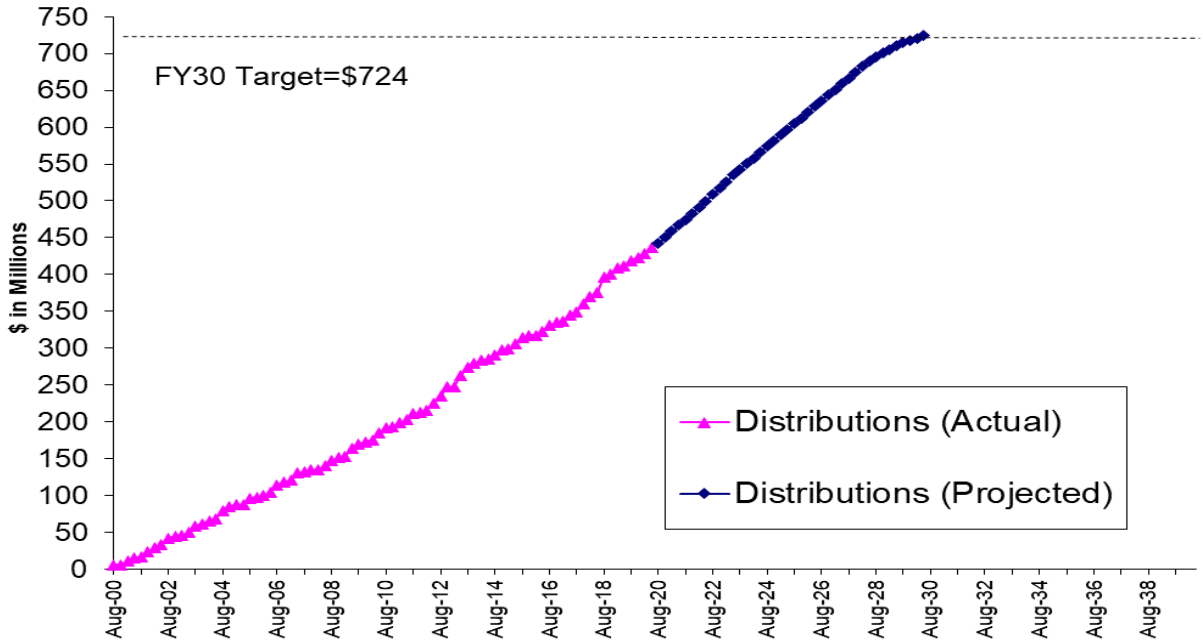


Community Support Programs
4th Quarter – FY20

Local Water System Assistance Program

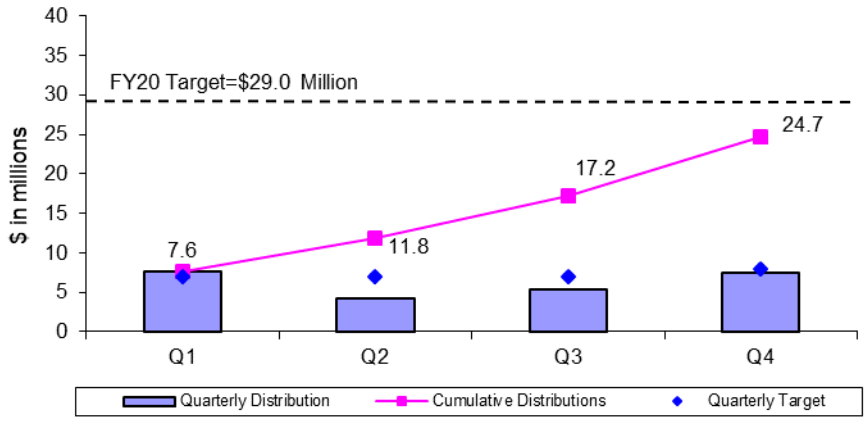
MWRA's Local Water System Assistance Programs (LWSAP) provides $724 million in interest-free loans (an average of about $24 million per year from FY01 through FY30) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. There have been 3 phases: Phase 1 at $222 Million, Phase 2 at $210 Million, and Phase 3 at $292 Million. Eligible project costs include: water main cleaning/lining, replacement of unlined water mains, lead service replacements, valve, hydrant, water meter, tank work, engineering design, engineering services during construction, etc. MWRA partially-supplied communities receive pro-rated funding allocations based on their percentage use of MWRA water. Interest-free loans are repaid to MWRA over a ten-year period beginning one year after distribution of the funds. The Phase 1 water loan program concluded in FY13 with $222 million in loan distributions. The Phase 2 - LWSAP continues distributions through FY23. The Phase 3 Water Loan Program is authorized for distributions FY18 through FY30.

Local Water System Assistance Program Distribution FY01-FY30



During the 4th Quarter of FY20, $7.5 million in interest-free loans was distributed to fund local water projects in Nahant, Quincy, and Saugus. Total loan distribution for FY20 is $24.7 million. From FY01 through the 4th Quarter of FY20, $436 million has been distributed to fund 466 local water system rehabilitation projects in 43 MWRA member water communities. Distribution of the remaining funds has been approved through FY30 and community loan repayments will be made through FY40. All scheduled community loan repayments have been made.

FY20 Quarterly Distributions of Water Loans



Community Support Programs

4th Quarter – FY20

Lead Service Line Replacement Loan Program

By its vote on March 16, 2016, the Board approved an enhancement to the Local Water System Assistance Program to provide up to $100 million in 10-year zero-interest loans to communities solely for efforts to fully replace lead service lines. The Lead Service Line Replacement Loan Program is also referenced as the Lead Loan Program or LLP. Each community can develop its own program, tailored to their local circumstances. MWRA's goal in providing financial assistance to member communities is to improve local water systems so that the high quality water MWRA delivers can make it all the way to the consumer's tap. The presence of a lead service line connecting a home to the main in the street can lead to elevated lead levels in tap water, especially if that water sits stagnant for an extended period. MWRA's stable water quality and effective corrosion control treatment reduce the risk that a lead service line will cause elevated lead levels, and measured lead levels in high risk homes have decreased by 90 percent since corrosion control was brought on-line in 1996. However, the risk of elevated levels remains as long as lead service lines are in use.

FY17 was the first year of the Lead Service Line Replacement Loan Program – MWRA made three Lead Loans.

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

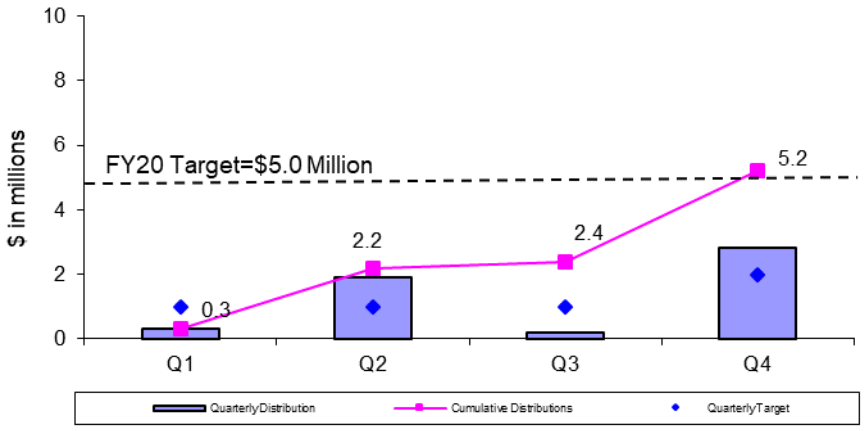
FY19 was the third year of the Lead Loan Program - MWRA made four Lead Loans.

FY20 is the fourth year of the Lead Loan Program – a total of $5.15 Million was distributed. One Lead Loan was made during the 1st quarter of FY20: $300,000 to Chelsea. Two Lead Loans were made during the 2nd quarter of FY20: $1.0 Million to Everett and $900,000 to Somerville. One Lead Loan was made during the 3rd quarter of FY20: $160,000 to Weston. Four Lead Loans were made during the 4th quarter of FY20: $500,000 to Everett, $1.0 Million to Marlborough, $600,000 to Winchester, and $690,000 to Winthrop.

Summary of Lead Loans:

Everett in FY20	$0.5 Million
Marlborough in FY20	$1.0 Million
Winchester in FY20	$0.6 Million
Winthrop in FY20	$0.7 Million
Weston in FY20	$0.2 Million
Everett in FY20	$1.0 Million
Somerville in FY20	$0.9 Million
Chelsea in FY20	$0.3 Million
Marlborough in FY19	$1.0 Million
Winthrop in FY19	$0.5 Million
Chelsea in FY19	$0.1 Million
Everett in FY19	$1.0 Million
Needham in FY18	$1.0 Million
Winchester in FY18	$0.5 Million
Revere in FY18	$0.2 Million
Winthrop in FY18	$0.3 Million
Marlborough in FY18	$1.0 Million
Newton in FY17	$4.0 Million
Quincy in FY17	$1.5 Million
Winchester in FY17	$0.5 Million
TOTAL	$16.7 Million

FY20 Quarterly Distributions of Lead Service Line Replacement Loans

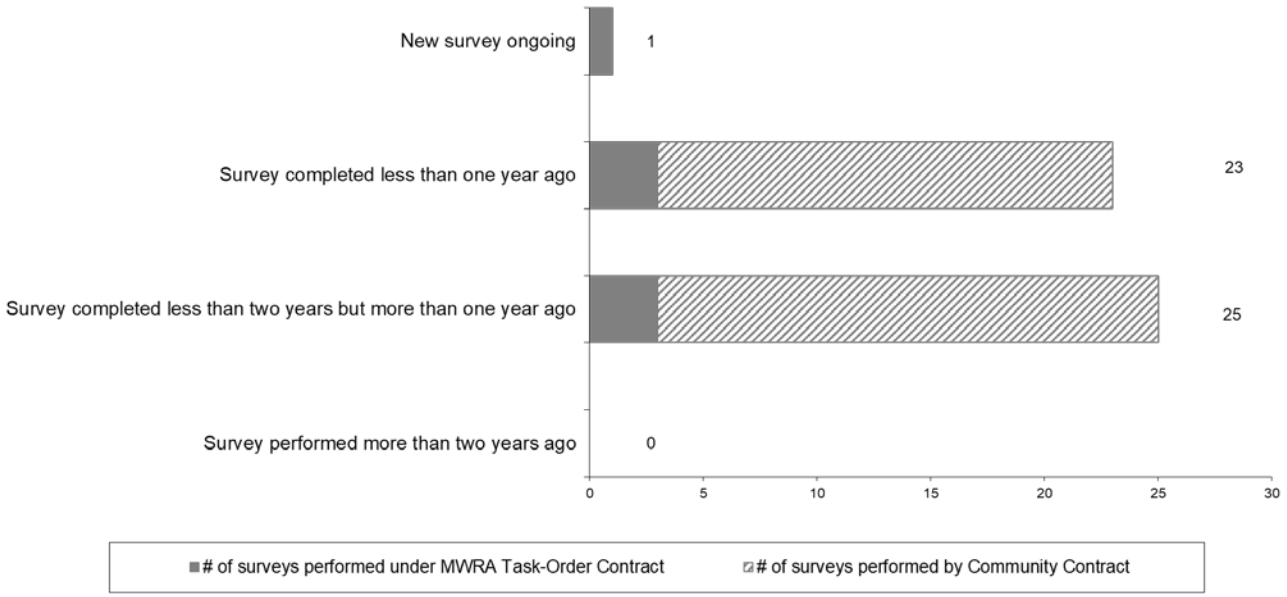


Community Support Programs

4th Quarter – FY20

Community Water System Leak Detection

To ensure member water communities identify and repair leaks in locally-owned distribution systems, MWRA developed leak detection regulations that went into effect in July 1991. Communities purchasing water from MWRA are required to complete a leak detection survey of their entire distribution system at least once every two years. Communities can accomplish the survey using their own contractors or municipal crews; or alternatively, using MWRA's task order leak detection contract. MWRA's task order contract provides leak detection services at a reasonable cost that has been competitively procured (3-year, low-bid contract) taking advantage of the large volume of work anticipated throughout the regional system. Leak detection services performed under the task order contract are paid for by MWRA and the costs are billed to the community the following year. During the 3rd Quarter of FY20, all member water communities were in compliance with MWRA's Leak Detection Regulation.



Community Water Conservation Outreach

MWRA's Community Water Conservation Program helps to maintain average water demand below the regional water system's safe yield of 300 mgd. Current 5-year average water demand is less than 205 mgd. The local Water Conservation Program includes distribution of water conservation education brochures (indoor and outdoor bill-stuffers) and low-flow water fixtures and related materials (shower heads, faucet aerators, toilet leak detection dye tabs, and instructions), all at no cost to member communities or individual customers. The Program's annual budget is $25,000 for printing and purchase of materials. Annual distribution targets and totals are provided in the table below. Distributions of water conservation materials are made based on requests from member communities and individual customers.

	Annual Target	Q1	Q2	Q3	Q4	Annual Total
Educational Brochures	100,000	640	19,735	109	9,208	29,692
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	791	832	433	942	2,998
Toilet Leak Detection Dye Tablets	_____	419	35,431	258	620	36,728

BUSINESS SERVICES

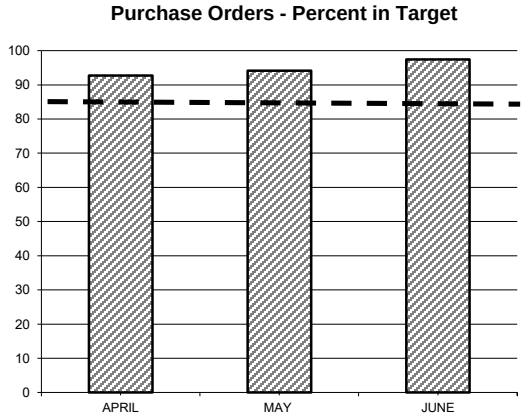
Procurement: Purchasing and Contracts

4th Quarter - FY20

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

Outcome: Processed 97% of purchase orders within target; Average Processing Time was 4.57 days vs. 5.04 days in Qtr 4 of FY19. Processed 20% (1 of 5) of contracts within target timeframes; Average Processing Time was 193 days vs. 157 days in Qtr 4 of FY19.

Purchasing



	No.	TARGET	PERCENT IN TARGET
$0 - $500	426	3 DAYS	97.1%
$500 - $2K	483	7 DAYS	97.9%
$2K - $5K	312	10 DAYS	98.0%
$5K - $10K	30	25 DAYS	93.3%
$10K - $25K	44	30 DAYS	86.3%
$25K - $50K	20	60 DAYS	70.0%
Over $50K	33	90 DAYS	100.0%

The Purchasing Unit processed 1348 purchase orders, 633 less than the 1981 processed in Qtr 4 of FY19 for a total value of $10,674,862 versus a dollar value of $13,034,538 in Qtr 4 of FY19.

The purchase order processing target was not met for the $10K-$25K category due to staff summary requirements.

Contracts, Change Orders and Amendments

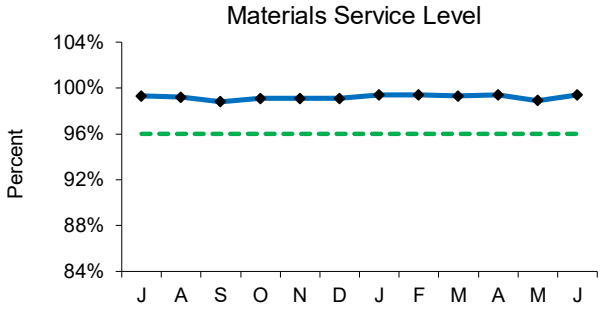
Procurement processed five contracts with a value of $6,204,413 and eleven amendments with a value of $1,525,408. Twenty seven change orders were executed during the period. The dollar value of all non-credit change orders during Q4 FY20 was $1,547,810 and the value of credit change orders was ($135,403).

Four contracts were not processed within the target timeframes. Two contracts were delayed due to delays by the consultant in preparing E-tables in addition to delays caused by COVID-19 and the challenges associated with obtaining electronic signatures. Another contract was delayed due to delays in obtaining electronic signatures. The final contract was delayed due to the bidder's misstated intended bid, delays in returning contract documents to the MWRA and the COVID-19 circumstances which necessitated the establishment of a new contract execution process. In addition, the contractor took extra time to review and accept the contract documents and return the acknowledged Notice to Proceed letter.

Staff reviewed 55 proposed change orders and 34 draft change orders.

Materials Management

4th Quarter - FY20



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 5,735 (99.2%) of the 5,781 items requested in Q4 from the inventory locations for a total dollar value of $1,047,311.

Inventory Value - All Sites

Inventory goals focus on:

- Maintaining optimum levels of consumables and spare parts inventory
- Adding new items to inventory to meet changing business needs
- Reviewing consumables and spare parts for obsolescence
- Managing and controlling valuable equipment and tools via the Property Pass Program

The FY20 goal is to reduce consumable inventory from the July '19 base level ($8.4 million) by 2.0% (approximately $169,249), to $8.2 million by June 30, 2020 (see chart below). Reduction fell short of the goal buy $138,713. Increased purchases of Pandemic supplies impacted meeting this goal.

Items added to inventory this quarter include:

- Deer Island – pressure switches, flowmeters, solenoid valves, and pressure gauges for I&C; hand sanitizer, face masks and anti-bacterial wipes for Pandemic; transducers and current boards for HVAC; box covers and control panels for Electrical; filters and conduit seals for Power and Pump.
- Chelsea – Grit collection chain for Work Coordination; face shields, face masks and hand sanitizer for Pandemic.
- Southboro – chemical coveralls, face masks, PPE kits, disinfectant wipes and disinfectant spray for Pandemic.

Property Pass Program:

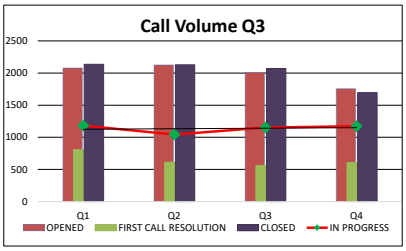
- There were no audits conducted during Q4 due to the Pandemic circumstances.
- Scrap revenue received for Q4 amounted to $7,384. Year to date revenue received amounted to $31,560
- Revenue received from online auctions held during Q4 amounted to $0 due to Pandemic circumstances. Year to date revenue received amounted to $293,126.

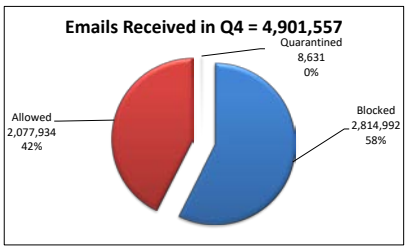
Items	Base Value July-19	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	8,462,463	8,431,927	-30,536
Spare Parts Inventory Value	9,183,923	9,119,560	-64,363
Total Inventory Value	17,646,386	17,551,487	-94,899

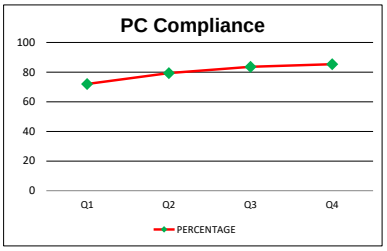
Note: New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

MIS Program

4th Quarter - FY20







Performance & Backlog for Q4

- 1695 calls were completed this quarter.
- Call closure averaged 7.9 days.
- Priority 1 & 2 Service Level Agreements (SLA) were met this quarter.

Cyber Security Q4

- In Q4, 199 security fixes/updates were pushed to desktops/servers. 85% of all PCs/Laptops are compliant with approved patches.
- McAfee quarantined 68 distinct viruses from 4 PC. PCs are current with antivirus signatures for known malware.
- 58% of all email was blocked upon initial receipt and evaluation.

INFRASTRUCTURE & SECURITY

Teleworking: Continued to support a diversly located work environment.

AWIA Risk and Resiliency Assessment: Phase I & II Assessments completed. Conducting Phase I remediation process with a bi-weekly Application and SysAdmin group meeting discussion and action items. Began drafting Task List for Phase II vulnerability assessment remediating items.

Cyber Security: Evaluated a few proof-of-concept solutions including DUO Multifactor Authentication, Proofpoint Email Gateway with DMARC/DKIM/SPF, Secure Web Gateway and One Identity Password Manager. Implemented Commvault Journaling, Citrix Notate Pro, Quest Auditing. Installed security updates on all key infrastructure components..

Infrastructure Upgrades: Migrated File, GIS, and DMZ servers to new respective Windows 2019 environment.

Audio/Visual Upgrades: The Chelsea EOC is complete. Working with the vendor on configurations for nine remaining rooms.

Chelsea Environmental Controls Monitoring System: Design is complete. Installation scheduled for July 9th.

PBX (Telephone System) Upgrade: Reviewing the SOW and working with other PBX/Unified Communication providers to evaluate a complete unified communication collaboration solution.

LAWSON & MAXIMO

Lawson: Designed two new pay codes and customized the COBOL library, which determines employee hourly rates, to meet the pay code rules for the new mandated Paid Family Leave CARES Act.

Infor/Lawson Upgrade: RFQ/P, SOW finalized and will be posted to the supplier portal in July. Proposals will be due in August.

Maximo/Lawson Interface: A selection committee meeting was held on June 29th to discuss the scope of work and RFQ/P for the Maximo-Lawson interface project.

Maximo 01080 Form Automation: When complete, tis initiative will allow construction contractors to submit specification form data electronically in a format that can be imported into Maximo. A working prototype and associated training materials were completed and 14 of 15 forms have been developed to date. Once all forms are complete, User Acceptance Testing will begin.

IT STEERING COMMITTEE UPDATES

The IT Steering Committee met in May. Five (5) Project Initiation Forms were discussed. The following projects were prioritized, due to COVID-19, to have resources assigned as soon as they are available: Visitor Management (for contact tracing) and Infor/Lawson Learning Management System (for non-classroom/on-line training).

Learning Management System: Drafted an SOW and began procurement process. Explored high-level integration capabilities with on-line training vendors, existing LMS system and existing Infor/Lawson training module.

Visitor Management System: Documented business requirements, including current and future business flows, badge requirements, data security issues, and reporting needs. Assessed a solution by using the trail version.

OTHER SOFTWARE / CUSTOM APPLICATIONS

Enterprise Content Management (ECM)/e-Construction: Reviewed answers to MWRA clarifications questions from all proposers. Held selection Committee meeting to evaluate preliminary scores to identify vendor for future demos. Identified demo topics and scheduled preliminary demos from three proposers with MWRA subject matter experts in July.

Fuel Management System: MWRA's former fuel management system (Gasboy) was replaced with Fleet Data System, which went live in Chelsea and Deer Island on June 22nd. Users were trained and have started using the system.

Dental Permits/Certifications: Application was moved to the pilot phase.

MHC Software: Working with vendor to replace the current check printing software (Bottomline) with new check printing software (MHC) due to ongoing security and browser compatibility issues. Implementation is in progress and expected to last approximately four months.

LIBRARY, RECORD CENTER, IT TRAINING

Library FY20: Undertook 108 research requests, supplied 99 books for circulation, provided 80 articles, and 115 standards and the MWRA Library Portal supported 10,721 end-user searches.

Record Center FY20: Handled a total of 732 boxes and dispose 233 approved box for destruction. The RC received 16 geological samples. Due to COVID-19 the RC had limited Record Center activities in Q4.

IT Training: Due to the Covid-19 pandemic, instructor-led classes were not held this quarter. A total of 21 classes were completed by 74 staff through Q3. 5% of the workforce has attended at least one class year-to-date. Job-aids were developed to support remote Teleworking staff including Webex conferencing job

39

Legal Matters
4th Quarter - FY 20

PROJECT ASSISTANCE

Real Estate, Contract, Environmental and Other Support:

- 8(m) Permits: Reviewed one hundred and thirty-one (131) 8(m) permits. Drafted 8(m) permit 2480 issued to Cadence Education, LLC for use of existing playground on aqueduct property located at 210 South Avenue in Weston. Reviewed Direct Connect Permit 20-01-181DC for the City of Newton to connect to Section 219 Station 342+07 at Farwell Street in Newton; Direct Connect Permit 20-02-182DC Department of Conservation and Recreation to disconnect Special Connection BB-018-S to MWRA Section 164 at Station 55+00 440 North Beacon Street in Brighton; and Direct Connect Permit 20-03-184DC for City of Cambridge to disconnect Public Connection CB-095-P to MWRA Section 184 at Station 35+29 in Cambridge, MA.

- **Real Property:** Finalized for recording an easement agreement between MBTA and MWRA for a MWRA easement and reviewed and revised Keolis license agreement for pipe jacking under the tracks at MBTA Dedham Corporate Station on Allied Drive in Dedham MBTA for MWRA Contract 7505 - MWRA Section 111 redundant 36-inch pipeline through Boston, Dedham, and Westwood. Reviewed Wachusett Watershed Fee Acquisition (W-001226) for Kittredge property on Worcester Road in West Boylston, MA. Recorded grant of temporary easement and easement plan at Suffolk Registry of Deeds for MWRA Contract 7279 - Dorchester Interceptor Sewer Rehabilitation (Sections 240/241/242). Finalized for recording First Amendment to Grant of Permanent Access Easement located at 777 Dedham Street, Canton, MA. Finalized and executed Massachusetts State Police License for placement of an antenna on DITP's Administration/Laboratory building for the purpose of gathering information pertinent to communications between drones and their remote controls. Reviewed Tenant Estoppel Certificate related to MWRA's lease for its records center building located at 34 Saint Martin Drive in Marlborough. Reviewed MWRA's property interests in a parcel of land adjacent to the Chelsea Bridge in Chelsea; 60 Winter Street in Malden; land acquired for MWRA's backup landfill in Walpole; Commonwealth Avenue in Boston for Section 8 of its Wachusett Aqueduct Supply Main 4; the proposed Montvale Avenue Development Project site in Woburn; and Tafts Avenue in the area of the Winthrop/Boston boundary.

- **Sewer Connections Serving Property Partially Located in a Non-MWRA Community**: Reviewed and prepared for execution Sewer Connection Agreement between MWRA and The Rivers School located at 333 Winter Street in Weston, MA.

- **Environmental:** Reviewed regulations at 310 CMR 19.00 relating to MWRA's landfill in Clinton, MA. Reviewed 2019 Summary of CSO receiving Water Quality Monitoring in Upper Mystic River/Alewife Brook and Charles River prepared pursuant to requirements in the CSO water quality variances for the Upper Mystic River/Alewife Brook and Lower Charles River/Charles River Basin. Reviewed proposed 2020 standard signatory conditions for multi-sector general permit for stormwater discharges from industrial activity. Reviewed letter sent to EPA and DEP regarding a non-wet weather activation of MWRA's Union Park Combined Sewer Overflow (“CSO”) Treatment Facility due to BWSC water main break. Drafted summary of United States Supreme Court Decision for County of Maui, Hawaii v. Hawaii Wildlife Fund et al (U.S Supreme Court Case decision April 23, 2020). Reviewed CSO Discharge Estimates and Rainfall Analysis for calendar year 2019 and supplemental discharge information for calendar year 2018.

- **Boston Harbor Case**: Reviewed Semi-Annual Compliance and Progress Report.

- **Miscellaneous:** Reviewed and advised on orders and guidance related to COVID-19 pandemic.

- **Public Records Requests:** During the fourth quarter of FY 2020, MWRA received and responded to one hundred thirty five (135) public records requests.

LABOR, EMPLOYMENT AND ADMINISTRATIVE

New Matters
Two demands for arbitration were filed.

A union filed a charge of prohibited practice at the Massachusetts Department of Labor Relations alleging the MWRA violated Chapter 150E when it unilaterally began deductions for paid medical and family leave under Chapter 175M without bargaining to impasse.

A union filed a charge of prohibited practice at the Massachusetts Department of Labor Relations alleging the MWRA violated Chapter 150E when it allegedly changed the assignment of overtime in Western Operations.

Matters Concluded

Received an arbitrator's decision in favor of the MWRA following its Motion to Dismiss a grievance alleging that it violated a collective bargaining agreement when it did not select the grievant for a vacancy.

Received an MCAD dismissal due to settlement of a complaint alleging that the MWRA discriminated against a current employee on the basis of sexual orientation and retaliation against him for not receiving promotions to a higher job title.

LITIGATION/CLAIMS

New lawsuits/claims: One new bankruptcy matter was received in April.

Frontier Communications Corporation, et al.
In April, debtor Frontier Communications Corporation filed a Notice of Chapter 11 bankruptcy in Southern New York Bankruptcy court, Docket No. 20-22476 (RDD).

Significant Developments Pursuant to the "Supreme Judicial Court updated Court Order dated May 26, 2020 and effective June 1, 2020, regarding court operations under the exigent circumstances created by the COVID-19 (coronavirus) pandemic" all filing and tracking order deadlines have been extended until at least July 1, 2020.

J. D'Amico, Inc. v. MWRA v. Green International Affiliates, Inc., et al, Suffolk Superior Court C.A. No. 17-4097-BLS2. The parties have reached a settlement to resolve MWRA's cost recovery claims arising out of completion of the Watertown Section Rehabilitation project, which settlement was approved by MWRA's Board of Directors at its June 24, 2020 meeting. It is expected that the parties will executed a formal Settlement Agreement and file a Stipulation of Dismissal with the court within the next 60 days.

Closed Cases: Bennett v. MWRA, Suffolk Superior Court C.A. No. 1984-CV02670. The parties entered into a Settlement Agreement to resolve plaintiff's lawsuit alleging that temporary fencing owned by MWRA fell on her causing her personal injury. The MWRA filed a Stipulation of Dismissal with Court on July 21, 2020.

Closed Claims: There are no closed claims to report.

Subpoenas During the 4th Quarter of FY 2020, no subpoenas were received and no subpoenas were pending at the end of the Fourth Quarter FY 2020.

Wage Garnishments There are currently fifteen Trustee Process matters, only two of which are considered active and monitored by Law Division.

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of June 2020	As of Marc 2020	As of Dec 2019
Construction/Contract/Bid Protest (other than BHP)	2	2	2
Tort/Labor/Employment	3	4	4
Environmental/Regulatory/Other	2	2	2
Eminent Domain/Real Estate	0	0	0
Total	**7**	**8**	**8**
Other Litigation matters (restraining orders, etc.) 1. Army Corp of Engineers v. MWRA, NSTAR & Harbor Electric 2. IN RE: GSE Bonds Anti-Trust Litigation	2	2	1
Total – all pending lawsuits	**9**	**10**	**9**
Claims not in suit:	0	0	0
Bankruptcy	1	0	0
Wage Garnishment	2	2	1
TRAC/Adjudicatory Appeals	0	0	1
Subpoenas	0	0	0
TOTAL – ALL LITIGATION MATTERS	**12**	**12**	**14**

TRAC/MISC.

New Appeals: There are no new appeals in 4th Quarter FY 2020.

Settlement by Agreement of Parties There are no Settlement by Agreement of Parties in 4th Quarter FY 2020.

Stipulation of Dismissal No Joint Stipulation of Dismissals filed.

Notice of Dismissal Fine paid in full No Notices of Dismissal, Fine Paid in Full.

Tentative Decision There are no Tentative Decisions issued in the 4th Quarter FY 2020.

Final Decisions There are no Final Decisions issued in the 4th Quarter FY 2020.

INTERNAL AUDIT AND CONTRACT AUDIT ACTIVITIES
4th Quarter - FY20

Highlights
During the 4th quarter FY20, Internal Audit (IA) compared the cleaning contract requirements for Chelsea, DITP, Western Operations and Clinton to the CDC guidance to ensure compliance. Audit support was provided for review of workplace reopening plans using guidance issued by the CDC, OSHA, Commonwealth of Massachusetts, City of Boston and industry best practices.

IA completed a true-up of 2019 operating expenses for the HEEC cable, reviewed the 2019 financial information of NEFCo for the operations of the pellet plant, reviewed the Department of Unemployment Assistance Monetary Determinations for unemployment claim calculations and eligibility, provided assistance on facility lease agreements, completed 2 consultant preliminary reviews and 2 construction labor burden reviews. IA assisted the Procurement Department with analysis during contract preparation and provided assistance to Operations with a review of the electricity interval accounts. IA issued a total of 52 indirect cost rate letters to professional service consultants during FY20.

Status of Recommendations
During FY20, 35 recommendations were closed of which 22 are from prior fiscal years' audits.

IA follows-up on open recommendations on a continuous basis. All open recommendations have target dates for implementation. When a recommendation has not been implemented within 36 months, the appropriateness of the recommendation is re-evaluated.

All Open Recommendations Pending Implementation – Aging Between 0 and 36 Months

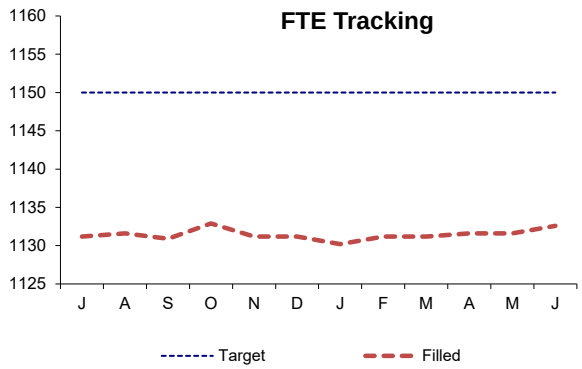
Report Title (issue date)	Audit Recommendations		
	Open	Closed	Total
Fleet Services Process Review (6/30/18)	1	4	5
Fuel Use & Mileage Tracking (12/31/18)	3	5	8
Asset Tracking – Fleet Data Verification (8/21/19)	8	8	16
Fleet Services Non-Plated Equipment Inspections (3/30/20)	11	4	15
Total Recommendations	*23*	*21*	*44*

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

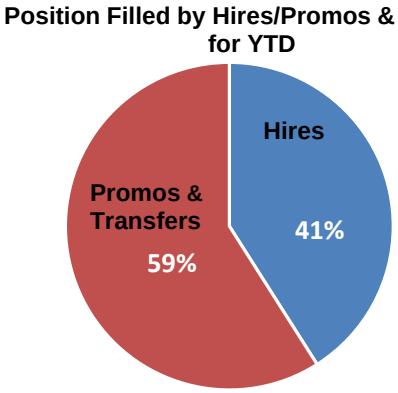
Cost Savings	FY16	FY17	FY18	FY19	FY20 Q4	TOTALS
Consultants	$88,312	$272,431	$118,782	$262,384	$643,845	$1,385,754
Contractors & Vendors	$1,772,422	$3,037,712	$1,323,156	$3,152,884	$2,097,729	$11,383,903
Internal Audits	$220,929	$224,178	$204,202	$210,063	$212,517	$1,071,889
Total	**$2,081,663**	**$3,534,321**	**$1,646,140**	**$3,625,331**	**$2,954,091**	**$13,841,546**

OTHER MANAGEMENT

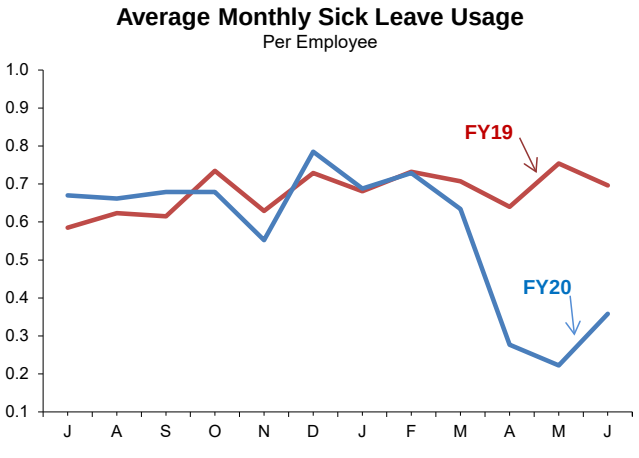
Workforce Management
4th Quarter - FY20



FY20 Target for FTE's = 1150
FTE's as of June 2020 = 1132.6
Tunnel Redunancy as of June 2020 = 7.0



	Pr/Trns	Hires	Total
FY18	118 (61%)	74 (39%)	192
FY19	112 (60%)	76 (40%)	188
FY20	84 (59%)	58 (41%)	142

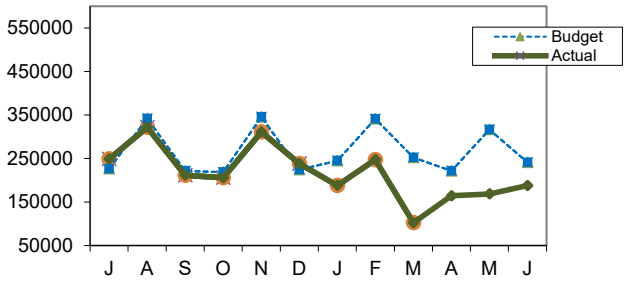


Average monthly sick leave for the 4th Quarter of FY20 decreased as compared to the 4th Quarter of FY19 (0.696 to 0.358)

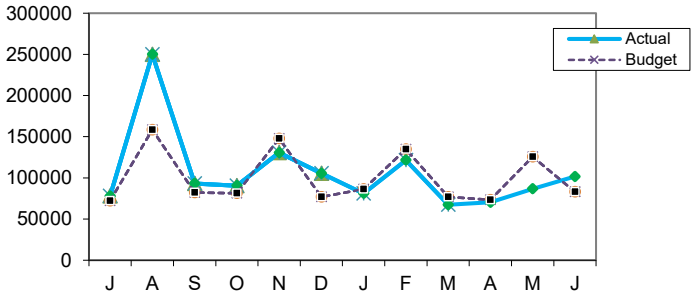
MWRA Average Cumulative Sick Leave Use By Division Per Employee

	Number of Employees	YTD	Annualized Total	Annual FMLA %	FY19
Admin	138	6.48	6.48	23.8%	7.78
Aff. Action	5	6.43	6.43	7.7%	6.28
Executive	4	1.81	1.81	0.0%	7.05
Finance	33	4.09	4.09	0.0%	2.28
Int. Audit	6	5.08	5.08	12.1%	4.06
Law	13	6.71	6.71	18.2%	7.80
OEP	4	1.00	1.00	0.0%	5.97
Operations	925	7.27	7.27	22.9%	8.35
Tunnel Red	7	4.31	4.31	46.0%	8.11
Pub. Affs.	11	7.96	7.96	59.2%	4.45
MWRA Avg	**1146**	**0.77**	**6.94**	**23.0%**	**8.13**

Percent of Sick Leave Usuage for FY20 attributable to Family and Medical Leave Act (FMLA is 23%).



