



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

REVISED 03/17/2020, 6:15 PM
Out of an abundance of caution due to the Coronavirus (COVID-19) situation, the MWRA Board of Directors' meeting on March 18, 2020 at 1:00 p.m. will now be held virtually. Morning Committees are canceled.

Frederick A. Laskey
Executive Director

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

PERSONNEL & COMPENSATION COMMITTEE MEETING

to be held on

Wednesday, March 18, 2020

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

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

Time: ~~10:00 AM~~

Committee materials are included in this document because they are referenced in the Board of Directors' meeting agenda.

[LINK TO VIRTUAL MEETING SITE](#)

[Webex.com](#)

[Access Code: 629 484 312](#)

[Password: March2020](#)

AGENDA

A. Approvals

1. PCR Amendments – March 2020

B. Contract Awards

1. Employee Assistance Services: AllOne Health, Contract A625

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Personnel and Compensation Committee

February 19, 2020

A meeting of the Personnel and Compensation Committee was held on February 19, 2020 at the Authority headquarters in Charlestown. Committee Vice Chair Cotter presided. Present from the Board were Messrs. Carroll, Cook, Foti, Pappastergion, Peña, Vitale and Walsh. Ms. Wolowicz and Mr. Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Thomas Durkin, Michele Gillen, Kathleen Murtagh, Andrea Murphy and Kristin MacDougall. The meeting was called to order at 10:48 a.m.

APPROVALS

* Approval of the 2020 Affirmative Action Plan

Staff made a verbal presentation. There was brief discussion and questions and answers. (Mr. Foti briefly left and returned to the meeting during discussion.) Mr. Pappastergion commended staff on a well-prepared report.

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

* PCR Amendments – February 2020

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

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

* Appointment of Work Coordination Center Manager, Operations

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

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

The meeting adjourned at 10:57 a.m.

* Committee recommendation approved by the Board on February 19, 2020

Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2020/o-2020-01-15.pdf>

STAFF SUMMARY

TO: Board of Director
FROM: Frederick A Laskey, Executive Director
DATE: March 18, 2020
SUBJECT: March PCR Amendments

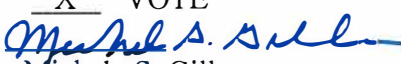


COMMITTEE: Personnel and Compensation


Andrea Murphy, Director of Human Resources
Preparer/Title

 INFORMATION

 X VOTE


Michele S. Gillen
Director, Administration

RECOMMENDATION:

To approve amendment 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.

March PCR Amendment

There is one PCR Amendment this month.

Organizational Change

1. Title change to one vacant position in the Operations Division, Policy & Administration department from Executive Secretary Unit 1 Grade 18, to Administrative Coordinator, Unit 1 Grade 18, to more accurately reflect the responsibilities of the position.

The amendment requires approval by the Personnel and Compensation Committee.

BUDGET/FISCAL IMPACT:

There is no budget impact of this PCR amendment.

ATTACHMENTS:

Old Job Description
New Job Description

MASSACHUSETTS WATER RESOURCES AUTHORITY
 POSITION CONTROL REGISTER AMENDMENTS
 FISCAL YEAR 2020

PCR AMENDMENTS REQUIRING PERSONNEL & COMPENSATION COMMITTEE APPROVAL - March 18, 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	
P10	Operations Policy & Admin 5910003	V	T	Executive Secretary	1	18	Administrative Coordinator	1	18	\$73,077	\$54,217	\$73,077	-\$18,860	-	\$0	Title change to more accurately reflect the responsibilities of the position.
PERSONNEL & COMPENSATION COMMITTEE TOTAL=					1							TOTAL:		-\$18,860 - \$0		

PCR AMENDMENTS REQUIRING BOARD APPROVAL - March 18, 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
NONE															
BOARD TOTAL =					0							TOTAL ESTIMATED COSTS:		\$0 - \$0	
GRAND TOTAL =					1							TOTAL ESTIMATED COSTS:		-\$18,860 - \$0	

**MWRA
POSITION DESCRIPTION**



POSITION: Executive Secretary

DIVISION: Executive, Finance, Operations, Law, Administration

DEPARTMENT: Central Support, Environmental Quality, Executive Office, Treasury, Operations Administration, Operations Planning, FOD Administration, Human Resources, Law, Procurement, Program Management, Affirmative Action

BASIC PURPOSE:

Provides complete administrative and secretarial support. This description provides a range of possible duties but the incumbent will not necessarily perform all the duties listed below.

SUPERVISION RECEIVED:

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

SUPERVISION EXERCISED:

May exercises supervision of secretaries or other entry-level staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Takes dictation, prepares meeting minutes; coordinates preparation of and/or composes and edits correspondence, reports, agendas, special projects and other materials on word processor.
- Attends division, department and unit meetings that includes meetings covering grievance resolution and collective bargaining strategy; takes notes and transcribes materials as needed.
- Answers phones, processes internal and external official information requests tactfully, records messages and routes calls. Greets and welcomes visitors/job applicants. Processes mail.
- Schedules appointments, meetings, and conferences, and makes travel arrangements; prepares expense reports.

- Develops and maintains a number of types of filing systems, including departmental and personal. Records, updates and tracks files using database management system or spreadsheets as required.
- Orders and distributes office supplies, coordinate purchasing and invoicing, prepare personnel actions, monitor the budget, and records payroll and attendance information.

SECONDARY DUTIES:

- Performs related duties as assigned.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) Knowledge of administrative and secretarial procedures as normally attained through a two (2) year college, secretarial or business school program; and
- (B) Understanding of administrative and office procedures as acquired through five (5) to seven (7) years executive secretarial/administrative experience; or
- (C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Demonstrated proficiency in Microsoft Office products including Outlook, Word, Excel, Access and PowerPoint.
- (B) Excellent organizational, communication and interpersonal skills, including ability to handle confidential information.

SPECIAL REQUIREMENTS:

Must have successfully completed the MIS and professional development-related ACP requirements for this position. If no qualified ACP certified applicant applies for the position, the selected candidate will have 6 months to complete the ACP program.

TOOLS AND EQUIPMENT USED:

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

PHYSICAL DEMANDS:

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

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

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.

July 2002

**MWRA
POSITION DESCRIPTION**



POSITION: Administrative Coordinator

DIVISION: Executive, Operations, Law, Administration & Finance

DEPARTMENT: Deer Island, Law, Support Services, Public Affairs, Human Resources, MIS, Internal Audit, E&C

BASIC PURPOSE:

Provides administrative support and assistance to the Director, Manager, and/or departmental staff. This provides a range of possible duties, but will not necessarily perform all the duties listed below.

SUPERVISION RECEIVED:

Works under the general supervision of the Department Director or Manager.

SUPERVISION EXERCISED:

May exercise supervision over temporary or assigned entry-level and clerical personnel.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Assists the Manager of the department in dissemination and implementation of administrative policies and procedures relative to personnel, budget, finance, payroll, purchasing and other administrative matters.
- Updates and implements changes of all departmental personnel records as needed including the completion, submittal and follow-up of necessary MWRA forms. Supervises, inputs and maintains timekeeping and payroll for the department.
- Schedules and prepares personnel hiring, benefits, salary increases and/or promotion documents. Refers managers and employees to union contract provisions Human Resources policies and Procedures. Directs complex issues to HR Labor Relations.
- Assists with the planning and implementation of MWRA outreach efforts, including meetings, conferences, facility tours and related workshops.
- Develops and maintains department database management, spreadsheet filing systems, all and all-departmental files as required.

- Purchase departmental supplies and monitor's expenses. Compiles and reviews spending reports.
- Maintains Director's/Manager's schedule and appointments and is responsible for any administrative support needed.
- Responds to public information requests.
- Reviews and prepares monthly accrual information and inputs into computer systems.
- Receives and distributes mail. Composes routine correspondence.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

- (A) A two (2) year college program in business administration, business management, finance, public administration or a related field; and
- (B) Understanding of personnel, payroll and procurement and administrative policies as acquired by three (3) to five (5) years of related experience; or
- (C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Demonstrated skills in Microsoft Word, Excel, Access, PowerPoint, and Outlook are required. Knowledge of financial software programs is highly desirable.
- (B) Knowledge of MWRA Administrative Policies and Procedures including hands-on experience with payroll and personnel processing.
- (C) Ability to work with minimal supervision in a fast-paced environment.
- (D) Demonstrated strong organizational, verbal, and written communications skills required.

SPECIAL REQUIREMENTS:

Must have successfully completed the MIS and professional development-related ACP requirements for this position. If no qualified ACP certified applicant applies for the position, the selected candidate will have 6 months to complete the ACP program.

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 walk; stand; 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, 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 frequently works in outside weather conditions. The employee occasionally works near moving mechanical parts, and is occasionally exposed to wet and/or humid conditions and vibration. The employee occasionally works in high precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals and risk of electrical shock.

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

July 2002

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 18, 2020
SUBJECT: Employee Assistance Program Services
AllOne Health Resources Inc.
Contract A625




COMMITTEE: Administration, Finance, and Audit

 INFORMATION

 X VOTE


Andrea Murphy, Director of Human Resources
Emily Dallman, Manager, Benefits & HRIS *EJD*
Preparer/Title


Michele S. Gillen
Director of Administration

RECOMMENDATION:

To approve the recommendation of the Selection Committee to award Contract A625, Employee Assistance Services, to AllOne Health Resources, Inc., and to authorize the Executive Director on behalf of the Authority to execute said contract in an amount not-to-exceed \$26,171 for a one-year period, commencing April 1, 2020; and to further authorize the Executive Director to exercise a single three-year option to renew the contract if recommended by staff, in an amount not to exceed \$81,459. Actual annual cost is based on an established per employee unit rate and the total employee count as of January 1 of each year as well as the anticipated number of mandatory substance abuse professional referrals, training and facilitation hours utilized.

BACKGROUND:

MWRA has had an Employee Assistance Program (EAP) as part of its union and non-union benefit package since 1990. The EAP is designed to assist MWRA employees and their family members in recognizing and resolving personal problems that do, or might interfere, with employees' job performance and to support their emotional well-being. EAP services include short-term confidential counseling for issues such as stress, alcohol and/or substance abuse or dependency, interpersonal relationships or family dynamics, depression or anxiety, mental or emotional upsets, anger management, and grief counseling. EAP programs also provide medical advocacy, financial and/or legal resources, life coaching (personal or professional growth), and work life resources including eldercare and childcare.