Total Overtime for Field Operations for the fourth quarter of 2020 was $507k which is ($259k) under budget. Emergency overtime was $298k, which was ($88k) under budget. Rain events totaled $194k, Emergency Maintenance was $19k and Emergency Operations was $9k. Coverage overtime was $129k, which was ($36k) under budget, reflecting the month's shift coverage requirements. Planned overtime was $80k or ($137k) under budget. Maintenance Off-Hours was $35k and Planned Operations was $14k. Year-to-date, FOD has spent $2.5m on overtime, which is ($615k) under budget.

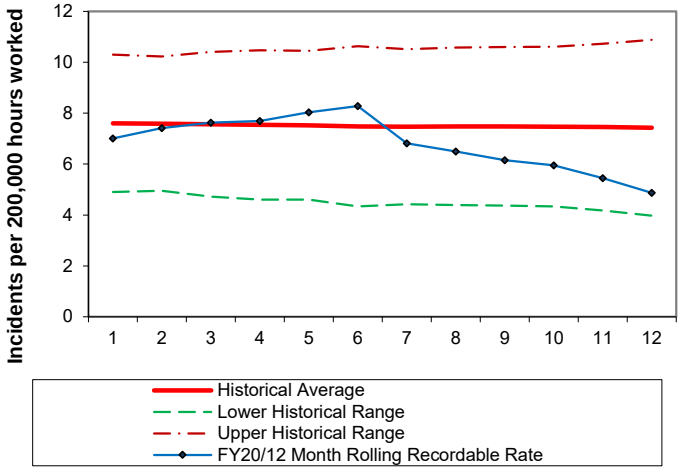


Deer Island's total overtime expenditure for the Fourth quarter was $259K, which was $23K or 8.2% under budget. In the fourth quarter Deer Island experienced lower than anticipated planned/unplannded overtime of ($40k) and storm coverage of ($19k). This is offset by higher shift coverage requirements of $35K. YTD Deer Island's overtime spending is $1.3M, which is $78k or 6.5% over budget due to higher spending related to the HEEC cable outage of $110k, shift coverage $101k. This is offset by lower spending on storm coverage of ($94K) and planned/unplannded (non HEEC related) of ($40k). The FY20 CEB included $30k for HEEC overtime vs. $140k spent. The outage lasted 18 days as opposed to the 5 days anticipated

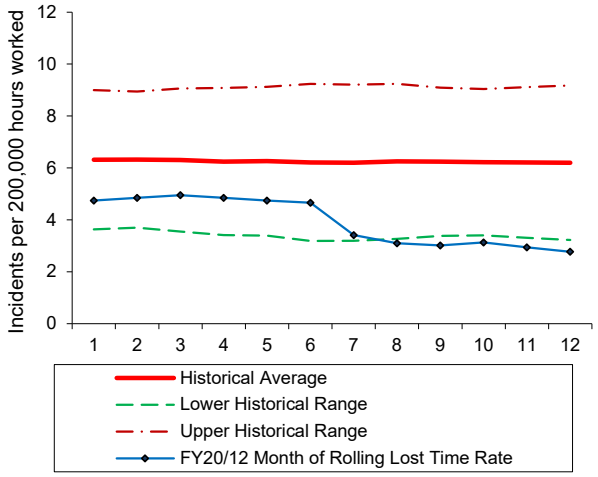
Workplace Safety

4th Quarter - FY20

Recordable Injury & Illness Rates



Lost Time Injury & Illness Rates



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

2 "Lost-time" incidents, a subset of the recordable incidents, are only those incidents resulting in any days away from work, days of restricted work activity or both - beyond the first day of injury or onset of illness. Each month this rate is calculated using the previous 12 months of injury data.

3 The "Historical Average" is computed using the actual MWRA monthly incident rates for FY99 through FY19. The "Upper" and "Lower Historical Ranges" are computed using these same data – adding and subtracting two standard deviations respectively.

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

WORKERS COMPENSATION HIGHLIGHTS

	4th Quarter Information		
	New	Closed	Open Claims
Lost Time	4	12	46
Medical Only	4	11	15
Report Only	8	8	
	QYTD		FYTD
Regular Duty Returns	1		17
Light Duty Returns	1		2
Indemnity payments as of June 30 2020 included in open claims listed			17

COMMENTS:

Regular Duty Returns

APR 0 Employees returned to full duty/no restrictions

MAY 0 Employees returned to full duty/no restrictions

JUNE 1 Employees returned to full duty/no restrictions

Light Duty Returns

APR N/A

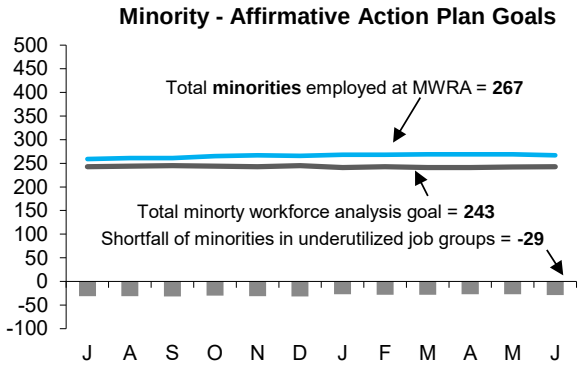
MAY N/A

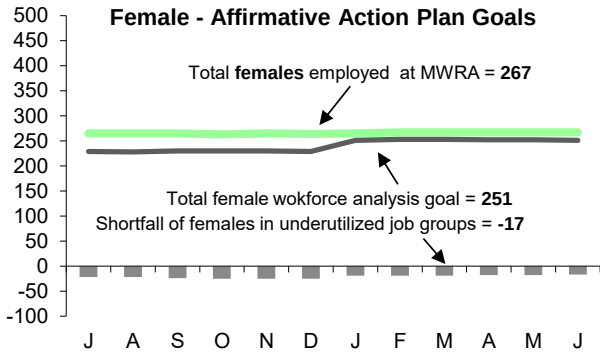
JUNE 1

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

MWRA Job Group Representation

4th Quarter - FY20





Highlights:

At the end of Q4 FY20, 5 job groups or a total of 29 positions are underutilized by minorities as compared to 7 job groups for a total of 32 positions at the end of Q4 FY19; for females 8 job groups or a total of 17 positions are underutilized by females as compared to 6 job groups or a total of 22 positions at the end of Q4 FY19. During Q4, 2 minorities and 0 females were hired. During this same period 3 minorities and 1 female were terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 6/30/2020	Minorities as of 6/30/2020	Achievement Level	Minority Over or Under Underutilized	Females As of 6/30/2020	Achievement Level	Female Over or Under Underutilized
Administrator A	23	3	3	0	11	6	5
Administrator B	24	0	7	-7	7	7	0
Clerical A	29	11	5	6	26	21	5
Clerical B	26	10	7	3	5	7	-2
Engineer A	81	26	18	8	17	18	-1
Engineer B	60	20	16	4	14	9	5
Craft A	117	15	24	-9	0	4	-4
Craft B	141	21	23	-2	3	5	-2
Laborer	67	23	15	8	5	3	2
Management A	97	24	24	0	34	34	0
Management B	44	9	6	3	9	10	-1
Operator A	65	5	14	-9	2	4	-2
Operator B	69	19	11	8	3	1	2
Professional A	29	3	5	-2	19	13	6
Professional B	164	46	41	5	80	73	7
Para Professional	52	16	13	3	25	29	-4
Technical A	56	14	10	4	7	6	1
Technical B	6	2	1	1	0	1	-1
Total	**1150**	**267**	**243**	**53/-29**	**267**	**251**	**33/-17**

AACU Candidate Referrals for Underutilized Positions

Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions /Transfers	AACU Ref. External	Position Status
Engineer A	Project Engineer, Planning	1	Int.	1	0	Promo = BF
Engineer A	Project Engineer	1	Int.	1	0	Promo = BF
Craft B	Electrcian	2	Ext.	0	0	NH = (WM) (HM)
Craft B	Facilities Specialist	1	Ext.	0	0	NH = MW

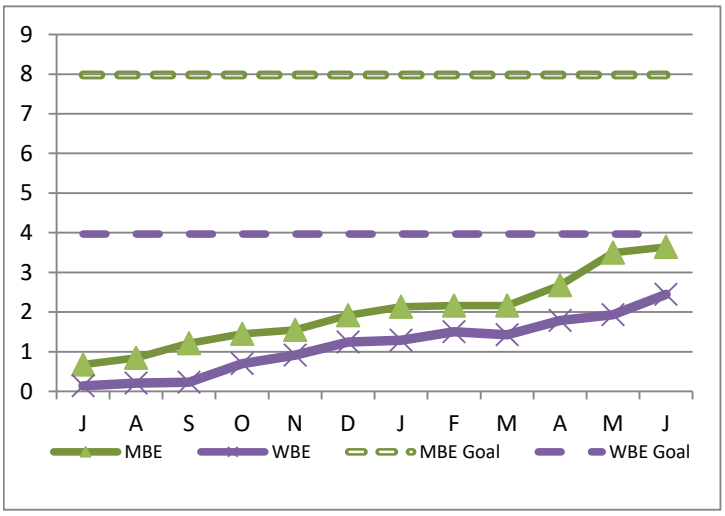
MBE/WBE Expenditures

4th Quarter - FY20

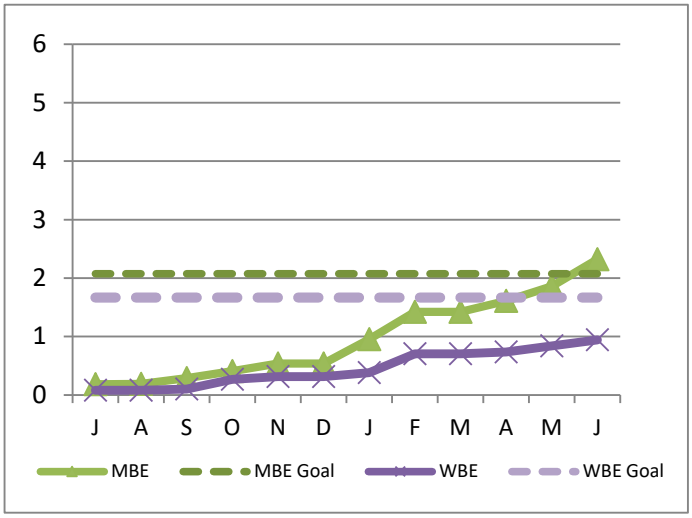
MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. The goals for FY20 are based on 85% of the total construction and 75% of the total professional projected spending for the year. Certain projects have been excluded from the goals as they have no MBE/WBE spending goals.

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

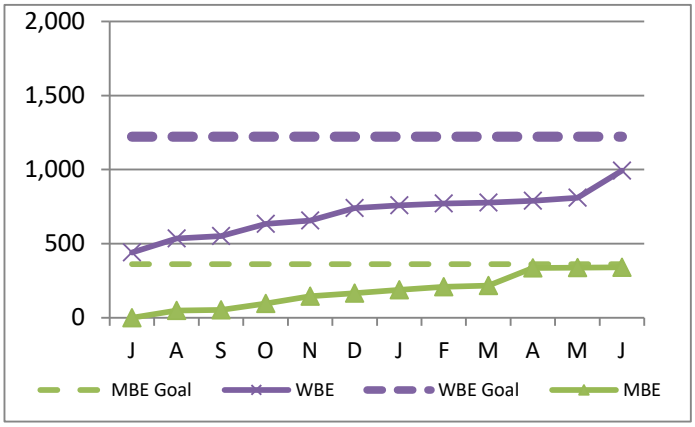
Construction



Professional Services



Goods/Services



FY20 spending and percentage of goals achieved, as well as FY19 performance are as follows:

MBE					WBE			
FY20 YTD		FY19			FY20 YTD		FY19	
Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent
3,641,145	45.6%	11,699,641	150.6%	Construction	2,446,388	61.7%	20,152,509	521.8%
2,322,007	111.9%	2,285,171	134.1%	Prof Svcs	942,850	56.6%	1,551,120	113.2%
340,656	94.1%	213,198	40.3%	Goods/Svcs	993,375	81.3%	780,760	46.7%
6,303,808	60.5%	14,198,010	142.0%	**Totals**	4,382,613	63.9%	22,484,389	325.6%

FY20 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

MWRA FY20 CEB Expenses
4th Quarter - FY20

As of June 2020, total expenses are $774.3 million, $18 million or 2.3% lower than budget, and total revenue is $792.2 million, $46k or 0.01% lower than budget, for a net variance of $17.9 million.

Expenses –

Direct Expenses are $235.7 million, $12.5 million or 5.0% under budget.

- **Ongoing Maintenance** expense $3.0 million under budget or 9.1%, as underspending on Plant & Machine Services of $1.5 million, Pipeline Service underspending of $681k, and Special Equipment Services underspending of $494k were partially offset by $528k in overspending on Plant & Machinery Materials. Maintenance variance reflects the actual timing of projects.
- **Wages & Salaries** are under budget by $2.2 million or 2.0%. Regular pay is $2.2 million under budget, due to lower head count, and timing of backfilling positions. YTD through June, the average Full Time Equivalent (FTE) positions was 1,139, nineteen fewer than the 1,158 FTE's budgeted.
- **Professional Services** expenses are $1.7 million under budget or 20.6%, primarily due to under spending for Computer System Consultants of $745k and $468k underspending on Other Professional Services, including Finance and Law.
- **Utilities** are $1.3 million under budget or 5.3% as lower electricity spending of $1.4 million reflecting CTG usage at Deer Island during HEEC cable electrification and lower pricing. Deer Island electricity underspending was $1.2 million of the variance. Lower interval account pricing also contributing to overall electricity variance. This underspending was partially offset by overspending on diesel of $71k for CTG operation during HEEC cable installation and fuel deliveries to replenish diesel inventory.
- **Other Materials** expenses are $1.2 million under budget or 17.0%, primarily due to underspending on computer hardware underspending of $344k, equipment and furniture underspending of $310k, vehicle expense underspending of $308k, and vehicle purchases underspending of $153k
- **Fringe Benefit** expenses are $871k under budget or 4.0%, primarily due to under spending for Health Insurance of $682k, driven by lower headcount.
- **Chemical** expenses are $813k under budget or 6.9%, primarily due to Sodium Hypochlorite was $322k under budget due to lower contract cost and lower spending on Activated Carbon of $271k driven by improvements in odor control processes which reduced usage at Deer Island and lower replacement cost at Nut Island. Lower than budget spending on Soda Ash of $231k due to the Carroll Water Treatment Plant having lower dosing reflecting higher alkalinity and plant lower flows. This is partially offset by higher than budget spending on ferric chloride which is over budget by $200k due to lower flows of 3.1% Deer Island through June. Timing of deliveries is an important factor in chemical spending.
- **Worker's Compensation** expenses are $491k under budget or 20.9%, reflecting lower compensation payments of $257k, medical payments of $163k, and administrative expenses of $72k.

Indirect Expenses are $46.1 million, $4.8 million or 9.3% under budget driven by lower than expected Watershed Reimbursement of $4.8 million due to lower costs associated with compensation, fringe benefits, maintenance, equipment, professional services, and prior period adjustments.

Debt Service Expenses totaled $492.4 million, $657k under budget, after $25.2 million of YTD savings was used to defease bonds in June. This savings reflects lower than budgeted variable interest expense and additional savings due to the timing of new money and SRF transactions.

Revenue and Income –

Total Revenue and Income is $792.2 million, or $46k under budget. Rate Revenue was $892k under budget as June Assessments were reduced by an appropriation of $892k from the Commonwealth. Other User Charges were over budget by $0.7 million or 7.9% due to Stoughton's prepayment of entrance fee. Other Revenue is $2.6 million or 45.8% over budget reflecting $892k from the Commonwealth to offset rate revenue reduction, miscellaneous revenue $548k, energy revenue for RPS credits $411k, income from the disposal of equipment $393k, and Energy Rebates of $160k. Investment Income was $2.5 million or 16.2% under budget due to lower interest rates.

	Jun 2020 Year-to-Date			
	Period 12 YTD Budget	Period 12 YTD Actual	Period 12 YTD Variance	%
EXPENSES				
WAGES AND SALARIES	$ 109,953,483	$ 107,776,261	$ (2,177,222)	-2.0%
OVERTIME	4,898,965	4,484,054	(414,911)	-8.5%
FRINGE BENEFITS	21,717,533	20,846,345	(871,188)	-4.0%
WORKERS' COMPENSATION	2,354,256	1,862,942	(491,314)	-20.9%
CHEMICALS	11,811,222	10,998,339	(812,883)	-6.9%
ENERGY AND UTILITIES	24,454,796	23,151,712	(1,303,084)	-5.3%
MAINTENANCE	32,726,954	29,737,299	(2,989,655)	-9.1%
TRAINING AND MEETINGS	504,394	288,045	(216,349)	-42.9%
PROFESSIONAL SERVICES	8,295,315	6,588,621	(1,706,694)	-20.6%
OTHER MATERIALS	6,867,239	5,697,624	(1,169,615)	-17.0%
OTHER SERVICES	24,683,370	24,306,370	(377,000)	-1.5%
TOTAL DIRECT EXPENSES	**$ 248,267,527**	**$ 235,737,612**	**$ (12,529,917)**	**-5.0%**
INSURANCE	$ 2,611,222	$ 2,615,589	$ 4,367	0.2%
WATERSHED/PILOT	26,833,600	22,075,059	(4,758,541)	-17.7%
HEEC PAYMENT	4,429,316	4,429,316	-	0.0%
MITIGATION	1,654,618	1,651,068	(3,550)	-0.2%
ADDITIONS TO RESERVES	2,094,284	2,094,284	-	0.0%
RETIREMENT FUND	7,315,000	7,315,000	-	0.0%
POST EMPLOYEE BENEFITS	5,962,457	5,962,457	-	0.0%
TOTAL INDIRECT EXPENSES	**$ 50,900,497**	**$ 46,142,773**	**$ (4,757,724)**	**-9.3%**
STATE REVOLVING FUND	$ 92,797,294	$ 88,126,851	$ (4,670,443)	-5.0%
SENIOR DEBT	202,299,609	242,220,498	39,920,889	19.7%
DEBT SERVICE ASSISTANCE	(890,235)	(890,235)	-	0.0%
CURRENT REVENUE/CAPITAL	15,200,000	15,200,000	-	0.0%
SUBORDINATE MWRA DEBT	169,609,845	146,194,843	(23,415,002)	-13.8%
LOCAL WATER PIPELINE CP	5,846,823	2,117,483	(3,729,340)	-63.8%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
VARIABLE DEBT	-	(8,763,344)	(8,763,344)	---
DEFEASANCE ACCOUNT	-	-	-	---
DEBT PREPAYMENT	5,000,000	5,000,000	-	0.0%
TOTAL DEBT SERVICE	**$ 493,080,396**	**$ 492,423,156**	**$ (657,240)**	**-0.1%**
TOTAL EXPENSES	**$ 792,248,420**	**$ 774,303,541**	**$ (17,944,876)**	**-2.3%**
REVENUE & INCOME				
RATE REVENUE	$ 761,767,000	$ 760,875,467	$ (891,533)	-0.1%
OTHER USER CHARGES	9,216,425	9,941,799	725,374	7.9%
OTHER REVENUE	5,761,022	8,399,901	2,638,879	45.8%
RATE STABILIZATION	-	-	-	---
INVESTMENT INCOME	15,503,973	12,985,469	(2,518,504)	-16.2%
TOTAL REVENUE & INCOME	**$ 792,248,420**	**$ 792,202,637**	**$ (45,783)**	**0.0%**

Cost of Debt
4th Quarter – FY20

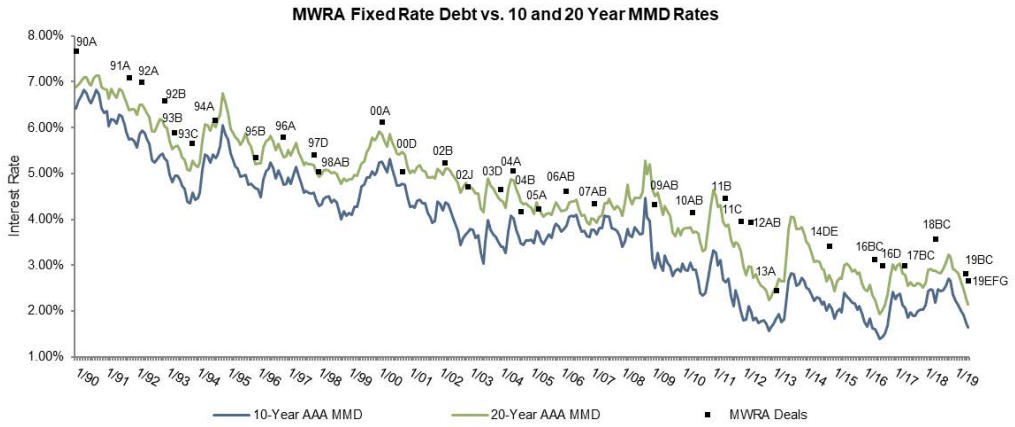
MWRA borrowing costs are a function of the fixed and variable tax exempt interest rate environment, the level of MWRA's variable interest rate exposure and the perceived creditworthiness of MWRA. Each of these factors has contributed to decreased MWRA borrowing costs since 1990.

Average Cost of MWRA Debt FYTD

Fixed Debt ($3.46 billion)	3.47%
Variable Debt ($354.8 million)	1.61%
SRF Debt ($921.4 million)	1.55%
Weighted Average Debt Cost ($4.91 billion)	2.96%

Most Recent Senior Fixed Debt Issue
November 2019

2019 Series E, F &G ($620.6 million) 2.66 %

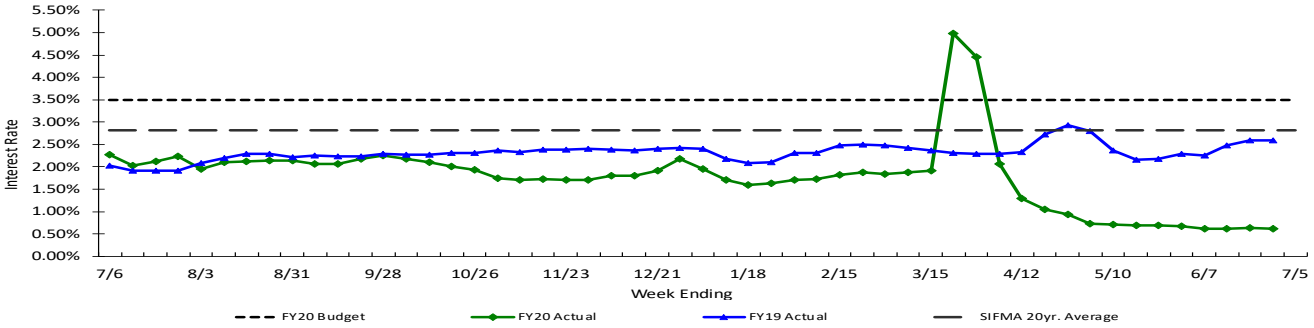


Bond Deal	1994A	1995B	1996A	1997D	1998AB	2000A	2000D	2002B	2002J	2003D	2004A	2004B	2005A	2006AB
Rate	6.15%	5.34%	5.78%	5.40%	5.04%	6.11%	5.03%	5.23%	4.71%	4.64%	5.05%	4.17%	4.22%	4.61%
Avg Life	19.5 yrs	20.5 yrs	19.5 yrs	21.6 yrs	24.4 yrs	26.3 yrs	9.8 yrs	19.9 yrs	19.6 yrs	18.4 yrs	19.6 yrs	13.5 yrs	18.4 yrs	25.9 yrs

Bond Deal	2007AB	2009AB	2010AB	2011B	2011C	2012AB	2013A	2014D-F	2016BC	2016D	2017BC	2018BC	2019BC	2019EFG
Rate	4.34%	4.32%	4.14%	4.45%	3.95%	3.93%	2.45%	3.41%	3.12%	2.99%	2.98%	3.56%	2.82%	2.66%
Avg Life	24.4 yrs	15.4 yrs	16.4 yrs	18.8 yrs	16.5 yrs	17.9 yrs	9.9 yrs	15.1 yrs	17.4 yrs	18.8yrs	11.2 yrs	11.7yrs	11.9yrs	9.73 yrs.

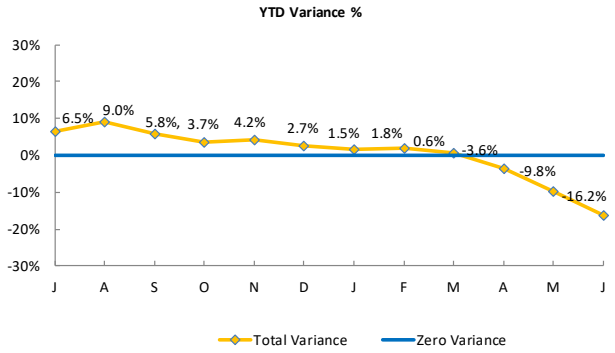
Weekly Average Variable Interest Rates vs. Budget

MWRA currently has ten variable rate debt issues with $782.2 million outstanding, excluding commercial paper. Of the ten outstanding series, four have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In June, SIFMA rates ranged from a high of 0.13% to a low of 0.11% for the month. MWRA's issuance of variable rate debt, although consistently less expensive in recent years, results in exposure to additional interest rate risk as compared to fixed rate debt.



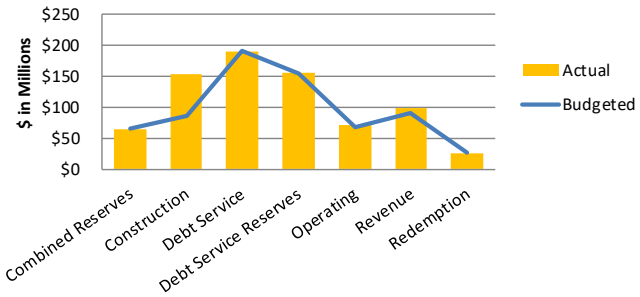
Investment Income
4th Quarter – FY20

Year To Date

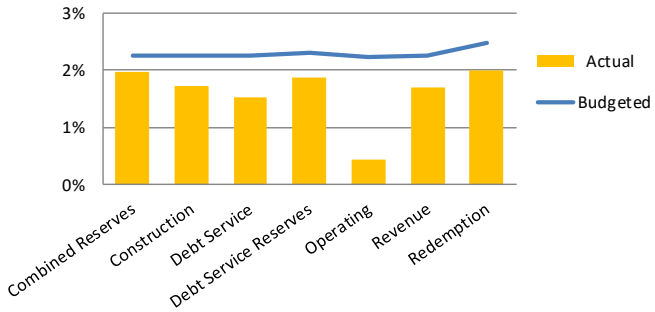


	YTD BUDGET VARIANCE ($000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	$13	($195)	(183)	-12.4%
Construction	$1,401	($720)	682	35.0%
Debt Service	($27)	($1,382)	(1,410)	-32.8%
Debt Service Reserves	$47	($664)	(617)	-17.4%
Operating	$58	($557)	(499)	-32.6%
Revenue	$185	($549)	(364)	-17.7%
Redemption	$2	($129)	(128)	-19.6%
Total Variance	$1,678	($4,196)	($2,519)	-16.2%

YTD Average Balances Budgeted vs. Actual

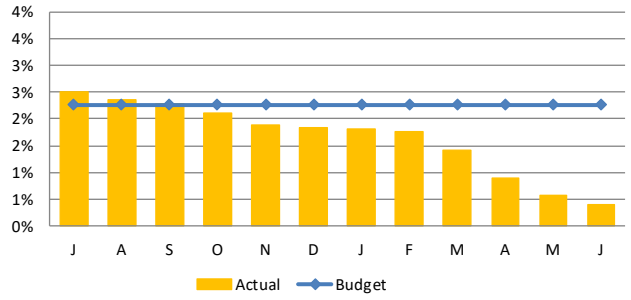


YTD Average Interest Rate Budgeted vs. Actual

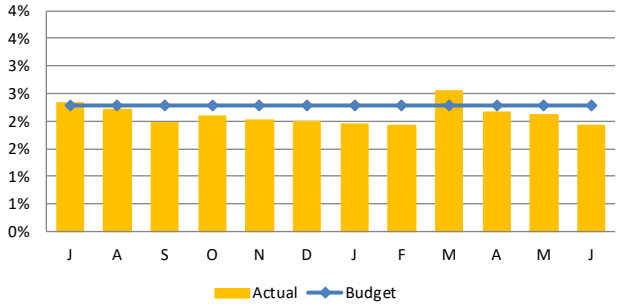


Monthly

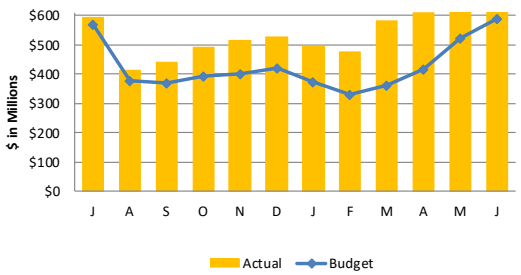
Short -Term Interest Rates



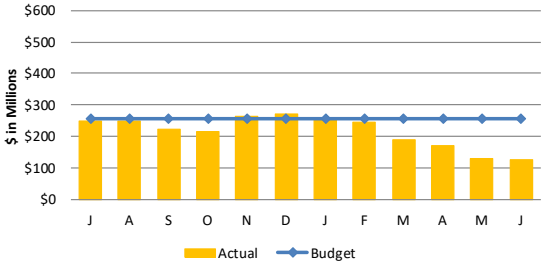
Long -Term Interest Rates



Short-Term Average Balances



Long-Term Average Balances



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: FY20 Year-End Financial Update and Summary

COMMITTEE: Administration, Finance & Audit

_X_ INFORMATION
___ VOTE

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

Thomas J. Durkin
Director, Finance

RECOMMENDATION:

For information only. This staff summary provides the financial results and variance highlights for Fiscal Year 2020, based on the audited fiscal-year financial close.

DISCUSSION:

The total FY20 year-end variance is $17.9 million (after $25.2 million defeasance), due to lower direct expenses of $12.5 million, lower indirect expenses of $4.8 million, lower debt service costs of $0.7 million, and lower revenue of $46,000.

The largest variances in comparison with the budget are highlighted below:

- Direct expenses were $12.5 million below budget, driven by lower spending for Maintenance, Wages & Salaries, Professional Services, Utilities, and Other Materials.

- Indirect expenses were $4.8 million below budget due to lower Watershed reimbursements associated with lower costs for compensation, fringe benefits, equipment, maintenance, and professional services, as well as prior period adjustments.

- Debt Service expenses were $0.7 million below budget driven by lower than anticipated interest rates.

- Revenue was $46,000 below budget, driven by lower Investment Income of $2.5 million, offset by higher Other Revenue of $1.7 million and Other User Charges of $0.7 million

Staff are recommending that the remaining approximately $17.9 million of the FY20 surplus be used to defease debt to provide targeted rate relief for communities in future challenging years. This rate management strategy has proven to be very effective in the past few years in managing assessment increases over time. The proposed defeasance scenario is being presented to the Board at this meeting in a separate staff summary.

FY20 Current Expense Budget

The CEB expense variances for FY20 by major budget category were:

- Lower Direct Expenses of $12.5 million or 5.0% under budget. Spending was lower for Maintenance, Wages & Salaries, Professional Services, Utilities, Other Materials, Fringe Benefits, Chemicals, Workers Compensation, Overtime, Other Services, and Training and Meetings.

- Lower Indirect Expenses of $4.8 million or 9.3% under budget due primarily to lower Watershed reimbursements.

FY20 Budget and FY20 Actual Variance by Expenditure Category (in millions)

	FY20 Budget YTD	FY20 Actual YTD	$ Variance	% Variance
Direct Expenses	$248.3	$235.7	-$12.5	-5.0%
Indirect Expenses	$50.9	$46.1	-$4.8	-9.3%
Capital Financing	$493.1	$492.4	-$0.7	-0.1%
Total	**$792.2**	**$774.3**	**-$17.9**	**-2.3%**

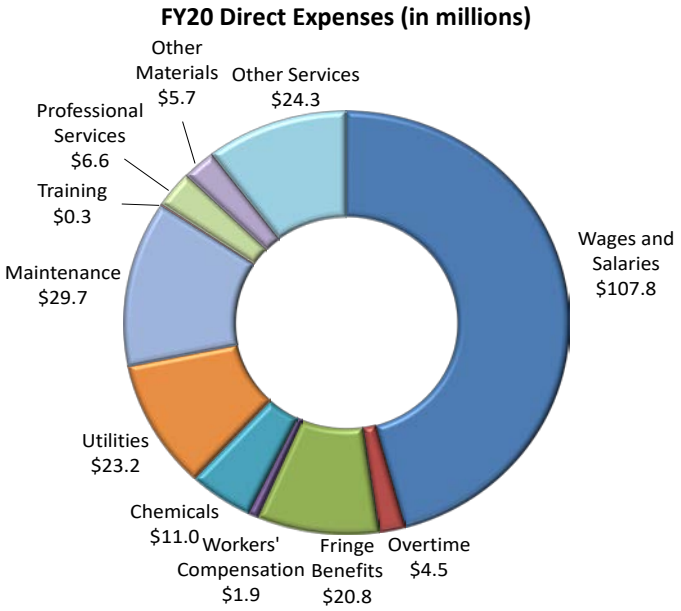
Totals may not add due to rounding

Total Revenues of $792.2 million were $46,000 or 0.01% under budget due to lower Investment Income, offset by higher Other Revenue and Other User Charges.

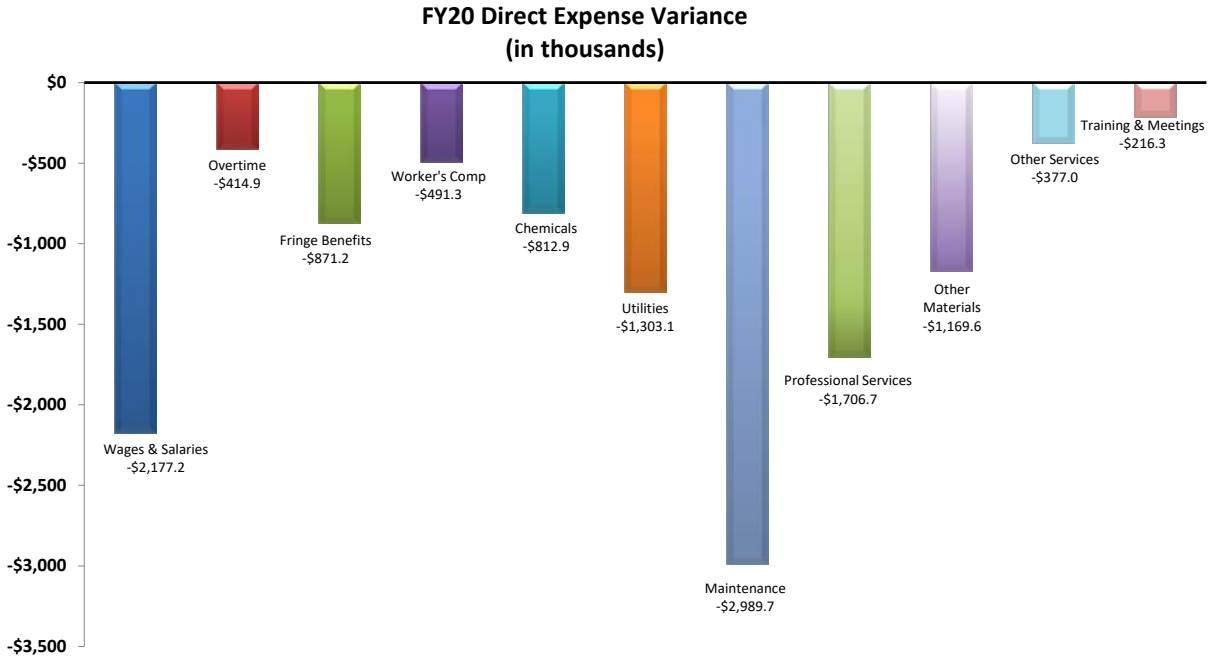
Please refer to Attachment 1 for a more detailed comparison by line item of the budget variances for FY20.

Direct Expenses

FY20 direct expenses totaled $235.7 million, which was $12.5 million or 5.0% less than budgeted.



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

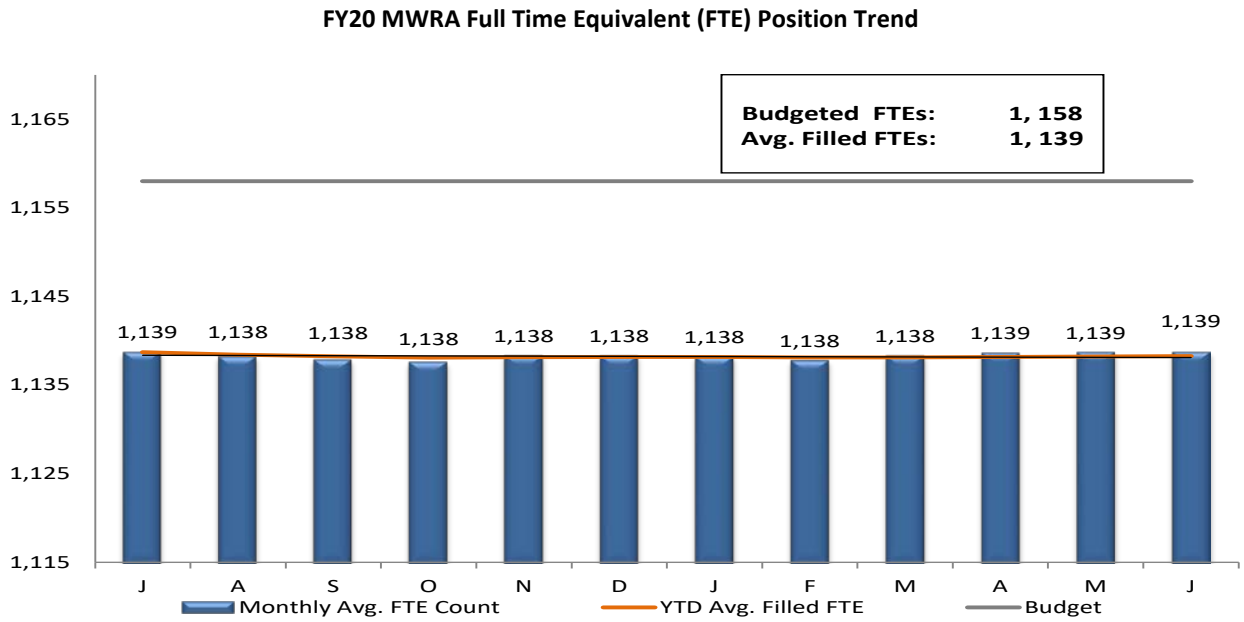


Maintenance

Maintenance was lower than budget by $3.0 million or 9.1%, largely driven by the timing of projects. Maintenance Services were under budget by $3.4 million driven by Plant and Machine Services ($1.5 million), Pipeline Services ($0.7 million), Special Equipment Services ($0.5 million), Electrical Services ($0.3 million), and Computer Software Licenses ($0.3 million). This is partially offset by higher spending for Building and Grounds Services ($0.6 million). Maintenance Materials are higher than budget by $0.4 million driven by Plant & Machinery Materials ($0.5 million), partially offset by lower spending on Computer Materials ($0.2 million).

Wages and Salaries

Wages and Salaries are under budget by $2.2 million or 2.0%. Through June, there were 19 fewer average FTEs (1,139 versus 1,158 budget) or 1.6% and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions also contributed to Regular Pay being under budget.



Utilities

Utilities were lower than budget by $1.3 million or 5.3%. Underspending in Electricity of $1.4 million is driven by Deer Island due to new pricing from Eversource, primarily demand charges, and real time market prices for the non-block purchases under the Direct Energy contract. In addition, lower spending in Clinton Wastewater Treatment Plant is due to lower rates and quantity. This is partially offset by Diesel Fuel overspending of $0.1 million driven by Deer Island due to timing of deliveries and replenishing the inventory used during the HEEC cable installation (the outage lasted 18 days vs. the 5 days anticipated) and additional purchases due to lower pricing, partially offset by underspending primarily in Wastewater Operations due to lower pricing and less fuel needed than expected.

Professional Services

Professional Services were lower than budget by $1.7 million or 20.6%. The overall underspending is due to Computer Systems Consultant ($0.7 million) in MIS and Other Professional Services ($0.5 million) in Administration, Finance and Law, Legal Services ($0.2 million) in Law and Administration, and Engineering ($0.2 million) in Treatment and Field Operations.

Other Materials

Other Materials were lower than budget by $1.2 million or 17.0%, driven by lower than budgeted spending for Computer Hardware of $0.3 million, Equipment/Furniture of $0.3 million, Vehicle Expenses of $0.3 million, and Vehicle Purchases of $0.2 million.

Chemicals

Chemicals were lower than budget by $0.8 million or 6.9%. Lower than budget spending on Sodium Hypochlorite of $0.3 million driven by Wastewater Operations and Deer Island mainly due to price; Activated Carbon of $0.3 million driven by DITP ($0.2 million) due to improvements and continuing steps to optimize the odor control treatment process as well as timing and FOD

($44,000) due to lower than expected replacement cost at Nut Island; Soda Ash of $0.2 million driven by the Carroll Plant is a result of lower dosing due to high raw water alkalinity combined with lower flows; and Polymer of $91,000 driven by less usage primarily at Deer Island and lower than anticipated use of Hydrogen Peroxide of $89,000 driven by Deer Island. This is offset by higher than budget spending on Ferric Chloride of $0.2 million driven by Deer Island to keep the orthophosphate levels in the digesters at the desired target levels and Sodium Bisulfite of $43,000 driven by Deer Island ($47,000) due to increasing inventory. Deer Island flows are 3.1% lower than the budget and Carroll flows are 2.9% less than the budget through June. It is important to note that Chemical variances are also based on deliveries, which in general reflect the usage patterns. However, the timing of deliveries is an important factor.

Fringe Benefits

Fringe Benefit spending was lower than budget by $0.9 million or 4.0%. 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. In addition, Unemployment Insurance was under budget by $46,000 and Paid Family Medical Leave was under budget by $43,000 due to a delay in the start of plan contributions until October 1, 2019.

Worker's Compensation

Worker's Compensation expenses were lower than budget by $0.5 million or 20.9%. The lower expenses were primarily due to favorable variances in compensation payments ($257,000), medical payments ($163,000), and administrative expenses ($72,000).

Overtime

Overtime expenses were lower than budget by $0.4 million or 8.5% mainly in Water Operations and Metro Maintenance by $0.6 million, partially offset by higher spending for Deer Island ($0.1 million) for coverage during the HEEC cable installation and Toxic Reduction and Control ($0.1 million).

Training and Meetings

Training and Meetings expenses were lower than budget by $0.2 million or 42.9% driven by the timing of spending as well as conferences that were postponed or cancelled.

Other Services

Other Services were lower than budget by $0.4 million or 1.5%. Lower than budgeted spending for Telecommunication Services of $0.3 million in MIS and FOD, Other Services of $0.2 million for a number of services, Police Details of $0.1 million, and Space Lease/Rentals of $0.1 million, offset by Higher than budgeted spending for Sludge Pelletization of $0.4 million due to higher quantities.

Indirect Expenses

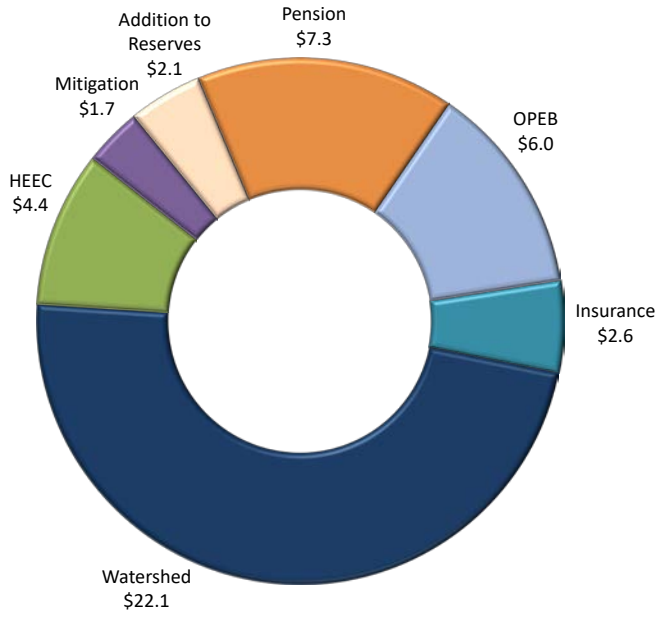
Indirect Expenses totaled $46.1 million, which is $4.8 million or 9.3% lower than budget. The variance is driven by lower Watershed reimbursements. Watershed costs are lower than budget by $4.8 million due to lower costs associated with compensation, fringe benefits, equipment, maintenance, professional services, and prior period adjustments.

FY20 Watershed Protection Variance

$ in millions	YTD Budget	YTD Actual	YTD $ Variance	YTD % Variance
Operating Expenses	17.9	15.0	-2.9	-16.1%
Major Project Expenses	1.6	1.3	-0.2	-14.8%
PILOT	8.5	8.3	-0.2	-2.0%
Subtotal	27.9	24.6	-3.3	-11.7%
Revenue offset	1.1	1.0	-0.1	-7.3%
Current fiscal year net total budget	**26.8**	**23.6**	**-3.2**	**-11.9%**
Prior year 4th quarter accrual true-up	0.0	-1.1	-1.1	
DCR Balance forward (includes FY16 credit balance)	0.0	-0.5	-0.5	
Total Budget	**26.8**	**22.1**	**-4.8**	**-17.7%**

MWRA reimburses the Commonwealth of Massachusetts Department of Conservation (DCR) and Recreation - Division of Water Supply Protection – Office of Watershed Management for expenses. The reimbursements are presented for payment quarterly in arears. Accruals are being made monthly based on estimated expenses provided by DCR and trued-up quarterly based on the quarterly invoice. MWRA's budget is based on the annual Fiscal Year Work Plan approved by the Massachusetts Water Supply Protection Trust. The FTE count at the end of June was 135 (and 135.7 on a year-to-date basis) vs. a budget of 150.

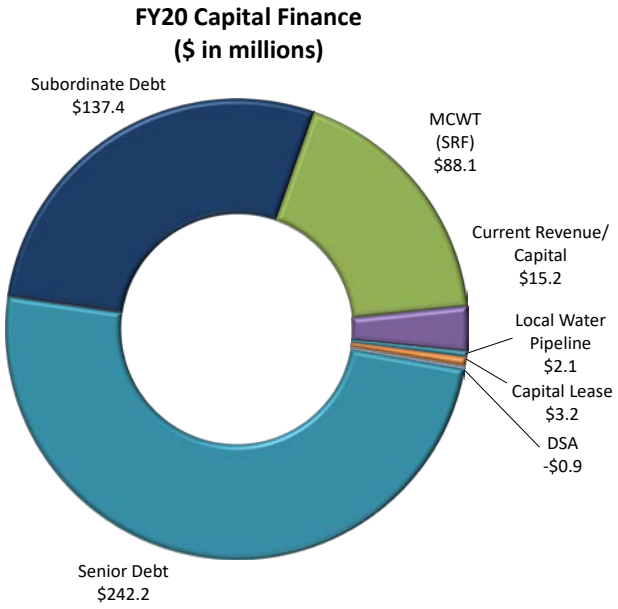
FY20 Indirect Expenses
(in millions)



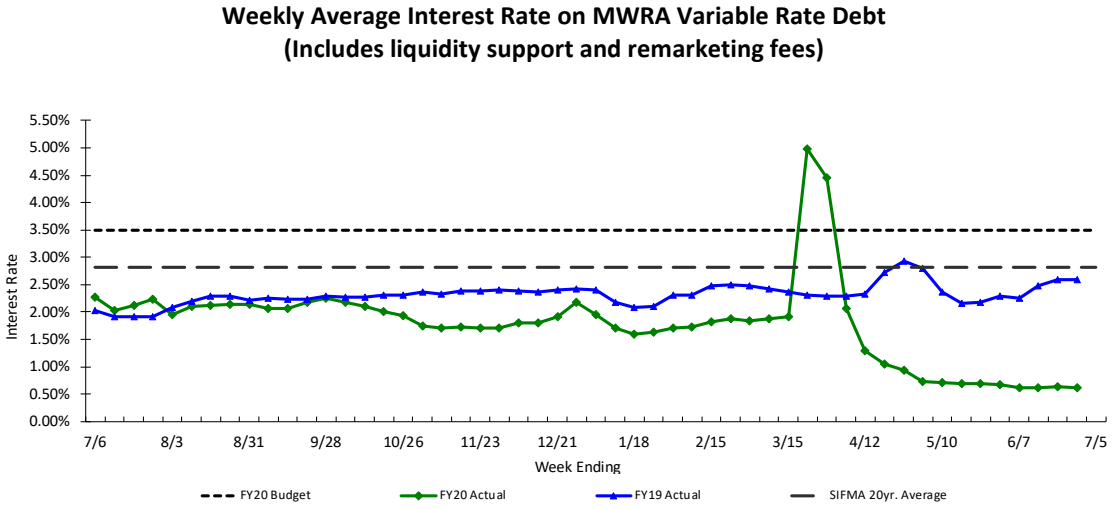
Capital Financing

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

Capital Financing expenses for FY20 totaled $492.4 million, which is $0.7 million less than budget. In June, $25.2 million of the debt related savings was used to defease outstanding bonds. This favorable variance is the result of lower than budgeted variable interest rates and refunding savings. Senior debt service is over budget by $39.9 million as a result of the 2019 Series G refunding for savings which moved expenses from the subordinate to the senior lien and the impact of the defeasance. This increase is offset by a decrease of $23.4 million to the subordinate debt service expense.



The graph below reflects the FY20 actual variable rate trend by week against the FY20 Budget.



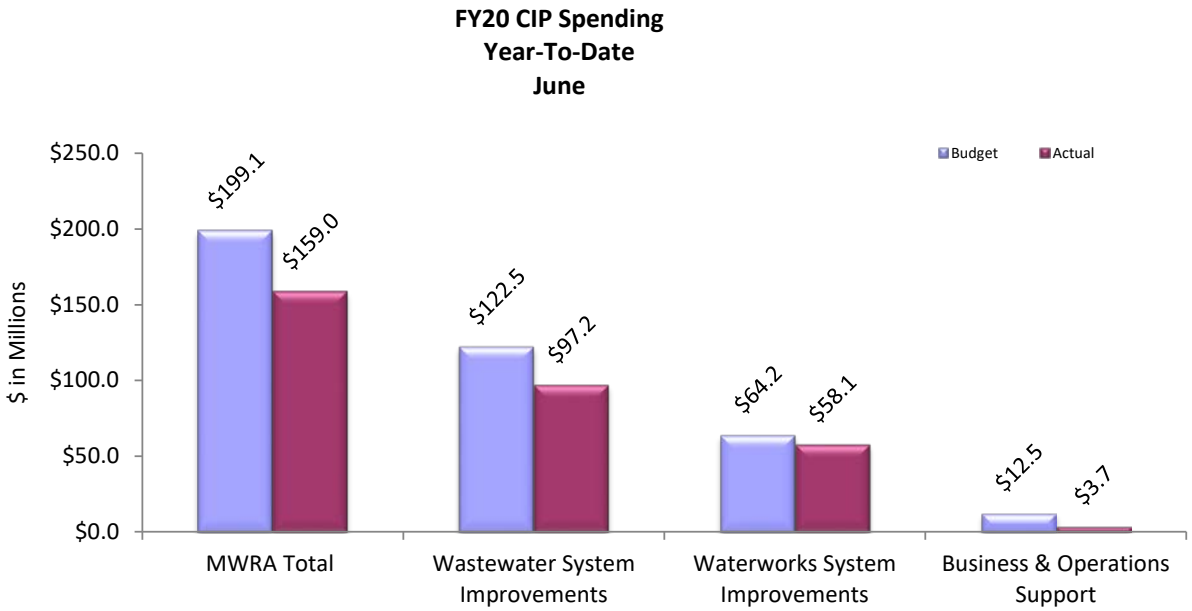
Revenue and Income

Revenues of $792.2 million were $46,000 or 0.1% under budget. Investment Income was $2.5 million or 16.2% under budget because of lower actual short-term and long-term interest rates of 1.74% vs. 2.27%. This is partially offset by Other Revenue, which was favorable to budget by $1.7 million or 30.3% due to Miscellaneous Revenue ($0.5 million), energy revenue for RPS credits ($0.4 million), income from the disposal of equipment ($0.4 million), Energy Rebates of ($0.2 million) and Operating Grants ($0.1 million). In addition, Other User Charges were over budget by $0.7 million or 8.6% due to Stoughton prepaying its entrance fee note.

FY20 Capital Improvement Program

Capital expenditures in Fiscal Year 2020 through June total $159.0 million, $40.1 million or 20.1% under budget.

After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) grant/loan program, the Local Water System Assistance loan program, and the community managed Combined Sewer Overflow (CSOs) projects, capital spending totaled $112.3 million, $49.5 million or 30.6% under budget.



Overall, CIP spending reflects the underspending in Wastewater Improvements ($25.3 million), Waterworks ($6.1 million) and Business and Operations Support ($8.7 million). Major variances in Wastewater are primarily due to delay in awards for the Deer Island Primary and Secondary Clarifier Construction, Prison Point CSO Rehabilitation, Nut Island Odor Control HVAC Improvements, Dorchester Interceptor Sewer Construction, Deer Island Motor Center Replacement, Wastewater Metering, Somerville Marginal In-Storage, and Dorchester I/I Removal projects, vibration issue with the Winthrop Terminal Facility VFD contract, and reduction in scope and schedule change for the Clinton Valve and Pipe Replacement Project. This was partially offset by timing for community requests for grants and loans for the I/I Local Financial Assistance Program, greater than anticipated progress on the Residuals Electrical/Mechanical/Drum Dryer Replacement, Pellet Conveyance Relocation, and Chelsea Creek Headworks Upgrades Construction.

Waterworks variances are primarily due to timing of community loan requests, updated schedules for CP-3 Sections 23, 24 and 47 Rehabilitation, CP-1 Shafts 6, 8, and 9A, and Carroll Water Treatment Plant Existing Facilities Modifications and Ancillary Modifications contracts, less than anticipated consultant progress due to scope change on Section 50/57 Water and Sections 21/20/19 Sewer Design CA/RI, and paving delays for the Southern Extra High Section 111 Phase 2 Construction. This was partially offset by contractor progress on the Southern Extra High Section 111 Construction 3, timing of final work for the Wachusett Aqueduct Pumping Station Design, and work scheduled in FY19 that was completed in FY20 for the Bellevue 2 & Turkey Hill Tanks Painting and Cosgrove Intake Roof Replacements.

FY20 Budget and FY20 Actual Variance by Program
(in millions)

$ in Millions	Budget	Actuals	$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	50.1	33.1	(17.0)	-33.9%
Treatment	34.1	14.2	(19.9)	-58.3%
Residuals	8.1	13.4	5.2	64.4%
CSO	4.5	1.3	(3.2)	-71.3%
Other	25.7	35.2	9.5	37.1%
Total Wastewater System Improvements	**$122.5**	**$97.2**	**($25.3)**	**-20.6%**
Waterworks System Improvements				
Drinking Water Quality Improvements	3.0	1.5	(1.4)	-47.9%
Transmission	15.1	12.8	(2.3)	-15.1%
Distribution & Pumping	31.5	26.6	(4.8)	-15.3%
Other	14.6	17.0	2.4	16.6%
Total Waterworks System Improvements	**$64.2**	**$58.1**	**($6.1)**	**-9.5%**
Business & Operations Support	**$12.5**	**$3.7**	**($8.7)**	**-70.1%**
Total MWRA	**$199.1**	**$159.0**	**($40.1)**	**-20.1%**

Totals may not add due to rounding

FY20 Spending by Program:

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

Wastewater Treatment: Net underspending of $19.9 million

- $12.1 million for Deer Island Clarifier Rehabilitation Phase 2 Construction: delay in contract award.
- $2.3 million for Deer Island Motor Control Center Switchgear Replacement Construction and ESDC, $1.0 million for Radio Repeater System Upgrade Phase 2, $0.7 million for South System Pump Station VFD Replacement Design, and $0.2 million for Eastern Seawall Design due to: schedule shifts.
- $1.1 million for Winthrop Terminal Facility VFD and Motors Replacements due to vibration issue with VFD No. 5.
- $1.0 million for Clinton Valves and Pipe Replacement due to project being re-scoped and updated schedule.
- $0.7 million for less than anticipated as-needed task order work.
- $0.6 million for Fire Alarm Replacement Construction due to schedule change and permitting issues.

- $0.5 million for Combined Heat and Power Energy Alternatives Study due to timing of work.
- $0.4 million for HVAC Equipment Replacement Design and $0.4 million for Expansion Joint Repair Construction 3 due to projects being re-scoped.
- This underspending was partially offset by overspending of $0.5 million for Clinton Roofing Rehabilitation due to work scheduled in FY19 that was completed in FY20, $0.5 million for Chemical Tank and Digester Pipe, $0.4 million for Gravity Thickener Rehabilitation, and $0.3 million for Gas Protection System Replacement Phase1 due to contractor progress.

Interception & Pumping: Net underspending of $17.0 million

- $7.9 million for Prison Point CSO Rehabilitation and ESDC, $3.5 million for Nut Island Odor Control HVAC Improvements Design/CA/RI and Construction and $3.1 million for Dorchester Interceptor Sewer Design and Construction, and $1.1 million for Wastewater Metering Replacement due to delay in construction awards.
- $0.4 million for Wastewater Metering Planning/Study for less than anticipated spending including police details, and $0.3 million for Wastewater Central Monitoring Design.
- $0.5 million for Fuel Oil Tank Replacement design due to delay of contract award and contractor mobilization.
- $0.3 million for Hayes Pump Station Rehab Design and $0.2 million for Siphon Structure Design due to revised schedules.
- $0.2 million for Ward St and Columbus Park Headworks Rehabilitation Design/CA due to updated schedule.
- This underspending was partially offset by overspending of $1.0 million for Sections 191 and 192 Rehabilitation due to contract award being greater than budgeted.

Other Wastewater: Net overspending of $9.5 million

- $9.5 million for Community I/I due to timing of community requests for grants and loans.

Business and Operations Support: Net underspending of $8.7 million

- $6.3 million for the timing and scheduling of MIS work, $1.2 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work, and $0.6 million for Security Equipment & Installation due to timing of security initiatives, and $0.2 million for Vehicle Purchases and $0.2 million for Lab Equipment due to timing.

Residuals: Net overspending of $5.2 million

- $3.4 million for Electrical, Mechanical, and Dryer Drum Improvements due to greater than anticipated contractor progress and engineering costs and $1.8 million for Pellet Conveyance Piping Relocation due to contractor progress.

Water Distribution and Pumping: Net underspending of $4.8 million

- $3.4 million for CP-3 Section 23, 24, and 47 Rehabilitation and CA/REI due to construction schedule change.
- $1.2 million for Sections 50, 57 Water and Sections 21, 20, 19 Sewer due to reduced scope and consultants scheduled tasks being less than anticipated.
- $0.2 million for Southern Extra High Service Section 111 Phase 2 due to paving delays

- $0.7 million for Sections 89 and 29 Redundancy Construction due to delay in paving and $0.5 million for NIH Section 89 and 29 Design/CA/RI due to less than anticipated contract administration/resident inspection budgeted spending.
- $0.4 million for Sections 25, 75, 59 and 60 Design due to boring program delayed pending receipt of base maps.
- $0.2 million for Cathodic Protection MetroWest Tunnel Shaft E and L for final work scheduled for FY20 that was completed in FY19.
- $0.2 million for Section 53 and 99 Connections Design due to delay in contract award.
- This underspending was partially offset by overspending of $1.8 million for Southern Extra High Section 111 Construction 3 due to contractor progress and $0.2 million for Section 56 Replacement/Saugus Design/CA for timing of consultant work.

Combined Sewer Overflow: Net underspending of $3.2 million

- $1.9 million for Dorchester Inflow Removal Construction and Somerville Marginal In-System Storage of $1.4 million due to updated schedules partially offset by $0.2 million for CSO Performance Assessment due to greater than anticipated consultant progress.

Other Waterworks: Net overspending of $2.4 million

- $1.7 million for the Local Water System Assistance Program due to timing of community loan requests.
- $0.6 million Bellevue 2/Turkey Hill Water Tank Painting and Improvements, $0.5 million for Cosgrove Intake Roof Replacement due to work scheduled in FY19 that was completed in FY20, and $0.2 million for Carroll Water Treatment Plant SCADA Design due to consultant progress.
- This overspending was partially offset by underspending of $0.3 million Steel Water Tanks Design due to updated schedule and $0.2 million for Deer Island Water Tank Painting due to a credit change order.

Waterworks Transmission: Net underspending of $2.3 million

- $1.0 million for CP-1 Shafts 6, 8 and 9A due to schedule change and re-bid of contract.
- $0.6 million for Weston Aqueduct Sluice Gates and $0.4 million for Wachusett Lower Gate House Pipe Replacement and $0.3 million for Waltham Water Pipeline Design due to schedule changes.
- $0.5 million for WASM 3 MEPA/Design/CA/RI due to consultant progress being less than anticipated, $0.2 million for Commonwealth Avenue Pumping Station Construction due to less than anticipated construction progress.
- $0.2 million for Chestnut Hill Emergency Pumping Station Design/CA due to longer than anticipated receipt of hydraulic information.
- This underspending was partially offset by overspending of $0.6 million for Wachusett Aqueduct Pumping Station due to timing of final work, $0.3 million for Commonwealth Ave Pumping Station Design and $0.2 million for Wachusett Dam Lower Gatehouse Interim Pipe Repair due to consultant and contractor progress.

Drinking Water Quality Improvements: Net underspending of $1.4 million

- $0.8 for CP-7 Existing Facilities Construction and $0.6 million for Ancillary Modifications Construction work due to updated schedules.

Construction Fund Balance

The construction fund balance was $141.5 million as of the end of June. Commercial Paper/Revolving Loan available capacity was $222 million.

ATTACHMENTS:

Attachment 1 – Variance Summary June 2020
Attachment 2 – Current Expense Variance Explanations
Attachment 3 – Capital Improvement Program Variance Explanations
Attachment 4 – FY20 Actuals vs. FY20 Projections

ATTACHMENT 1
FY20 Actuals vs. FY20 Budget

	Jun 2020 Year-to-Date				
	Period 12 YTD Budget	Period 12 YTD Actual	Period 12 YTD Variance	%	FY20 Approved
EXPENSES					
WAGES AND SALARIES	$ 109,953,483	$ 107,776,261	$ (2,177,222)	-2.0%	$ 109,953,483
OVERTIME	4,898,965	4,484,054	(414,911)	-8.5%	4,898,965
FRINGE BENEFITS	21,717,533	20,846,345	(871,188)	-4.0%	21,717,533
WORKERS' COMPENSATION	2,354,256	1,862,942	(491,314)	-20.9%	2,354,256
CHEMICALS	11,811,222	10,998,339	(812,883)	-6.9%	11,811,222
ENERGY AND UTILITIES	24,454,796	23,151,712	(1,303,084)	-5.3%	24,454,796
MAINTENANCE	32,726,954	29,737,299	(2,989,655)	-9.1%	32,726,954
TRAINING AND MEETINGS	504,394	288,045	(216,349)	-42.9%	504,394
PROFESSIONAL SERVICES	8,295,315	6,588,621	(1,706,694)	-20.6%	8,295,315
OTHER MATERIALS	6,867,239	5,697,624	(1,169,615)	-17.0%	6,867,239
OTHER SERVICES	24,683,370	24,306,370	(377,000)	-1.5%	24,683,370
TOTAL DIRECT EXPENSES	**$ 248,267,527**	**$ 235,737,612**	**$ (12,529,917)**	**-5.0%**	**$ 248,267,527**
INSURANCE	$ 2,611,222	$ 2,615,589	$ 4,367	0.2%	$ 2,611,222
WATERSHED/PILOT	26,833,600	22,075,059	(4,758,541)	-17.7%	26,833,600
HEEC PAYMENT	4,429,316	4,429,316	-	0.0%	4,429,316
MITIGATION	1,654,618	1,651,068	(3,550)	-0.2%	1,654,618
ADDITIONS TO RESERVES	2,094,284	2,094,284	-	0.0%	2,094,284
RETIREMENT FUND	7,315,000	7,315,000	-	0.0%	7,315,000
POST EMPLOYEE BENEFITS	5,962,457	5,962,457	-	0.0%	5,962,457
TOTAL INDIRECT EXPENSES	**$ 50,900,497**	**$ 46,142,773**	**$ (4,757,724)**	**-9.3%**	**$ 50,900,497**
STATE REVOLVING FUND	$ 92,797,294	$ 88,126,851	$ (4,670,443)	-5.0%	$ 92,797,294
SENIOR DEBT	202,299,609	242,220,498	39,920,889	19.7%	202,299,609
DEBT SERVICE ASSISTANCE	(890,235)	(890,235)	-	0.0%	(890,235)
CURRENT REVENUE/CAPITAL	15,200,000	15,200,000	-	0.0%	15,200,000
SUBORDINATE MWRA DEBT	169,609,845	146,194,843	(23,415,002)	-13.8%	169,609,845
LOCAL WATER PIPELINE CP	5,846,823	2,117,483	(3,729,340)	-63.8%	5,846,823
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%	3,217,060
VARIABLE DEBT	-	(8,763,344)	(8,763,344)	---	-
DEFEASANCE ACCOUNT	-	-	-	---	-
DEBT PREPAYMENT	5,000,000	5,000,000	-	0.0%	5,000,000
TOTAL DEBT SERVICE	**$ 493,080,396**	**$ 492,423,156**	**$ (657,240)**	**-0.1%**	**$ 493,080,396**
TOTAL EXPENSES	**$ 792,248,420**	**$ 774,303,541**	**$ (17,944,876)**	**-2.3%**	**$ 792,248,420**
REVENUE & INCOME					
RATE REVENUE	$ 761,767,000	$ 761,767,000	$ -	0.0%	$ 761,767,000
OTHER USER CHARGES	9,216,425	9,941,799	725,374	7.9%	9,216,425
OTHER REVENUE	5,761,022	7,508,368	1,747,346	30.3%	5,761,022
RATE STABILIZATION		-	-	---	-
INVESTMENT INCOME	15,503,973	12,985,469	(2,518,504)	-16.2%	15,503,973
TOTAL REVENUE & INCOME	**$ 792,248,420**	**$ 792,202,637**	**$ (45,783)**	**-0.01%**	**$ 792,248,420**

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD June	FY20 Actuals June	FY20 YTD Actual vs. FY20 Budget		Explanations
			$	%	
Direct Expenses					
Wages & Salaries	109,953,483	107,776,260	(2,177,223)	-2.0%	Wages and Salaries are under budget by $2.2 million. Year to date, there have been 19 fewer average FTEs (1,139 versus 1,158 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions.
Overtime	4,898,965	4,484,053	(414,912)	-8.5%	Lower spending mainly in Water Operations and Metro Maintenance of ($0.6 million) offset by higher spending for Deer Island ($0.1 million) for coverage during the HEEC cable installation, and Toxic Reduction and Control of ($0.1 million).
Fringe Benefits	21,717,533	20,846,345	(871,188)	-4.0%	Lower than budget in **Health Insurance** of $683,000, due to fewer than budgeted participants in health insurance plans, increased contribution by external new hires vs. lower contribution rates of staff retiring, and the shift from family to individual plans which are less expensive. In addition, **PFML** was under budget by $43,000 due to a delay in the start of plan contributions until 10/1/19. Also, **Unemployment Insurance** was under budget by $46,000.
Worker's Compensation	2,354,256	1,862,942	(491,314)	-20.9%	The lower expenses were due to favorable variances in **Compensation Payments** of $287,000, **Medical Payments** of $163,000, and **Administrative Expenses** of $72,000. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.
Chemicals	11,811,221	10,998,340	(812,881)	-6.9%	Lower than budget spending on **Sodium Hypochlorite** of $322,000 driven by Wastewater Operations and DITP mainly due to price;**Activated Carbon** of $271,000 driven by DITP ($227,000) due to improvements and continuing steps to optimize the odor control treatment process as well as timing and FOD ($44,000) due to lower than expected replacement cost at NITP; **Soda Ash** of $231,000 driven by CWTP is a result of lower dosing due to high raw water alkalinity combined with lower flows; and**Polymer** of $91,000 driven by less usage primarily at DITP and lower than anticipated us of **Hydrogen Peroxide** of $89,000 driven by DI. This is offset by higher than budget spending on **Ferric Chloride** of $200,000 driven by DITP to keep the orthophosphate levels in the digesters at the desired target levels and **Sodium Bisulfite** of $43,000 driven by DITP ($47,000) due to increasing inventory. DITP flows are 3.1% lower than the budget and CWTP flows are 2.9% less than the budget through June. It is important to note that Chemical variances are also based on deliveries which in general reflect the usage patterns. However, the timing of deliveries is an important factor.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD June	FY20 Actuals June	FY20 YTD Actual vs. FY20 Budget		Explanations
			$	%	
Utilities	24,454,796	23,151,712	(1,303,084)	-5.3%	Underspending in **Electricity** of $1.4 million primarily at DITP ($1.2 million) driven by new pricing from Eversource, primarily demand charges, and real time market prices for the non-block purchases under the Direct Energy contract. Also, Clinton Wastewater Treatment Plant ($156,000) is under budget primarily due to lower rates and quantity. **Diesel Fuel** is overspent by $71,000 driven by DITP ($490,000) due to timing of deliveries and replenishing the inventory used during the HEEC cable installation (the outage lasted 18 days vs. the 5 days anticipated) and additional purchases due to lower pricing, partially offset by underspending primarily in Wastewater Operations of ($398,000) due to lower pricing and less fuel needed than expected.
Maintenance	32,726,954	29,737,299	(2,989,655)	-9.1%	Underspending in **Ongoing Maintenance** by $3.0 million is largely driven by the timing of projects. *Maintenance Services* are under budget by $3.4 million driven by Plant and Machine Services ($1.5 million), Pipe Services ($0.7 million), **Secial Equipment Services** ($0.5 million), **Electrical Services** ($0.3 million), and **Computer Software Licenses** ($0.3 million). This is offset by *Maintenance Materials* which are over budget by $0.4 million, driven by **Plant and Machine Materials** ($0.5 million), partially offset by lower spending on **Computer Materials** ($0.2 million).
Training & Meetings	504,394	288,046	(216,348)	-42.9%	Lower than budget spending on **Training & Meetings** by $216,000 is driven by MIS ($71,000), Tunnel Redundancy ($41,000), Field Operations ($39,000), Deer Island ($21,000), and Emergency Preparedness ($14,000).
Professional Services	8,295,315	6,588,621	(1,706,694)	-20.6%	Lower than budget spending in **Computer Systems Consultant** of $745,000 in MIS; **Other Professional Services** of $468,000 in Administration, Finance, and Law; **Legal Services** of $232,000 in Law and Administration; and **Engineering** of $215,000 primarily in Treatment and Field Operations.
Other Materials	6,867,240	5,697,623	(1,169,617)	-17.0%	Driven by lower than budgeted spending **Computer Hardware** of $343,000 in MIS primarily due to timing, $310,000 for **Equipment/Furniture**, $308,000 for **Vehicle Expenses** and $153,000 for **Vehicle Purchases** primarily due to timing.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD June	FY20 Actuals June	FY20 YTD Actual vs. FY20 Budget		Explanations
			$	%	
Other Services	24,683,371	24,306,369	(377,002)	-1.5%	Lower than budgeted spending for **Telecommunication Services** of 295,000 in MIS and FOD, **Other Service**s of $233,000 for a number of services, and **Police Details** of $149,000, offset by Higher than budgeted spending for **Sludge Pelletizatio**n of $410,000 due to higher year-to-date quantities.
Total Direct Expenses	**248,267,528**	**235,737,610**	**(12,529,918)**	**-5.0%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD June	FY20 Actuals June	FY20 YTD Actual vs. FY20 Budget		Explanations
			$	%	
Indirect Expenses					
Insurance	2,611,222	2,615,588	4,366	0.2%	Higher Payments/Claims ($25,000) offset by lower Premiums ($21,000) than budgeted.
Watershed/PILOT	26,833,600	22,075,059	(4,758,541)	-17.7%	Lower Watershed Reimbursement of $4.8 million includes $1.6 million in prior period adjustments. FY20 favorable variance to budget of $3.2 million driven by lower spending on (1) Wages & Salaries, (2) Fringe Benefits, (3) Equipment, (4) Maintenance, (5) Professional Services, and (6) PILOT payments.
HEEC Payment	4,429,316	4,429,316	-	0.0%	
Mitigation	1,654,618	1,651,068	(3,550)	-0.2%	
Addition to Reserves	2,094,284	2,094,284	-	0.0%	
Pension Expense	7,315,000	7,315,000	-	0.0%	
Post Employee Benefits	5,962,457	5,962,457	-	0.0%	
Total Indirect Expenses	**50,900,497**	**46,142,772**	**(4,757,725)**	**-9.3%**	
Debt Service					
Debt Service	493,970,631	493,313,391	(657,240)	-0.1%	Debt service is $657,000 under budget, after $25.2 million of year-to-date savings was used to defease bonds in June. This savings is the result of lower than budgeted variable interest expense due to lower interest rates and and additional savings due to the timing of new money and SRF transactions. Senior debt service is over budget by $39.9 million as a result of the 2019 Series G refunding for savings which moved expenses from the subordinate to the senior lien and the impact of the defeasance. This increase is offset by a decrease of $23.4 million to the subordinate debt service expense.
Debt Service Assistance	(890,235)	(890,235)	-	0.0%	
Total Debt Service Expenses	**493,080,396**	**492,423,156**	**(657,240)**	**-0.1%**	
Total Expenses	**792,248,421**	**774,303,538**	**(17,944,883)**	**-2.3%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD June	FY20 Actuals June	FY20 YTD Actual vs. FY20 Budget		Explanations
			$	%	
Revenue & Income					
Rate Revenue	761,767,000	761,767,000	-	0.0%	
Other User Charges	9,216,425	9,941,799	725,374	7.9%	$1.1 million prepayment of entrance fee note by Stoughton.
Other Revenue	5,761,022	7,508,368	1,747,346	30.3%	Miscellaneous Revenue of $548,000 primarily associated with worker's compensation reimbursement for older claims; Energy Revenue for RPS credit of $411,000; Disposal of surplus materials of $393,000; $160,000 for Energy Rebates; and $107,000 in grant money (Commonwealth Operating Grant for $44,000 and DCR Aqueduct Trails Grant for $62,000).
Investment Income	15,503,973	12,985,470	(2,518,503)	-16.2%	Investment Income is under budget due to lower than budgeted interest rates (1.74% actual vs. 2.27% budget).
Total Revenue	**792,248,420**	**792,202,637**	**(45,783)**	**-0.01%**	
Net Revenue in Excess of Expenses	**(1)**	**17,899,099**	**17,899,100**		