Services also include, as needed, mandatory Substance Abuse Professional (SAP) referrals and training and facilitation services as requested by the Director of Human Resources.

DISCUSSION

On January 22, 2020, the MWRA issued a Request for Qualifications/Proposal for EAP Services, mandatory SAP referrals, and as-needed training and facilitation services. MWRA received proposals

from Deer Oaks EAP Services, Inc. LLC, and AllOne Health Resources, Inc. (AllOne Health). The Selection Committee reviewed, discussed and scored each proposal based upon the following evaluation criteria: Cost (25 points), Qualifications and Key Personnel (20 points), Capacity/Technical Approach (20 points), Experience and Past Performance (18 points), and Organization and Management Approach (17 points).

Below is a cost comparison of the two proposals, which includes a per capita amount for basic EAP services at a monthly rate per employee, and a \$2,000 annual allowance for as needed mandatory SAP referrals, training, and facilitation services.

Year	AllOne Health	Deer Oaks
Year 1: 4/1/2020 – 3/31/2021	\$26,171	\$19,817
Year 2: 4/1/2021 – 3/31/2022	\$26,654	\$19,817
Year 3: 4/1/2022 – 3/31/2023	\$27,149	\$19,817
Year 4: 4/1/2023 – 3/31/2024	\$27,656	\$19,817
Years 2,3,4 Subtotal:	\$81,459	\$59,451
Total	\$103,630	\$79,268

The committee voted unanimously to select AllOne Health to provide EAP services based on MWRA’s access to key personnel and its responsiveness to our critical incidents as well as its overall well-being approach to EAP services for our employees. AllOne Health, the incumbent, provided the higher overall cost proposal. Although the cost for basic EAP services was higher, it had much lower hourly rates for training, facilitation and mandatory SAP referral services. Its lower hourly rate would allow for over three times as many hours for these services as compared to Deer Oaks. In addition, although staff asked for four counselling sessions per issue per employee (or family member), AllOne Health is providing six sessions. The key staff are highly qualified clinicians, responsive to the specific needs of the MWRA, and have personally performed the training and facilitation services. All phone calls are answered 24/7 with a live, well-qualified clinician. AllOne Health has a mobile app for clients, an on-line portal for provider communication and are technologically advanced overall. AllOne health has been in existence for 40 years; and has extensive public sector experience.

AllOne Health’s references were very strong. Keolis Commuter Services has had AllOne Health as its EAP provider for more than 10 years and strongly recommends the firm. It provides basic EAP, training, SAP and facilitation services. Acushnet has had AllOne Health as an EAP provider since 1989. AllOne Health provides basic EAP, training, SAP and facilitation services and Acushnet rated it as outstanding. MassPort has had AllOne Health as an EAP provider for more than 15 years, and has found them to be very responsive. MWRA has found AllOne Health to be forward thinking in supporting all aspects of employees’ lives as well as responsive to manager’s request for training, SAP and facilitation services.

Deer Oaks provided the lowest cost proposal. Its basic EAP services costs were low but its hourly rates for as needed training, facilitation, and SAP referrals was triple that of AllOne Health. The three identified project key team members include one individual who has only been with Deer Oaks for one year. The experience of the key people appear more business focused than clinical. Its 24/7 call center is out sourced to a subcontractor, as well as their clinicians, trainers and facilitators. This business model, although less expensive, raised some concerns by the committee members about the effectiveness and responsiveness. Deer Oaks has a large national presence, but do not appear to have a large New England presence.

Deer Oaks references were not particularly strong. It served as MWRA’s EAP in 2011 for 4.5 years, and were given a less than average rating overall by MWRA staff as they were not immediately responsive, its way of doing business provided limited flexibility to the needs of the client, and lacked a local network of counselors and trainers, which was remedied over time. San Antonio Water was listed as a reference but has a policy of not providing references. Lancaster Water (NC), with only 93 employees has had a good experience, rated it highly for EAP services. However, Deer Oaks has not provided training or facilitation services and only one SAP referral. Deer Oaks has not been onsite at Lancaster Water at any time.

The committee scored and ranked the firms as indicated below:

Bidder	Total Points	Order of Preference* Total Score	Final Ranking
AllOne Health	266	3	1
Deer Oaks	215	6	2

* Order of preference represents the sum of the individual selection committee members’ rankings, where the firm receiving the highest number of Total Points is assigned a “1”, the firm receiving the next highest number of Total Points is assigned a “2”, and so on.

AllOne Health received the highest ranking overall and the Committee voted unanimously to recommend the award of the contract to AllOne Health.

BUDGET/FISCAL IMPACT:

Funds have been allocated for this program in the FY20 Current Expense Budget. Additional funding will be included in future CEB requests to cover anticipated expenditures.

MBE/WBE PARTICIPATION:

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



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

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

ADMINISTRATION, FINANCE & AUDIT COMMITTEE MEETING

to be held on

Wednesday, March 18, 2020

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

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

Time: ~~Immediately following P&C Committee~~

AGENDA

A. Information

1. 2019 Annual Update on New Connections to the MWRA System
2. Delegated Authority Report – February 2020
3. FY2020 Financial Update and Summary as of February 2020

B. Approvals

1. Amendments to Capital Finance Management Policy
2. Approval of the Eighty-Second Supplemental Resolution
3. Approval of the Eighty-Third Supplemental Resolution

C. Contract Awards

1. Disclosure Counsel Services, McCarter & English, LLP, Contract F255
2. Deer Island Demand Response Services: Direct Energy Business Marketing, LLC, Contract S594
3. Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System: Infor Inc.

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Administration, Finance and Audit Committee

February 19, 2020

A meeting of the Administration, Finance and Audit Committee was held on February 19, 2020 at the Authority headquarters in Charlestown. Committee Chair Vitale presided. Present from the Board were Messrs. Carroll, Cook, Cotter, Foti, Pappastergion, Peña and Walsh. Mr. Flanagan and Ms. Wolowicz were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Thomas Durkin, Michele Gillen, Kathleen Murtagh, Stephen Estes-Smargiassi, Steve Perry, Matthew Dam, Douglas Rice, Michael Cole, Matthew Horan, James Coyne, Leo Norton, Robert Belkin, John Colbert, Debra Farmelant, Paula Weadick, Kathryn White and Kristin MacDougall. Vandana Rao, EEA, and Joseph Favaloro, MWRA Advisory Board, were also in attendance. The meeting was called to order at 10:57 a.m.

INFORMATION

FY2020 Second Quarter Orange Notebook

Staff made a presentation. There was discussion and questions and answers. (Mr. Pappastergion left the meeting during discussion.) Mr. Cook commended the approach taken by MWRA safety staff. (ref. AF&A A.1)

Delegated Authority Report – January 2020

The Board had no questions for staff. (ref. AF&A A.2)

FY2020 Mid-Year Capital Project Spending Report

Staff made a verbal presentation. (Mr. Pappastergion returned to the meeting during the presentation. Mr. Cook left briefly and returned during the meeting during the presentation.) There were questions and answers. (ref. AF&A A.3)

FY2020 Financial Update and Summary as of January 2020

Staff made a verbal presentation. (ref. AF&A A.4)

Preliminary FY2021 Water and Sewer Assessments

Staff made a verbal presentation. Mr. Vitale expressed concern about the preliminary assessment for Boston as it exceeds BWSC's estimate. (ref. AF&A A.5)

APPROVALS

* Transmittal of the FY2021 Proposed Current Expense Budget to the MWRA Advisory Board

Staff made a presentation. There was discussion and questions and answers. (Mr. Foti left briefly left and returned during the meeting during the presentation.)

The Committee recommended approval. (ref. AF&A B.1)

* Appointment of Proxy for Fore River Railroad Corporation

Staff made a verbal presentation.

The Committee recommended approval. (ref. AF&A B.2)

CONTRACT AWARDS

* Actuarial Services Related to Compliance with GASB No. 74 and 75: The Segal Company, Inc., Contract F254

Staff made a verbal presentation. There was brief discussion. The Committee recommended approval. (ref. AF&A C.1)

* Fuel Storage and Day Tank Systems Replacement at the Gillis and Lexington Street Pumping Stations and Hayes Pump Station: NRC East Environmental Services, Inc., Contract 7554

Staff made a presentation. (Mr. Foti briefly left and returned to the meeting during the presentation.) There were questions and answers.

* Committee recommendation approved by the Board on February 19, 2020

Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2020/o-2020-02-19.pdf>

The Committee recommended approval. (ref. AF&A C.2)

* Security Equipment Maintenance and Repair Services: Viscom Systems, Inc.,
Contract EXE-043

Staff made a verbal presentation.


The Committee recommended approval. (ref. AF&A C.3)

The meeting adjourned at 12:18 p.m.

* Committee recommendation approved by the Board on February 19, 2020

Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2020/o-2020-02-19.pdf>


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: 2019 Annual Update on New Connections to the MWRA System

COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

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


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

RECOMMENDATION:

For information only. This 2019 Annual Update on New Connections to the MWRA System has been prepared pursuant to the “Annual Update” requirements of MWRA’s system expansion policies.

DISCUSSION:

MWRA’s system expansion policies require an annual update on the status of any new connections (connection approved within the preceding five years) to the MWRA from outside the water and sewer service areas. Calendar year 2002 was the first year that MWRA system expansion policies prescribed update requirements. This 2019 Annual Update addresses post-2002 connections to the MWRA. A summary of each connection’s compliance with requirements as stipulated in its water supply or sewer use agreement is provided. For water connections, requirements include compliance with water withdrawal limits and entrance payments due to MWRA. For wastewater connections, requirements address inflow removal, ongoing stipulations regarding management of wet weather flows, compliance with discharge limits, and entrance payments due to MWRA. An update on inquiries from potential applicants for admission and other system expansion considerations is also included.

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

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

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

Summary of Approved Connections to the MWRA System

Water

In 2019, the Executive Office of Energy and Environmental Affairs and its agencies, through the Massachusetts Drought Management Task Force, continued to assess hydrologic conditions throughout the Commonwealth. According to monthly DCR Hydrologic Conditions Reports, despite monthly and regional variability in the spring, overall precipitation in the state remained normal through July. September was a very dry month across the state and indications of drought conditions were observed, especially in the Connecticut River Valley. However, significant rain events in mid-October brought monthly precipitation levels back to normal across the state. All drought-monitoring regions were in normal status by the end of the year with no indication of drought conditions. Throughout the year, Quabbin Reservoir was well within the normal operating band and spilled a total of 47.2 billion gallons over 195 days. For these reasons, it is not surprising that there were no requests for withdrawals under OP.5, Emergency Water Supply Withdrawals due to hydrologic conditions. Burlington requested water under OP.05 from MWRA on three occasions due to operational issues and necessary maintenance within the local system, which resulted in an inability to meet local demand. There were no formal applications to the MWRA in 2019 under OP.09 or OP.10 – “water straddle” or admission of a new community, respectively. In 2020, MWRA expects that as communities across the Commonwealth are working to address concerns related to PFAS levels, additional inquiries about admission may be received.

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

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

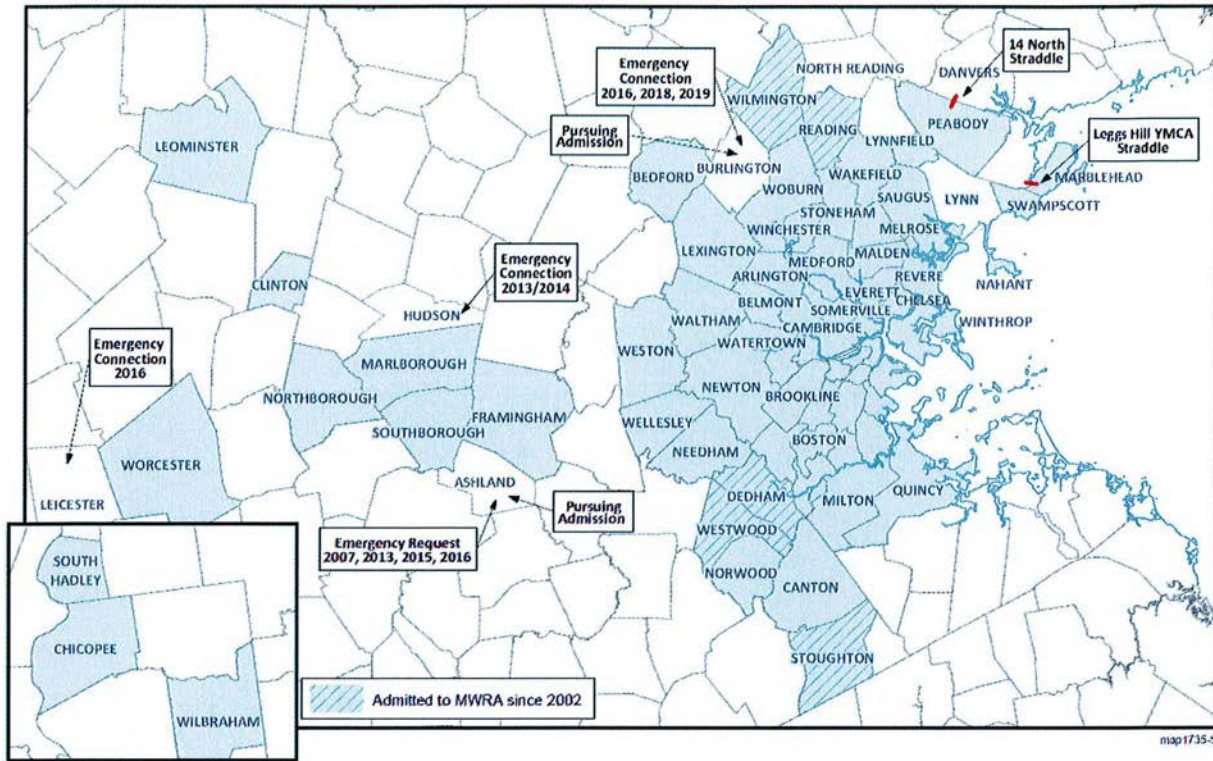


Table 1 - Approved Connections to MWRA Water System Since 2002

Applicant	Applicable MWRA Policy	Approval Date or Emergency Period	Entrance Fee or Payment of Charges Under the Emergency Policy	MWRA Approved withdrawal	2019 MWRA Withdrawal
Burlington (perusing admission)	OP.05 Emergency	9/30/16- 3/29/17 1/18 7/18 12/18 3/19 5/19 10/19	Prior to 2019, MWRA has received a total of \$162,545. For 2019, MWRA received \$86,636 for March/May and \$14,207.33 for October.	0.7 mgd	0.347 mgd 0.095 mgd 0.539 mgd
Cherry Valley Rochdale Water District	OP.05 Emergency	10/27/16- 4/6/17	0	N/A	0
Ashland (perusing admission)	OP.05 Emergency	12/07-5/07 12/13-6/14 12/15-6/16 8/22/16- 2/22/17	For 4 six-month emergency withdrawal periods, MWRA received \$14,078.	.75 mgd	0
Hudson	OP.05 Emergency	6/13 12/13 6/14	For 3 six-month emergency withdrawal periods, MWRA received a total of \$1,033,787.	N/A	0

Table 1 - Approved Connections to MWRA Water System Since 2002					
Applicant	Applicable MWRA Policy	Approval Date or Emergency Period	Entrance Fee or Payment of Charges Under the Emergency Policy	MWRA Approved withdrawal	2019 MWRA Withdrawal
Dedham/ Westwood W.D (partially supplied)	OP.10, New	12/05 12/14 10/18	Entrance fee \$548,748 for first .1 mgd paid in full. Fee of \$566,727 for additional 0.1 mgd paid in full.	0.2 mgd 150 mg (1 mgd for 5 months)	0.658 mgd
Wilmington (partially supplied)	OP.10, New	5/09	Net Entrance Fee of \$2,809,320 w/ 20-year payment schedule. On-time payments.	0.6 mgd	0.38 mgd
Reading	OP.10, New	11/05 10/07	\$3,285,242 (first 0.6 mgd) \$7,799,606 (for additional 1.5 mgd). Paid in full	2.1 mgd	1.52 mgd
YMCA Salem/Marblehead	OP.09, Straddle	11/06	\$70,823 paid in full	0.0127 mgd	0.0091 mgd
14 North Danvers/Peabody	OP.09 Straddle	05/03	\$64,063 paid in full	0.012 mgd	0.00592 mgd
Stoughton (partially supplied)	OP.10, New	6/02	Net Entrance Fee 5,657,117, paid in full as of 7/19.	1.15 mgd	0.089 mgd

The highlights of Table 1 include:

- All water supply withdrawals are below their contract limits.
- For permanent connections, all entrance fees have been paid pursuant to agreed-upon schedules of payments included in MWRA Water Supply Agreements.
- Stoughton’s Entrance Fee was paid early and in full as of July 2019.
- In September 2018, Dedham-Westwood formally requested approval from the MWRA and the MWRA Advisory Board, to temporarily increase its MWRA withdrawal by 150 million gallons (1 mgd for five months). The work being conducted by Dedham-Westwood was delayed by several months so this increased withdrawal did not commence until 2019. The existing water supply agreement between the MWRA and Dedham-Westwood has a provision for a temporary increase in volumes beyond 2 mgd and 73 million gallons on an annual basis without a written amendment to that agreement.
- At Burlington’s request, on March 20, 2019, May 15, 2019, and October 4, 2019, MWRA authorized the temporary use of the emergency connection (up to thirty days) as a result of maintenance and mechanical issues within the local system. Also at Burlington’s request, on October 16, 2019, pursuant to OP.05, the MWRA’s Board of Directors voted to authorize long-term use of the emergency connection (up to six months) to perform necessary maintenance at the local Mill Pond Water Treatment Plant. However, the six-month agreement did not end up being needed. Burlington is currently in the process of joining the MWRA water system.

Sewer

In 2019, the MWRA Board of Directors voted to approve one request under #OP.11, Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area, for Crescent Ridge Dairy in Sharon. There were no new formal applications for admission under #OP.11 or #OP.4, the “Sewer Straddle” policy; however, several inquiries about admission were received.

Figure 2 shows and Table 2 summarizes connections to the MWRA sewer system since 2002 when annual reporting requirements were established, including the recently approved Crescent Ridge Dairy connection.