Totals may not add up due to rounding

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Wastewater					
Interception & Pumping (I&P)	$50,091	$33,104	($16,987)	-33.9%	Underspending Prison Point Rehab - Construction: $7.5M, Fuel Oil Tank Replacement Construction Phase 1: $454k, Hayes Pump Station Rehabilitation Design: $250k, Siphon Structure Rehabilitation Design/CS/RI: $215k, and Ward Street & Columbus Park Headworks Design/CA: $247k (schedule shifts) Nut Island Odor Control & HVAC Improvements - Design/CA/REI and Construction: $3.5M, and Interceptor Renewal No. 3, Dorchester Interceptor Sewer - Design, CA/RI and Construction: $3.1M, and Wastewater Metering Asset Protection Equipment Purchases: $1.1M (delay in construction awards) Prison Point Rehabilitation - Design/CA/RI: $402k (delay in 100% Design Report review) Wastewater Meter System Planning/Study/Design: $404k, and Wastewater Central Monitoring Design & Programming Services: $281k (less than anticipated budgeted work) Chelsea Creek Headworks Upgrades - REI: $345k (less than budgeted resident engineering and inspection services) Offset Overspending Sections 191 & 192 Rehabilitation: $982k (contractor progress)

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Treatment	$34,126	$14,246	($19,880)	-58.3%	Underspending Clarifier Rehab Phase 2 - Construction and REI: $12.3M, Radio Repeater System Upgrade Phase 2: $1.0M, South System Pump Station VFD Replacement Design/ESDC/REI, $675k, and Eastern Seawall - Design/ESDC/REI: $249k (schedule shifts) Winthrop Terminal Facility VFD and Motors Replacements: $1.1M (vibration issue with VFD No. 5) Combined Heat and Power Energy Alternatives Study: $536k, and Motor Control Center Switchgear Replacement Construction and ESDC/REI $2.3M (timing of work) Clinton Valves and Pipe Replacement: $1.0M, and Deer Island HVAC - Design/ESDC: $419k (projects being re-scoped) Fire Alarm System Replacement - Construction: $619k (schedule change and permitting issues As-Needed Design: $710k (less than anticipated task order work) Expansion Joint Repair - Construction 3: $434k (contract defunded with scope of work incorporated into Clarifier Rehabilitation Phase 2 Construction contract) Offset Overspending Clinton Roofing Rehabilitation: $523k (work scheduled for FY19 performed in FY20) Chemical Tank and Digester Pipe: $529k, and Gravity Thickener Rehabilitation: $437k (contractor progress) Gas Protection System Replacement - Phase 1: $251k (pre-purchase of equipment)
Residuals	$8,130	$13,369	$5,239	64.4%	Overspending Residuals Electrical/Mechanical/Drum Replacements: $3.4M (contractor progress and greater than anticipated engineering costs) Pellet Conveyance Relocation: $1.8M (contractor progress)
CSO	$4,458	$1,277	($3,180)	-71.3%	Underspending Dorchester Inflow Removal Construction: $1.9M, and Somerville Marginal In-System Storage: $1.4M (updated schedules) Offset Overspending CSO Performance Assessment: $221K (greater than anticipated consultant progress)
Other Wastewater	$25,700	$35,239	$9,539	37.1%	Overspending I/I Local Financial Assistance: $9.5M (timing of community requests for grants and loans)
Total Wastewater	**$122,504**	**$97,234**	**($25,270)**	**-20.6%**	

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Waterworks					
Drinking Water Quality Improvements	$2,973	$1,549	($1,424)	-47.9%	Underspending Existing Facilities Modifications - CP7: $800k, and Carroll Water Treatment Plant Ancillary Modifications - Construction: $623k (updated schedules) Technical Assistance 9 & 10: $185k (timing of task order work)
Transmission	$15,135	$12,848	($2,287)	-15.1%	Underspending CP-1 Shafts 6, 8, and 9A: $969k, Weston Aqueduct Sluice Gates - Construction: $575k (schedule shift and rebid of contract), Wachusett Lower Gatehouse Pipe Replacement - Construction: $400k, Waltham Water Pipeline Design/CA: $321k, and Maintenance Garage/Wash Bay/Storage Building Design/CA/RI: $162k (schedule shifts) WASM 3 - MEPA/Design/CA/RI: $492k, and Commonwealth Avenue Pumping Station Improvements Construction: $213k (progress less than anticipated) Chestnut Hill Emergency Pump Station - Design/CA: $185k (longer than anticipated receipt of hydraulic information) Offset Overspending Wachusett Aqueduct Pump Station - Design/ESDC/RI: $581k (timing of final ESDC and RI services) Commonwealth Avenue Pump Station Redundancy - Design/CA/RI: $304k (timing of consultant work) Wachusett Dam Lower Gatehouse Interim Pipe Repair: $210k (contractor progress)

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Distribution & Pumping	$31,452	$26,631	($4,820)	-15.3%	Underspending SEH Redundancy Pipeline Section 111 - Construction Phase 2: $181k (paving delayed due to Eversource work) CP3-Sect 23,24,47, Rehabilitation and CA/RI: $3.4M (schedule change) Sections 50 & 57 Water & 21/20/19 Sewer Rehab - Design/CA/RI: $1.2M (reduced scope and less than anticipated consultant's scheduled tasks) Section 89 & 29 Redundancy Construction Phase 2: $679k (delay in paving), and Design/CA: $465k (Construction Administration and Resident Inspection services less than anticipated budgeted spending) Sections 25, 75, 59 & 60 Replacement - Design/CA: $376k (boring program delayed pending receipt of base maps) Cathodic Protection Shafts E & L: $212k (work scheduled for FY20 performed in FY19) Sections 53 and 99 Connections - Design/CA: $214K (delay in award) Offset Overspending SEH Redundancy Pipeline Section 111 - Construction Phase 3: $1.8M (contractor progress) Section 56 Replacement/Saugus Design/CA: $212k, and SEH Redundancy Pipeline Phase 1 - CA/Rl: $103k (timing of consultant work)
Other Waterworks	$14,607	$17,026	$2,419	16.6%	Offset Overspending Local Water Pipeline Financial Assistance Program: $1.7M (timing of requests for loans) Paint Bellevue II & Turkey Hill Tanks : $577k, and Cosgrove Intake Roof Replacement: $470k (work scheduled in FY19 performed in FY20) CWTP SCADA Upgrades - Design Programming RE: $199k (timing of work) Offset Underspending Steel Tanks Improvements - Design/CA: $300k (schedule shift) Deer Island Water Tank Repainting: $182k (timing of final work and pending credit change order)
Total Waterworks	**$64,166**	**$58,054**	**($6,111)**	**-9.5%**	

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Business & Operations Support					
Total Business & Operations Support	**$12,477**	**$3,733**	**($8,744)**	**-70.1%**	Underspending MIS Projects: $6.3M (timing of work) As-Needed Technical Assistance and CS/REI Services: $1.2M (timing of task order work) Security Equipment & Installation: $648k, Major Lab Instrumentation: $188k, and FY19-23 Vehicle Purchases: $159k (timing of purchases)
Total MWRA	**$199,147**	**$159,021**	**($40,125)**	**-20.1%**	

ATTACHMENT 4
FY20 Actuals versus FY20 Year-End Projections

TOTAL MWRA	FY20 Projection	FY20 Actual	Change FY20 Actual vs. FY20 Projection	
			$	%
EXPENSES				
WAGES AND SALARIES	$ 106,696,553	$ 107,776,260	$ 1,079,707	1.0%
OVERTIME	4,852,878	4,484,053	(368,825)	-7.6%
FRINGE BENEFITS	20,631,657	20,846,345	214,688	1.0%
WORKERS' COMPENSATION	2,354,256	1,862,942	(491,314)	-20.9%
CHEMICALS	11,313,756	10,998,340	(315,416)	-2.8%
ENERGY AND UTILITIES	23,557,561	23,151,712	(405,849)	-1.7%
MAINTENANCE	30,501,220	29,737,299	(763,921)	-2.5%
TRAINING AND MEETINGS	349,992	288,046	(61,946)	-17.7%
PROFESSIONAL SERVICES	6,463,033	6,588,621	125,588	1.9%
OTHER MATERIALS	5,695,049	5,697,623	2,574	0.0%
OTHER SERVICES	24,675,574	24,306,369	(369,205)	-1.5%
TOTAL DIRECT EXPENSES	**$ 237,091,528**	**$ 235,737,610**	**$ (1,353,918)**	**-0.6%**
INSURANCE	$ 2,511,222	$ 2,615,588	$ 104,366	4.2%
WATERSHED/PILOT	21,735,216	22,075,059	339,843	1.6%
HEEC PAYMENT	4,429,316	4,429,316	-	0.0%
MITIGATION	1,654,618	1,651,068	(3,550)	-0.2%
ADDITIONS TO RESERVES	2,094,284	2,094,284	-	0.0%
RETIREMENT FUND	7,315,000	7,315,000	-	0.0%
POSTEMPLOYMENT BENEFITS	5,962,457	5,962,457	-	0.0%
TOTAL INDIRECT EXPENSES	**$ 45,702,113**	**$ 46,142,772**	**$ 440,659**	**1.0%**
DEBT SERVICE				
STATE REVOLVING FUND (SRF)	$ 88,126,851	88,126,851	$ -	0.0%
SENIOR DEBT	217,019,403	242,220,498	25,201,095	11.6%
SUBORDINATE DEBT	137,964,119	137,431,499	(532,620)	-0.4%
LOCAL WATER PIPELINE CP	2,117,483	2,117,483	-	0.0%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
CURRENT REVENUE FOR CAPITAL	15,200,000	15,200,000	-	0.0%
DEBT PREPAYMENT	5,000,000	5,000,000	-	0.0%
DEBT SERVICE ASSISTANCE	(890,239)	(890,239)	-	0.0%
DEFEASANCE	25,201,083	-	(25,201,083)	-100.0%
TOTAL DEBT SERVICE	**$ 492,955,761**	**$ 492,423,152**	**(532,609)**	**-0.1%**
TOTAL EXPENSES	**$ 775,749,402**	**$ 774,303,534**	**$ (1,445,868)**	**-0.2%**
REVENUE & INCOME				
RATE REVENUE	$ 761,767,000	$ 761,767,000	$ -	0.0%
OTHER USER CHARGES	9,957,409	9,941,799	(15,610)	-0.2%
OTHER REVENUE	7,201,278	7,508,368	307,091	4.3%
RATE STABILIZATION	-		-	
INVESTMENT INCOME	13,303,973	12,985,470	(318,503)	-2.4%
TOTAL REVENUE & INCOME	**$ 792,229,660**	**$ 792,202,637**	**$ (27,023)**	**0.0%**
SURPLUS AFTER DEFEASANCE	**$ 16,480,257**	**$ 17,899,103**	**$ 1,418,846**	**8.6%**

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Fiscal Year 2020 Year-End Capital Improvement Program Spending Report

---

COMMITTEE: Administration, Finance & Audit

____VOTE
_X_ INFORMATION

David W. Coppes
Chief Operating Officer

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

Thomas J. Durkin
Director, Finance

At the end of each fiscal year, staff present the Board with a recap of the Capital Improvement Program (CIP).

FY20 was the second year of MWRA's five-year spending cap for FY19-23 established at $984.8 million. The FY20 capital budget was $199.1 million. The FY20 capital spending totaled $159.0 million, $40.1 million or 20.1% lower than budget.

In FY20, the Authority reached substantial completion on the Northern Intermediate High Section 89 & 29 Redundancy Phase 2 Construction, Southern Extra High Redundancy Pipeline Section 111 Phase 2, Bellevue 2 & Turkey Hill, and Deer Island Painting projects.

The Authority made significant progress on several major projects at Deer Island, including the Winthrop Terminal Facility Variable Frequency Drives Replacements and Gravity Thickener Rehabilitation, Chelsea Creek Upgrades Construction, Nut Island Odor Control and HVAC Improvements, and the Southern Extra High Redundancy Phase 3 water pipeline project.

In F20, MWRA managed 84 design and construction contracts and awarded 24 contracts valued at $122.4 million.

RECOMMENDATION:

For information only. The Fiscal Year 2020 Year-End Capital Program Spending Report highlights MWRA's major capital program accomplishments during FY20 and provides explanations for spending variances. *Please see Attachment A for the full Report.*

DISCUSSION:

Projects that were completed or reached substantial completion in FY20 included:

- Northern Intermediate High Sections 89 & 29 Redundancy Phase 2 Construction - $25.2 million
- Southern Extra High Section 111 Construction 2 - $18.8 million
- Painting Bellevue 2 and Turkey Hill Water Tanks - $4.2 million
- Painting Deer Island Water Tank - $2.4 million
- Remote Headworks Shaft Study –$1.4 million
- Deer Island As-Needed Design Contracts 8-1 and 8-2 - $1.4 million
- Generator Docking Station - $1.2 million
- Cosgrove Intake and Power Station Upgrades - $1.0 million
- Cathodic Protection Shafts E and L Construction - $0.9 million
- Clinton Roofing Rehabilitation - $0.8 million
- Gillis Pumping Station and Cottage Farm CSO Roof Replacement - $0.6 million
- Carroll Water Treatment Plant HVAC Replacement - $0.4 million
- Wachusett Dam Lower Gate House Interim Pipe Repair - $0.4 million
- Carroll Water Treatment Plant Emergency Generator #1 Replacement - $0.4 million

MWRA made significant progress on a number of water and wastewater projects, including:

- Nut Island Headworks Odor Contol & HVAC Improvements Construction – 8% complete
- Southern Extra High Redundancy Section 111 Phase 3 – 72 complete
- Residuals Electrical/Mechanical/Dryer Drum Replacements – 96% complete
- Residuals Pellet Conveyance Relocation – 82% complete
- Winthrop Terminal Facility Variable Frequency Drives Replacement – 75% complete
- Chelsea Headworks Upgrades – 78% complete
- Deer Island Gravity Thickener Rehabilitation – 62% complete

MWRA pipeline rehabilitated or constructed in FY20 totaled 0.2 miles for wastewater projects and 1.3 miles for water projects. *Please see Attachment D for a detailed breakdown of the linear footage of pipeline rehabilitated or constructed by project for FY20.*

Major contracts awarded by MWRA in FY20 with the following Notice to Proceed or Award dates include:

- Deer Island As-Needed Design 9-1 – July 2019
- Deer Island Chemical Tank Relining and Digester Pipe Replacement – August 2019
- Residuals Pellet Conveyance Relocation – August 2019

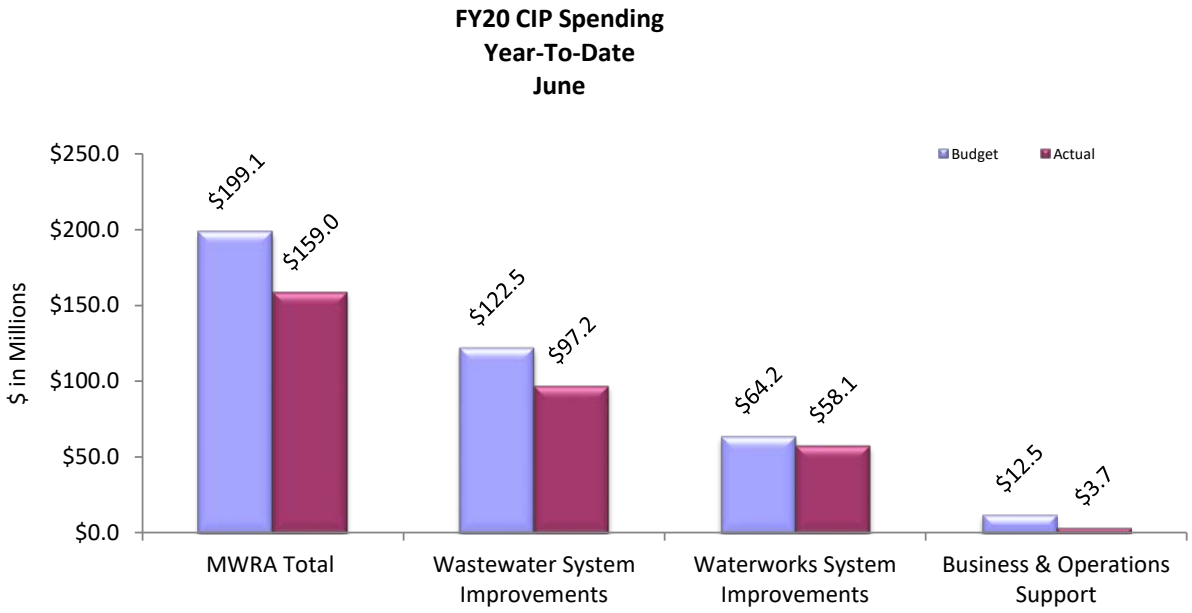
- Section 22 Rehabilitation Alternative Analysis and Environmental Review – September 2019
- Deer Island As-Needed Designs 9-2 and 9-3 – September 2019
- Deer Island Gas Protection System Replacement Phase 1 – September 2019
- Carroll Water Treatment Plant HVAC Replacement – September 2019
- Northern High Service Revere & Malden Pipeline Section 56 Replacement Saugus Design/Construction Administration – November 2019
- Quinopoxet Dam Removal Design/Engineering Services During Construction – November 2019
- Information Security Plan Implementation – October 2019
- Wachusett Lower Gatehouse Interim Pipe Replacement – October 2019
- Information Security Program Active Directory – January 2020
- Charles River Valley Sewer Sections 191 & 192 Rehabilitation – January 2020
- Nut Island Headworks Odor Control/HVAC Improvements Construction - February 2020
- Northern High Service Revere & Malden Pipeline Sections 53 and 99 Connections Design/Construction Administration – February 2020
- Fuel Oil Tank Replacement Construction 1 – March 2020
- Interceptor Renewal 3 Dorchester Interceptor Sewer Construction – April 2020
- Siphon Structure Rehabilitation Design/Construction Administration – April 2020
- Clinton Valves and Pipe Replacement – May 2020
- Metropolitan Tunnel Redundancy Preliminary Design & MEPA Review – May 2020
- Wachusett Dam Bastion Improvements Design/Engineering Services During Construction – May 2020
- Interceptor Renewal 7 Malden-Melrose Sections 42/42/49/54/65 Design/Construction Administration – June 2020
- Deer Island Eastern Seawall Design/Engineering Services During Construction/Resident Engineering Inspection – June 2020

Please see Attachment C FY20 Planned versus Actual/Revised CIP Notices to Proceed for a complete list of contracts awarded.

FY20 also included overall spending of $46.7 million for the community financial assistance programs on both the water and wastewater sides. Inflow and Infiltration (I/I) spending consisted of $29.6 million in grants and $10.7 million in loans offset by $5.1 million in prior period loan repayments for net spending of $35.2 million. The Local Water System Assistance Program spending was $29.94 million in loans, including CVA communities, offset by $18.4 million in prior period loan repayments for net spending of $11.4 million that includes Lead Service Line Replacement loans of $5.2 million.

Major Variances to FY20 Budget

For FY20, total Capital Improvement Program spending was budgeted at $199.1 million. Total spending was $159.0 million, which was $40.10 million or 20.1% below budget. Underspending was reported in Wastewater of $25.3 million, $6.1 million in Waterworks Improvements, and $8.7 million in Business and Operations Support.



The table below reports the FY20 spending and variances by major program:

$ in Millions	Budget	Actuals	$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	50.1	33.1	(17.0)	-33.9%
Treatment	34.1	14.2	(19.9)	-58.3%
Residuals	8.1	13.4	5.2	64.4%
CSO	4.5	1.3	(3.2)	-71.3%
Other	25.7	35.2	9.5	37.1%
Total Wastewater System Improvements	**$122.5**	**$97.2**	**($25.3)**	**-20.6%**
Waterworks System Improvements				
Drinking Water Quality Improvements	3.0	1.5	(1.4)	-47.9%
Transmission	15.1	12.8	(2.3)	-15.1%
Distribution & Pumping	31.5	26.6	(4.8)	-15.3%
Other	14.6	17.0	2.4	16.6%
Total Waterworks System Improvements	**$64.2**	**$58.1**	**($6.1)**	**-9.5%**
Business & Operations Support	**$12.5**	**$3.7**	**($8.7)**	**-70.1%**
Total MWRA	**$199.1**	**$159.0**	**($40.1)**	**-20.1%**

The $40.1 million variance is the net of $59.7 million in less than budgeted spending on 33 projects offset by $199.6 million in more than budgeted spending on 12 projects. The main reasons for the variances were:

Wastewater Treatment: Net underspending of $19.9 million

- $12.1 million for Deer Island Clarifier Rehabilitation Phase 2 Construction: delay in contract award.
- $2.3 million for Deer Island Motor Control Center Switchgear Replacement Construction and ESDC, $1.0 million for Radio Repeater System Upgrade Phase 2, $0.7 million for South System Pump Station VFD Replacement Design, and $0.2 million for Eastern Seawall Design due to: schedule shifts.
- $1.1 million for Winthrop Terminal Facility VFD and Motors Replacements due to vibration issue with VFD No. 5.
- $1.0 million for Clinton Valves and Pipe Replacement due to project being re-scoped and updated schedule.
- $0.7 million for less than anticipated as-needed task order work.
- $0.6 million for Fire Alarm Replacement Construction due to schedule change and permitting issues.
- $0.5 million for Combined Heat and Power Energy Alternatives Study due to timing of work.
- $0.4 million for HVAC Equipment Replacement Design and $0.4 million for Expansion Joint Repair Construction 3 due to projects being re-scoped.
- This underspending was partially offset by overspending of $0.5 million for Clinton Roofing Rehabilitation due to work scheduled in FY19 that was completed in FY20, $0.5 million for Chemical Tank and Digester Pipe, $0.4 million for Gravity Thickener Rehabilitation, and $0.3 million for Gas Protection System Replacement Phase1 due to contractor progress.

Interception & Pumping: Net underspending of $17.0 million

- $7.9 million for Prison Point CSO Rehabilitation and ESDC, $3.5 million for Nut Island Odor Control HVAC Improvements Design/CA/RI and Construction and $3.1 million for Dorchester Interceptor Sewer Design and Construction, and $1.1 million for Wastewater Metering Replacement due to delay in construction awards.
- $0.4 million for Wastewater Metering Planning/Study for less than anticipated spending including police details, and $0.3 million for Wastewater Central Monitoring Design.
- $0.5 million for Fuel Oil Tank Replacement design due to delay of contract award and contractor mobilization.
- $0.3 million for Hayes Pump Station Rehab Design and $0.2 million for Siphon Structure Design due to revised schedules.
- $0.2 million for Ward St and Columbus Park Headworks Rehabilitation Design/CA due to updated schedule.
- This underspending was partially offset by overspending of $1.0 million for Sections 191 and 192 Rehabilitation due to contract award being greater than budgeted.

Other Wastewater: Net overspending of $9.5 million

- $9.5 million for Community I/I due to timing of community requests for grants and loans.

Business and Operations Support: Net underspending of $8.7 million

- $6.3 million for the timing and scheduling of MIS work, $1.2 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work, and $0.6 million for Security Equipment & Installation due to timing of security initiatives, and $0.2 million for Vehicle Purchases and $0.2 million for Lab Equipment due to timing.

Residuals: Net overspending of $5.2 million

- $3.4 million for Electrical, Mechanical, and Dryer Drum Improvements due to greater than anticipated contractor progress and engineering costs and $1.8 million for Pellet Conveyance Piping Relocation due to contractor progress.

Water Distribution and Pumping: Net underspending of $4.8 million

- $3.4 million for CP-3 Section 23, 24, and 47 Rehabilitation and CA/REI due to construction schedule change.
- $1.2 million for Sections 50, 57 Water and Sections 21, 20, 19 Sewer due to reduced scope and consultants scheduled tasks being less than anticipated.
- $0.2 million for Southern Extra High Service Section 111 Phase 2 due to paving delays
- $0.7 million for Sections 89 & 29 Redundancy Construction due to delay in paving and $0.5 million for NIH Section 89 and 29 Design/CA/RI due to less than anticipated contract administration/resident inspection budgeted spending.
- $0.4 million for Sections 25, 75, 59, and 60 Design due to boring program delayed pending receipt of base maps.
- $0.2 million for Cathodic Protection Metro West Tunnel Shaft E & L for final work scheduled for FY20 that was completed in FY19.
- $0.2 million for Section 53 and 99 Connections Design due to delay in contract award.
- This underspending was partially offset by overspending of $1.8 million for Southern Extra High Section 111 Construction 3 due to contractor progress, and $0.2 million for Section 56 Replacement/Saugus Design/CA for timing of consultant work.

Combined Sewer Overflow: Net underspending of $3.2 million

- $1.9 million for Dorchester Inflow Removal Construction and Somerville Marginal In-System Storage of $1.4 million due to updated schedules partially offset by $0.2 million for CSO Performance Assessment due to greater than anticipated consultant progress.

Other Waterworks: Net overspending of $2.4 million

- $1.7 million for the Local Water System Assistance Program due to timing of community loan requests.
- $0.6 million Bellevue 2/Turkey Hill Water Tank Painting and Improvements, $0.5 million for Cosgrove Intake Roof Replacement due to work scheduled in FY19 that was completed in FY20, and $0.2 million for Carroll Water Treatment Plant SCADA Design due to consultant progress.
- This overspending was partially offset by underspending of $0.3 million Steel Water Tanks Design due to updated schedule and $0.2 million for DI Water Tank Painting due to credit change order.

Waterworks Transmission: Net underspending of $2.3 million

- $1.0 million for CP-1 Shafts 6, 8, and 9A due to schedule change and re-bid of contract.
- $0.6 million for Weston Aqueduct Sluice Gates and $0.4 million for Wachusett Lower Gate House Pipe Replacement and $0.3 million for Waltham Water Pipeline Design due to schedule changes.
- $0.5 million for WASM 3 MEPA/Design/CA/RI due to consultant progress being less than anticipated, $0.2 million for Commonwealth Avenue Pumping Station Construction due to less than anticipated construction progress.
- $0.2 million for Chestnut Hill Emergency Pumping Station Design/CA due to longer than anticipated receipt of hydraulic information.
- This underspending was partially offset by overspending of $0.6 million for Wachusett Aqueduct Pumping Station due to timing of final work, $0.3 million for Commonwealth Ave Pumping Station Design and $0.2 million for Wachusett Dam Lower Gatehouse Interim Pipe Repair due to consultant and contractor progress.

Drinking Water Quality Improvements: Net underspending of $1.4 million

- $0.8 for CP-7 Existing Facilities Construction and $0.6 million for Ancillary Modifications Construction work due to updated schedules.

Please see Attachment B for detailed FY20 CIP variance explanations of all FY20 projects.

FY21 Outlook

Looking ahead to FY21, the projected capital spending is $278.3 million including contingency of $12.1 million. Projects with the largest budgeted spending in FY21 include Facility Asset Protection of $46.5 million, Deer Island Treatment Plant Asset Protection of $36.4 million, Local Water System Assistance Program of $33.2 million, Infiltration/Inflow Local Financial Assistance of $32.0 million, Corrosion and Odor Control of $21.3 million, and Metropolitan Redundancy Interim Improvements of $11.9 million.

Staff will be completing the design and progressing to the bid and award stage on several major projects such as Deer Island Treatment Plant (DITP) Clarifier Rehabilitation Phase 2 Construction, Prison Point CSO Rehabilitation Construction, DITP Fire Alarm System Construction, Ward St & Columbus Park Headworks Design/Construction Administration, Northern Intermediate High Sections 89 & 29 Replacement Construction, New Connecting Mains Shaft 7 to WASM 3 CP3 Sections 23,24,47 Rehabilitation, Weston Aqueduct Supply Mains 3 CP-1, Carroll Water Treatment Plant SCADA Upgrade Construction, and DI Motor Control Center & Switchgear Replacement Construction.

Please see Attachment E for FY21 Planned Contract Awards.

ATTACHMENTS:

A. Fiscal Year 2020 Year-End Capital Program Spending Report
B. FY20 CIP Year-End Variance Report
C. FY20 Planned versus Actual/Revised Contract Awards
D. Linear Footage of Rehabilitated or New Pipelines in FY20
E. FY21 Planned Capital Contract Awards

MASSACHUSETTS **W**ATER **R**ESOURCES **A**UTHORITY

Capital Program Spending Report

for

Fiscal Year 2020

September 16, 2020

Fiscal Year 2020 Year-End Capital Program Spending Report

Table of Contents –

Introduction

Since its inception in 1986, MWRA has expended $8.5 billion on capital initiatives. Of this spending 71% has supported improvements to Wastewater treatment, interception, pumping and combined sewer overflow (CSO) systems, 27% has supported Waterworks treatment, transmission, distribution and water protection improvements, and 2% has supported Business and Operations Support initiatives. Through FY20, nearly 80% of the capital spending has been for court mandated projects. The long-term strategy for capital work is identified in the Authority's Master Plan which was first published in 2006, updated in 2013 and 2019, and serves as a road map for inclusion of projects in the Capital Improvement Program (CIP) in every budget cycle. Going forward, MWRA expects to spend $2.3 billion on system improvements between FY21-FY30 with main emphasis on Asset Protection and Water System Redundancy initiatives including the Metropolitan Tunnels Long-Term Redundancy Project.

MWRA Capital Spending FY1986 - FY2030 (in millions)

	Expenditures FY86 - FY20		Planned Expenditures FY21 - FY30	
Program	Amount	% of Total	Amount	% of Total
Wastewater	$6,085	71%	$1,602	40%
Waterworks	$2,403	27%	$2,299	58%
Business & Operations Support	$140	2%	$62	2%
Total MWRA	**$8,628**	**100%**	**$3,962**	**100%**

To date, MWRA has spent $905.1 million on the Wastewater CSO program and plans to spend an additional $7.4 million through FY25.

To date, MWRA has distributed $228.9 million in grants and $211.9 million in no-interest loans to fund 605 separate projects in 43 communities under the I/I Local Financial Assistance Program. Additionally, $453.0 million in Local Water Pipeline Assistance Program loans has been distributed to member communities.

FY20 Spending

Total CIP spending in FY20 was $159.0 million which was $40.1 million or 20.1% less than the $199.1 million budgeted.

Spending by program in FY20 was:

Program	FY20 Budget (in millions)	FY20 Actuals (in millions)	Variance	% Variance
Wastewater	$122.5	$97.2	($25.3)	-20.6%
Waterworks	$64.2	$58.1	($6.1)	-9.5%
Business & Operations Support	$12.5	$3.7	($8.7)	-70.1%
Total	**$199.1**	**$159.0**	**($40.1)**	**-20.1%**

FY20 included spending of $46.7 million not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) program and the Local Water Pipeline programs. These programs are either loan or grant programs to support the MWRA's member communities' local water and sewer infrastructure. In FY20, MWRA expended $40.6 million in water and I/I loans and $29.6 million in I/I grants offset by $23.5 million in prior period loan repayments for net spending of $46.7 million. After accounting for programs which are not directly under MWRA's control, the FY20 CIP underspending is $49.5 million or 30.6%.

FY20 Capital Program Highlights

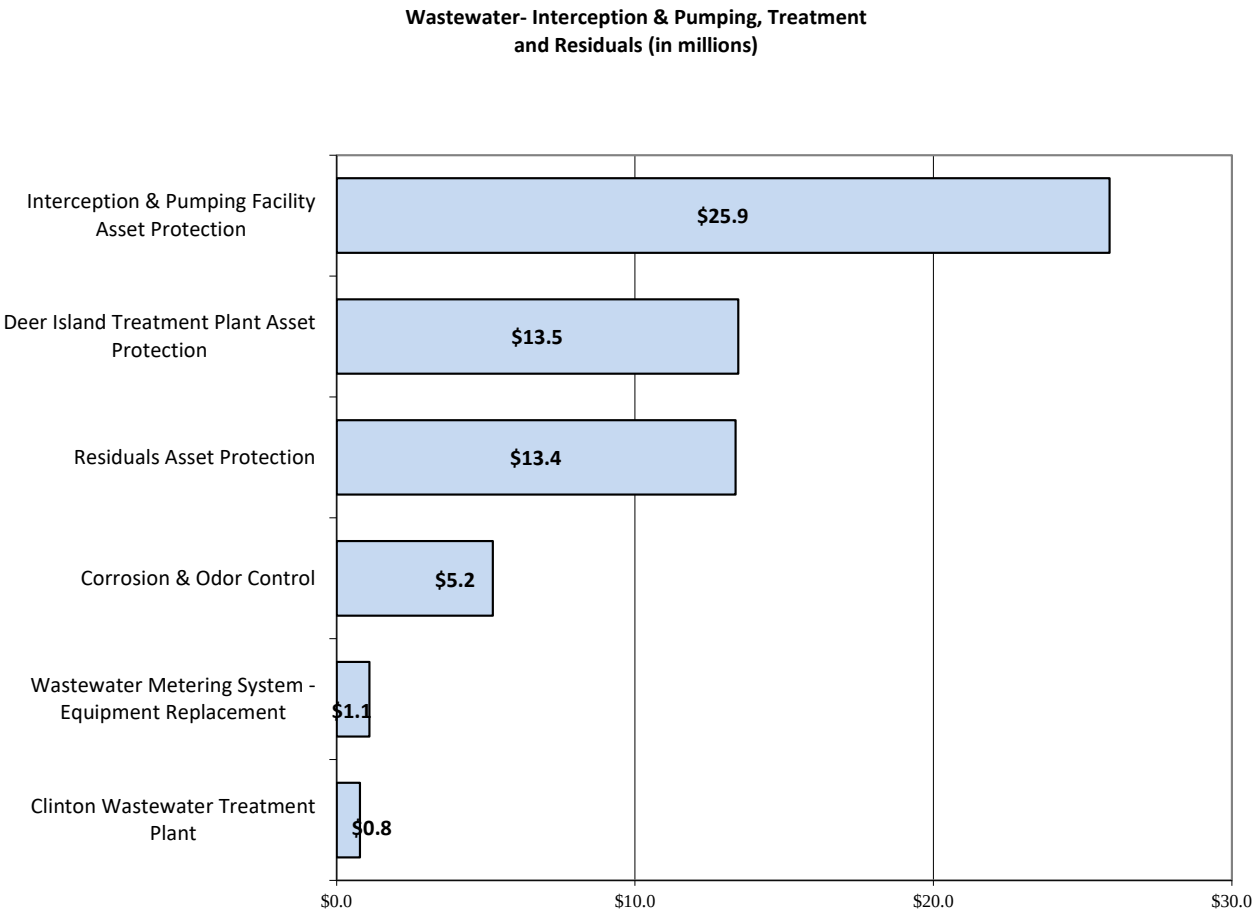
This section highlights the spending and key accomplishments by major program categories and projects.

Wastewater System

During FY20, the MWRA spent $97.2 million on Wastewater system projects: $33.1 million for Interception & Pumping projects, $14.2 million for Treatment projects, 5.28 million for Residuals, $3.2 million for CSO projects, and $35.2 million for Other Wastewater projects.

Wastewater Interception & Pumping, Treatment, and Residuals Projects

Total FY20 spending for Interception & Pumping was $33.1 million, Treatment was $14.2 million, and Residuals was $5.2 million. The largest spending occurred on the following:



Key Accomplishments in Wastewater - Interception and Pumping:

- Nut Island Headworks Odor Contol/HVAC Improvements Construction
    - NTP issued in September 2019

- Charles River Valley Sewer Sections 191 & 192 Rehab.
    - NTP issued in January 2020

- Fuel Oil Tank Replacement Construction 1
    - NTP issued in March 2020

- Interceptor Renewal 3 Dorchester Interceptor Sewer Construction
    - NTP issued in April 2020

- Siphon Structure Rehabilitation Design/Construction Administration
    - NTP issued in April 2020
- Remote Headworks Shaft Study
    - Substantially complete in June 2020

- Interceptor Renewal 7 Malden-Melrose Sections 41/42/49/54/65 Design/Construction Administration
    - Awarded in June 2020

- Chelsea Creek Headworks Upgrades Construction
    - Significant progress was made on project in FY20 – contract 78% complete

- Nut Island Headworks Odor Contol and HVAC Improvements Construction
    - Significant progress was made on project in FY20 – contract 8% complete

***Key Accomplishments in Wastewater – Treatment and Residuals*:**

- DI As-Needed Designs 8-1 and 8-2
    - Substantially completed in July 2019

- Deer Island As-Needed Design 9-1
    - NTP issued in July 2019

- DI Chemical Tank Relining and Digester Pipe Replacement
    - NTP issued in August 2019

- DI As-Needed Designs 9-2 and 9-3
    - NTPs issued in September 2019

- DI Gas Protection System Replacement Phase 1
    - NTP issued in September 2019

- Clinton Roofing Rehabilitation
    - Substantially complete in September 2019

- Clinton Valves and Pipe Replacement
    - Awarded in May 2020

- Eastern Seawall Design/ESDC/REI
    - Awarded in June 2020

- Residuals Electrical/Mechanical/Dryer Drum Replacements
    - Significant progress was made on project in FY20 – contract 96% complete
- Residuals Pellet Conveyance Relocation
    - Significant progress was made on project in FY20 – contract 82% complete
- Gravity Thickener Rehabilitation
    - Significant progress was made on project in FY20 – contract 62% complete
- DITP Winthrop Terminal Facility Variable Frequency Drives Replacement Construction
    - Significant progress was made on project in FY20 – contract 75% complete

Wastewater System – Combined Sewer Overflow (CSO) Projects

Total FY20 spending for CSO projects was $1.3 million which was primarily for the CSO Performance Assessment which began in November 2017.