Figure 2: New or Increased Volume Sewer Connections Since 2002

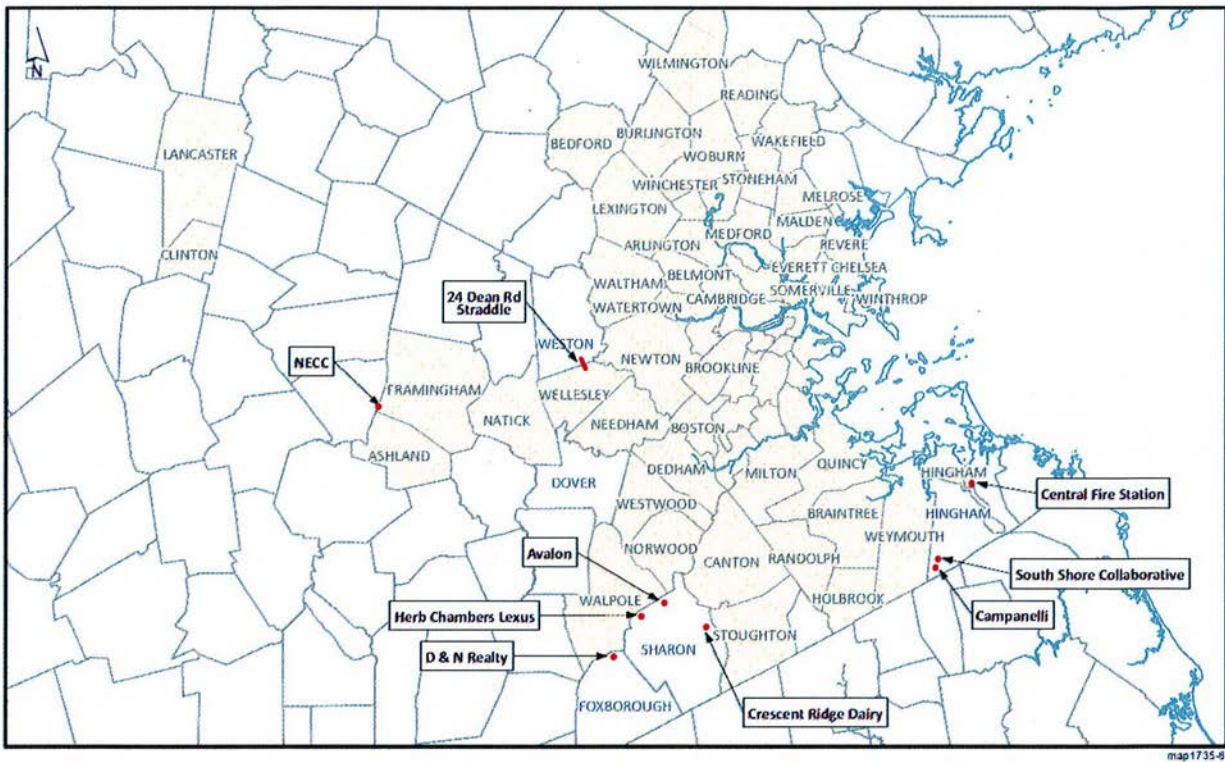


Table 2 - Approved Connections to MWRA Sewer System Since 2002						
<i>Applicant</i>	<i>MWRA Policy</i>	<i>Approval Date</i>	<i>Entrance Fee Payment</i>	<i>Status of Inflow Removal/Other Contract Requirements</i>	<i>MWRA Approved discharge</i>	<i>Estimated Discharge to MWRA in 2019*</i>
New England Center for Children, Southborough	OP.11	7/15	\$24,228 Paid in full	Inflow removal completed.	12,500 gpd	9,035 gpd
FoxRock Realty	OP.11	4/12	\$9,133 + \$12,750 paid in full	Inflow removal completed.	5,536 gpd	2,283 gpd
South Shore Collaborative, Hingham						

Table 2 - Approved Connections to MWRA Sewer System Since 2002						
<i>Applicant</i>	<i>MWRA Policy</i>	<i>Approval Date</i>	<i>Entrance Fee Payment</i>	<i>Status of Inflow Removal/Other Contract Requirements</i>	<i>MWRA Approved discharge</i>	<i>Estimated Discharge to MWRA in 2019*</i>
24 Dean Road, Weston/Wellesley	OP.04	3/11	\$18,033 paid in full	Inflow removal completed.	575 gpd	341.13 gpd
D&N Realty, Foxborough	OP.11	6/07	\$168,391 paid in full	Inflow removal completed.	13,000 gpd (average) 22,750 gpd (max day)	6,310 gpd
Avalon Bay, Sharon	OP.11	6/07	\$105,586 paid in full	Inflow removal completed.	16,120 gpd	15,168 gpd
Herb Chambers Lexus, Sharon	OP.11	5/07	\$40,750 paid in full.	Inflow removal completed.	6,400 gpd (average) 10,500 gpd (max)	8,993 gpd**
Hingham Fire Station, Hingham	OP.11	4/07	\$8,429 paid in full	Inflow removal completed.	782 gpd	216.63 gpd
Campanelli, Hingham (now Gill Research Drive, LLC)	OP.11	2/04	\$11,162, paid in full	Inflow removal completed.	2,475 gpd	No reporting requirement in contract
* Wastewater discharges are estimated based on water meter readings.						
**Water consumption figures are adjusted downward by 5% to account for a certain percentage of water that is used by the facility and not returned as wastewater (such as landscaping, water consumed).						

The key findings of Table 2 include:

- South Shore Collaborative in Hingham appeared over its approved estimated discharge in 2018 due to a reporting error. MWRA worked with South Shore Collaborative in 2019 and resolved the issue.
- Herb Chambers of Chicopee, LLC Lexus of Sharon was over its approved estimated discharge in 2019 due to an increase in water usage during the first half of the year (March & June meter readings). Despite immediate investigations, Herb Chambers was unable to determine the cause, though usage returned to normal during the second half of the year. Herb Chambers has increased water usage monitoring and ensured all on-site conservation measures are functioning properly. MWRA will continue to coordinate with HCC to ensure this issue is resolved.
- All other connections reported that wastewater discharges in 2019 were below their approved agreement limits and entities reported compliance with obligations related to sewer system operations.

- In 2019, Crescent Ridge Dairy completed the application process pursuant to OP.11 and on May 29, 2019, the MWRA Board of Directors voted to approve admission to the MWRA wastewater system. Crescent Ridge is required to abate 40,000 gpd of Infiltration and Inflow (I/I) in the Stoughton wastewater system, and obtain an MWRA Sewer Use Discharge Permit prior to the discharge of any wastewater to the MWRA system. At this time, Crescent Ridge Dairy has not yet submitted this permit application, but is expected to in 2020.

Potential Future Connections and Expansions

In 2019, several communities and other potential applicants inquired about the process and feasibility of connection to the MWRA or expanding existing service volumes.

Communities

Ashland: Ashland is seeking approximately 0.2 mgd (up to 1.6 mgd peak use and 73 million gallons annual use) of supplemental water supply from MWRA in an effort to diversify its water source. Currently, the Town relies on three wells in a well field adjacent to the Hopkinton State Reservoir. In 2018, Ashland completed the MEPA process and received approval from the Water Resources Commission (WRC) for its request for an Interbasin Transfer. During 2019, enabling legislation for admission was passed and Ashland continued to work with MWRA staff towards submitting a formal application in compliance with OP.10. Ashland's formal application is expected in 2020.

Burlington: At its May 2018 Town meeting, members voted to approve Article 15, which provides \$5.3 million in funding to begin the process of joining the MWRA. Since that time, Burlington has been moving through the MEPA process. In December 2019, Burlington filed a DEIR and a certificate was issued by the Secretary outlining a scope for an FEIR and the FEIR is expected to be filed in early 2020. The FEIR will also serve as the application for a request for Interbasin Transfer, to be reviewed by the WRC. Enabling legislation for admission was passed in 2019. Coordination with Burlington will be on-going in the year ahead.

Pursuant to OP.10, once a community has completed the MEPA process, received approval for Interbasin Transfer from the WRC, and legislation has been enacted authorizing the addition of that community to Section 8(d) of the MWRA Enabling Act, a formal application is submitted to MWRA and the MWRA Advisory Board. The request for admission is then voted on for approval by the MWRA Advisory Board Executive Committee, the full MWRA Advisory Board, and finally the MWRA Board of Directors.

Non-Communities

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

water. In 2019, the developer indicated interest in creating a water district to make connection to MWRA possible. Admission policy and cost information has been provided.

The Rivers School: This is a co-educational, college preparatory day school for students in grades 6 through 12, located at 333 Winter Street on the Weston/Natick town line. The school, which has property in both towns, is seeking to discharge wastewater generated at the Weston portion of its campus into the MWRA system. The school has determined that the most sensible location for this connection is via the collection system in Natick. MWRA staff have met with operational staff and a consultant for the school. On average, the school generates approximately 2,500 gallons per day; however, the peak day average daily flow, for example when there are large events at the school, is about 14,500 gallons per day. The school has a functioning on-site wastewater treatment system that is a permitted groundwater discharge. However, given the fluctuations in flows when students are in and out of school, it is difficult to maintain the system effectively and meet permit requirements during low flow periods. Further, the school has indicated an interest in doing more to protect surface waters in neighboring areas and a sewer connection, as opposed to a groundwater discharge, would advance that goal. School officials have obtained approval for the connection from both Weston and Natick. MWRA staff are in coordination with the Rivers School and a formal application is expected in the coming months.

Yankee Trader Foods: This Company, which makes frozen seafood appetizer products, has purchased a building in Hingham. The property, located at 80 Sharp Street, has a failed septic system. The company expressed interest in connecting via the Weymouth wastewater system to discharge an average of 1,500 gpd, with a peak of 3,000 gpd. On April 22, 2019, MWRA met with Yankee Trader Foods to discuss the requirements of OP.11 and the admission process. Since this meeting, there has not been any additional communication from Yankee Trader Foods regarding their plans to pursue admission.

Miscellaneous: Throughout the year MWRA received various inquiries, typically from residential homeowners, regarding connection to either the MWRA water or wastewater system. In addition, from time to time communities, particularly those with water quality concerns, reach out for information. MWRA staff provide information, answer questions, and help all who seek to understand the admission process.

ATTACHMENT:

Attachment A: Policies for Admission to the MWRA

ATTACHMENT A

Policies for Admission to the MWRA

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

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

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 18, 2020
SUBJECT: Delegated Authority Report – February 2020



COMMITTEE: Administration, Finance & Audit

INFORMATION
 VOTE

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



Michele S. Gillen
Director, Administration



Douglas J. Rice
Director of Procurement

RECOMMENDATION:

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period February 1 - 29, 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 FEBRUARY 1 - 29, 2020

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	02/03/20	GROUNDSKEEPING SERVICES - METROPOLITAN BOSTON AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR GROUNDSKEEPING SERVICES AT 31 MWRA WATER AND WASTEWATER LOCATIONS WITHIN THE METROPOLITAN BOSTON AREA FOR A TERM OF 730 CALENDAR DAYS.	OP-408	AWARD	C & W FACILITY SERVICES, INC.	\$335,000.00
C-2.	02/14/20	NORTHERN INTERMEDIATE HIGH SECTION 110 - STONEHAM INCREASE ALLOWANCE FOR POLICE DETAIL SERVICES; REMOVE AND DISPOSE OF 30 FEET OF CONCRETE RETAINING WALL; DELAY START TIME OF WORK CREWS ON SOUTH STREET IN STONEHAM; DIRECT CONFLICT WITH CONCRETE DUCT BANK ON SOUTH STREET IN STONEHAM; FURNISH AND INSTALL ADDITIONAL WOOD BRACING AROUND THE DUCT BANK FOR SUPPORT OF EXCAVATION.	7067	11	ALBANESE D & S, INC.	\$129,494.59
C-3.	02/18/20	CHELSEA CREEK HEADWORKS UPGRADE FURNISH AND INSTALL ADDITIONAL CONDUIT AND WIRE TO PROVIDE POWER AND CONTROL FOR PROCESS EQUIPMENT AND BUILDING SYSTEMS; SAWCUT AND CHIP THE EIGHT EXISTING CONCRETE SUPPORT STRUCTURES FOR THE INCLINED SCREW CONVEYORS; TRANSPORT POLYCHLORINATED BIPHENYL (PCB) WASTE TO AN APPROVED TREATMENT, STORAGE AND DISPOSAL FACILITY; FURNISH AND INSTALL INTERIM CONTROLS FOR DUMPSTER KNIFE GATES.	7161	35	BHD/BEC 2015, A JOINT VENTURE	\$248,648.00
C-4.	02/18/20	GROUNDSKEEPING SERVICES - DEER ISLAND TREATMENT PLANT AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER FOR GROUNDSKEEPING SERVICES AT THE DEER ISLAND TREATMENT PLANT FOR A TERM OF 1,095 CALENDAR DAYS.	5586	AWARD	LEAHY LANDSCAPING, INC.	\$281,385.00