Key Accomplishments in CSO:

- All CSO sewer separation reached substantial completion in FY16 in compliance with Schedule Seven of the Federal Court's Orders in the 1985 Clean Water Act enforcement action. MWRA is currently required to submit bi-annual compliance and progress reports through December 2020. In addition, the CSO Performance Assessment commenced in November 2017. The Somerville Marginal In-System Storage agreement was approved in August 2018.

Wastewater - Other

In FY20, this category includes spending only for the community managed Infiltration/Inflow (I/I) Local Financial Assistance Program.

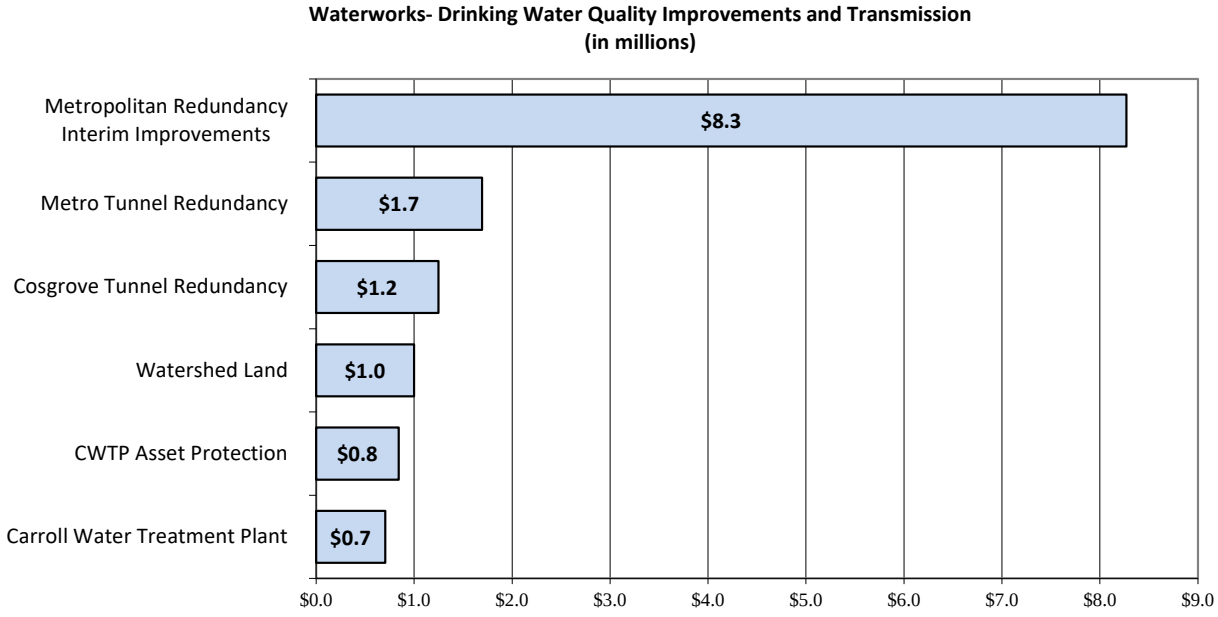
In FY20, MWRA distributed $29.6 million in grants and $10.7 million in no-interest loans which is offset by repayment of prior-period loans of $5.1 million resulting in net spending of $35.2 million.

Waterworks System

During FY20, the MWRA spent $58.0 million on Waterworks system projects: $1.6 million for Drinking Water Quality Improvement projects, $12.8 million for Transmission projects, $26.6 million for Distribution and Pumping projects, and $17.0 million for Other Waterworks projects.

Waterworks System – Drinking Water Quality Improvements and Transmission

Total FY20 spending for Drinking Water Quality Improvements and Transmission projects was $1.6 million and $12.8 million, respectively. Projects with the largest spending are listed below:



Key Accomplishments in Drinking Water Quality Improvements:

- Carroll Water Treatment Plant HVAC Replacement
    - SNTP issued in September 2019 and substantially complete in April 2020

- Carroll Water Treatment Plant Emergency Generator #1 Replacement
    - Substantially complete in May 2020.

Key Accomplishments in Transmission:

- Quinopoxet Dam Removal Design/Engineering Services During Construction
    - NTP issued in November 2019

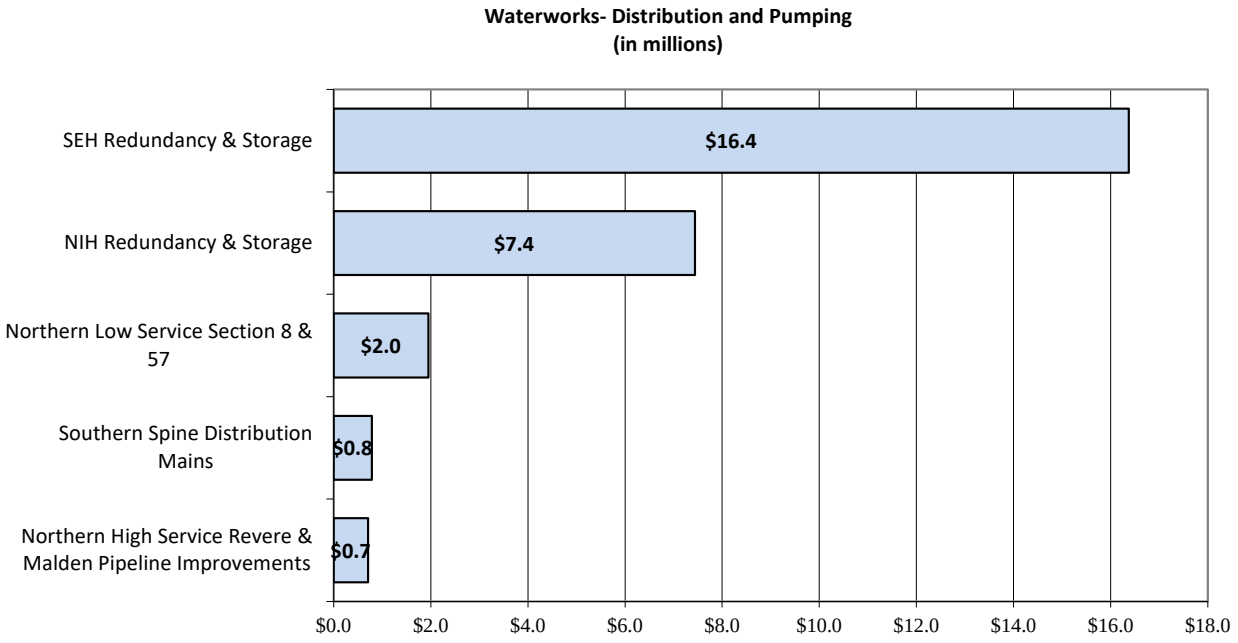
- Metropolitan Tunnel Redundancy Preliminary Design & MEPA Review
    - Contract was awarded in May 2020

- Wachusett Dam Bastion Improvements Design/Engineering Services During construction
    - NTP issued in May 2020

- Wachusett Dam Lower Gate House Interim Pipe Repair
    - NTP issued in October 2019 and substantially complete in June 2020

Waterworks System - Distribution and Pumping

Total FY20 spending for Distribution and Pumping projects totaled $26.6 million. Projects with the largest spending are listed below:



Key Accomplishments in Distribution and Pumping:

- Cathodic Protection Shafts E and L Construction
    - Substantially complete in August 2019

- Section 22 Rehabilitation Alternative Analysis and Environmental Review
    - NTP issued in September 2019

- Northern High Service Revere & Malden Pipeline Section 56 Replacement Saugus Design/ Construction Administration
    - NTP issued in November 2019

- Northern High Service Revere & Malden Pipeline Sections 53 and 99 Connections Design/ Construction Administration
    - NTP issued in February 2020

- Southern Extra High Redundancy Section 111 Construction 2
    - Substantially complete in May 2020

- Northern Intermediate High Section 89 & 29 Redundancy – Phase 2 Construction

- Substantially complete in June 2020

- Southern Extra High Redundancy – Section 111 Phase 3 Construction
  - Significant progress was made on project in FY20 – contract 72% complete.

Waterworks – Other

Total FY20 spending for Waterworks Other totaled $17.0 million.

This category includes the community assistance program for the local water pipelines and other MWRA Waterworks projects.

In FY20, MWRA distributed $29.8 million in Local Water Pipeline Assistance Program loans to member communities offset by repayment of prior-period loans of $18.4 million which resulted in total net receipts of $11.4 million.

- Gillis Pumping Station/Cottage Farm CSO Roof Replacement
  - NTP issued in July 2019 and substantially complete in May 2020

- Paint Bellevue 2 and Turkey Hill Tanks Painting
  - Substantially complete in September 2019

- Cosgrove Intake and Power Station Upgrades
  - Substantially complete in September 2019

- Paint Deer Island Water Tank
  - Substantially complete in November 2019

- Generator Docking Station
  - Substantially complete in April 2020

- Generator Docking Station Resident Engineering/Inspection
  - Substantially complete in May 2020

Business & Operations Support

Total FY20 spending for Business and Operations Support totaled $3.7 million.

Key Accomplishments in Business & Operations Support:

- Information Security Plan Implementation
  - NTP issued in October 2019

- Information Security Program Active Directory

- NTP issued in January 2020

Total New or Rehabilitated Pipeline

In addition to measuring spending on CIP projects, MWRA tracks the mileage of pipeline that is rehabilitated or added to its infrastructure. During FY20, the MWRA rehabilitated or constructed 0.2 miles of wastewater pipeline and 1.3 miles of water pipeline. These numbers do not include the rehabilitated or replaced pipelines of our member communities which are funded through our Inflow/Infiltration (I/I) and Water Loan programs as referenced above. *Refer to Attachment D for the specific linear footage of rehabilitated or new pipelines by project in FY20.*

FY20 Spending Variances

Total FY20 capital spending was $159.0 million which was $40.1 million or 20.1% less than the $199.1 million budget. The variance is primarily due to underspending for the Deer Island Treatment Plant Asset Protection, Interception & Pumping Facility Asset Protection, and Metropolitan Redundancy Interim Improvements, partially offset by greater community requests for loans and grants for the Infiltration/Inflow (I/I) Local Financial Assistance Program, Residuals Asset Protection, and greater than anticipated loans for the Local Water System Assistance Program.

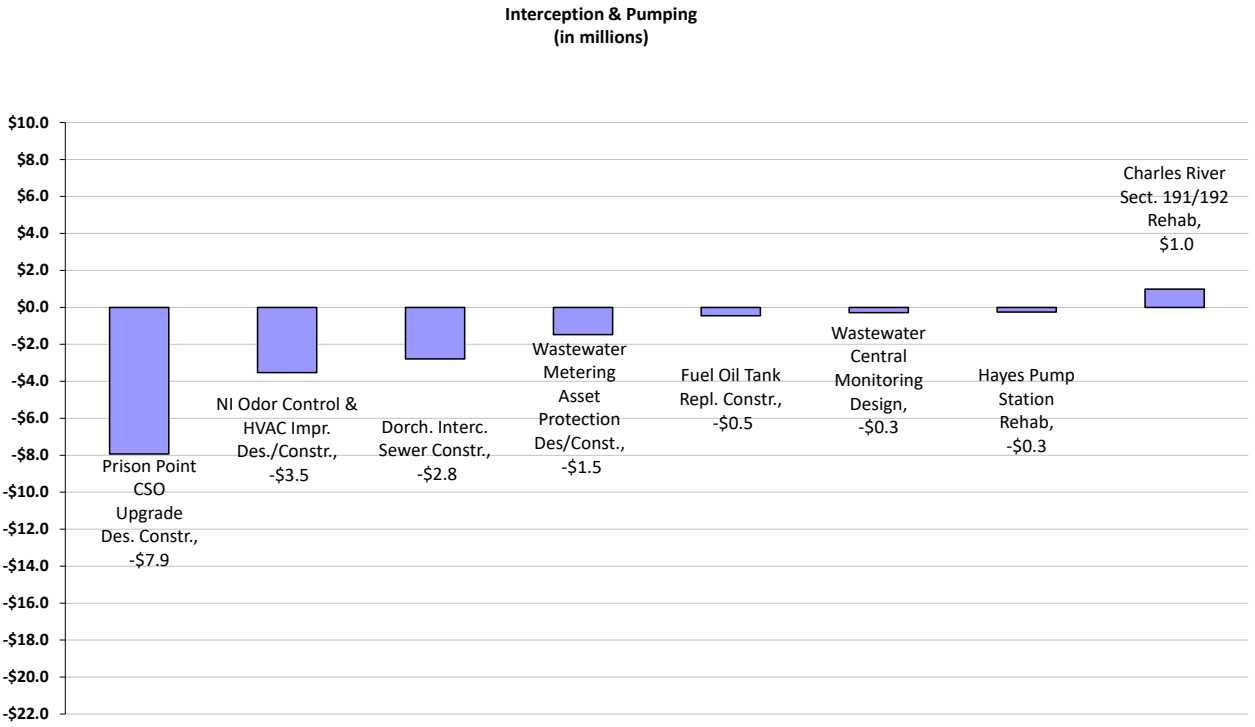
FY20 Spending Variances ($000s)

Program	Budgeted Spending	Actual Spending	Variance to Budget		% Actual Spending to Total Spending
			$	%	
Total Wastewater System	**$122,504**	**$97,234**	**($25,270)**	**-20.6%**	**61%**
Interception & Pumping	$50,091	$33,104	($16,987)	-33.9%	21%
Treatment	$34,126	$14,246	($19,880)	-58.3%	9%
Residuals	$8,130	$13,369	$5,239	0.0%	8%
Combined Sewer Overflow	$4,458	$1,277	($3,180)	-71.3%	1%
Other Wastewater Programs	$25,700	$35,239	$9,539	37.1%	22%
Total Waterworks System	**$64,166**	**$58,054**	**($6,111)**	**-9.5%**	**37%**
Drinking Water Quality Improvements	$2,973	$1,549	($1,424)	-47.9%	1%
Transmission	$15,135	$12,848	($2,287)	-15.1%	8%
Distribution and Pumping	$31,452	$26,631	($4,820)	-15.3%	17%
Other Waterworks Programs	$14,607	$17,026	$2,419	16.6%	11%
Business & Operations Support	**$12,477**	**$3,733**	**($8,744)**	**-70.1%**	**2%**
Total MWRA	**$199,147**	**$159,021**	**($40,125)**	**-20.1%**	**100%**

FY20 Variances for Major Projects

Please see Attachment B for the full FY20 CIP variance explanations by project.

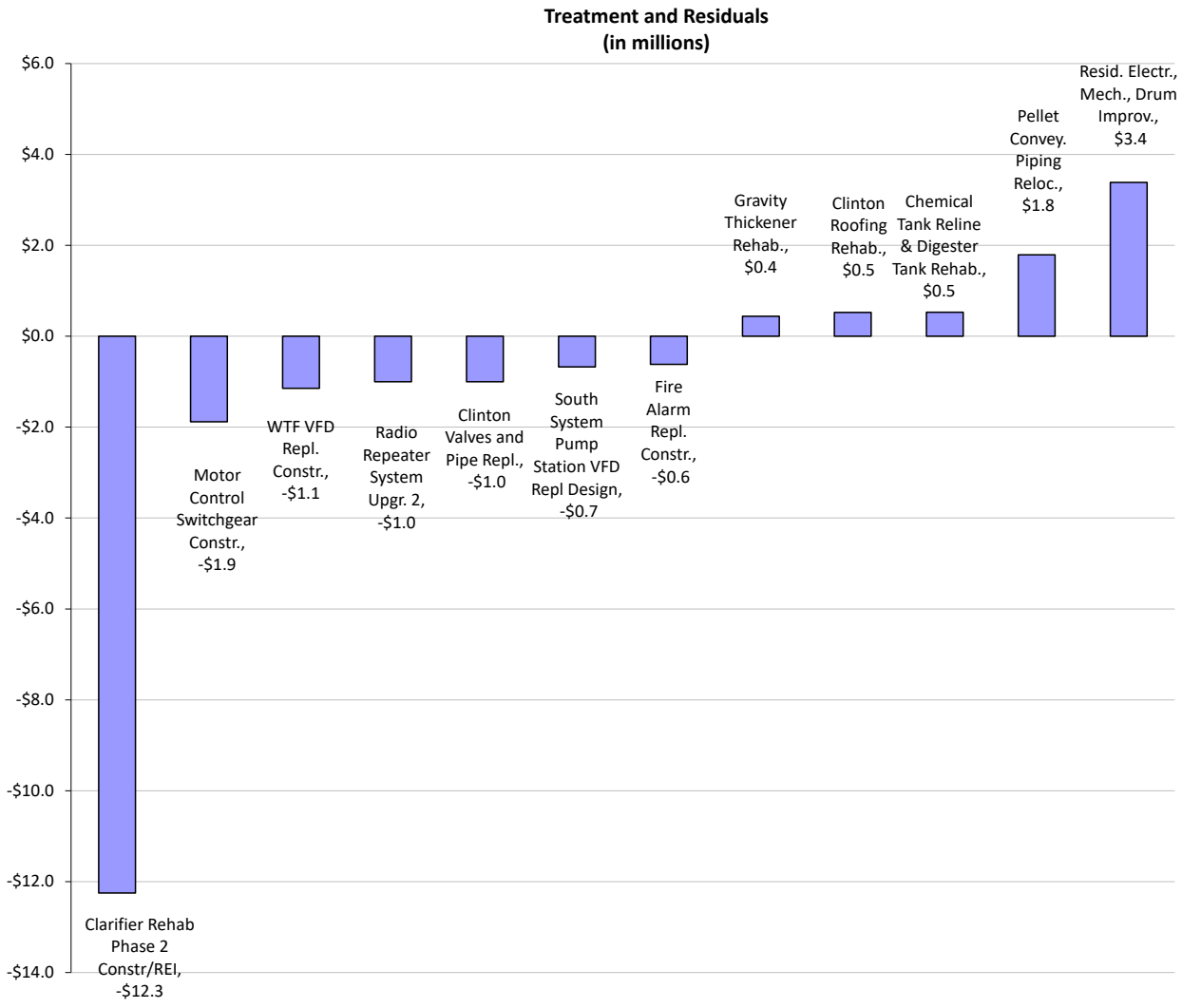
Wastewater - Interception & Pumping



- Total FY20 Budget: $50.1 million
- Total FY20 Expended: $33.1 million
- $17.0 million less than budgeted spending
  - Underspending in Interception & Pumping Facility Asset Protection totaling $11.5 million, including
    - $7.9 million for Prison Point CSO Rehabilitation and ESDC, $3.5 million for Nut Island Odor Control HVAC Improvements Design/CA/RI and Construction and $3.1 million for Dorchester Interceptor Sewer Design and Construction, and $1.5 million for Wastewater Metering Replacement Planning/Study and Construction: delay in construction awards.
    - $0.3 million for Wastewater Central Monitoring Design: less than anticipated spending.
    - $0.5 million for Fuel Oil Tank Replacement design: delay of contract award and contractor mobilization.
    - $0.3 million for Hayes Pump Station Rehab Design: revised schedule.

- This underspending was partially offset by overspending of $1.0 million for Sections 191 and 192 Rehabilitation due to contract award being greater than budgeted.

Wastewater – Treatment



Deer Island Treatment Plant Asset Protection:

- Total FY20 Budget: $32.9 million
- Total FY20 Expended: $13.5 million
- $19.4 million less than budgeted spending
  - Underspending on various projects, including
    - $12.3 million for Clarifier Rehabilitation Phase 2 Construction and REI: Updated schedules

- $2.3 million for DI Motor Control Center Switchgear Replacement Construction and ESDC, $1.0 million for Radio Repeater System Upgrade Phase 2, $0.7 million for South System Pump Station VFD Replacement Design: schedule shifts
- $1.1 million for Winthrop Terminal Facility VFD and Motors Replacements: vibration issue with VFD No. 5.
- $1.0 million for Clinton Valves and Pipe Replacement: project re-scoped and updated schedule.
- $0.6 million for Fire Alarm Replacement Construction: schedule change and permitting issues.
- Offset by overspending of $0.5 million for Chemical Tank and Digester Pipe, and $0.4 million for Gravity Thickener Rehabilitation due contractor progress.

Clinton Wastewater Treatment Plant:

- Total FY20 Budget: $1.3 million
- Total FY20 Expended: $0.8 million
- Less than budgeted spending primarily due to $1.0 million for Clinton Valves and Pipe Replacement due to project being re-scoped and updated schedule partially offset by overspending of $0.5 million for Clinton Roofing Rehabilitation due to work scheduled in FY19 that was completed in FY20.

Residuals Asset Protection:

- Total FY20 Budget: $8.1 million
- Total F20 Expended: $13.4 million
- Less than budgeted spending primarily $3.4 million for Electrical, Mechanical, and Dryer Drum Improvements due to greater than anticipated contractor progress and engineering costs and $1.8 million for Pellet Conveyance Piping Relocation due to contractor progress.

Wastewater - Combined Sewer Overflows (CSO's)

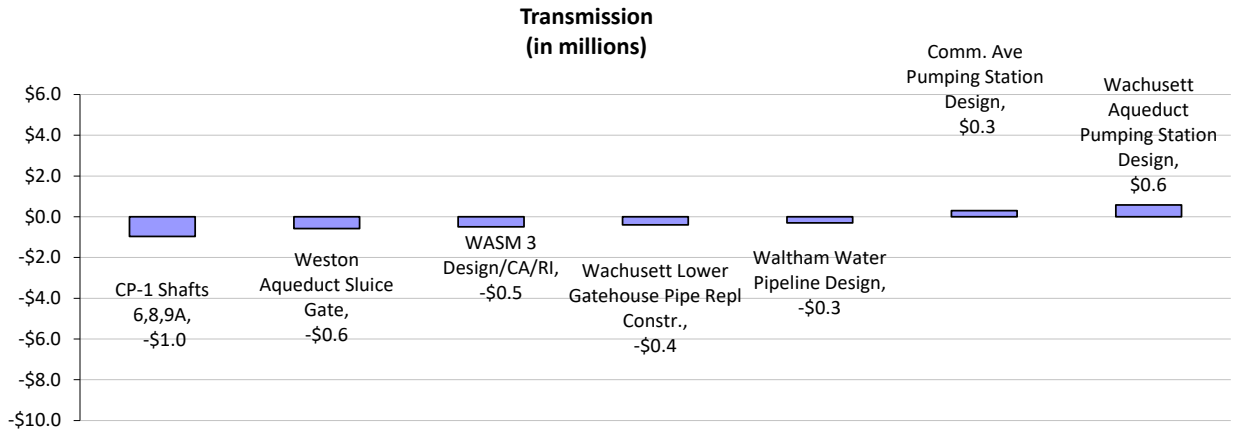
- Total FY20 Budget: $4.5 million
- Total FY20 Expended: $1.3 million
- $1.9 million for Dorchester Inflow Removal Construction and Somerville Marginal In-System Storage of $1.4 million due to updated schedules partially offset by $0.2 million for CSO Performance Assessment due to greater than anticipated consultant progress.

Wastewater - Other

$9.5 million greater than budgeted spending for I/I Local Financial Assistance resulting from $6.3 million in greater than budgeted grant distributions and $2.3 million in greater than budgeted no-interest loans and $0.9 million for repayments for previous loan distributions.

Waterworks - Drinking Water Quality Improvements

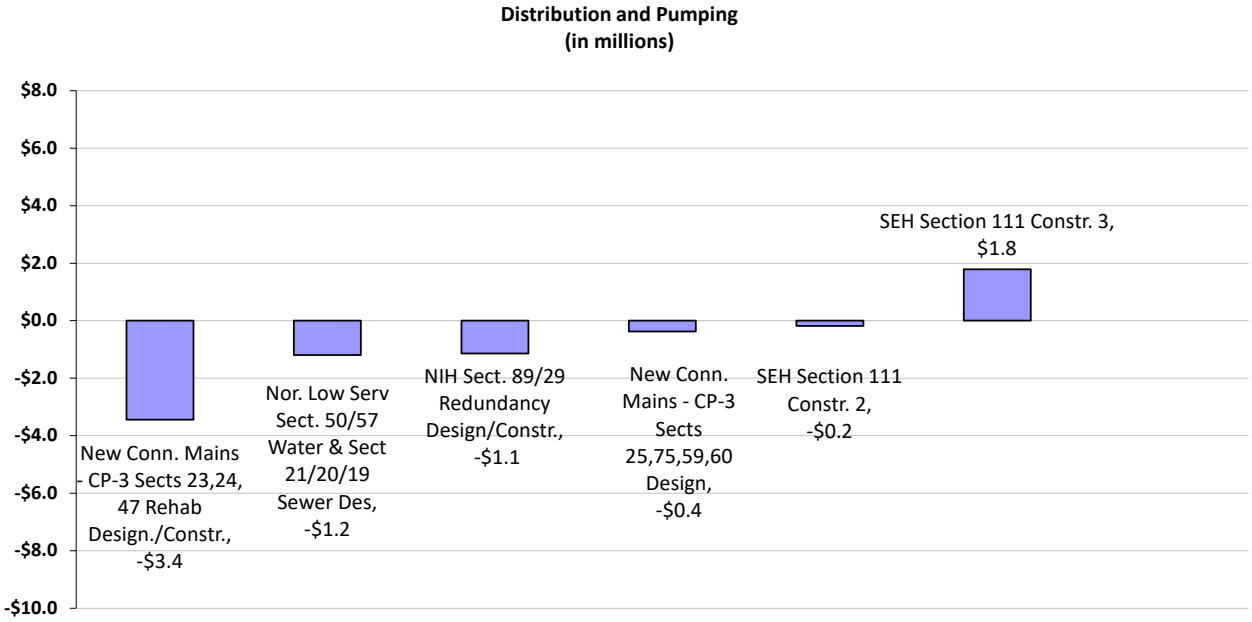
- Total FY20 Budget: $3.0 million
- Total FY20 Expended: $1.6 million
- $1.4 million less than budgeted spending
  - Underspending primarily due to $0.8 for CP-7 Existing Facilities Construction and $0.6 million for Ancillary Modifications Construction work due to updated schedules.



Waterworks – Transmission

- Total FY20 Budget: $15.1 million
- Total FY20 Expended: $12.8 million
- $2.3 million less than budgeted spending
  - Underspending on various projects, including
    - $1.0 million for CP-1 Shafts 6, 8, and 9A due to schedule change and re-bid of contract.
    - $0.6 million for Weston Aqueduct Sluice Gates and $0.4 million for Wachusett Lower Gate House Pipe Replacement and $0.3 million for Waltham Water Pipeline Design due to schedule changes.
    - $0.5 million for WASM 3 MEPA/Design/CA/RI due to consultant progress being less than anticipated.
    - This underspending was partially offset by overspending of $0.6 million for Wachusett Aqueduct Pumping Station due to timing of final work, and $0.3 million for Commonwealth Ave Pumping Station Design due to consultant progress.

Waterworks - Distribution and Pumping



- Total FY20 Budget: $31.5 million
- Total FY20 Expended: $26.6 million
- $4.8 million less than budgeted spending
  - Underspending on various projects, including
    - $3.4 million for CP-3 Section 23, 24, and 47 Rehabilitation and Design CA/REI due to construction schedule change.
    - $1.2 million for Sections 50, 57 Water and Sections 21, 20, 19 Sewer due to reduced scope and consultants scheduled tasks being less than anticipated.
    - $0.2 million for Southern Extra High Service Section 111 Phase 2 due to paving delays
    - $0.7 million for Sections 89 & 29 Redundancy Construction due to delay in paving and $0.5 million for NIH Section 89 and 29 Design/CA/RI due to less than anticipated contract administration/resident inspection budgeted spending.
    - $0.4 million for Sections 25, 75, 59, and 60 Design due to boring program delayed pending receipt of base maps.
    - This underspending was partially offset by overspending of $1.8 million for Southern Extra High Section 111 Construction 3 due to contractor progress.

Waterworks - Other

- Total FY20 Budget: $14.6 million
- Total FY20 Expended: $17.0 million
- $2.4 million greater than budgeted spending

    - $1.7 million for the Local Water System Assistance Program due to timing of community loan requests.
    - $0.6 million Bellevue 2/Turkey Hill Water Tank Painting and Improvements, $0.5 million for Cosgrove Intake Roof Replacement due to work scheduled in FY19 that was completed in FY20, and $0.2 million for Carroll Water Treatment Plant SCADA Design due to consultant progress.
    - This overspending was partially offset by underspending of $0.3 million Steel Water Tanks Design due to updated schedule and $0.2 million for DI Water Tank Painting due to credit change order.

Business & Operations Support

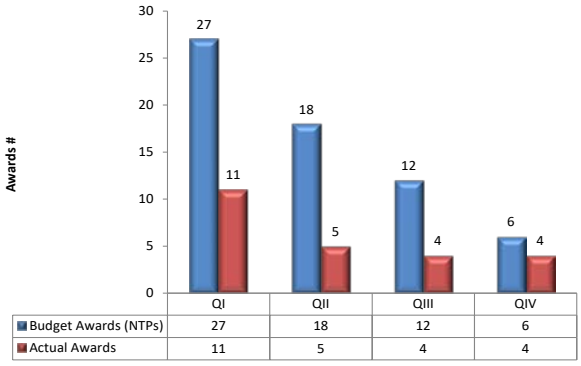
- Total FY20 Budget: $12.5 million
- Total FY20 Expended: $3.7 million
- $8.7 million less than budgeted spending
    - $6.3 million for the timing and scheduling of MIS work.
    - $1.2 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work.
    - $0.6 million for Security Equipment & Installation due to timing of security initiatives.
    - $0.2 million for Vehicle Purchases and $0.2 million for Lab Equipment due to timing.

FY20 CIP Contract Awards

The FY20 CIP planned the award of 63 contracts with a value of $437.0 million. During FY20, the MWRA awarded 24 contracts valued at $122.4 million, representing 38.1% of contracts and 28% of contract funding. Of the 63 planned awards, 20 contracts were awarded, 30 are expected to be awarded in FY21, 6 have been rescheduled beyond FY21, and 7 are being done in-house, were deleted, renamed, or scope moved to another contract. Of the 30 contracts that moved to FY21: 6 were due to permitting issues, 10 due to scope changes, 6 due to changes in priorities, and 8 due to bidder issues/outside consultant/contractor delays/additional specification review. In addition to FY20 budgeted awards, 4 contracts were awarded: 2 projects slipped from FY19 and 2 contracts were accelerated from FY21 bringing the total number of contracts awarded in FY20 to 24.

A comparison of the FY20 budgeted contracts and the FY20 actual contract awards are detailed below:

Program	Budget		Actual	
	#	$	#	$
Total MWRA	**63**	**437.0**	**24**	**122.4**
Wastewater	29	370.0	14	93.4
Waterworks	22	61.6	8	28.8
Business Operations & Support	12	5.4	2	0.2



Please refer to Attachment C for a full listing of contracts planned to be awarded in FY20 and actual awards.

Change Orders Review

Management of change orders remains a top priority. Total change orders for MWRA-managed active capital projects were 8.1% of award value through June 2020. This percentage is within the target of 10% for change orders as a percentage of awards.

Master Plan and the FY20 CIP Process

To arrive at the FY20 Final CIP, the Authority identified the needs of the programs taking into account the recommendations of the Master Plan. The long-term strategy for capital work is identified in the Authority's Master Plan which was published in 2006 and updated in 2013 and 2019. The Master Plan serves as a road map for inclusion of projects in the CIP in every budget cycle. In FY20, five new projects were added from the Master Plan.

The updated Master Plans focused on capital needs over the next 40-years and are intended to be the principal framework for annual capital planning. The Plans focus on projects that require capital spending during the next two 5-year CIP cap cycles: FY19-23 and FY24-28. Potential capital needs during the next 10-year (FY29-38) and 20-year (FY39-53) planning periods will also be identified.

FY19-23 Spending Cap

MWRA spending during the FY19-23 timeframe is planned to be $905.1 million, with additional net spending of $152.0 million for the community I/I (Infiltration and Inflow) loan and grant program and $54.2 million for the community water pipeline loan program. Annual cash flows for the Cap period are shown below in millions:

		FY19	FY20	FY21	FY22	FY23	Total FY19-23
FY21 Final	Projected Expenditures	$142.9	$158.3	$266.2	$251.9	$236.0	$1,055.2
	I/I Program	(39.6)	(31.5)	(32.0)	(26.6)	(22.3)	(152.0)
	Water Loan Program	(13.8)	(5.8)	(33.2)	(9.7)	8.3	(54.2)
	MWRA Spending	**$89.4**	**$121.0**	**$201.0**	**$215.7**	**$222.0**	**$849.1**
	Contingency	0.0	0.0	12.1	14.2	15.1	41.5
	Inflation on Unawarded Construction	0.0	0.0	1.4	5.2	8.1	14.6
	Chicopee Valley Aqueduct Projects	(0.0)	0.0	0.0	0.0	0.0	(0.0)
	FY21 Final FY19-23 Spending	**$89.4**	**$121.0**	**$214.5**	**$235.0**	**$245.2**	**$905.1**

The format of the Cap table has changed from prior cap periods to account separately for MWRA spending, which excludes the local I/I grant and loan program and the local water pipeline loan spending which are both outside of MWRA's control. As in past Caps, contingency for each fiscal year is incorporated into the CIP to fund the uncertainties inherent to construction. The contingency budget is calculated as a percentage of budgeted expenditure outlays. Specifically, contingency is 7% for non-tunnel projects and 15% for tunnel projects. Inflation is added for unawarded construction contracts. Finally, the Cap excludes Chicopee Valley Aqueduct system projects.

FY21 Outlook Based on FY21 CIP

Looking ahead to FY21, the projected capital spending is $278.3 million including contingency of $12.1 million. Projects with the largest budgeted spending in FY21 include Facility Asset Protection of $46.5 million, Deer Island Treatment Plant Asset Protection of $36.4 million, Local Water System Assistance Program of $33.2 million, Infiltration/Inflow Local Financial Assistance of $32.0 million, Corrosion and Odor Control of $21.3 million, and Metropolitan Redundancy Interim Improvements of $11.9 million.