PURCHASING DELEGATED AUTHORITY ITEMS FEBRUARY 1-29, 2020

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	02/03/20	PURCHASE OF TWO DEWATERING PUMPS AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR TWO DEWATERING PUMPS FOR THE NUT ISLAND HEADWORKS FACILITY.	WRA-4789Q		WESCOR ASSOCIATES, INC.	\$44,420.00
P-2	02/03/20	SUPPLY AND DELIVERY OF EMULSION POLYMER AWARD OF A TWO-YEAR SOLE SOURCE PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR SUPPLY AND DELIVERY OF EMULSION POLYMER AT THE PHOSPHORUS REDUCTION FACILITY AT THE CLINTON WASTEWATER TREATMENT PLANT.			ARIES CHEMICAL, INC.	\$53,522.80
P-3	02/03/20	LASER AND BELT ALIGNMENT TRAINING AND SUPPORT SERVICES AWARD OF A THREE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE LASER AND BELT ALIGNMENT TRAINING AND SUPPORT SERVICES.	WRA-4798		ALIGNMENT SPECIALISTS, LLC	\$76,675.00
P-4	02/13/20	PURCHASE OF SERIAL TO T1/E1 MULTIPLEXER CONVERTORS AND RELATED HARDWARE AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITT57 TO THE LOWEST RESPONSIVE BIDDER FOR FOURTEEN SERIAL TO T1/E1 MULTIPLEXER CONVERTORS AND RELATED HARDWARE FOR THE SOUTH BOSTON CSO.	WRA-4808Q		INDUSTRIAL COMMUNICATIONS & ELECTRONICS, INC.	\$43,203.30
P-5	02/13/20	EMERGENCY RESPONSE AND PREVENTIVE MAINTENANCE FOR ENVIRONMENTAL SYSTEMS AMENDMENT NO. 1 TO PURCHASE ORDER FOR EMERGENCY RESPONSE AND PREVENTIVE MAINTENANCE FOR THE ENVIRONMENTAL SYSTEMS AT THE MIS DATA CENTER AND OPERATIONS CONTROL CENTER AT THE CHELSEA FACILITY.	WRA-4503		ELECTRONIC ENVIRONMENTS COMPANY, LLC	\$98,772.00
P-6	02/13/20	PURCHASE OF TWO NETAPP STORAGE SYSTEMS WITH THREE YEAR SUPPORT AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ITC47 - IT HARDWARE AND SERVICES TO THE LOWEST RESPONSIVE BIDDER FOR TWO NETAPP STORAGE SYSTEMS WITH THREE YEARS OF SUPPORT.	WRA-4816Q		EPLUS TECHNOLOGY, INC.	\$99,999.94
P-7	02/13/20	SUPPLY AND DELIVERY OF SODIUM BISULFITE AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF SODIUM BISULFITE TO VARIOUS WASTEWATER LOCATIONS.	WRA-4799		UNIVAR USA, INC.	\$164,915.00
P-8	02/18/20	PURCHASE OF FIVE ROTORK VALVE ACTUATORS AWARD OF A SOLE SOURCE PURCHASE ORDER FOR FIVE ROTORK VALVE ACTUATORS FOR THE GILLIS PUMP STATION.			ATLANTIC FLUID TECHNOLOGY, INC.	\$77,010.00
P-9	02/18/20	SUPPLY AND DELIVERY OF SODIUM BISULFITE AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF SODIUM BISULFITE AT DEER ISLAND.	WRA-4805		HOLLAND COMPANY, INC.	\$172,500.00

POSITION CONTROL REGISTER (PCR) LOCATION CHANGES February 2020

<u>DATE OF CHANGE</u>	<u>POSITION TITLE</u>	<u>CURRENT PCR#</u>	<u>CURRENT COST CENTER</u>	<u>NEW PCR #</u>	<u>NEW COST CENTER</u>	<u>REASON FOR CHANGE</u>
2/1/2020	OMC Laborer	5470059	Equipment Maintenance (Metro)	5411037	Grounds Maintenance Metro	To better meet Metro Maintenance Department staffing needs.

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: FY20 Financial Update and Summary Through February 2020

COMMITTEE: Administration, Finance & Audit

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

INFORMATION

VOTE


Thomas J. Durkin
Director, Finance

Over the last several weeks concerns related to the COVID-19 virus has resulted in disruptions to the stock, fixed income and commodities markets. While these market disruptions will have broad reaching impacts, staff believe that MWRA's conservative budgeting and balanced approach to assets and liabilities will minimize the budgetary impact.

MWRA is prohibited from investing in stock by its General Bond Resolution. The stock market may have impacts to the Retirement System; however its long-term investment horizon and the available actuarial smoothing of losses and gains will help to minimize the impact.

Pressure on the stock market has resulted in an overall decrease in interest yields on fixed income securities. While these lower interest rates have resulted in called investments and lower variable interest income yields, the corresponding reductions to new money borrowings will help to offset these impacts.

The disruption to the commodities market presented an opportunity for MWRA to purchase diesel fuel for Deer Island. West Texas Intermediate Crude Oil was trading at \$31.18/barrel down from a recent high of \$63.05 and a 52-week high of \$66.60. MWRA was able to purchase the 126,000 gallons of diesel fuel at \$1.59/ gallon as opposed to the FY20 budget estimate of \$2.30/gallon.

Staff will continue to monitor the impacts of these market disruptions as the FY20 year-end projections are updated and the spring revisit is completed on the FY21 Proposed CEB.

RECOMMENDATION:

For information only. This staff summary provides the preliminary financial results and variance highlights for Fiscal Year 2020 through February 2020, comparing actual spending to the budget.

DISCUSSION:

MWRA is continuing the practice of setting aside favorable Capital Finance variances into the Defeasance Account with the intention of using these funds to defease debt and provide rate relief in future years. Targeted defeasances are a critical component of the Authority’s multi-year rate management strategy. As such, in February the year-to-date debt related savings of \$7.6 million was transferred to the Defeasance Account. This favorable variance is the result of the lower than budgeted variable rates and refunding savings. Staff have already identified candidates for year-end defeasance and included the impact of the FY20 defeasance in the Proposed FY21 budget and planning estimates.

The total Year-to-Date variance for the FY20 CEB is \$11.7 million, due to lower direct expenses of \$5.5 million, indirect expenses of \$4.0 million, and higher revenue of \$2.2 million. The year-end favorable variance is projected at \$23.8 million, of which \$11.5 million is related to debt service. Beyond debt service savings, staff project a surplus of approximately \$12.2 million at year-end of which \$8.6 million would be from lower direct expenses, \$3.5 million from lower indirect expenses, and \$0.1 million from greater than budgeted revenues.

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

FY20 Current Expense Budget

The CEB expense variances through February 2020 by major budget category were:

- Lower Direct Expenses of \$5.5 million or 3.4% under budget. Spending was lower for Wages & Salaries, Professional Services, Fringe Benefits, Utilities, Chemicals, Worker’s Compensation, Other Materials, and Maintenance. This is partially offset by higher spending on Other Services.
- Lower Indirect Expenses of \$4.0 million or 12.8% under budget due to lower Watershed reimbursements, and lower claim spending for Insurance.

FY20 Budget and FY20 Actual Year-to-Date Variance by Expenditure Category
(in millions)

	FY20 Budget YTD	FY20 Actual YTD	\$ Variance	% Variance
Direct Expenses	\$162.2	\$156.7	-\$5.5	-3.4%
Indirect Expenses	\$31.2	\$27.2	-\$4.0	-12.8%
Capital Financing	\$307.2	\$307.2	\$0.0	0.0%
Total	\$500.6	\$491.1	-\$9.5	-1.9%

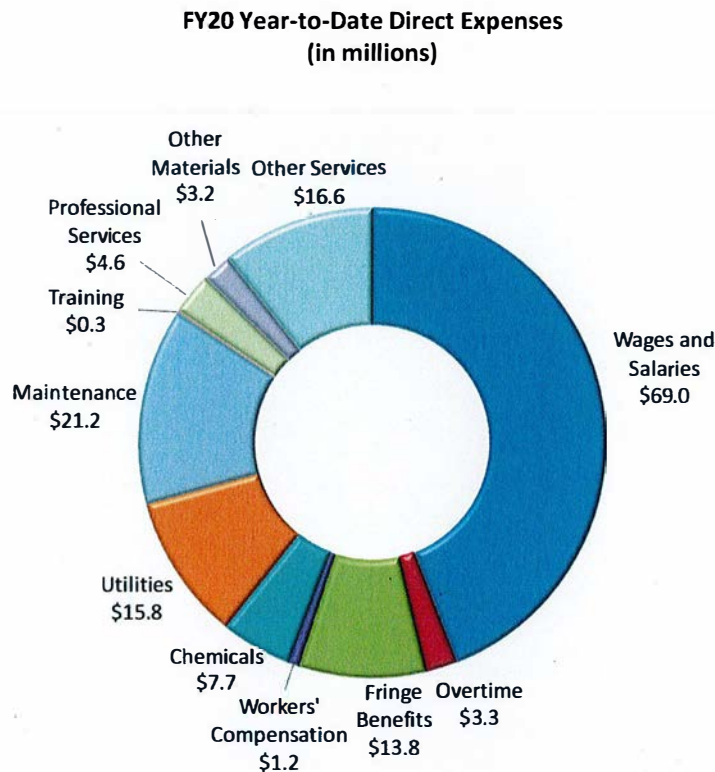
Totals may not add due to rounding

Total Revenues of \$535.8 million were \$2.2 million or 0.4% over budget. The biggest drivers of the variance are Stoughton’s \$1.1 million prepayment of their entrance fee note and favorable Other Revenue of \$1.2 million driven by Energy Revenue, income from the disposal of equipment, Miscellaneous Revenue, and Energy Rebates.

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

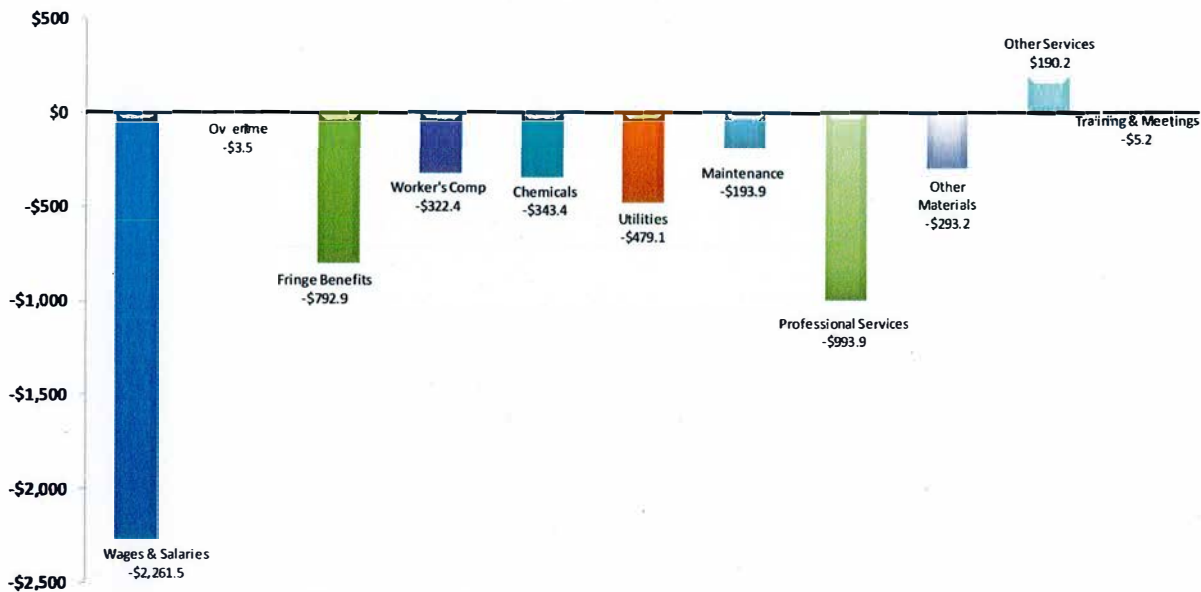
Direct Expenses

Year-to-date direct expenses totaled \$156.7 million, which was \$5.5 million or 3.4% less than budgeted.



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

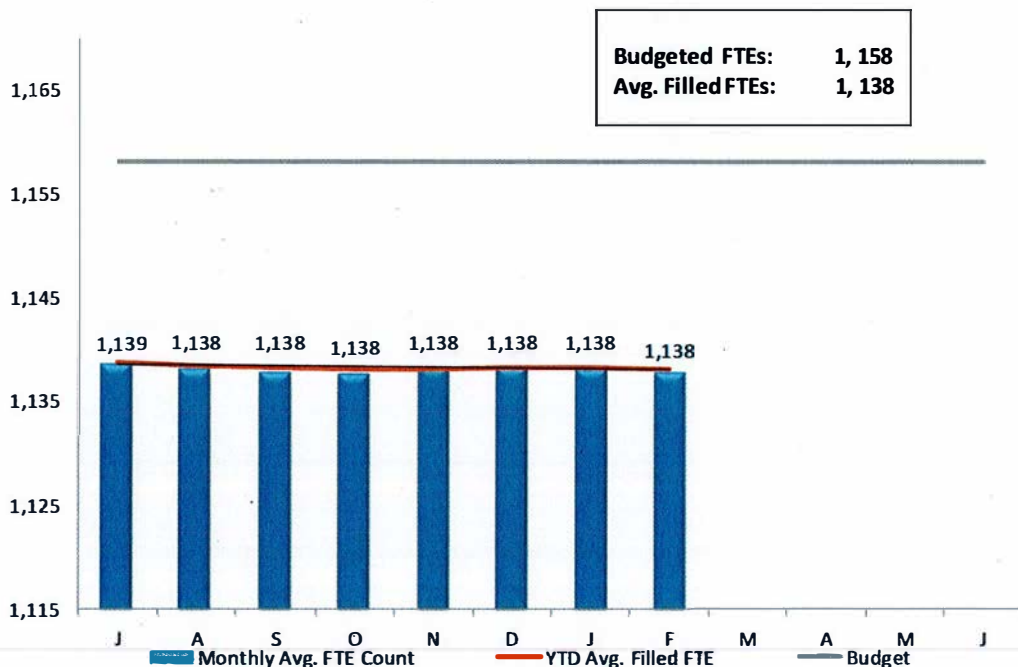
FY20 Year-to-Date Direct Expense Variance (in thousands)



Wages and Salaries

Wages and Salaries are under budget by \$2.3 million or 3.2%. Through February, there were 20 fewer average FTEs (1,138 versus 1,158 budget) or 1.7% and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions and lower leave balance accruals also contributed to Regular Pay being under budget.

FY20 MWRA Full Time Equivalent (FTE) Position Trend



Professional Services

Professional Services were lower than budget by \$1.0 million or 17.8%. The overall underspending year-to-date is due to Computer Systems Consultant (\$0.7 million) in MIS and Other Professional Services (\$0.2 million) in Administration, Finance and Law.

Fringe Benefits

Fringe Benefit spending was lower than budget by \$0.8 million or 5.5%. 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, Paid Family Medical Leave was under budget by \$0.1 million due to a delay in the start of plan contributions until October 1, 2019.

Utilities

Utilities were lower than budget by \$0.5 million or 2.9%. Underspending in Electricity of \$1.1 million is driven by DITP due to lower pricing and less purchased power in August when the CTGs were operated during the HEEC cable installation. In addition, lower spending in Field Operations is due to lower rates for the Interval accounts. This is partially offset by Diesel Fuel overspending of \$0.6 million driven by DITP 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).

Chemicals

Chemicals were lower than budget by \$0.3 million or 4.3%. Lower than budget spending on Soda Ash of \$0.2 million at the Carroll Water Treatment Plant is a result of lower dosing due to high raw water alkalinity combined with lower flows and lower flows and a delivery not yet invoiced at the Clinton Wastewater Treatment Plant, and Activated Carbon of \$0.2 million driven by DITP due to improvements and continuing steps to optimize the odor control treatment process as well as timing. This is offset by higher than budget spending on Sodium Bisulfite of \$0.1 million driven by the Deer Island Wastewater Treatment Plant due to increasing inventory volume. The Deer Island Wastewater Treatment Plant flows are 0.2% higher than the budget and the Carroll Water Treatment Plant flows are 3.4% less than the budget through February. However, the timing of deliveries is an important factor.

Worker's Compensation

Worker's Compensation expenses were lower than budget by \$0.3 million or 20.5%. The lower expenses were primarily due to favorable variances in compensation payments (\$229,000), medical payments (\$61,000), and administrative expenses (\$32,000).

Other Materials

Other Materials were lower than budget by \$0.3 million or 8.5%, driven by lower than budgeted spending for Computer Hardware of \$0.6 million in MIS, partially offset by timing of Vehicle Purchases of \$0.3 million.

Maintenance

Maintenance was lower than budget by \$0.2 million or 0.9%, largely driven by the timing of projects. Maintenance Services were under budget by \$0.6 million driven by Plant and Machine Services (\$1.0 million), Special Equipment Services (\$0.2 million), and Pipeline Services (\$0.1 million). This is partially offset by higher spending for Building and Grounds Services (\$0.7 million). Maintenance Materials are higher than budget by \$0.4 million driven by Plant & Machinery Materials (\$0.6 million), partially offset by lower spending on Computer Materials (\$0.1 million).

Other Services

Other Services were higher than budget by \$0.2 million or 1.2%. Higher than budgeted spending for Sludge Pelletization of \$0.6 million is due to higher year-to-date quantities. This is partially offset by lower spending for Telecommunication Services of \$0.3 million in MIS and FOD.

Training & Meetings

Training & Meetings expenses were lower than budget by \$5,000 or 1.8% due to timing of spending.

Overtime

Overtime expenses were lower than budget by \$4,000 or 0.1% based on need.

Indirect Expenses

Year-to-date Indirect Expenses totaled \$27.2 million, which is \$4.0 million or 12.8% lower than budget. There are variances within the lines that comprise Indirect Expenses, including lower Watershed Reimbursements and Insurance claims. Watershed costs are lower than budget by \$3.8 million due to lower costs associated with compensation, fringe benefits, equipment, professional services, and prior period adjustments.

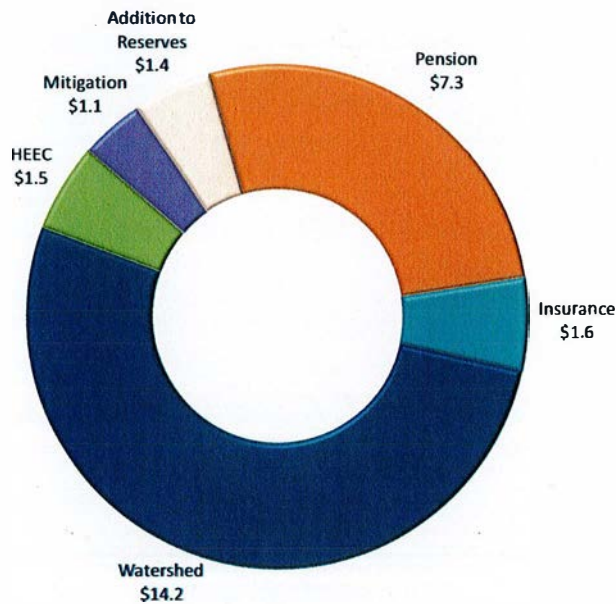
FY20 Watershed Protection Actual Year-to-Date Variance

\$ in millions	YTD Budget	YTD Actual	YTD \$ Variance	YTD % Variance
Operating Expenses	12.0	9.5	-2.5	-21.0%
Major Project Expenses	1.0	0.9	-0.2	-16.1%
PILOT	5.7	5.7	0.0	0.0%
Subtotal	18.8	16.1	-2.7	-14.4%
Revenue offset	0.7	0.8	0.1	7.3%
Current fiscal year net total budget	18.1	15.3	-2.7	-15.2%
Prior year 4th quarter accrual true-up	0.0	-0.6	-0.6	
FY16 credit balance	0.0	-0.5	-0.5	
Total Budget	18.1	14.2	-3.8	-21.3%

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 arrears. 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 February 2020 was 136, 14 FTEs or 9.3% under budget.