In FY21, 74 contracts or phases of projects with a total budget of $439.1 million are expected to be awarded. Staff will be completing the design and progressing to the bid and award stage on several major projects such as Deer Island Treatment Plant (DITP) Clarifier Rehabilitation Phase 2

Construction, Prison Point CSO Rehabilitation Construction, DITP Fire Alarm System Construction, Ward St & Columbus Park Headworks Design/Construction Administration, Northern Intermediate High Sections 89 & 29 Replacement Construction, New Connecting Mains Shaft 7 to WASM 3 CP3 Sections 23,24,47 Rehabilitation, Weston Aqueduct Supply Mains 3 CP-1, Carroll Water Treatment Plant SCADA Upgrade Construction, and DI Motor Control Center & Switchgear Replacement Construction. *Please see Attachment E for FY21 Planned Contract Awards.*

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Wastewater					
Interception & Pumping (I&P)	$50,091	$33,104	($16,987)	-33.9%	Underspending Prison Point Rehab - Construction: $7.5M, Fuel Oil Tank Replacement Construction Phase 1: $454k, Hayes Pump Station Rehabilitation Design: $250k, Siphon Structure Rehabilitation Design/CS/RI: $215k, and Ward Street & Columbus Park Headworks Design/CA: $247k (schedule shifts) Nut Island Odor Control & HVAC Improvements - Design/CA/REI and Construction: $3.5M, and Interceptor Renewal No. 3, Dorchester Interceptor Sewer - Design, CA/RI and Construction: $3.1M, and Wastewater Metering Asset Protection Equipment Purchases: $1.1M (delay in construction awards) Prison Point Rehabilitation - Design/CA/RI: $402k (delay in 100% Design Report review) Wastewater Meter System Planning/Study/Design: $404k, and Wastewater Central Monitoring Design & Programming Services: $281k (less than anticipated budgeted work) Chelsea Creek Headworks Upgrades - REI: $345k (less than budgeted resident engineering and inspection services) Offset Overspending Sections 191 & 192 Rehabilitation: $982k (contractor progress)

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Treatment	$34,126	$14,246	($19,880)	-58.3%	Underspending Clarifier Rehab Phase 2 - Construction and REI: $12.3M, Radio Repeater System Upgrade Phase 2: $1.0M, South System Pump Station VFD Replacement Design/ESDC/REI, $675k, and Eastern Seawall - Design/ESDC/REI: $249k (schedule shifts) Winthrop Terminal Facility VFD and Motors Replacements: $1.1M (vibration issue with VFD No. 5) Combined Heat and Power Energy Alternatives Study: $536k, and Motor Control Center Switchgear Replacement Construction and ESDC/REI $2.3M (timing of work) Clinton Valves and Pipe Replacement: $1.0M, and Deer Island HVAC - Design/ESDC: $419k (projects being re-scoped) Fire Alarm System Replacement - Construction: $619k (schedule change and permitting issues As-Needed Design: $710k (less than anticipated task order work) Expansion Joint Repair - Construction 3: $434k (contract defunded with scope of work incorporated into Clarifier Rehabilitation Phase 2 Construction contract) Offset Overspending Clinton Roofing Rehabilitation: $523k (work scheduled for FY19 performed in FY20) Chemical Tank and Digester Pipe: $529k, and Gravity Thickener Rehabilitation: $437k (contractor progress) Gas Protection System Replacement - Phase 1: $251k (pre-purchase of equipment)
Residuals	$8,130	$13,369	$5,239	64.4%	Overspending Residuals Electrical/Mechanical/Drum Replacements: $3.4M (contractor progress and greater than anticipated engineering costs) Pellet Conveyance Relocation: $1.8M (contractor progress)
CSO	$4,458	$1,277	($3,180)	-71.3%	Underspending Dorchester Inflow Removal Construction: $1.9M, and Somerville Marginal In-System Storage: $1.4M (updated schedules) Offset Overspending CSO Performance Assessment: $221K (greater than anticipated consultant progress)
Other Wastewater	$25,700	$35,239	$9,539	37.1%	Overspending I/I Local Financial Assistance: $9.5M (timing of community requests for grants and loans)
Total Wastewater	**$122,504**	**$97,234**	**($25,270)**	**-20.6%**	

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Waterworks					
Drinking Water Quality Improvements	$2,973	$1,549	($1,424)	-47.9%	Underspending Existing Facilities Modifications - CP7: $800k, and Carroll Water Treatment Plant Ancillary Modifications - Construction: $623k (updated schedules) Technical Assistance 9 & 10: $185k (timing of task order work)
Transmission	$15,135	$12,848	($2,287)	-15.1%	Underspending CP-1 Shafts 6, 8, and 9A: $969k, Weston Aqueduct Sluice Gates - Construction: $575k (schedule shift and rebid of contract), Wachusett Lower Gatehouse Pipe Replacement - Construction: $400k, Waltham Water Pipeline Design/CA: $321k, and Maintenance Garage/Wash Bay/Storage Building Design/CA/RI: $162k (schedule shifts) WASM 3 - MEPA/Design/CA/RI: $492k, and Commonwealth Avenue Pumping Station Improvements Construction: $213k (progress less than anticipated) Chestnut Hill Emergency Pump Station - Design/CA: $185k (longer than anticipated receipt of hydraulic information) Offset Overspending Wachusett Aqueduct Pump Station - Design/ESDC/RI: $581k (timing of final ESDC and RI services) Commonwealth Avenue Pump Station Redundancy - Design/CA/RI: $304k (timing of consultant work) Wachusett Dam Lower Gatehouse Interim Pipe Repair: $210k (contractor progress)

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Distribution & Pumping	$31,452	$26,631	($4,820)	-15.3%	Underspending SEH Redundancy Pipeline Section 111 - Construction Phase 2: $181k (paving delayed due to Eversource work) CP3-Sect 23,24,47, Rehabilitation and CA/RI: $3.4M (schedule change) Sections 50 & 57 Water & 21/20/19 Sewer Rehab - Design/CA/RI: $1.2M (reduced scope and less than anticipated consultant's scheduled tasks) Section 89 & 29 Redundancy Construction Phase 2: $679k (delay in paving), and Design/CA: $465k (Construction Administration and Resident Inspection services less than anticipated budgeted spending) Sections 25, 75, 59 & 60 Replacement - Design/CA: $376k (boring program delayed pending receipt of base maps) Cathodic Protection Shafts E & L: $212k (work scheduled for FY20 performed in FY19) Sections 53 and 99 Connections - Design/CA: $214K (delay in award) Offset Overspending SEH Redundancy Pipeline Section 111 - Construction Phase 3: $1.8M (contractor progress) Section 56 Replacement/Saugus Design/CA: $212k, and SEH Redundancy Pipeline Phase 1 - CA/Rl: $103k (timing of consultant work)
Other Waterworks	$14,607	$17,026	$2,419	16.6%	Offset Overspending Local Water Pipeline Financial Assistance Program: $1.7M (timing of requests for loans) Paint Bellevue II & Turkey Hill Tanks : $577k, and Cosgrove Intake Roof Replacement: $470k (work scheduled in FY19 performed in FY20) CWTP SCADA Upgrades - Design Programming RE: $199k (timing of work) Offset Underspending Steel Tanks Improvements - Design/CA: $300k (schedule shift) Deer Island Water Tank Repainting: $182k (timing of final work and pending credit change order)
Total Waterworks	**$64,166**	**$58,054**	**($6,111)**	**-9.5%**	

ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report ($000's)

	FY20 Budget YTD June	FY20 Actuals YTD June	YTD Actuals vs. Budget		Explanations
			$	%	
Business & Operations Support					
Total Business & Operations Support	**$12,477**	**$3,733**	**($8,744)**	**-70.1%**	Underspending MIS Projects: $6.3M (timing of work) As-Needed Technical Assistance and CS/REI Services: $1.2M (timing of task order work) Security Equipment & Installation: $648k, Major Lab Instrumentation: $188k, and FY19-23 Vehicle Purchases: $159k (timing of purchases)
Total MWRA	**$199,147**	**$159,021**	**($40,125)**	**-20.1%**	

ATTACHMENT C

FY20 Planned versus Actual/Revised Contract Awards ($ in Millions)

Project	Contract No.	Subphase	Notice to Proceed	FY21 Final Notice to Proceed	Total Contract Amount ($ in millions)	Award Amount ($ in millions)	Vendor	* Schedule Change Reason Code
Applications Improvements Program	7650	Time Entry System / WFM (Renamed MAXIMO Upgrade)	Jul-19	Contract renamed	$0.6			2
Applications Improvements Program	7653	8M Permit (Renamed HOML)	Jul-19	Contract renamed	$0.2			2
Information Security Program (ISP)	7657	ITSM Access Management	Jul-19	Mar-21	$0.3			3 & 5
Information Technology Infrastructure Program	7654	NetScalers	Jul-19	Mar-21	$0.1			3 & 6
Information Technology Infrastructure Program	7662	Edge Switches	Jul-19	Mar-21	$0.7			3 & 6
Information Technology Infrastructure Program	7664	Instrumentation & Controls IT	Jul-19	Mar-21	$0.3			3 & 6
Facility Asset Protection	**7279**	**Interceptor Renewal 3, Dorchester Interceptor Sewer - Construction**	**Jul-19**	**Apr-20**	**$5.6**	**$4.7**	**Michels Corp.**	**1**
Residuals Asset Protection	**7173**	**Pellet Piping - Relocate**	**Jul-19**	**Aug-19**	**$3.2**	**$4.3**	**Walsh Construction Company.**	**1**
DI Treatment Plant Asset Protection	**7373**	**Chemical Tank and Digester Pipe**	**Jul-19**	**Aug-19**	**$8.0**	**$8.5**	**Walsh Construction Company**	**1**
NHS - Revere & Malden Pipeline Improvements	**7485**	**Sect 53 and 99 Connections-Design/Construction Administration**	**Jul-19**	**Feb-20**	**$4.5**	**$5.0**	**Hazen and Sawyer, P.C.**	**1**
CWTP Asset Protection	**7605**	**HVAC Equipment Replacement - Construction**	**Jul-19**	**Sep-19**	**$1.8**	**$0.4**	**CAM HVAC & Construction.**	**1**
Quabbin Transmission System	**7379**	**Wachusett Dam Lower Gate House Interim Pipe Replacement**	**Jul-19**	**Oct-19**	**$0.2**	**$0.3**	**Thielsch Engineering, Inc.**	**1**
Facility Asset Protection	**7643**	**Sections 191 & 192 Rehabilitation**	**Aug-19**	**Jan-20**	**$0.5**	**$1.6**	**Green Mountain Pipeline Services.**	**1**
DI Treatment Plant Asset Protection	**6723**	**E Seawall Design/Engineering Services During Construction/Rrsident Engineering Inspection**	**Aug-19**	**Jun-20**	**$1.2**	**$2.6**	**Green International Affiliates.**	**1**
DI Treatment Plant Asset Protection	7395	Clarifier Rehabilitation Phase 2 - Construction	Aug-19	Sep-20	$135.0			3 & 7
DI Treatment Plant Asset Protection	7397	Clarifier Rehabilitation Phase 2 - Resident Engineering Inspection	Aug-19	Sep-20	$3.0			3 & 7
DI Treatment Plant Asset Protection	7420	Motor Control Center & Switchgear Replacement Construction	Aug-19	Sep-20	$10.6			3 & 6
Clinton Wastewater Treatment Plant	**7372**	**Valves & Screw Pumps Replacement**	**Aug-19**	**May-20**	**$2.5**	**$0.5**	**Harding & Smith**	**1**

ATTACHMENT C

FY20 Planned versus Actual/Revised Contract Awards ($ in Millions)

Project	Contract No.	Subphase	Notice to Proceed	FY21 Final Notice to Proceed	Total Contract Amount ($ in millions)	Award Amount ($ in millions)	Vendor	* Schedule Change Reason Code
NHS - Revere & Malden Pipeline Improvements	**7454**	**Sect 56 Replacement/Saugus Design/Construction Administration**	**Aug-19**	**Nov-19**	**$1.5**	**$3.3**	**AECOM Technical Services, Inc.**	**1**
Applications Improvements Program	7438	Enterprise Content Mgmt	Sep-19	Jan-21	$1.0			3 & 7
Siphon Structure Rehabilitation	**6224**	**Design/Construction Services During Construction**	**Sep-19**	**Apr-20**	**$1.6**	**$2.9**	**Kleinfelder Northeast, Inc.**	**1**
Corrosion & Odor Control	**7548**	**NI Odor Control HVAC Improvements Construction**	**Sep-19**	**Feb-20**	**$45.0**	**$57.6**	**Walsh Construction Company**	**1**
DI Treatment Plant Asset Protection	6705	Expansion Joint Repair - Construction 3	Sep-19	Scope Combined with Primary & Secondary Clarifier contract.	$2.0			2
DI Treatment Plant Asset Protection	7126	South System Pumping Station VFD Replacement Design/Engineering Services During Construction/Resident Engineering Inspection	Sep-19	Sep-20	$4.5			3 & 5
New Connect Mains-Shaft 7 to WASM 3	6392	CP3-Sect 23,24,47, Rehabilitation	Sep-19	Sep-20	$14.3			3 & 7
Waterworks Facility Asset Protection	6832	Steel Tank Improvements Design/Construction Administration	Sep-19	Jan-21	$3.0			3 & 5
Sudbury/Weston Aqueduct Repairs	7369	Weston Aqueduct Sluice Gates - Construction	Sep-19	Sep-20	$1.1			3 & 6
MWRA Facilities Management	6983	Design/Engineering Services DI Old Admin. Building Demolition	Oct-19	May-21	$0.6			3 & 5
Information Security Program (ISP)	**7440**	**Inform Security Plan Implementation**	**Oct-19**	**Oct-19**	**$0.4**	**$0.1**	**Janus Software, Inc.**	**1**
IT Infrastructure Program	7660	Telephone System Upgrade	Oct-19	Jan-21	$0.4			3 & 7
Waterworks Facility Asset Protection	6689	Meter Vault Manhole Retrofits - Design	Oct-19	Jul-22	$0.5			6
Waterworks Facility Asset Protection	7542	Water Meter Upgrade Design Construction Administration/Resident Inspection	Oct-19	Jul-21	$0.2			7
Metropolitan Redundancy Interim Improvements	7561	CP1 Shafts 6, 8, 9A	Oct-19	Apr-20	$2.1			3 & 7
Metropolitan Redundancy Interim Improvements	7696	Tops of Shafts Resident Engineering Inspection	Oct-19	Now using As-Needed REI contract	$0.8			2

ATTACHMENT C

FY20 Planned versus Actual/Revised Contract Awards ($ in Millions)

Project	Contract No.	Subphase	Notice to Proceed	FY21 Final Notice to Proceed	Total Contract Amount ($ in millions)	Award Amount ($ in millions)	Vendor	* Schedule Change Reason Code
Metropolitan Redundancy Interim Improvements	7547	Waltham Water Pipeline Design/Construction Administration	Oct-19	Jan-21	$3.0			2
Watershed Division Capital Improvements	7677	Maintenance Garage/Wash Bay/Storage Building Design/Construction Administration/Resident Inspection	Oct-19	Nov-20	$1.0			3 & 4
Facility Asset Protection	7162	Hayes Pump Station Rehab Design	Nov-19	Sep-20	$1.5			3 & 5
Facility Asset Protection	7462	Prison Point Rehabilitation - Construction	Nov-19	Sep-20	$36.1			3 & 4
DI Treatment Plant Asset Protection	7134	Radio Repeater System Upgrade 2	Nov-19	May-21	$2.5			3 & 4
Rehabilitation of Other Pumping Stations	7525	Pumping Station Rehabilitation-Evaluation	Nov-19	Contract deleted.	$0.5			2
Applications Improvements Program	7649	Lawson Golbal HR (Renamed MAXIMO Interface)	Dec-19	Contract renamed	$0.7			2
Facility Asset Protection	**7554**	**Fuel Oil Tank Replacement Construction Phase 1**	**Dec-19**	**Mar-20**	**$1.4**	**$1.4**	**NRC East Environmental Services.**	**1**
DI Treatment Plant Asset Protection	**7644**	**As-Needed Design 9-1**	**Dec-19**	**Jul-19**	**$2.8**	**$1.8**	**Brown and Caldwell**	**1**
DI Treatment Plant Asset Protection	**7645**	**As-Needed Des 9-2**	**Dec-19**	**Sep-19**	**$2.8**	**$1.8**	**Hazen and Sawyer, P.C.**	**1**
DI Treatment Plant Asset Protection	**7646**	**As-Needed Design 9-3**	**Dec-19**	**Sep-19**	**$2.8**	**$1.8**	**Wright-Pierce**	**1**
Information Security Program (ISP)	**7659**	**Active Directory**	**Jan-20**	**Jan-20**	**$0.2**	**$0.1**	**CDW-G LLC**	**1**
Facility Asset Protection	**7216**	**Interceptor Renewal 7-Study/Design/Construction Administration/Resident Engineering Inspection**	**Jan-20**	**Jun-20**	**$0.9**	**$2.6**	**Kleinfelder Northeast**	**1**
Clinton Wastewater Treatment Plant	7693	Equipment Storage Bldg	Jan-20	Dec-20	$0.3			3 & 4
Quabbin Transmission System	7380	Wachusett Lower Gate House Pipe Replacement Construction	Jan-20	Jan-21	$2.6			3 & 7
Metropolitan Redundancy Interim Improvements	7599	Shafts 5 & 9 Impr Design/Construction Administration	Jan-20	Sep-20	$0.8			3 & 5
Wastewater Meter System-Equipment Replacement	7191	Wastewater Metering Asset Protect/Equip Purchase	Feb-20	Nov-20	$3.7			3 & 7
Facility Asset Protection	7429	Ward St & Columbus Park Headworks Design/Construction Administration	Feb-20	Dec-20	$11.4			3 & 5
DI Treatment Plant Asset Protection	7051	Fire Alarm System Replacement - Construction	Feb-20	Jan-21	$25.0			3 & 4
DI Treatment Plant Asset Protection	7426	Fire System Replacement - Resident Engineering Inspection	Feb-20	Jan-21	$2.1			3 & 4

ATTACHMENT C

FY20 Planned versus Actual/Revised Contract Awards ($ in Millions)

Project	Contract No.	Subphase	Notice to Proceed	FY21 Final Notice to Proceed	Total Contract Amount ($ in millions)	Award Amount ($ in millions)	Vendor	* Schedule Change Reason Code
DI Treatment Plant Asset Protection	7094	HVAC Equipment Replacement Resident Engineering Inspection	Mar-20	Oct-22	$2.0			3 & 5
DI Treatment Plant Asset Protection	7110	HVAC Equipment Replacement - Construction	Mar-20	Oct-20	$50.2			3 & 5
Quabbin Transmission System	6940	Oakdale High Line Replacement Construction	Mar-20	Mar-21	$0.5			3 & 6
Waterworks Facility Asset Protection	7694	Masonry/Structural Repairs Bellevue 1/Arlington Heights	Apr-20	Feb-22	$2.2			5
Metropolitan Tunnel Redundancy	**7159**	**Preliminary Design & Massachustts Environmental Policy Act Review**	**Apr-20**	**May-20**	**$16.0**	**$15.7**	**CDM Smith.**	**1**
Metropolitan Redundancy Interim Improvements	7671	CP3 Shafts 5, 9	Apr-20	Oct-21	$2.5			5
DI Treatment Plant Asset Protection	7570	Hydroturbine Replacement Design/Engineering Services During Construction/Resident Engineering Inspection	Jun-20	Jul-22	$1.9			6
Distribut Systems Facilities Mapping	7489	Update of Record Drawings	Jun-20	Jul-21	$0.5			6
Quabbin Transmission System	7698	Wachusett Lower Gate House Building Rehabilitation	Jun-20	Mar-21	$2.2			3 & 5
63 FY20 Planned Awards 20 awarded through June 2020					**$437.0**	**$117.0**		
20								
Unplanned Awards								
DI Treatment Plant Asset Protection	**7167**	**Gas Protection System Replacement Phase 1**	**Jun-19**	**Sep-19**	**$1.0**	**$1.4**	**J.F. White.**	**1**
Southern Spine Distribution Mains	**7155**	**Section 22 Rehab Alternative Analysis & Envoronmental Review**	**Jun-19**	**Sep-19**	**$2.9**	**$2.9**	**Black & Veatch Corp.**	**1**
Dam Projects	**7347**	**Quinapoxet Dam Removal Design/Engineering Services During Construction**	**Jul-20**	**Nov-19**	**$0.2**	**$0.4**	**Milone & McBroom, Inc.**	**1**
Quabbin Transmission System	**7333**	**Wachusett Dam Bastion Improvements Design/Engineering Services During Construction**	**Jul-20**	**May-20**	**$0.5**	**$0.8**	**Kleinfelder Northeast Inc.**	**1**
FY20 Total Unplanned Awards					**$4.6**	**$5.5**		
24 Total Awards through June 2020						**$122.4**		

*** Reason Codes:**

1. NTP issued in FY20.
2. Project/Phase eliminated, renamed, or being performed in-house; or phase completed but on hold.
3. NTP expected in FY21
4. Schedule change due to permitting.
5. Scope changes.
6. Changes in priorities.
7. Bidder Issue/Outside Design Delay/Contractor issue/Additional specification review

ATTACHMENT D

Linear Footage of Rehabilitated or New Pipelines

FY20 (July 2019 - June 2020)

	Contract #	Type	Linear Feet
WASTEWATER PROJECTS			
Sections 191 & 192 Sewer Rehabilitation	7643	Rehab	1,144
WATERWORKS PROJECTS			
NIH Section 110 Phase 2	7067	New	4,404
Commonwealth Avenue Pumping Station	7524	New	329
SEH Section 111 CP-3	7505	New	2,080

TOTAL PIPELINE REHABILITATED OR CONSTRUCTED IN FY20

	Linear Feet	Miles
Wastewater Projects	1,144	0.2
Water Projects	6,813	1.3
Total	**7,957**	**1.5**

ATTACHMENT E
FY21 PLANNED CAPITAL CONTRACT AWARDS ($ in Millions)

Program / Project	Contract No.	Subphase	Notice to Proceed	Total Contract Amount ($ in millions)
Capital Maintenance Planning	7691	As-Needed Design Contract 18	Jul-20	$2.1
Capital Maintenance Planning	7692	As-Needed Design Contract 19	Jul-20	$2.1
Applications Improvements Program	7286	Lawson Upgrade	Jul-20	$5.0
Applications Improvements Program	7649	MAXIMO Interface Enhancements	Jul-20	$0.7
IT Infrastructure Program	7661	Core Switches	Jul-20	$0.5
IT Infrastructure Program	7662	Edge Switches	Jul-20	$0.7
Facility Asset Protection	7429	Ward St & Colum Pk Headworks Des/CA	Jul-20	$22.0
Clinton Wastewater Treatment Plant	7704	Screw Pump Replacement	Jul-20	$2.0
NIH Redundancy & Storage	7117	Section 89 & 29 Repl - Constr	Jul-20	$21.3
NIH Redundancy & Storage	7633	Sect 89 & 29 Repl RE/RI Svcs	Jul-20	$2.0
Waterworks Facility Asset Protection	6832	Steel Tank Impr Design/CA	Jul-20	$3.6
Metropolitan Redundancy Interim Impr.	6544	WASM 3 CP-1	Jul-20	$13.0
Wastewater Meter Sys-Equip Repl.	7191	WW Metering Asset Protect/Equip Purch.	Aug-20	$3.6
Applications Improvements Program	7652	Hyperion	Sep-20	$0.4
Facility Asset Protection	7162	Hayes Pump Station Rehab Design	Sep-20	$2.5
Facility Asset Protection	7462	Prison Point Rehab - Construction	Sep-20	$41.8
Facility Asset Protection	7550	Remote Headworks Shaft Access Improv-Constr.	Sep-20	$2.5
DI Treatment Plant Asset Protection	7110	HVAC Design/ESDC	Sep-20	$2.1
DI Treatment Plant Asset Protection	7126	SSPS VFD Replace Des/ESDC/REI	Sep-20	$4.5
DI Treatment Plant Asset Protection	7395	Clarifier Rehab Phase 2 - Construction	Sep-20	$137.2
DI Treatment Plant Asset Protection	7397	Clarifier Rehab Phase 2 - REI	Sep-20	$3.0
DI Treatment Plant Asset Protection	7420	MCC & Switchgr Replace Const	Sep-20	$11.2
New Connect Mains-Shaft 7 to WASM 3	6392	CP3-Sect 23,24,47, Rehab	Sep-20	$14.7
Sudbury/Weston Aqued. Repairs	7369	Weston Aqueduct Sluice Gates - Const	Sep-20	$1.9
Metropolitan Redundancy Interim Impr.	7599	Shafts 5 & 9 Bldg Impr Des/CA	Sep-20	$0.8
Watershed Division Capital Impr.	7701	River Rd Improv-Wachusett	Sep-20	$3.0
DI Treatment Plant Asset Protection	7125	Misc. VFD Replacements FY19-FY23	Oct-20	$4.5
Clinton Wastewater Treatment Plant	7648	Digestr Cover Replacement	Oct-20	$0.6
Distribut Systems Fac. Map	7613	Water System Hydraulic Model	Oct-20	$0.5
Waterworks Facility Asset Protection	7711	Masonry/Struct Rep Des/ESDC	Oct-20	$1.6
Dam Projects	7615	Sudbury/Foss Dam Const	Oct-20	$1.6
Watershed Division Capital Impr.	7569	QAB Concept Des Report	Oct-20	$0.3
DI Treatment Plant Asset Protection	7135	DI Dystor Membrane Replacements	Nov-20	$4.0
Northern Ext High Service New Pipeline	7404	NEH Improvements Design ESDC	Nov-20	$6.8

ATTACHMENT E
FY21 PLANNED CAPITAL CONTRACT AWARDS ($ in Millions)

Program / Project	Contract No.	Subphase	Notice to Proceed	Total Contract Amount ($ in millions)
Metropolitan Redundancy Interim Impr.	7563	WASM/SPSM West PRV Constr	Nov-20	$7.1
Metropolitan Redundancy Interim Impr.	7674	WASM/SPSM REI	Nov-20	$1.0
Applications Improvements Program	7650	MAXIMO Upgrade	Dec-20	$0.6
Facility Asset Protection	7360	System Relief & Contingency Planning	Dec-20	$0.5
Facility Asset Protection	7781	Remote Headworks Shaft Access Impr. ESDC/REI	Dec-20	$0.3
Clinton Wastewater Treatment Plant	7693	Equip Storage Bldg	Dec-20	$0.3
Clinton Wastewater Treatment Plant	7754	Landfill Cell #1 Closure	Dec-20	$1.0
CWTP Asset Protection	7755	CWTP Parapet Wall Repairs	Dec-20	$0.4
Central Monitoring System	7582	CWTP SCADA Upgrade Construction	Dec-20	$13.0
Waterworks Facility Asset Protection	7542	Water Meter/VLt Mhole Des/CA Ph1	Dec-20	$1.0
IT Infrastructure Program	7663	Disaster Recovery	Jan-21	$1.0
DI Treatment Plant Asset Protection	7051	Fire Alarm System Replacement - Construc	Jan-21	$28.8
DI Treatment Plant Asset Protection	7426	Fire System Replacement - REI	Jan-21	$2.1
DI Treatment Plant Asset Protection	7734	DITP Roofing Replacement	Jan-21	$2.0
Clinton Wastewater Treatment Plant	7735	Clinton Fire Alarm Replacement	Jan-21	$0.9
Cathodic Protection Of Distr. Mains	7611	Cath Prot Metro System Des/CA	Jan-21	$9.2
Carroll Water Treatment Plant	7713	Technical Assistance 11	Jan-21	$0.8
Carroll Water Treatment Plant	7714	Technical Assistance 12	Jan-21	$0.8
Quabbin Transmission Syst.	7380	Wach Lower Gatehouse Pipe Replacement Constr.	Jan-21	$4.1
Quabbin Transmission Syst.	7717	Wach LGH Pipe Repl REI	Jan-21	$0.3
Metropolitan Redundancy Interim Impr.	7547	Waltham Water Pipeline Des/CA	Jan-21	$3.0
Watershed Division Capital Impr.	7752	Quabbin Water Supply Des/CA/RI	Jan-21	$0.3
Winsor Station Pipeline	7198	Shaft 2 Construction	Feb-21	$1.1
Quabbin Transmission Syst.	7780	Wach Dam Bridge Crane Removal	Feb-21	$0.4
DI Treatment Plant Asset Protection	7088	Odor Control Rehab - Design/ESDC	Mar-21	$4.5
DI Treatment Plant Asset Protection	7139	Cryogenics Plant Equipment Replace-Desig	Mar-21	$3.3
CWTP Asset Protection	7598	Soda Ash & Ammonia Equip Repl	Mar-21	$2.7
CWTP Asset Protection	7737	Corr Control Pipe Loop Study	Mar-21	$0.5
Quabbin Transmission Syst.	6940	Oakdale High Line Repl. Constr	Mar-21	$0.5
Quabbin Transmission Syst.	7698	Wach LGH Bld Rehab Constr	Mar-21	$2.2
Information Security Program ISP	7658	MSSP/SIEM	Apr-21	$2.6
DI Treatment Plant Asset Protection	7169	Gas Protect Systm Replac Ph 2	Apr-21	$2.5
MWRA Facilities Management	6983	DI Old Admin Bldg Design/Engineering Services	May-21	$0.7

ATTACHMENT E
FY21 PLANNED CAPITAL CONTRACT AWARDS ($ in Millions)

Program / Project	Contract No.	Subphase	Notice to Proceed	Total Contract Amount ($ in millions)
Facility Asset Protection	7555	Fuel Oil Tank Repl Constr Ph 2	May-21	$2.3
Residuals Asset Protection	7145	Residuals Facility Upgrades - Design	May-21	$1.2
DI Treatment Plant Asset Protection	7134	Radio Rptr Syst Upgr 2	May-21	$2.5
Waterworks Facility Asset Protection	7708	Water Meter/Vault Mhle PH2 Design	May-21	$1.0
DI Treatment Plant Asset Protection	7052	Digester & Storage Tank Rehab Design/ESDC	Jun-21	$4.1
Waterworks Facility Asset Protection	_7729	Beacon St Line Des/ESDC	Jun-21	$0.9
Watershed Division Capital Impr.	7577	Maint Gar/Wash Bay/Stor Bldg Constr	Jun-21	$3.9

FY21 74 Anticipated Contract Awards **$439.1**

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Bond Defeasance of Future Debt Service

COMMITTEE: Administration, Finance & Audit

X VOTE
INFORMATION

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

Thomas J. Durkin
Director of Finance

Consistent with MWRA's multi-year rates management strategy, MWRA staff are recommending the execution of an approximately $17.9 million defeasance to reduce future year rate increases. The $17.9 million in available funds is derived from the FY20 surplus after $25.2 million was utilized to execute a defeasance in June 2020. These funds will be used to prepay debt service coming due in FY22 through FY24 ($16.2 million in principal and $1.6 million in interest). The defeasance of debt, coupled with diligent management of operational expenses, have been the keys to MWRA's ability to keep assessment increases sustainable and predictable.

RECOMMENDATION:

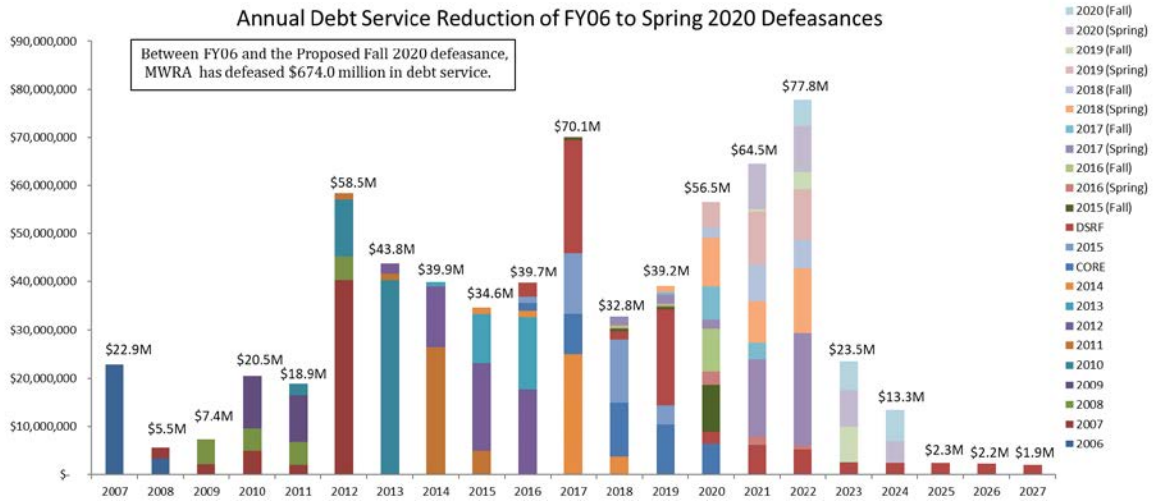
To authorize the Executive Director or his designee, on behalf of the Authority, to enter into, execute and deliver all necessary agreements and other instruments and to take such other actions necessary to effectuate the redemption and defeasance of an aggregate principal amount of $16,245,000 of outstanding MWRA senior bonds including to cause the escrow of cash and/or securities in an amount necessary to fund such redemption and defeasance, in order to reduce the debt service requirement by $17,889,000 in the FY22 through FY24 timeframe.

DISCUSSION:

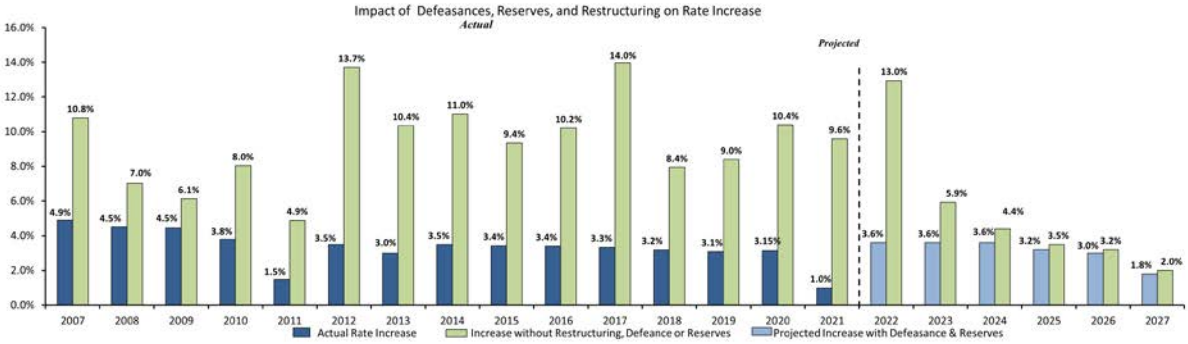
As described in more detail in the FY20 Year-end Financial Update and Summary presented at this meeting, MWRA has approximately $17.9 million available from the FY20 budget to execute a defeasance of outstanding debt. These funds are available after the use of approximately $5.0 million from the budgeted FY20 Optional Debt Prepayment and approximately $25.2 million from the FY20 surplus to defease $28.1 million in outstanding principal executed in June 2020.

MWRA's ongoing use of defeasances has had a significant impact in lowering future debt service payments and limiting annual rate revenue increases. From 2006 through this proposed transaction,

MWRA has defeased $674.0 million in debt service to reduce future year rate revenue requirements. The following chart details the multi-year impact of those defeasances.



The application of these defeasances has had a significant impact on rate increases. The chart below shows the estimated rate increase without the application of the defeasances.



Staff reviewed all bonds available to be defeased, and have identified the maturities of the bonds in the following table as the most advantageous defeasance candidates.

Series	Maturity	Call Date	Principal	Defeasance Cost[1]
2014D	August 1, 2024	August 1, 2024	$ 1,690,000	$ 1,943,500
2014F	August 1, 2023	August 1, 2023	$ 2,655,000	$ 2,920,500
2016C	August 1, 2023	August 1, 2023	$ 2,750,000	$ 3,025,000
2017C	August 1, 2022	August 1, 2022	$ 4,750,000	$ 4,940,000
2018C	August 1, 2024	August 1, 2024	$ 4,400,000	$ 5,060,000
		Total	**$ 16,245,000**	**$ 17,889,000**

(1) Defeasance costs is only anticipated funds from surplus and does not included current year deposits. Assumes no interest earned on escrow

The following table details the annual budget savings by fiscal year for the proposed FY21 fall defeasance.

Budget Reduction by Fiscal Year			Total CEB
2022	2023	2024	Savings
$ 5,514,750	$ 5,979,750	$ 6,394,500	$ 17,889,000

The funds will be utilized to purchase governmental securities in an amount sufficient to make all future interest and principal payments on the bonds to be defeased, offset by the interest earned on the securities.

The governmental securities purchased will be deposited with an escrow agent (bond trustee). Once established, an escrow is irrevocable, replacing any future debt service payments due for the bonds being escrowed, and therefore reducing the rate revenue requirement. Establishing an escrow reduces debt service requirements for each fiscal year from the time it is executed until the defeased bonds mature.

Establishing an escrow to defease debt requires that MWRA's bond counsel draft an agreement to this effect and an independent verification agent must certify that the funds in the escrow are sufficient to pay the remaining debt service. Bonds that are escrowed to maturity are not included in the MWRA's debt cap or debt service coverage calculations. Staff will continue to monitor market conditions and the maturities available to be defeased to ensure that the bonds selected provide MWRA with the highest available debt service savings.

BUDGET/FISCAL IMPACT:

The defeasance of these bonds will decrease the FY22 through FY24 debt service requirement by $17.9 million. The cost associated with bond counsel and financial advisory services will be paid out of the Treasury Department's professional services budget.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Sole Source Purchase Order Contract to Upgrade the PIMS PowerBuilder Application
Inflection Point Solutions, LLC

COMMITTEE: Administration, Finance & Audit

___ INFORMATION
_X_ VOTE

Thomas Durkin
Director, Finance

Rebecca Weidman, Director, TRAC
Giri Narayanan, App & Sys Development Mgr
Paula Weadick, MIS Director
Douglas J. Rice, Director, Procurement
Preparer/Title

Michele S. Gillen
Director, Administration

RECOMMENDATION:

To approve the award of a sole source purchase order contract to upgrade the PIMS PowerBuilder Application to Inflection Point Solutions, LLC and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in an amount not to exceed $268,131 and for a term of 18 months.

DISCUSSION:

MWRA's Toxic Reduction and Control Department (TRAC) uses Inflection Point Solutions, LLC's Pre-treatment Information System (PIMS) to issue new permits and keep track of current and historical permitting, sampling, inspection and enforcement information. MWRA acquired Inflection Point's PIMS application in 2006 (Contract 6177D) through an open bid procurement process and customized PIMS to meet the Environmental Protection Agency's and Department of Environmental Protection's requirements for industrial pretreatment programs. PIMS went live in August 2008 and consists of multiple applications, which include a Client Server application used by TRAC's staff; a Web-based Self-Monitoring Reporting (WebSMR) application used by outside industrial users to submit sample data; and a Permit Application.

The PIMS architecture consists of seven servers running specialized software on a Windows Server operating system. Currently, two servers within the PIMS architecture providing user access to the PIMS application are using an unsupported version of PowerBuilder software and require upgrading. The PowerBuilder software is imbedded source code within the PIMS application. A failure within the PowerBuilder software would be detrimental to the functionality of PIMS. Remaining at the current version of PowerBuilder would also limit the ability to upgrade

the Windows operating system version on these servers, which would introduce additional cyber security risk. Moreover, the current server operating system would be unsupported in 2023. Due to the MWRA-specific customizations to PIMS, this upgrade is not covered under the annual maintenance contract. The most recent examples of similar customization are:

- permit application - modifications to accept applications and associated documents from dental offices; and
- those for compliance with the EPA's Cross-Media Electronic Reporting Rule requirements for electronic data submittals.

Staff recommend the award of this sole source professional services contract to Inflection Point Solutions, LLC to upgrade the PowerBuilder software. Inflection Point Solutions, LLC owns the software's source code and is the only firm legally authorized to make modifications for Inflection Point Solutions' PIMS. The Director of Procurement has reviewed and approved this sole source procurement.

In addition to the upgrade of PowerBuilder code, Inflection Point Solutions, LLC will perform analysis on the reporting software, Crystal Reports, compatibility and upgrade requirements. The Crystal Reports upgrade will be procured at a later date based upon the results of these findings.

Staff have reviewed Inflection Point Solutions, LLC's proposed cost for these professional services and determined it to be reasonable.

BUDGET/FISCAL IMPACT:

There are sufficient funds available in the FY21 CEB for this service contract.

MBE/WBE PARTICIPATION:

Inflection Point Solutions, LLC is not a certified Minority- or Women-owned business.

V D.1
9/16/20

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Renewable and Alternative Energy Portfolio Services
Next Grid Markets, LLC
Contract RPS-68, Amendment 2

COMMITTEE: Administration, Finance and Audit

_____ INFORMATION
__X__ VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Stephen Estes-Smargiassi, Director of Planning & Sustainability
Jonathan Sycamore, Sr. Financial Analyst
Preparer/Title

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

RECOMMENDATION:

That the Executive Director, on behalf of the Authority, approve Amendment 2 to Contract RPS-68, Renewable and Alternative Energy Portfolio Services, with Next Grid Markets, LLC, in accordance with the pricing established under Massachusetts State Contract FAC109, to increase the contract amount by $27,400 to $105,000 and extend the contract term by 546 days from October 1, 2020 to March 30, 2022.

DISCUSSION:

The Massachusetts Renewable Energy Portfolio Standards and Alternative Energy Portfolio Standards are statutory obligations under the Green Communities Act of 2008. The Act requires Massachusetts retail electricity suppliers to provide a minimum percentage of kilowatt-hour (kWh) sales to end-use customers from eligible renewable resources. Qualified facilities generating renewable energy earn Renewable Energy Certificates (RECs), which may be sold to retail electricity suppliers to satisfy their Renewable Energy Portfolio Standard obligations.

The Massachusetts Division of Energy Resources established the qualification process for renewable generation facilities.[1] The following MWRA facilities are currently approved as qualified renewable generation units:

[1] Each Renewable Portfolio Standard Class has different supplier compliance percentages, as well as different qualifying generation units used to meet the compliance percentage. Class I facilities generate electricity using eligible technologies (solar, wind, small hydroelectric, landfill methane, digester gas, marine or hydrokinetic, geothermal, biomass) and began commercial operation after 1997. Class II renewable facilities generate electricity-using technologies similar to Class I, but have an operation date prior to January 1, 1998. Alternative Energy Portfolio Standard facilities include combined heat and power, flywheel storage, coal gasification, and efficient steam technologies.

- Deer Island Steam and Back-Pressure Turbine Generators – Class I
- Deer Island Residuals Odor Control Solar – Solar Class I
- Deer Island Maintenance Building Solar – Solar Class I
- Deer Island Wind, Both Turbines – Class I
- Deer Island Hydro – Class I
- Charlestown Wind – Class I
- Loring Road Hydro – Class I
- Carroll Water Treatment Plant - Class I
- Brutsch Hydro – Class I
- Oakdale Hydro – Class II
- Cosgrove Hydro – Class II

In April 2018, DCAMM awarded contract FAC109 to Next Grid Markets, LLC, for the marketing, certification and sales of qualified RECs generated by the Commonwealth's facilities. MWRA executed contract RPS-68 with pricing established under the State contract to provide a mechanism for MWRA to sell the RECs created by MWRA's green power generators. In accordance with the pricing established under FAC109, Next Grid Markets will be paid a fee of 3% of revenue received from sales of Class I and Class II RECs, and a fee of 1.5% of revenue received from sale of SRECs.

Earlier this year, the Commonwealth exercised a renewal option to extend FAC109 for two years, through March 30, 2022. Due to the cancellation of the April 2020 Board meeting, a six-month extension was secured under the delegated authority of the Executive Director to avoid a gap in services with Next Grid Markets. Staff now seek an extension to March 30, 2022 and an increase in the contract amount to accommodate the longer contract term.

There are several advantages to MWRA in utilizing the State Contract for the marketing, certification, and sales of RECs. First, Next Grid Markets may aggregate MWRA's RECs with RECs from other state-controlled agencies and public entities, potentially yielding higher bid prices for larger bid quantities. Additionally, Next Grid Markets is actively engaged in the renewables market pricing, which allows the firm to develop a strategy to optimize REC sales revenue. Next Grid Markets may engage in "forward" marketing (financial contracts for future supply of RECs), which can result in higher prices. As an added benefit, Next Grid Markets will keep staff informed of any changes in the RECs market and/or regulations.

Since FY16, MWRA has collected revenues of nearly $3.5 million through the sale of its Class I and SRECs. MWRA staff typically sell its Class II RECs independently because the pricing received is consistently close to the Alternative Compliance Payment price, but can (and has) opted to sell these RECs through this contract if staff believed that aggregating Class II RECs would result in improved pricing. MWRA revenue from Class II REC sales was approximately $1.4 million for the FY16-FY20 period. This contract includes the sale of MWRA Class I RECs, Class II RECs, and SRECs. With respect to the sale of MWRA's Class II RECS, MWRA can continue to sell its Class II RECs independently or it can utilize Next Grid Markets' services instead. Next Grid Markets' fee will be in accordance with FAC 109.

This Amendment:

Staff recommend the approval of Amendment 2 to Contract RPS-68 to extend the contract term by 546 days for the continued marketing and sale of MWRA Class I and Solar Renewable Energy Certificates. This amendment would make no change in the scope; however, the total contract amount would increase to $105,000 to accommodate the longer contract duration.

CONTRACT SUMMARY

	AMOUNT	**TIME**	**DATED**
Contract RPS-68	$77,600	713 Days	April 18, 2020
Amendment 1	$0	183 Days	June 4, 2020
Proposed Amendment 2	$27,400	546 Days	Pending
Adjusted Contract Amount:	$105,000	1,442 Days	

BUDGET/FISCAL IMPACTS:

The estimated total payment to Next Grid Markets for selling MWRA's projected Class I and Solar RECs through March 30, 2022 will not exceed the proposed contract value of $105,000, an increase of $27,400 based on market prices and projected RPS sales totaling $900,000 dollars over the 546 day contract term extension period.

MBE/WBE PARTICIPATION:

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

V D.2
9/16/20

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Managed Security Services
NWN Corporation
Contract 7499, Amendment 2

COMMITTEE: Administration, Finance & Audit

_____ INFORMATION
__X__ VOTE

Paula Weadick, Director, MIS
Murali Rajoo, Manager, IT Security, Architecture & Eng.
David M. Stokes, Sr. Program Manager, IS Security
Preparer/Title

Michele S. Gillen
Director of Administration

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract 7499, Managed Security Services, with NWN Corporation in the amount of $474,392.49, increasing the contract total from $3,185,475.19 to an amount not to exceed $3,659,867.68, and approving the option to extend the term by 12 months, from July 4, 2021 through July 4, 2022 to provide continued cyber security services.

DISCUSSION:

On March 16, 2016, the Board approved the award of Contract 7499 to NWN Corporation to provide cyber security services and products to MWRA. The original contract, in the amount of $2,109,842, was for 39 months and included two 12-month options to extend, subject to the Board's approval. On December 19, 2018, the Board approved Amendment 1 to Contract 7499, exercising both 12-month extension options concurrently, for a total extension of 24 months, increasing the contract amount not to exceed $3,185,475.19. Staff are now recommending approval of another 12-month extension to Contract 7499 for reasons that are provided in more detail in this staff summary.

When this contract was awarded, MWRA conducted a competitive, best value procurement, with cost, capacity/qualifications/key personal, technical approach/organization/management and similar experience/past performance on Authority and non-Authority projects as the selection criteria to select a cyber-security services provider. At that time, the Selection Committee unanimously ranked NWN first based on the overall strength of its proposal, which included the lowest cost proposal.[1] The proposers were also required to include pricing for two optional 12-month extensions as part of the original competitive procurement process. NWN provided the lowest cost proposal for both extension options.

[1] Two other proposers had lower cost proposals, but those costs did not include certain hardware and software that was required in the scope of services.

For Amendment 1, staff negotiated an additional 10.7% decrease over the original quote, in exchange for MWRA exercising the two 12-month extensions concurrently. NWN's cost proposal for Amendment 2, $474,392.49, represents a decrease of 11.8% over the annualized costs of Amendment 1.

The recommended extension includes maintenance for all managed devices, continuous monitoring, 24/7 alerting of cyber security events, and incident response services for an additional twelve months.

MWRA has seen a greater than 225% increase in the volume of logs (a detailed listing of a computer's events) generated from its cyber security infrastructure over the life of the contract. Staff anticipate that volume will continue to increase over the next 2 years as additional security requirements from federal standards and regulations will likely require configuration changes to provide additional logging of computer activity. Additionally, MWRA has seen a 71% decrease in actionable alerts from its cyber security services provider. NWN has been fine-tuning the cyber intrusion detection and prevention devices in order to decrease false positives, to increase performance, and to incorporate additionally available threat intelligence information into the security protocols which can result in faster and more accurate identification and elimination of known threats.

Staff believe the proposed price for the extension period to be fair and reasonable. Staff have also been pleased with the services provided by NWN and believe the devices and software currently in place, which have not yet reached the end of their useful life, continue to perform their cyber security protections and detections satisfactorily at this time. Given that MWRA will continue to maintain the same services as it currently does, in an environment in which the cyber security "traffic" and events have increased significantly since the beginning of the contract, and will continue to increase, staff believe it is appropriate to extend the current contract for another 12 months.

If this extension is approved, staff will continue to research cyber security improvements for MWRA based on the latest technological advances and efficiencies available within the market and will consider all available best practice guidance from the Department of Homeland Security. In addition, staff will seek the procurement of design services to assist in the design and selection of the next iteration of the security infrastructure and management services. This will form the basis for a new scope of services for MWRA's next Managed Security Services contract that will be competitively procured.

Contract Summary

	Price	*Duration*	*End Date*
Original Contract	$2,109,842.00	39 months	07/04/2019
Amendment 1	$1,075,633.19	24 months	07/04/2021
Amendment 2	$474,392.49	12 months	07/04/2022
Revised Contract Total	$3,659,867.68	75 months	07/04/2022

BUDGET/FISCAL IMPACTS:

There are sufficient funds in the requested FY21 Current Expense Budget for this contract. The original contract award for all hardware, software, support, monitoring, and installation charges for three years was $2,109,842.00. The total cost of Amendment 1 was $1,075,633.19. The total cost of Amendment 2 is $474,392.49.

MBE/WBE PARTICIPATION:

Due to the limited subcontracting opportunities, no MBE or WBE participation criteria were established for this procurement.

V D.3
9/16/20

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Dental Insurance
Delta Dental of Massachusetts
Contract A613, Amendment 3

COMMITTEE: Administration, Finance & Audit

_____ INFORMATION
_X_ VOTE

Andrea Murphy, Director of Human Resources
Preparer/Title

Michele S. Gillen
Director of Administration

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 3 to Contract A613, with Delta Dental of Massachusetts, exercising the third option to renew, increasing the contract amount by $316,000, from $1,064,000 for a total not-to-exceed amount of $1,380,000, and extending the contract term by twelve months, from January 1, 2021 to December 31, 2021, for a total contract term of 48 months.

DISCUSSION:

MWRA has been providing dental insurance to all non-union employees since July 1, 1985. This benefit also covers a number of union employees who were accreted into collective bargaining units in 1994. The remaining MWRA union employees receive dental coverage through the Health and Welfare plans of their respective unions.

In December 2017, the Board of Directors approved this contract with Delta Dental of Massachusetts to provide dental insurance to eligible employees for a period of twelve months (Calendar Year 2018), with further options to renew the contract for up to three additional 12-month periods subject to Board approval.

This amendment is for the third extension covering Calendar Year 2021 and would maintain the level of coverage currently offered to eligible employees in the areas of diagnostic, preventive, basic and major restorative services as well as limited orthodontic coverage.

Contract Summary	Amount	Term	Dated
Original Contract	$352,000	One Year	01/01/2018
Amendment 1	$360,000	One Year	01/01/2019
Amendment 2	$352,000	One Year	01/01/2020
Amendment 3	$316,000	One Year	01/01/2021

BUDGET/FISCAL IMPACT:

The rate per employee decreased by 3% over last year and the number of participants has dropped from 203 in July 2019 to 187 in July 2020. This contract covers the second half of FY21 and the first half of FY22. The FY21 Current Expense Budget includes the cost of the dental insurance for eligible employees. The total cost of the plan is dependent upon the number of employees enrolled. The remaining cost of the dental insurance program will be included in the FY22 Current Expense Budget.

MBE/WBE UTILIZATION:

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

STAFF SUMMARY

VI A.1
9/16/20

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Hayes Pump Station Rehabilitation Design and Engineering Services During Construction
Hazen and Sawyer, P.C.
Contract 7162

COMMITTEE: Wastewater Policy & Oversight

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

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

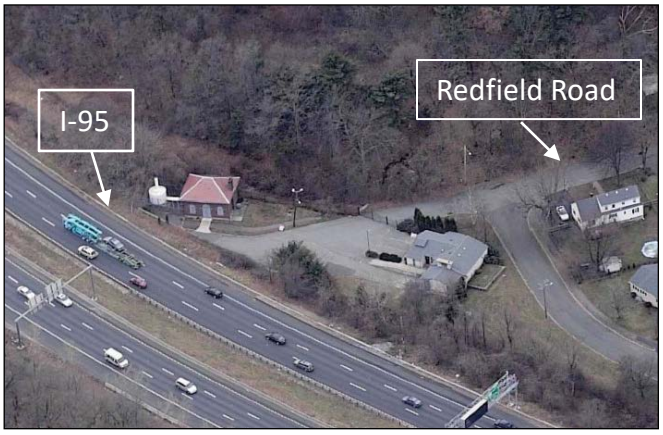
David W. Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract 7162, Hayes Pump Station Rehabilitation Design and Engineering Services During Construction, to Hazen and Sawyer, P.C. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed $2,100,013, for a contract term of 60 months from the Notice to Proceed.

DISCUSSION:

Figure 1: Hayes Pump Station



The Hayes Pump Station was built in 1987 to replace the old Reading Pump Station. It is located adjacent to I-95 in Reading at the end of Redfield Road, as shown in Figure 1. The station receives wastewater flows from Reading, the northwest corner of Wakefield and portions of Stoneham. The station pumps flows of approximately three MGD on a typical day and is able to pump peak flows of approximately 9.4 MGD. Pumped flows are conveyed through a force main under I-95 to MWRA's Reading Extension Relief Sewer. The old Reading Pump Station building, located on the southern end of the property, is currently used to house the odor control fan, which draws air from the Hayes Pump Station and discharges through a carbon vessel.

The majority of the equipment and facility components are over 30 years old, or are at the end of their useful life. These assets are in need of repair or replacement to help ensure MWRA's ability to continue to provide uninterrupted wastewater service. Major facility components in need of rehabilitation include facility gates, solids handling equipment, primary wastewater pumps and motors, SCADA equipment, odor control systems and electrical equipment including the emergency generator.

Figure 2: Hayes Pump Station

Given changes in the Massachusetts State Building Code since the facility was constructed, upgrades to address code compliance issues include HVAC and plumbing, architectural and fire protection system improvements.

During the replacement of wastewater process equipment, a temporary bypass pumping system to allow uninterrupted wastewater service will be installed.

This Contract

Contract 7162 will provide design and engineering services during construction for the rehabilitation of the Hayes Pump Station. Services include evaluation, design and implementation of the following equipment and system improvements:

- Site drainage system improvements;
- Screenings systems replacement;
- Pumping system replacement and wet well configuration (Figure 3);
- Heating, ventilation and air conditioning;
- Plumbing and fire protection improvements;
- Motor control center replacement;
- Emergency generator replacement;
- Complete plant instrumentation and controls upgrades (SCADA);
- Replacement of existing odor control system, including the relocation of the odor control fan in the Reading Pump Station (Figure 4); and
- Architectural improvements to the building envelope.

The project design will provide contract documents for a single construction contract to be publicly bid in accordance with the provisions of Massachusetts General Laws Chapter 149. Design and construction bidding services are estimated to take 24 months from the notice-to-proceed date. Construction is estimated to take an additional 24 months, plus a 12-month warranty period, for a contract duration of 60 months.

Figure 3: Centrifugal Pumps

Figure 4: Odor Control Adsorber System

Procurement Process

On May 13, 2020, MWRA issued a one-step Request for Qualifications Statements/Proposals (RFQ/P) that was publicly advertised in the Central Register, the Boston Herald, the Banner Publications and El Mundo. In addition, 106 firms received notice of the RFQ/P via the MWRA Supplier Portal. The RFQ/P documents were requested by 37 firms, 13 of which were potential prime consultants and four firms submitted proposals.

The following criteria were used to evaluate each of the proposals: Cost (25 points); Qualifications and Key Personnel (25 points); Experience/Past Performance on Similar Non-Authority Projects and Past Performance on Authority Projects (25 points); Technical Approach (15 points); Capacity/Organization and Management Approach (5 points); and MBE/WBE Participation (5 points).

A pre-proposal meeting was held and a site visit was conducted on June 8, 2020. Six firms attended the meeting and visit, four of which were potential prime consultants. MWRA received four proposals on July 10, 2020 from Hazen and Sawyer, P.C., Wright-Pierce, Brown and Caldwell and Weston & Sampson Engineers, Inc.

The proposal costs compared to the Engineer's Estimate are presented below:

Firm	**Proposed Contract Cost**	**Level of Effort**
Hazen and Sawyer, PC	**$2,100,013***	**12,750 hours**
Wright Pierce	$2,520,558*	16,716 hours
Engineer's Estimate	*$2,604,600*	*15,364 hours*
Brown and Caldwell	$2,865,038*	17,757 hours
Weston & Sampson	$3,459,141*	21,133 hours

* Contract cost adjusted to correct minor mathematical errors.

The five voting members on the Selection Committee scored and ranked the proposals as follows:

	Total Points	Order of Preference* Total Score	Final Ranking
Hazen and Sawyer	411.00	5	1
Wright Pierce	372.50	10	2
Brown and Caldwell	322.50	17	3
Weston & Sampson	316.25	18	4

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

Hazen and Sawyer's cost estimate was approximately $504,587, or 19% less than the Engineer's Estimate. The next lowest cost proposal was Wright Pierce at $84,042, or 3% less than the Engineer's Estimate, followed by Brown and Caldwell at $260,438, or 10% more than the Engineer's Estimate. Weston & Sampson had the highest estimate at $854,542, or 33% more than the Engineer's Estimate. Hazen and Sawyer proposed the least amount of hours to complete the contract work (2,614 hours less than Engineer's Estimate).

While Hazen and Sawyer's low number of hours may indicate an underestimated level of effort required to complete the scope of work, its proposal demonstrated a thorough understanding of the project's requirements. The firm's successful experience on other recent MWRA facility rehabilitation projects indicates the ability to effectively administer MWRA contracts, resulting in lower project administration effort and lower effort overall. Hazen and Sawyer's references confirmed successful completion of projects within allocated budgets. These factors resulted in Hazen and Sawyer providing the best value to complete this project.

Hazen and Sawyer provided examples of highly relevant projects with comparable scope and size, and the firm's references were favorable. The qualifications of the key personnel proposed are excellent, and include an experienced team for the key technical roles for the project. The team will be led by a project manager with significant pump station rehabilitation experience, and supported by a project engineer with extensive experience working with MWRA. The firm's technical approach was thorough and provided a site-specific bypass pumping plan. Moreover, Hazen and Sawyer exceeded the MBE participation requirement and met the WBE participation requirement.

The second lowest cost proposal was submitted by Wright Pierce with 16,716 hours, which is 1,352 more hours than the Engineer's Estimate. Wright Pierce presented a well-qualified team and provided good references. Wright Pierce provided a thorough technical approach, which demonstrated its project understanding; however, its staffing capacity for pump station design is limited. The proposed team is currently working on a similar-sized MWRA project, the Braintree-Weymouth Pump Station Improvements Project. Due to more limited staffing and higher costs than Hazen and Sawyer, Wright Pierce was not first ranked. Finally, Wright Pierce did not achieve the minimum WBE threshold requirement of 5.77%. However, the firm exceeded the MBE goal of 7.18%.

Brown and Caldwell was the third ranked firm with an estimate of 17,757 hours, which is 2,393 hours more than the Engineer's Estimate. The Brown and Caldwell team included 15 direct labor waiver requests and nine subconsultants, which require coordination, review of deliverables and cost. Brown and Caldwell did not present as much pump station experience as the other firms. Finally, the firm's references did not provide relevant pump station rehabilitation experience.

Weston & Sampson had the lowest ranked proposal with an estimate of 21,133 hours, which is 5,769 hours more than the Engineer's Estimate. The level of effort and cost were significantly higher than the other proposers and the Engineer's Estimate, although the project team was qualified and received positive references.

The Selection Committee determined Hazen and Sawyer submitted an excellent proposal with a highly qualified team, proven experience on directly relevant projects, a detailed technical approach reflecting the project's goals, a justified level of effort for the project and overall best value for the Authority. MWRA staff met with Hazen and Sawyer's design team and project director to confirm the anticipated level of effort. Hazen's team is confident the firm can perform the work for the proposed amount. The firm's proposed level of effort is based on established project delivery protocols to successfully administer MWRA projects, and recent design efficiencies gained through the use of three dimensional design programs.

Based on final rankings and the reasons set forth above, the Selection Committee recommends award of this contract to Hazen and Sawyer, PC in an amount not to exceed $2,100,013.

BUDGET/FISCAL IMPACT:

The FY21 CIP includes a budget of $2,540,000 for Contract 7162. The award amount is $2,100,013.

MBE/WBE PARTICIPATION:

The minimum MBE and WBE participation requirements for this project were established at 7.18% and 5.77%, respectively. Hazen and Sawyer has committed to 7.18% MBE and 6.80% WBE participation.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Early Warning Pilot for the Resurgence of COVID-19
Biobot Analytics, Inc.
Contract OP-419, Amendment 1

COMMITTEE: Wastewater Policy & Oversight

____ INFORMATION
__X__ VOTE

Steven F. Rhode, Director of Laboratory Services
Carolyn M. Fiore, Deputy Chief Operating Officer
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to the Early Warning Pilot for the Resurgence of COVID-19 to Biobot Analytics, Inc., for an amount not-to-exceed $137,365, increasing the contract amount from $200,000 to $337,365 and extending the contract term by 40 calendar days to February 1, 2021.

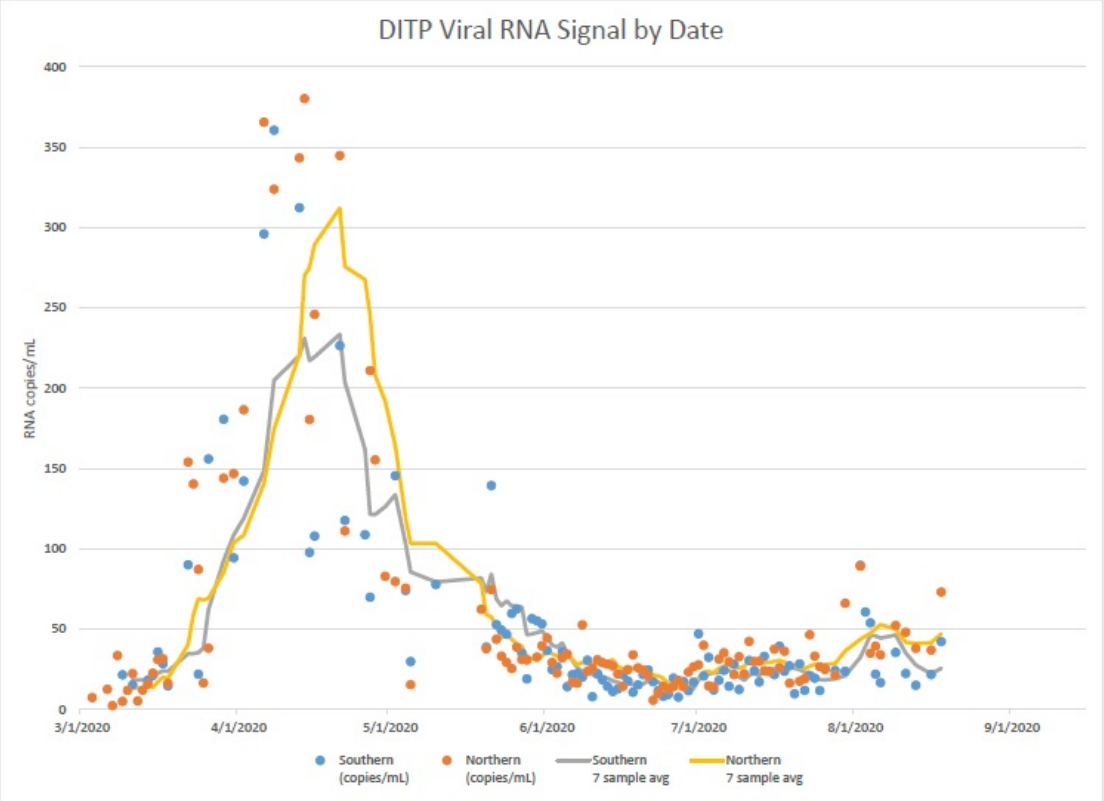
DISCUSSION:

Early Warning Pilot for the Resurgence of COVID-19, a sole source contract approved by the Board of Directors at its June 24, 2020 meeting, is the pilot of an early warning system for future outbreaks of COVID-19 within the area served by the MWRA sewer system. The pilot program is for the analysis of wastewater samples from the north and south influents to the Deer Island Treatment Plant with rapid analysis for the genetic signal (viral RNA) of the SARS-CoV-2 virus that causes COVID-19. The pilot program is an extension of research supported by MWRA including analyses of wastewater samples collected between January and June of 2020. Analyses conducted under the contract have continued that timeline through July and August to the current date. Sample results are shared with the state COVID-19 Command Center as such are received. Additionally, the sample results are posted on MWRA's website after Massachusetts Executive Office of Health and Human Services staff have reviewed. The contract scope of services provides for the analysis of wastewater samples of the north and south influents to the Deer Island Treatment Plant collected three times weekly with a three-to-seven business-day turnaround (156 samples). Provisions for up to 40 as-needed upstream follow-up samples were also included in order to further inform public health officials if an increased signal is detected.

MWRA is proceeding with plans to solicit a contract to continue this testing during 2021 via a competitive professional services procurement.

This Amendment

Amendment 1 will increase the contract funding by $137,365 to account for unanticipated additional testing performed to date, and to allow for as-needed additional testing at expedited turn-around times going forward and extend the contract term by 40 days. The additional time will ensure MWRA has sufficient coverage of services between this contract and future procurement and contract award for such services. Moreover, the additional services during this extension of contract time aids MWRA in understanding any differences in results, which may arise due to variations in laboratory procedures between vendors.



Staff received results during the first week of July indicating the Deer Island Treatment Plant signal had doubled from June 28 to July 3. Staff shared these results with state public health officials and they requested MWRA increase the sampling frequency from three times weekly at two locations (six samples per week) to daily at two locations, and weekdays at four other locations (34 samples per week). They also requested MWRA explore a further expedited turnaround time for the samples. Biobot indicated it could provide an expedited turnaround time of two calendar days for a 75% surcharge above the original contract sample price. The period of increased sampling frequency lasted from July 10 to July 24, 2020. A total of 59 extra samples were submitted in July, with 19 of those at the expedited turnaround surcharge price. A second event of increased signal occurred at the beginning of August that led to an additional four extra samples, and eight samples at the expedited turnaround price.

Amendment 1 will provide contract funding for the remaining life of the contract, with an allowance for four weeks of extra samples and expedited turnaround during that period. MWRA will pay for extra samples or expedited turnaround only if they are needed.

CONTRACT SUMMARY:

	Amount	Time	Dated
Original Contract:	$200,000	182 Days	06/24/20
Amendments:			
Amendment 1 (Pending)	$137,365	40 Days	
Total of Amendments:	$137,365	40 Days	
Adjusted Contract:	$337,365	222 Days	

BUDGET/FISCAL IMPACT:

The cost of this contract will be absorbed in the Operations Division's FY21 Current Expense Budget.

MBE/WBE PARTICIPATION:

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

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: As-Needed Resident Engineering and Resident Inspection Services
Kleinfelder Northeast, Inc.
Contract 7629, Amendment 1 and Award of Task Order No. 4

COMMITTEE: Wastewater Policy & Oversight

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

John P. Colbert, P.E., Chief Engineer
Corinne Barrett, Director, Construction
Eleanor Duffy, P.E., Assistant Director, Construction
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 1 to Contract 7629, As-Needed Resident Engineering and Resident Inspection Services, with Kleinfelder Northeast, Inc. extending the contract term by eight months from September 7, 2021 to May 7, 2022, with no increase in contract amount, and to approve Task Order No. 4 for Top of Shafts 6, 8 and 9A REI Services in the amount of $356,978.96.

DISCUSSION:

On March 4, 2020, the MWRA advertised Contract 7696, Top of Shafts Interim Improvements REI Services, with a proposal due date of April 3, 2020. The Resident Engineering and Inspection (REI) services would provide support to the Top of Shafts 6, 8 & 9A Interim Improvements construction scope for Contract 7561, which is being presented for approval at this Board meeting. The work includes strengthening exposed pipe and valve bodies, replacement of nuts and bolts on shaft caps and flange connections, and adding vault waterproofing. This work is necessary to protect and improve critical facilities related to the existing tunnel system until the new Metropolitan Tunnel Project is completed.

The REI services included in the scope was for 18 months for a resident engineer for the entire construction period with an estimated cost of $470,000. MWRA extended the due date for proposals three times; however, when MWRA eventually closed the proposal period after 13 weeks on the procurement portal on June 5, 2020, no firms had submitted a proposal. Staff polled firms on the planholders list to learn why they did not submit proposals. Representatives of several firms indicated that they either lacked qualified staff, their firm preferred to focus on design work, or they were more interested in pursuing other MWRA projects. It was also noted that the amount

of confined space entry inspection work, combined with specialty construction work including carbon fiber wrap, made this work more specialized than typical REI services.

Due to the specialty nature of this work, staff determined the work would be in line with the services provided with two existing REI task order contracts. The two REI task order contracts were approved for award at the July 18, 2018 Board of Director's meeting to Kleinfelder Northeast, Inc.(Contract 7629) and to MWH Constructors, Inc. (Contract 7630) for three-years in an amount not to exceed $1,500,000 each. Per the approval from the Board of Directors, the Chief Operating Officer may approve all task orders up to $100,000 and the Executive Director may approve task orders between $100,000 and $250,000. These technical assistance contracts make available, on an as-needed basis, civil, mechanical, electrical, and instrumentation and control specialists for resident engineering and inspection services to assist MWRA staff.

MWRA reviewed the construction group staffing to determine if this project could be completed with in-house staff entirely. Due to the nature of the work, including carbon fiber wrapping and coating of the shaft chambers that require speciality resident engineering services along with the current work demands of in-house staff, it is proposed that MWRA cover this project when work will be completed outside of the shafts and during project closeout activities. Therefore, the consultants were asked to provide a resident engineer for a period of 12 months with in-house staff covering the remaining six months. The consultant will support the major construction activities during the allowed work periods during low water demand periods from September 15 to May 15. In house staff will support the needs of the project during the high demand period from May 15 to September 15 and project closeout activities. The level of effort of REI services required by task order is lower using this approach.

Both Kleinfelder and MWH were asked to provide resumes and availability of staff to support this project. Each consultant provided a qualified available resident engineer and a cost proposal. The proposals from Kleinfelder and MWH were as follows:

	Kleinfelder	**MWH**	**Engineer's Estimate**
Task Order Cost	$356,978.96	$408,821.00	$342,790.00

Staff recommend Kleinfelder as its proposed cost is within 4% of the Engineers's Estimate and it has a proven track record of providing similar services on budget and within schedule. MWH's cost is 19% above the Engineer's Estimate.

This Amendment

Construction Contract 7561, Top of Shafts 6, 8 & 9A Interim Improvements is anticipated to have a Notice to Proceed in October 2020 for an 18 month duration, with completion in May 2022; therefore, the corresponding REI services would be complete by May 2022. So that Kleinfelder may provide REI services until construction under Contract 7561 is complete, staff request that the Board authorize the Executive Director to approve Amendment 1 extending the term of Contract 7629 by eight months, from September 7, 2021 to May 7, 2022, and to approve Task Order 4 under Contract 7629 in the amount of $356,978.96.

C**ONTRACT SUMMARY:**

	AMOUNT	TIME	DATED
Original Contract:	$1,500,000.00	36 Months	09/07/18
Amendment 1:	0.00	8 Months	Pending
Amended Contract Amount:	$1,500,000.00	44 Months	

BUDGET/FISCAL IMPACT:

Amendment 1 is a time extension only and has no budgetary impact. There are sufficient funds remaining in Contract 7629 to cover Task Order 4.

MBE/WBE PARTICIPATION:

There were no minimum participation requirements established for these contracts.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Top of Shafts 6, 8 and 9A Interim Improvements
National Water Main Cleaning Co.
Contract 7561

COMMITTEE: Water Policy & Oversight

____ INFORMATION
__X__ VOTE

Michele S. Gillen
Director of Administration

Kathleen M. Cullen, P.E., Program Manager
John P. Colbert, P.E., Chief Engineer
Preparer/Title

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

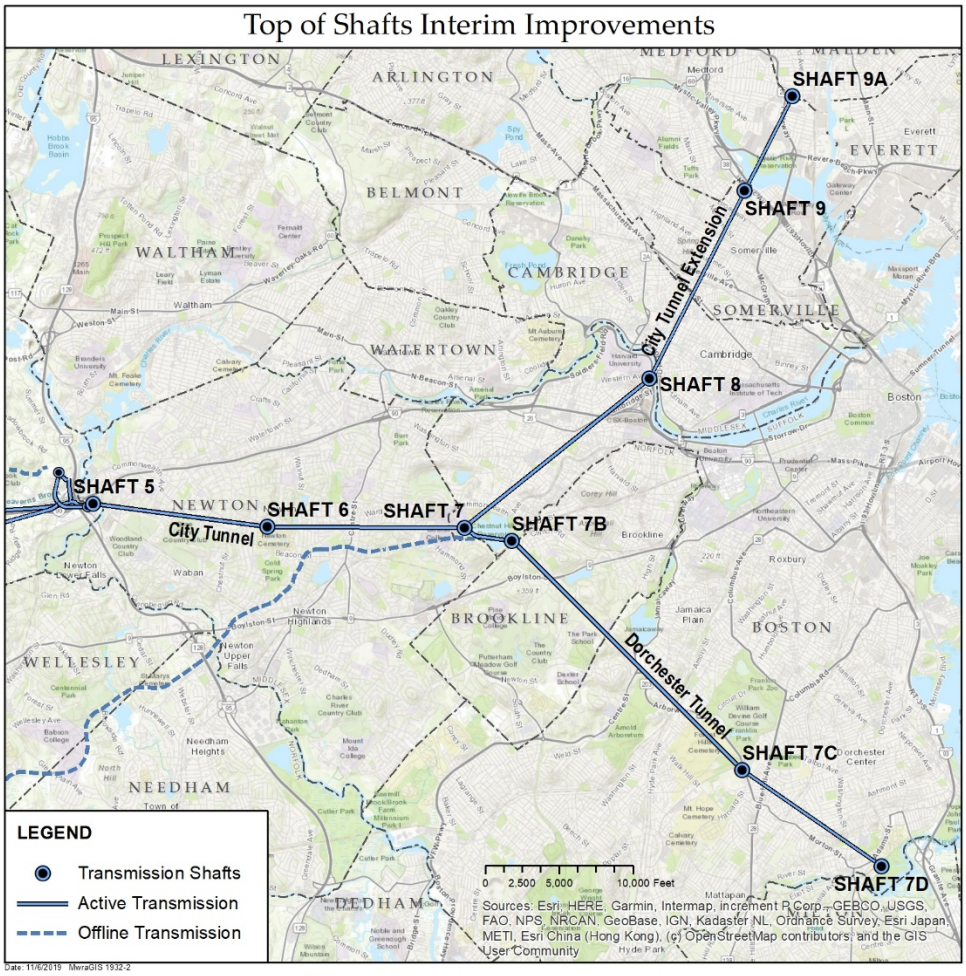
RECOMMENDATION:

To approve the award of Contract 7561, Top of Shafts 6, 8 and 9A Interim Improvements, to the lowest responsible and eligible bidder, National Water Main Cleaning Co., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $2,391,500, with a contract term of 548 calendar days from the Notice to Proceed.

DISCUSSION:

The City Tunnel, completed in 1950, is a 4.8-mile tunnel system connecting the MetroWest Water Supply Tunnel and the Hultman Aqueduct in Weston to the Metropolitan Boston area distribution system at Chestnut Hill (see Figure 1). It has major valve connections at Shaft 5 in Weston, Shaft 6 in Newton and it connects to the City Tunnel Extension and the Dorchester Tunnel at Shaft 7. The City Tunnel Extension, completed in 1963, supplies the Northern Low, Northern High, Northern Intermediate High and Northern Extra High service areas via Shaft 8 in Brighton, Shaft 9 in Somerville, and Shaft 9A in Malden. The Dorchester Tunnel, completed in 1976, starts at Shaft 7 and supplies the Southern High and Southern Extra High pressure zones via surface distribution piping at Shafts 7B, 7C, and 7D.

To protect and improve critical facilities related to the existing tunnel system until the new Metropolitan Tunnel Project is completed, projects have been identified to strengthen existing structures and provide additional operational flexibility and redundancy. This is the first project to strengthen top of shaft structures and components.



Top of Shafts

The Top of Shaft 6, 8 and 9A Interim Improvements scope includes strengthening exposed pipe and valve bodies, replacement of nuts and bolts on shaft caps and flange connections, and adding vault waterproofing. Subsequent projects will make improvements to other shafts.

This Contract

Inspection, design and bid services were performed by MWRA's technical assistance contract consultant, Hazen and Sawyer. The piping, valves and appurtenances in these shafts have significant corrosion that require strengthening to prevent leakage or failure. The shaft structures have water leakage that impacts the condition of the piping and valves and require coating and sealing to improve waterproofing. A failure in these shaft structures would have significant consequences, as isolation of a shaft structure requires tunnel shutdown and loss of water supply or extremely reduced supply to multiple communities.

This contract will improve and protect all exposed piping, shaft caps, end caps, nuts, bolts, and valve bodies via corrosion protection tape wrap or exterior carbon fiber wrapping; remove and replace corroded nuts and bolts; and prevent water infiltration in eight vaults through waterproofing and grouting.

Shaft Cap and Air Valve at Shaft 8

The work at the shaft vaults, which are below grade, require confined space entry for all work activities. There are multiple vaults at each shaft location except at Shaft 6, which only has one vault. Confined space entries require gas monitoring and entry supervisors and attendants. These shaft entries also require a rescue crew with self-contained breathing to be onsite during all entries because the staff working in the shaft need to unattached and there are obstructions to clear enter and exit to the shaft access point.