**FY20 Year-to-date Indirect Expenses-YTD
(in millions)**

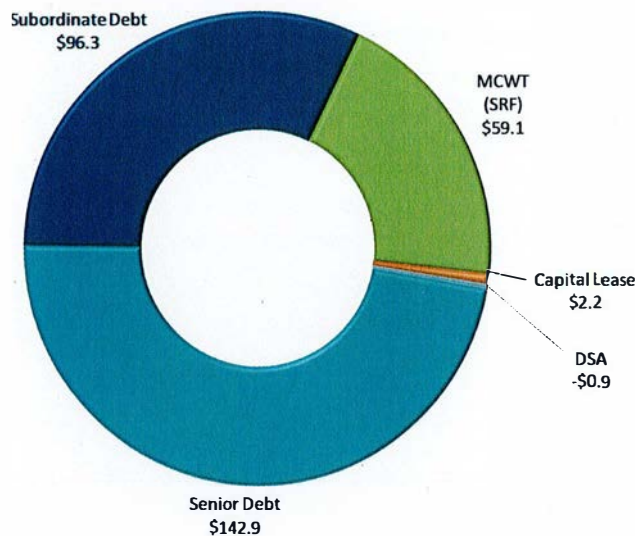


Capital Financing

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

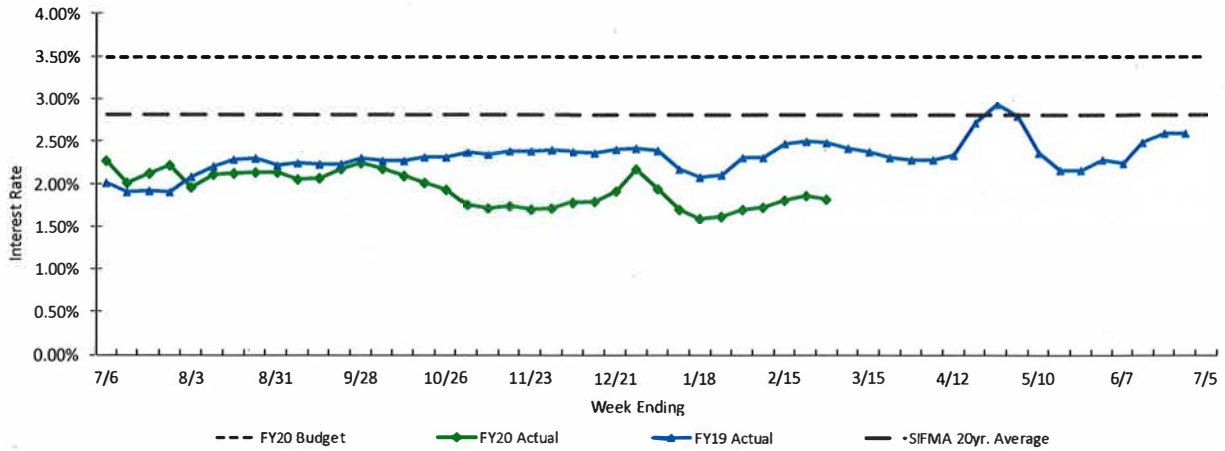
Year-to-date Capital Financing expenses for FY20 totaled \$307.2 million, which is right on budget. In February, the year-to-date debt related savings of \$7.6 million was transferred to the Defeasance Account. This favorable variance is the result of lower than budgeted variable interest rates and refunding savings. Senior debt service is over budget by \$10.2 million as a result of the 2019 Series G refunding for savings which moved expenses from the subordinate to the senior lien. This increase is offset by a decrease of \$12.0 million to the subordinate debt service expense.

Year-to-date FY20 Capital Finance
(in millions)



The graph below reflects the FY20 actual variable rate trend by week year-to-date against the FY20 Budget.

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



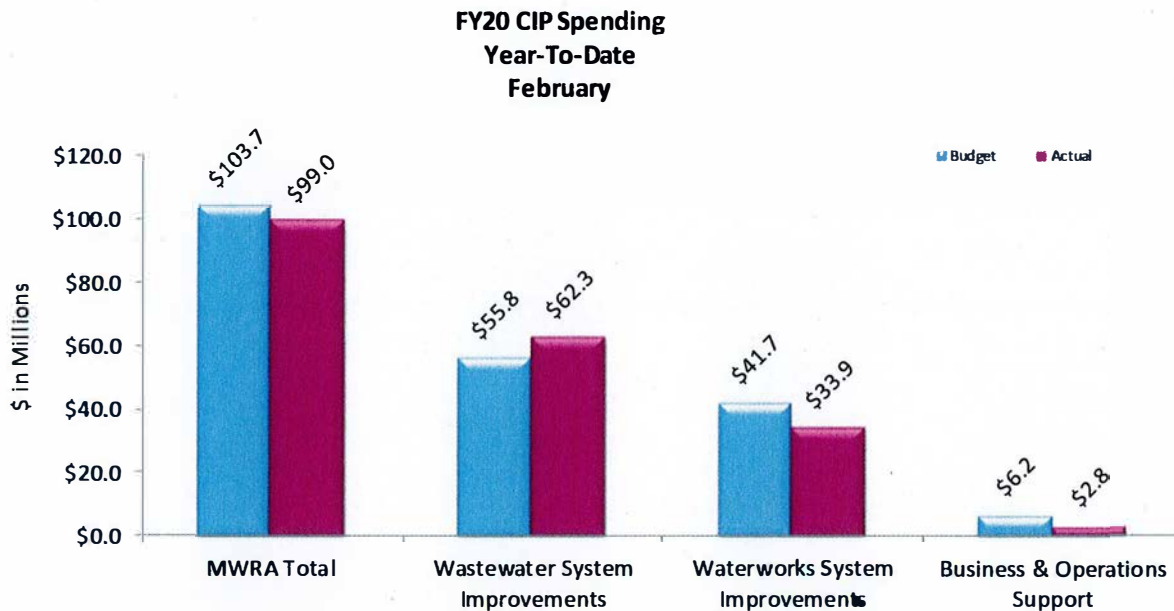
Revenue & Income

Year-to-date Revenues of \$535.8 million were over budget by \$2.2 million or 0.4%. Other User Charges were over budget by \$0.9 million or 13.9% due to Stoughton prepaying their entrance fee note. Other Revenue was favorable to budget by \$1.2 million due energy revenue for RPS credits (\$0.4 million), income from the disposal of equipment (\$0.3 million), miscellaneous revenue (\$0.2 million), and Operating Grants (\$0.1 million).

FY20 Capital Improvement Program

Capital expenditures in Fiscal Year 2020 through February total \$99.0 million, \$4.8 million or 4.6% 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 \$70.4 million, \$8.2 million or 10.4% under budget.



Overall, CIP spending reflects the overspending in Wastewater Improvements (\$6.5 million), and underspending in Waterworks (\$7.8 million) and Business and Operations Support (\$3.5 million). Major variances in Wastewater are primarily due to timing for community requests for grants and loans for the I/I Local Financial Assistance Program and greater than anticipated progress on the Residuals Electrical/Mechanical/Drum Dryer Replacement and Chelsea Creek Upgrades Construction, scheduled work in FY19 that was completed in FY20 for the Clinton Roofing Replacement project, and earlier than anticipated equipment purchase for the Wastewater Metering project. This was partially offset by delay in awards for the Nut Island Odor Control HVAC Improvements and Dorchester Interceptor Sewer Construction contracts, vibration issue with the Winthrop Terminal Facility VFD contract, and timing of work for the Deer Island Gravity Thickener Rehabilitation contract.

Waterworks variances are primarily due to timing of community loan requests, less than anticipated consultant progress on Section 50/57 Water and Sections 21/20/19 Sewer Design CA/RI, and delay in mobilization for the Gillis Pump Station Cottage Farm Roof Replacement contract. This was partially offset by contractor progress on the Northern Intermediate High Redundancy Sections 89 & 29 Construction Phase 2 and Southern Extra High Section 111

Construction 3, timing of watershed land purchases , and work scheduled in FY19 that was completed in FY20 for the Cosgrove Intake Roof Replacement.

FY20 Budget and FY20 Actual Year-to-Date Variance by Program
(in millions)

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	22.9	18.8	(4.1)	-17.8%
Treatment	10.1	7.8	(2.3)	-23.0%
Residuals	4.6	7.4	2.8	61.7%
CSO	1.4	0.8	(0.6)	-41.3%
Other	16.8	27.4	10.6	63.0%
Total Wastewater System Improvements	\$55.8	\$62.3	\$6.5	11.6%
Waterworks System Improvements				
Drinking Water Quality Improvements	1.5	0.9	(0.7)	-42.7%
Transmission	9.7	8.8	(0.9)	-9.7%
Distribution & Pumping	19.0	18.6	(0.4)	-2.0%
Other	11.5	5.6	(5.9)	-51.0%
Total Waterworks System Improvements	\$41.7	\$33.9	(\$7.8)	-18.8%
Business & Operations Support	\$6.2	\$2.8	(\$3.4)	-54.9%
Total MWRA	\$103.7	\$99.0	(\$4.8)	-4.6%

Totals may not add due to rounding

FY20 Year-to-date Spending by Program:

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

Other Wastewater: Net overspending of \$10.6 million

- \$10.9 million for Community I/I due to timing of community requests for grants and loans.

Other Waterworks: Net underspending of \$5.9 million

- \$6.5 million for the Local Water System Assistance Program due to timing of community loan requests.
- \$0.3 million for Gillis Pumping Station and Cottage Farm Roof Replacement due to delay in contractor mobilization.
- \$0.2 million DI Water Tank Painting due to timing of final work and credit change order.
- This underspending was partially offset by overspending of \$0.6 million Bellevue 2/Turkey Hill Water Tank Painting and Improvements and \$0.5 million for Cosgrove Intake Roof Replacement due to work scheduled in FY19 that was completed in FY20.