Work will be performed at the shaft structures while the water system piping, valves, and appurtenances remain in service. Work cannot take place during the high water demand period from May 15 to September 15 to minimize the consequences of water system impacts should a failure occur during construction.

As the work takes place on critical infrastructure with no redundancy, it is a requirement that work can only take place at one shaft at a time. The construction duration is 18 months due to this restriction.

Procurement Process

Contract 7561 was advertised in the Boston Herald, El Mundo, Banner Publications, Central Register, COMMBUYS and through the MWRA Supplier Portal, and bid in accordance with Massachusetts General Laws, Chapter 30. Bids were received and opened on June 17, 2020, with the following results:

Contractor	Bid Amount
National Water Main Cleaning Co.	**$2,391,500**
GVC Construction, Inc.	$3,225,000
R. Zoppo Corp.	$3,375,725
WES Construction Corp.	$3,770,500
Bond Civil & Utility Construction	$4,044,175
Engineer's Estimate	*$4,177,000*

After bids were received, MWRA was contacted by the Foundation for Fair Contracting regarding the apparent low bidder, National Water Main Cleaning Co. The Foundation provided information regarding past allegations related to the prevailing wage law. Staff reviewed the information provided and met with representatives of the company. National Water Main subsequently provided written assurances to MWRA that it would comply with all prevailing wage law requirements should they be awarded this contract. Staff concluded no basis for rejection of National Water Main's bid and proceeded with bid evaluation. The Foundation for Fair Contracting was contacted and advised of National Water Main's assurances and MWRA's commitment to proper oversight of prevailing wage requirements.

National Water Main Cleaning Co.'s bid is the lowest at $2,391,500, which is $1,785,500 (42.75%) below the Engineer's Estimate.

The major differences between the Engineer's Estimate and National Water Main Cleaning Co.'s low bid include higher estimates by the Engineer for on-site rescue team services, construction duration and an assumption that the contractor would use subcontractors for the coating and lining activities.

MWRA staff have reviewed National Water Main Cleaning Co.'s bid in detail and discussed the major bid items with the company. Based on the bid review and subsequent discussions with representatives from the company, staff are satisfied that National Water Main Cleaning Co. understands the full scope of work and can perform the work for the bid price, which includes the payment of prevailing wages. National Water Main Cleaning Co. affirmatively stated that it bid competitively and aggressively based on its deep experience with coating and lining projects. National Water Main Cleaning Co. has been in business for over 20 years, performing environmental infrastructure maintenance work in New England, New York, and New Jersey, including surface preparation, concrete repair, and epoxy coatings.

National Water Main Cleaning Co. indicated that its experience in this type of work and the utilization of its qualified staff for most of the work will result in a more aggressive pace of work, and thus includes in its bid price the assumption that the work will be completed three months faster than the contract estimate. Self-performing a large portion of the work without additional subcontractor mark-ups results in a significant reduction as compared to the Engineer's Estimate. Completing the work in a shorter length of time than the Engineer's Estimate reduces significant costs associated with day rates for the on-site rescue team, workforce labor rates, and facility rentals including trailers, temporary fencing, and temporary lighting.

References were checked and found to be favorable. National Water Main Cleaning Co. has successfully completed many contracts as general contractor of similar size and complexity. References noted good quality of work and adherence to schedule and budget.

Staff are of the opinion that National Water Main Cleaning Co. possesses the skill, ability, and integrity necessary to perform the work under this contract and is qualified to do so. Staff recommend the award of this contract to National Water Main Cleaning Co. as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The FY21 CIP includes a budget of $4,177,000 for Contract 7561. The contract award amount is $2,391,500.

MBE/WBE PARTICIPATION:

The MBE and WBE participation requirements for this contract were established at 7.24% and 3.6% respectively. The Affirmative Action and Compliance Unit has approved a partial waiver for WBE participation requirements only.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: John J. Carroll Water Treatment Plant Sodium Hypochlorite System Modifications
Harding & Smith, LLC
Contract 7085H

COMMITTEE: Water Policy & Oversight

____ INFORMATION
__X__ VOTE

Michele S. Gillen
Director of Administration

John P. Colbert, P.E., Chief Engineer
William G. Sullivan, P.E., Sr. Program Manager
Preparer/Title

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

RECOMMENDATION:

To approve the award of Contract 7085H, John J. Carroll Water Treatment Plant Sodium Hypochlorite System Modifications, to the lowest responsible and eligible bidder, Harding & Smith, LLC, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $1,406,830 for a contract term of 235 calendar days from the Notice to Proceed.

DISCUSSION:

The sodium hypochlorite system at the Carroll Water Treatment Plant is located in the Chemical Building between the Ozone and Post Treatment Buildings. The system consists of eight 12,000-gallon storage tanks, five chemical metering pumps, piping and appurtenances. The existing hypochlorite system pumps and piping must be upgraded, as these components are at the end of their useful life. Multiple leaks have occurred in the Chlorinated Polyvinyl Chloride (CPVC) pipe in the Chemical and Post Treatment Buildings because of exposure to hypochlorite for over 15 years. The CPVC pipe will be upgraded to fused Polyvinylidene fluoride (PVDF) pipe that has better chemical resistance to sodium hypochlorite. The PVDF fused joints have better resistance to failures than the CPVC glued joints. Sodium hypochlorite piping at Deer Island Treatment Plant has already been changed from CPVC to PVDF due to the superior performance of PVDF. The existing

feed pumps have been in operation since plant start up in 2005. They have also experienced failures and must be replaced. (See photo of the sodium hypochlorite pipe leak on the previous page.)

Construction will be sequenced to allow replacement of the pipe and pumps without adversely impacting disinfection operations. Some work will be done during half-plant periods when each half of the plant is shut down for maintenance.

Replacement of the pipes that run from the hypochlorite fill station to the bulk storage tanks was not part of the project at the time the FY21 CIP was finalized. Late in the design process it was determined that the fill lines were leaking and must be replaced. This late addition to the scope of the project is the reason the contract amount is greater than budgeted.

Procurement Process

Contract 7085H was advertised in the Boston Herald, Central Register, Banner Publications, El Mundo, COMMBUYS, and on the MWRA Supplier Portal and bid in accordance with Chapter 149 of Massachusetts General Laws. A pre-bid conference was held on June 26, 2020 and a site visit was held on June 29, 2020. Three general bids were received and opened on August 12, 2020 and the results are presented below.

Bidders	Bid Amount
Harding & Smith, LLC	$1,406,830
Engineer's Estimate	*$1,859,000*
WES Construction Corp.	$1,985,598
R.H. White Construction Co.	$2,049,970

The low bid is 30% below the average of the other two bids and 24% below the Engineer's Estimate. Harding & Smith has indicated that it aggressively bid this job because it aligned with another project that was ending. The firm has successfully completed multiple projects for MWRA including mechanical work on the Carroll Plant UV Disinfection System, Deer Island Treatment Plant Pipe and Valve Replacement, and the Chelsea Creek Headworks. Harding & Smith staff have a thorough understanding of MWRA facilities and requirements. Harding & Smith believes its experience will allow them to perform this project more cost effectively, which is reflected in the lower bid amount.

MWRA and Stantec staff reviewed the project with Harding & Smith staff and are satisfied that they understand the scope of the work and can perform all elements of the work for the bid price.

Internal and external references were checked and found to be satisfactory. Ratings provided by the Division of Capital Asset Management and Maintenance were also satisfactory.

Staff have determined that Harding & Smith possesses the skill, ability and integrity necessary to perform the work under this contract and is qualified to do so. Staff have further determined that the bid price is reasonable, complete, and includes the payment of prevailing wages as required. Therefore, staff recommend the award of this contract to Harding & Smith, LLC as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The FY21 CIP includes a budget of $856,000 for Contract 7085H. The contract award amount is $1,406,830, or $550,830 greater than budgeted. This amount will be absorbed within the FY19-23 CIP spending cap.

MBE/WBE PARTICIPATION:

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

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Dam Safety Compliance and Consulting Services
GEI, Inc.
Contract W328

COMMITTEE: Water Policy & Oversight

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

John J. Gregoire, Program Manager, Reservoir Operations
Guy Foss, Director of Western Operations
Preparer/Title

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

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract W328 to GEI, Inc. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed $125,286.61, for a contract term of 36 months from the Notice to Proceed.

DISCUSSION:

In accordance with the 2004 Memorandum of Understanding with the Department of Conservation and Recreation (DCR), MWRA is responsible for funding and undertaking required regulatory inspections and analyses, and capital maintenance and improvements of the dams that impound MWRA's active and back-up reservoirs (see Attachment 1). Ensuring the integrity of these dams is critical, not only for water supply and flood control functions, but for downstream public safety. The majority of MWRA/DCR water supply dams are classified by the Massachusetts Office of Dam Safety as Large Size and High Hazard Class.[1]

Massachusetts Office of Dam Safety Regulations require that these dams be inspected on a recurring frequency. MWRA has an excellent compliance record through regular performance of required engineering inspections and addressing the findings of such inspections with maintenance and capital repairs as needed. To date, MWRA has invested over $23 million to perform studies, correct deficiencies and make operational improvements to ensure the safety and longevity of these important water supply dams.

The tasks included in this contract reflect this continuing responsibility by addressing some remaining deficiencies determined through prior dam safety regulatory inspections and studies.

[1] Hazard Class refers to the potential for loss of life and infrastructure downstream due to a dam failure.

This Contract

Contract W328 provides for qualified dam safety engineers to perform the required biennial regulatory inspections and reporting to the Massachusetts Office of Dam Safety. The contract also includes an allowance of $20,000 for unforeseen, as-needed dam safety assessment services that may arise during the contract. Work would only be performed on a task order basis using established MWRA approval processes.

The Chestnut Hill Reservoir and Weston Reservoir dams are among the oldest dams in the MWRA water system, constructed in 1870 and 1903, respectively. This contract also includes design and engineering services during construction of required piezometers (Figure 1) at these dams. Piezometers monitor the phreatic surface (hydraulic grade line from the reservoir) through the dam. This information is a critical component in seepage and stability analyses and for monitoring internal conditions. Borings required to install these piezometers will provide subsurface soils and conditions data that will also be used in future stability analyses. This is the second phase in piezometer installations at MWRA's earthen dams (the first phase is underway at Wachusett Reservoir's North and South Dikes). Future phases will include remaining dams and dikes at the Norumbega Reservoir and Fells Reservoir. Construction will be accomplished under a separate, future contract.

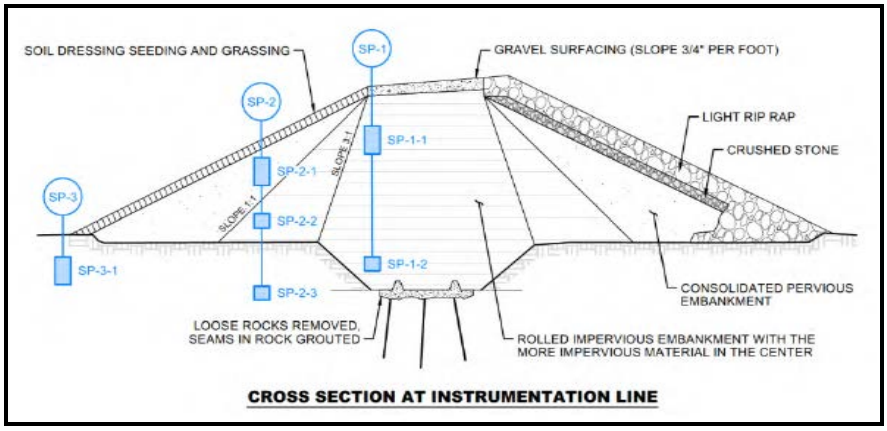


Figure 1 - Example of piezometer placement in earthen dam

Procurement Process

On June 20, 2020, MWRA issued a one-step Request for Qualifications Statements/Proposals (RFQ/P) that was publicly advertised in the Central Register, Boston Herald, Banner Publications and El Mundo. In addition, notice was sent directly to engineering firms. The List of Plan Holders for this contract shows 28 firms requested the RFQ/P documents. However, only two firms submitted proposals.

The following criteria were used to evaluate proposals: Cost (25 points); Relevant Experience/Past Performance (25 points); Qualifications and Key Personnel (20 points); Technical Approach (15 points); and Capacity/Organization and Management Approach (15 points).

Due to the pandemic, no pre-proposal conference or site visits were held. MWRA received proposals on July 22, 2020 from GEI, Inc. and GZA, Inc. The Selection Committee reviewed the

two proposals and scored each proposal accordingly. The results, including the proposed costs, are shown below:

	Total Points/Rank	Preference	Lump Sum Price
GEI, Inc.	422/5	1	$125,286.61
GZA GeoEnvironmental, Inc.	390/10	2	$138,618.22
Engineer's Estimate			*$145,000.00*

Based on a detailed review of the proposals, the Selection Committee unanimously selected GEI, Inc. as the top-ranked firm for this contract. GEI has been awarded prior MWRA contracts on dam work, including engineering design, Emergency Action Plans, and instrumentation design and internal drainage improvements at Winsor Dam in 2007. GEI also has substantial experience performing Phase I regulatory inspections for DCR and several Massachusetts municipalities. Furthermore, GEI performed instrumentation design for the Tennessee Valley Authority dams.

GZA also scored highly across the evaluation criteria with the Selection Committee ranking it second. GZA's costs were also competitive. GZA has held the dam safety and design contracts for the last several years and MWRA has been pleased with its performance. However, GEI offered a lower cost with similar qualifications.

Staff believe that GEI, Inc. possesses the skill, ability and integrity necessary to perform the work under this contract. GEI, Inc. is well qualified, and offered a very competitive cost to accomplish the work. Its project team includes three senior dam engineers at the firm, one of whom is a nationally recognized expert. Internal and external references were checked and found to be favorable. Therefore, staff recommend award of this contract to GEI, Inc. in an amount not to exceed $125,286.61.

BUDGET/FISCAL IMPACT:

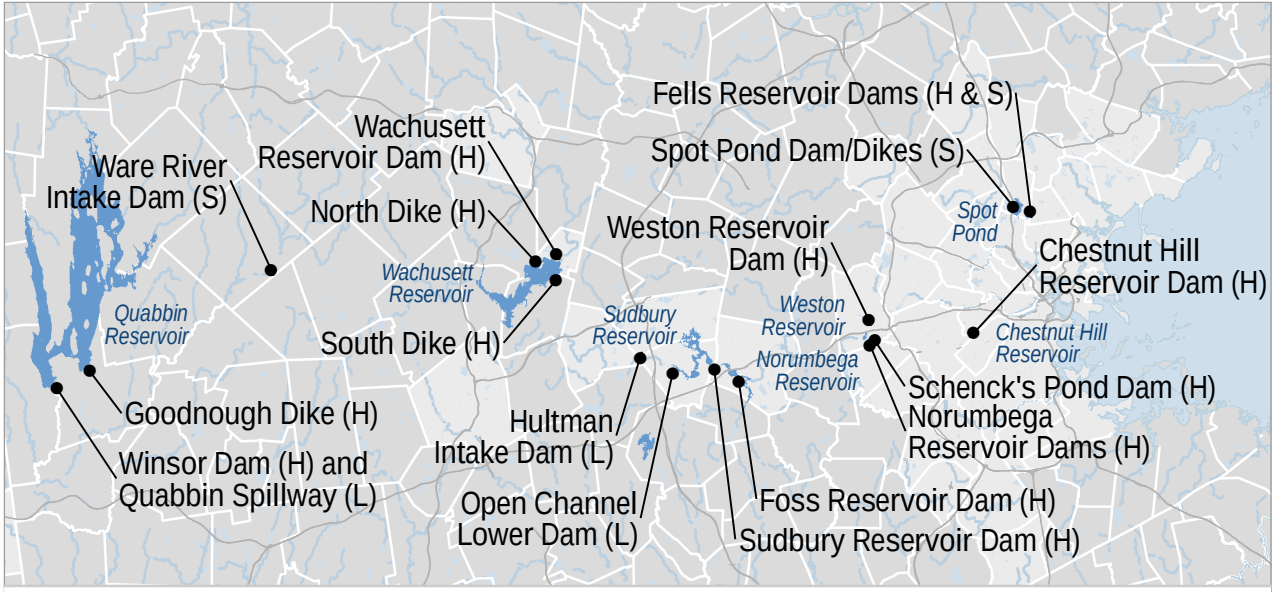
The FY21 CEB includes $145,000 for these services. The contract covers a three-year period. The FY21 work includes Tasks 1 (inspections) and 2 (instrumentation design) for a combined $72,200 or up to $92,200 should any allowance tasks be triggered. The CEB will absorb the remaining subsequent fiscal year tasks through the budget planning for those years.

MBE/WBE PARTICIPATION:

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

ATTACHMENT:

MWRA Dams Geographic Locations


Fells Reservoir Dams (H & S)
Spot Pond Dam/Dikes (S)
Wachusett Reservoir Dam (H)
Ware River Intake Dam (S)
North Dike (H)
Weston Reservoir Dam (H)
Spot Pond
Chestnut Hill Reservoir Dam (H)
Wachusett Reservoir
Quabbin Reservoir
South Dike (H)
Sudbury Reservoir
Weston Reservoir
Chestnut Hill Reservoir
Norumbega Reservoir
Schenck's Pond Dam (H)
Goodnough Dike (H)
Hultman Intake Dam (L)
Norumbega Reservoir Dams (H)
Winsor Dam (H) and Quabbin Spillway (L)
Open Channel Lower Dam (L)
Foss Reservoir Dam (H)
Sudbury Reservoir Dam (H)
MWRA Water Communities
Major Roads
MWRA Reservoirs
(H) - High Hazard Class
(S) - Significant Hazard Class
(L) - Low Hazard Class

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Rehabilitation of WASM 3 Sections W11/W12/W16/51 (Medford, Somerville, and Arlington)
Albanese D&S, Inc.
Contract 6544

COMMITTEE: Water Policy & Oversight

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

John Colbert, P.E., Chief Engineer
Mike Rivard, P.E., Program Manager
Preparer/Title

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

RECOMMENDATION:

To approve the award of Contract 6544, Rehabilitation of WASM 3 Sections W11/W12/W16/51 Water Mains (Medford, Somerville and Arlington), to the lowest responsible and eligible bidder, Albanese D&S, Inc. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $19,487,850 for a contract term of 1383 calendar days from the Notice to Proceed.

DISCUSSION:

MWRA's Weston Aqueduct Supply Main 3 consists of approximately 10 miles of steel pipe installed in the 1920s and 1930s. The pipe is a critical supply to over 250,000 customers in the Northern High, Northern Extra High and Intermediate High supply systems serving Waltham, Watertown, Belmont, Lexington, Bedford, Arlington, Somerville and Medford. It also can provide emergency supply to the Gillis Pump Station serving communities of the North Shore and Northern Intermediate High communities if the City Tunnel were to fail. The attached Figure 1 shows the full extent of the WASM 3 pipeline.

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

The work is restricted to low water demand months from September 15 to May 15, which necessitates three construction phases during the duration of the contract and a longer construction period than originally anticipated. This work restriction is necessary to ensure the main is

operational during high summer demand periods. Additional time was also provided to ensure submittals could be processed and materials obtained prior to the start of work, which is anticipated to begin in the fall of 2021. Staff are evaluating the impact of the additional time on engineering services during construction in a separate staff summary being presented at this Board meeting.

Procurement Process

Contract 6544 was advertised in the Central Register, Boston Herald, Banner Publication, El Mundo and COMMBUYS and competitively bid in accordance with Massachusetts General Laws, Chapter 30. Four bids were received and opened on July 8, 2020 with the following results:

Bidders	Bid Amount
Albanese D&S, Inc.	$19,487,850
P. Gioioso & Sons, Inc.	$20,820,000
R. Zoppo Corp.	$21,896,000
RJV Construction Corp.	$25,295,000
Engineers Estimate	*$13,992,000*

The three lowest bids are within 12.4% of each other, an indication that the three low bids are reflective of the cost for the work to be completed. The second lowest bidder, P. Gioioso & Sons' bid is $1,332,150 (6.8%) higher than the low bid. The lowest bid from Albanese D&S is $5,495,850 (39.3%) higher than the Engineer's Estimate.

Due to a three-phased approach, the project coordination is complex and is believed to have impacted the bid prices. Comparison of Albanese D&S's bid with the Engineer's Estimate showed several key differences. Albanese D&S's bid carried additional costs of approximately $3 million for cleaning and lining work whereas the Engineer's Estimate included lower costs for such work. Also, the Engineer's Estimate did not account for as many work restrictions including weather delays and the availability of fewer access pits. The Engineer's Estimate did not include a labor and materials inflation of $1.7 million for the longer construction schedule, or the cost of the emergency rescue crew of $500,000. Finally, it is believed COVID-19-related requirements had some impact on production rates. After meeting with representatives from Albanese D&S and reviewing the Engineer's Estimate, staff are of the opinion that the proposed cost by Albanese D&S is reasonable.

Qualifications and references for Albanese D&S, were checked. Albanese D&S has successfully completed several water and sewer projects for MWRA including the three Northern Intermediate High Pipeline projects in Stoneham, Wakefield and Reading. The recent project included large diameter pipe construction. Albanese D&S's performance on these projects was good. Staff also checked references for other non-MWRA projects, which were favorable.

Staff have concluded that Albanese D&S possesses the skill, ability and integrity necessary to perform the work under this contract and is qualified to do so. Staff have determined that the bid price is reasonable, complete and includes the payment of prevailing wage rates, as required. Therefore, staff recommend the award of this contract to Albanese D&S, Inc. as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

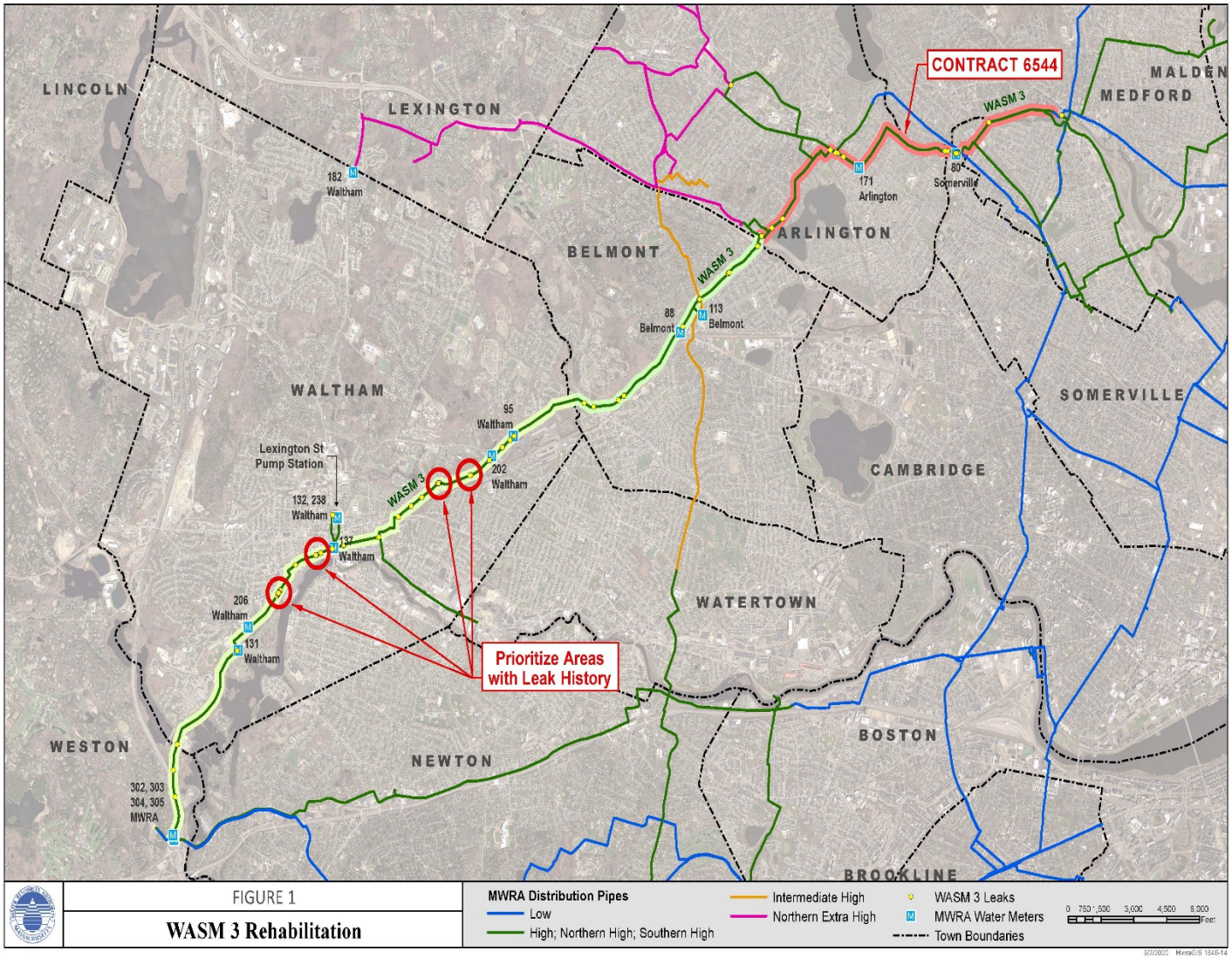
The FY21 CIP includes a budget of $13,000,000 for Contract 6544. The contract award amount is $19,487,850 or $6,487,850 greater than budget. This amount will be absorbed within the 5-year CIP spending cap. It should be noted that Contract 6544 will receive funding through the DEP Clean Water State Revolving Fund, of which the DEP has indicated that an amount of $19,382,850 is eligible for loan participation. In addition, the Town of Arlington will reimburse the Authority for $105,000 per the terms of the Memorandum of Agreement between MWRA and the Town of Arlington for the Broadway Plaza restoration. This MOA was approved by the Board of Directors at the March 18, 2020 meeting.

MBE/WBE PARTICIPATION:

Contract 6544 will receive Clean Water State Revolving Fund funding from the Massachusetts Clean Water Trust. The D/MBE and D/WBE participation requirements for this project were established by the Department of Environmental Protection at 4.2% and 4.5%, respectively. Albanese D&S has provided the requested D/MBE and D/WBE participation of 4.2% and 4.5% in its bid.

ATTACHMENT:

Figure 1 – WASM 3 Rehabilitation Project Map


CONTRACT 6544
WASM 3
LINCOLN
LEXINGTON
MALDEN
MEDFORD
182
Waltham
171
Arlington
80
Somerville
ARLINGTON
BELMONT
WASM 3
88
Belmont
113
Belmont
WALTHAM
95
Waltham
202
Waltham
SOMERVILLE
Lexington St
Pump Station
CAMBRIDGE
WASM 3
132, 238
Waltham
137
Waltham
206
Waltham
131
Waltham
WATERTOWN
Prioritize Areas
with Leak History
WESTON
NEWTON
BOSTON
302, 303
304, 305
MWRA
BROOKLINE
FIGURE 1
WASM 3 Rehabilitation
MWRA Distribution Pipes
Low
High; Northern High; Southern High
Intermediate High
Northern Extra High
WASM 3 Leaks
MWRA Water Meters
Town Boundaries
0 750 1,500 3,000 4,500 6,000
Feet

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: September 16, 2020
SUBJECT: Weston Aqueduct Supply Main 3: Design, Construction Administration and Resident Engineering Services
Stantec Consulting Services, Inc.
Contract 6539, Amendment 2

COMMITTEE: Water Policy & Oversight

____ INFORMATION
__X__ VOTE

John Colbert, P.E., Chief Engineer
Michael G. Rivard, P.E., Program Manager
Preparer/Title

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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract 6539, Weston Aqueduct Supply Main 3, Design, Construction Administration and Resident Engineering Services with Stantec Consulting Services, Inc. to revise the scope of services and schedule with no increase in the contract amount and no increase to the contract term.

DISCUSSION:

The Weston Aqueduct Supply Main 3 (WASM 3) engineering services contract includes design, construction administration and resident engineer/resident inspection for rehabilitation of ten miles of 56-inch to 60-inch diameter pipe through six different communities along highly congested and heavily travelled streets. Stantec is the prime consultant with substantial participation by Green International Affiliates, Inc. and CDM Smith Inc. as sub-consultants. The design and construction services span a total duration of 13 years and 11 months.

The preliminary design work began in July 2013 and continued for one year when it became apparent that surface construction of a 72-inch diameter pipeline through the congested urban areas of the affected communities would be extremely difficult to execute. Staff directed the consultant to put the preliminary design work for replacing the WASM 3 pipe on hold.

In October 2016, staff presented a briefing to the Board of Directors on Redundancy for the Metropolitan Tunnel system and recommended a preferred long-term tunnel alternative for redundancy. After a separate public forum on Long-Term Water Redundancy hosted by the MWRA Advisory Board in December 2016 and subsequent Advisory Board vote to support the proposed tunnel alternative, the Board of Directors voted on February 15, 2017 to approve the preferred tunnel redundancy alternative that includes both a northern and a southern tunnel route. With the new proposed tunnel system, WASM 3 will not require a larger pipe as originally planned, and the design contract was modified with an amendment to a rehabilitation project, which was approved on July 18, 2018.

Staff are also recommending the award of Contract 6544 at this Board meeting. This is the first construction contract to rehabilitate WASM 3 for the pipeline located in Medford, Somerville and Arlington. The contract is expected to take 3.7 years to complete.

During design, it was determined that work should be limited to low water demand periods, September 15 to May 15, to minimize impacts to water service since WASM 3 is a critical element of the distribution system. This added significant time to the schedule for all construction phases of the project. Staff have determined that a significant extension to the contract duration would require more consultant level of effort and time than remains in the contract. Therefore, staff are reviewing the best approach to replace or rehabilitate the most vulnerable sections of the pipe and insert critical valves within the time and budget available. Figure 1, attached, shows Contract 6544 limits and the areas of focus for a final design/construction package under this contract.

Amendment 2

Proposed Amendment 2 includes additional construction administration, resident engineering and resident inspection due to the additional time of 20 months needed to complete the first construction contract, Contract 6544, to complete rehabilitation of WASM 3 in Medford, Somerville and Arlington.

The award of the construction contract was delayed to obtain approval of a Memorandum of Agreement with the Town of Arlington for the Broadway Plaza Restoration improvements which was approved at the March 18, 2020 Board of Directors meeting. Due to COVID-19 requirements which were added into the construction contract, the project advertisement was delayed. The delay in award and the seasonal constraints resulted in the need to extend the construction schedule by 20 months. This extension is due in part to the shorter construction season. However, the timing of the notice to proceed, combined with the long lead time required for contractors to obtain valves and piping, also impacts the start date relative to those seasonal constraints and further contributes to the length of the schedule.

For the 20-month increase in time, staff have determined that the impact to construction administration is largely related to escalation of wages to the midpoint of construction and additional meetings for the extended construction duration. The extended schedule also requires additional resident engineering hours consistent with the additional time. Resident inspection hours will remain the same as inspection is not to be carried through the summer periods, which are expected to have little activity. The level of effort and costs for these increases are shown below.

<u>Resident Engineering</u> <u>$311,000</u>

To provide oversight of the construction activities a full-time Resident Engineer for the full extended construction term is added for 20 months. The Resident Engineer will support work activities that can be completed in the summer such as meter work and restoration activities.

<u>Construction Administration</u> <u>$103,000</u>

Additional Construction Administration services are necessary to cover meetings and provide monthly reporting on budget and activities. Twenty-six bi-weekly construction meetings were added. In addition, escalation of salaries was included since the work occurs over a longer construction period.

Staff are proposing to transfer budget from the future construction engineering services phases of the contract to fund the additional engineering services for this first construction project.

Next Steps

This contract has been in place for 7 years and has changed significantly from the original intent. To date, approximately $3.5 million has been spent under this contract on review of northern tunnel alternatives, field investigation, survey, preliminary design and design of Contract 6544. There is approximately $12 million remaining in the budget. There are not adequate funds or time remaining to complete all of the remaining intended construction. In addition, there are significant community impacts that will require town approval and coordination. Staff are working to prioritize those sections of the WASM 3 pipeline that are most prone to leaks and to design installation of valves that will facilitate future rehabilitation and repair efforts. A plan for the future improvements of WASM 3 will be provided to the Board at an upcoming meeting.

CONTRACT SUMMARY:

	Amount	Time	Dated
Contract Award:	$15,482,625	4,845 Days	06/26/2013
Amendment 1:	$30,210	243 Days	07/18/2018
Proposed Amendment 2:	$0	0 Days	Pending
Adjusted Contract:	$15,512,835	5,088 Days	

BUDGET/FISCAL IMPACT:

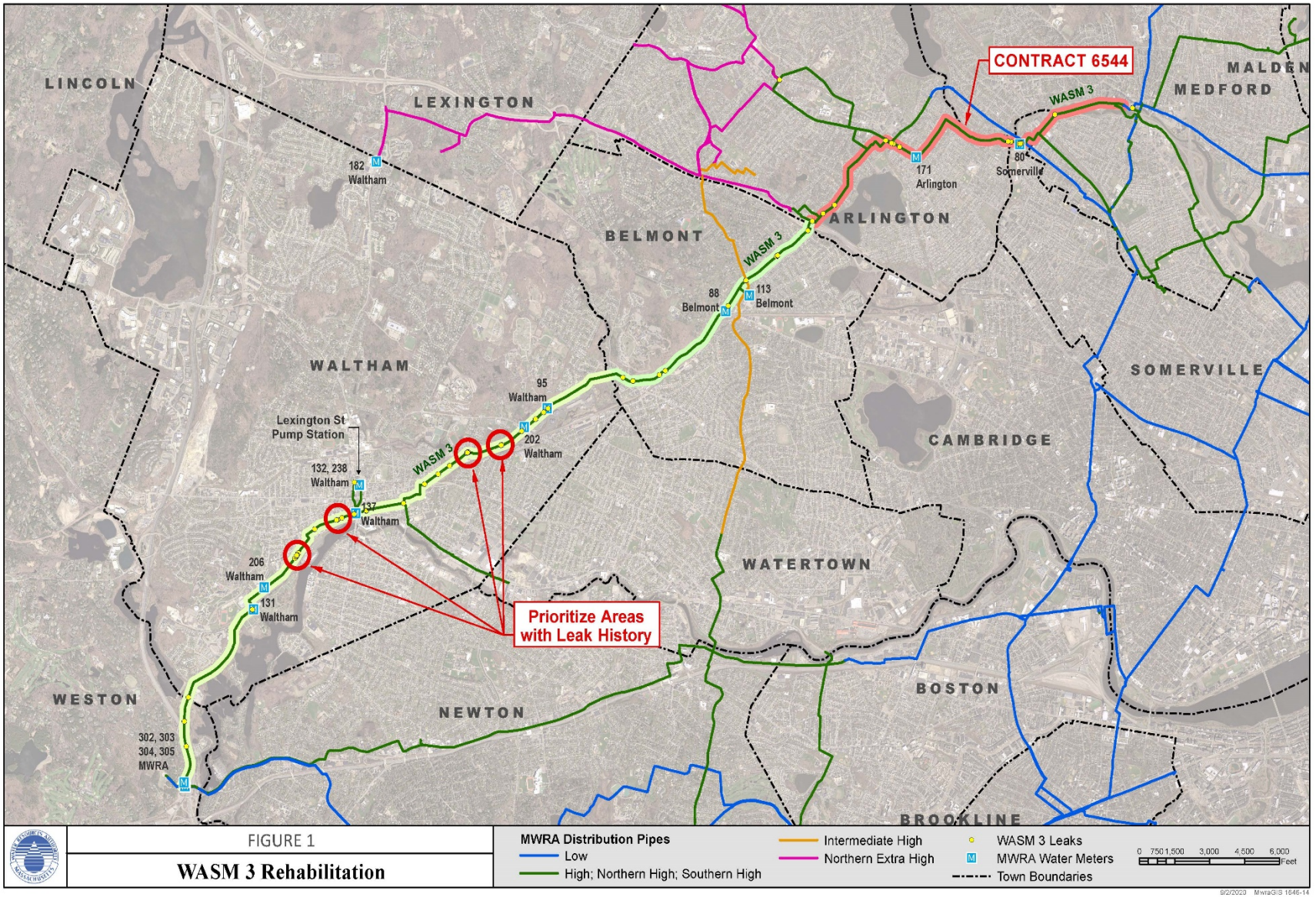
The FY19 CIP includes a budget of $15,512,835 for Contract 6539. The proposed Amendment does not increase the overall contract amount.

MBE/WBE PARTICIPATION:

The MBE and WBE participation requirements for this contract were established at 7.18% and 5.77%, respectively. Stantec, Inc. proposed 23.5% MBE and 7.57% WBE participation. These contract requirements will remain unchanged by this amendment.

ATTACHMENT:

Figure 1: WASM 3 Rehabilitation Project Map


LINCOLN
LEXINGTON
MALDEN
MEDFORD
CONTRACT 6544
WASM 3
182
Waltham
171
Arlington
80
Somerville
ARLINGTON
BELMONT
WASM 3
88
Belmont
113
Belmont
WALTHAM
SOMERVILLE
95
Waltham
Lexington St
Pump Station
202
Waltham
CAMBRIDGE
WASM 3
132, 238
Waltham
137
Waltham
206
Waltham
131
Waltham
WATERTOWN
Prioritize Areas
with Leak History
WESTON
NEWTON
BOSTON
302, 303
304, 305
MWRA
BROOKLINE
FIGURE 1
WASM 3 Rehabilitation
MWRA Distribution Pipes
Low
High; Northern High; Southern High
Intermediate High
Northern Extra High
WASM 3 Leaks
MWRA Water Meters
Town Boundaries
0 750 1,500 3,000 4,500 6,000
Feet
9/2/2020 MwraGIS 1646-14