Interception & Pumping: Net underspending of \$4.1 million

- \$3.2 million for Nut Island Odor Control HVAC Improvements Design/CA/RI and Construction and \$1.6 million for Dorchester Interceptor Sewer Design and Construction due to delay in construction awards.
- \$0.4 million for Sections 191 and 192 Rehabilitation due to delay in the contract notice-to-proceed.

- \$0.2 million for Wastewater Metering Planning/Study and \$0.2 million for Wastewater Central Monitoring Design due to less than anticipated budgeted work including police details.
- \$0.2 million for Prison Point Design/ESDC/REI due to delay in 100% Design Report review.
- \$0.1 million for Remote Headworks and Deer Island Shaft Study due to contract time extension.
- This underspending was partially offset by overspending of \$1.7 million for Chelsea Creek Headworks Upgrades construction due to greater than anticipated contractor progress, and \$0.5 million for Wastewater Metering Equipment due to equipment purchased earlier than anticipated.

Business & Operations Support: Net underspending of \$3.4 million

- \$2.3 million for the timing and scheduling of MIS work, \$0.6 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work, and \$0.4 million for Security Equipment & Installation due to timing of security initiatives.

Residuals: Net overspending of \$2.8 million

- \$3.0 million for Electrical, Mechanical, and Dryer Drum Improvements due to greater than anticipated contractor progress and engineering costs partially offset by \$0.2 million for timing of work the Pellet Conveyance Relocation contract.

Wastewater Treatment: Net underspending of \$2.3 million

- \$0.8 million for Winthrop Terminal Facility VFD and Motors Replacements due to vibration issue with VFD No. 5.
- \$0.7 million for Gravity Thickener Rehabilitation, \$0.4 million for Digester Tank Rehab and Pipe Replacement, \$0.3 million for Combined Heat and Power Energy Alternatives Study, and \$0.2 million for Motor Control Center Switchgear Replacement/ESDC due to timing of work.
- \$0.3 million for Clinton Valves and Pipe Replacement due to project 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 and \$0.2 million for timing of work for Gas Protection System Replacement.

Waterworks Transmission: Net underspending of \$0.9 million

- \$0.3 million for WASM 3 MEPA/Design/CA/RI and \$0.2 million for Commonwealth Avenue Pumping Station Construction due to progress being less than anticipated.
- \$0.3 million for CP-1 Shafts 6, 8, and 9A and \$0.2 million for Wachusett Aqueduct Sluice Gates and \$0.1 million for Wachusett Lower Gate House Pipe Replacement due to schedule changes.
- \$0.2 million for Wachusett Lower Gate House Interim Pipe Repair due to delayed notice-to-proceed.
- \$0.1 million for Chestnut Hill Emergency Pumping Station Design/CA due to longer than anticipated receipt of hydraulic information.

- This underspending was partially offset by \$0.5 million for Watershed Land Acquisition due to timing of land purchases and \$0.1 million for Metropolitan Tunnel Redundancy Program Support Services due to greater than anticipated consultant progress.

Drinking Water Quality Improvements: Net underspending of \$0.7 million

- \$0.5 million due to updated schedule for Ancillary Modifications Construction work.
- \$0.2 million due to timing of task order work.
- \$0.2 million for Carroll Water Treatment Plant HVAC Replacement due to long lead time for equipment.

Water Distribution and Pumping: Net underspending of \$0.4 million

- \$0.8 million for Sections 50, 57 Water and Sections 21, 20, 19 Sewer due to consultants scheduled tasks being less than anticipated.
- \$0.2 million for Sections 25, 75, 59, and 60 Design due to boring program delayed pending receipt of base maps.
- \$0.2 million for NIH Section 89 and 29 Design/CA/RI due to less than anticipated contract administration/resident inspection budgeted spending.
- \$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 Southern Extra High Redundancy Construction 2 due to paving delays.
- This underspending was partially offset by overspending of \$0.6 million for Northern Intermediate High Section 89 & 29 Redundancy Construction Phase 2 and \$0.5 million for Southern Extra High Section 111 Construction 3 due to contractor progress, and \$0.1 million for Section 56 Pipe Demolition for final work completed.

Combined Sewer Overflow: Net underspending of \$0.6 million

- \$0.6 million for Dorchester Inflow Removal Construction due to updated schedule partially offset by \$0.1 million for CSO Performance Assessment due to greater than anticipated consultant progress.

Construction Fund Balance

The construction fund balance was \$132.7 million as of the end of February. Commercial Paper/Revolving Loan available capacity was \$222 million.

ATTACHMENTS:

Attachment 1 – Variance Summary February 2020

Attachment 2 – Current Expense Variance Explanations

Attachment 3 – Capital Improvement Program Variance Explanations

ATTACHMENT 1
FY20 Actuals vs. FY20 Budget

	Feb 2020 Year-to-Date				
	Period 8 YTD Budget	Period 8 YTD Actual	Period 8 YTD Variance	%	FY20 Approved
<u>EXPENSES</u>					
WAGES AND SALARIES	\$ 71,299,755	\$ 69,038,222	\$ (2,261,533)	-3.2%	\$ 109,953,483
OVERTIME	3,353,389	3,349,848	(3,541)	-0.1%	4,898,965
FRINGE BENEFITS	14,548,643	13,755,788	(792,855)	-5.4%	21,717,533
WORKERS' COMPENSATION	1,569,504	1,247,072	(322,432)	-20.5%	2,354,256
CHEMICALS	8,044,800	7,701,443	(343,357)	-4.3%	11,811,222
ENERGY AND UTILITIES	16,273,461	15,794,336	(479,125)	-2.9%	24,454,796
MAINTENANCE	21,423,225	21,229,350	(193,875)	-0.9%	32,726,954
TRAINING AND MEETINGS	283,464	278,263	(5,201)	-1.8%	504,394
PROFESSIONAL SERVICES	5,575,417	4,581,494	(993,923)	-17.8%	8,295,315
OTHER MATERIALS	3,467,401	3,174,212	(293,189)	-8.5%	6,867,239
OTHER SERVICES	16,394,126	16,584,338	190,212	1.2%	24,683,370
TOTAL DIRECT EXPENSES	\$ 162,233,185	\$ 156,734,366	\$ (5,498,820)	-3.4%	\$ 248,267,527
INSURANCE	\$ 1,757,554	\$ 1,620,048	\$ (137,506)	-7.8%	\$ 2,611,222
WATERSHED/PILOT	18,061,077	14,220,416	(3,840,661)	-21.3%	26,833,600
HEEC PAYMENT	1,540,841	1,540,840	(1)	0.0%	4,429,316
MITIGATION	1,113,685	1,111,296	(2,389)	-0.2%	1,654,618
ADDITIONS TO RESERVES	1,409,614	1,409,614	-	0.0%	2,094,284
RETIREMENT FUND	7,315,000	7,315,000	-	0.0%	7,315,000
POST EMPLOYEE BENEFITS	-	-	-	---	5,962,457
TOTAL INDIRECT EXPENSES	\$ 31,197,771	\$ 27,217,214	\$ (3,980,558)	-12.8%	\$ 50,900,497
STATE REVOLVING FUND	\$ 59,299,040	\$ 59,105,457	\$ (193,583)	-0.3%	\$ 92,797,294
SENIOR DEBT	132,726,579	142,887,306	10,160,727	7.7%	202,299,609
DEBT SERVICE ASSISTANCE	(890,235)	(890,235)	-	0.0%	(890,235)
CURRENT REVENUE/CAPITAL	-	-	-	---	15,200,000
SUBORDINATE MWRA DEBT	113,888,584	101,846,582	(12,042,002)	-10.6%	169,609,845
LOCAL WATER PIPELINE CP	-	-	-	---	5,846,823
CAPITAL LEASE	2,165,329	2,165,329	-	0.0%	3,217,060
DEBT PREPAYMENT	-	-	-	---	-
VARIABLE DEBT	-	(5,561,860)	(5,561,860)	---	-
DEFEASANCE ACCOUNT	-	7,636,717	7,636,717	---	5,000,000
TOTAL DEBT SERVICE	\$ 307,189,296	\$ 307,189,296	\$ -	0.0%	\$ 493,080,396
TOTAL EXPENSES	\$ 500,620,252	\$ 491,140,876	\$ (9,479,378)	-1.9%	\$ 792,248,420
<u>REVENUE & INCOME</u>					
RATE REVENUE	\$ 512,727,789	\$ 512,727,789	\$ -	0.0%	\$ 761,767,000
OTHER USER CHARGES	6,312,335	7,191,040	878,705	13.9%	9,216,425
OTHER REVENUE	4,584,843	5,753,999	1,169,156	25.5%	5,761,022
RATE STABILIZATION	-	-	-	---	-
INVESTMENT INCOME	9,950,241	10,127,004	176,763	1.8%	15,503,973
TOTAL REVENUE & INCOME	\$ 533,575,208	\$ 535,799,831	\$ 2,224,622	0.4%	\$ 792,248,420

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD February	FY20 Actuals YTD February	FY20 YTD Actual vs. FY20 Budget		Explanations
			\$	%	
Direct Expenses					
Wages & Salaries	71,299,755	69,038,222	(2,261,533)	-3.2%	Wages and Salaries are under budget by \$2.3 million. Year to date, there have been 20 fewer average FTEs (1,138 versus 1,158 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions, and lower leave balance accruals contributed to Regular Pay being under budget.
Overtime	3,353,389	3,349,848	(3,541)	-0.1%	Lower spending mainly in Metro Maintenance (\$0.1 million) offset by higher spending for Deer Island (\$0.1 million) for coverage during the HEEC cable installation.
Fringe Benefits	14,548,643	13,755,788	(792,855)	-5.4%	Lower than budget in Health Insurance of \$653,000, 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 \$59,000 due to a delay in the start of plan contributions until 10/1/19.
Worker's Compensation	1,569,504	1,247,072	(322,432)	-20.5%	The lower expenses were due to favorable variances in Compensation Payments of \$229,000, Medical Payments of \$61,000, and Administrative Expenses of \$32,000. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.
Chemicals	8,044,800	7,701,443	(343,357)	-4.3%	Lower than budget spending on Soda Ash of \$170,000 at CWTP is a result of lower dosing due to high raw water alkalinity combined with lower flows and lower flows and delivery not yet invoiced at Clinton; Activated Carbon of \$188,000 driven by DITP (\$156,000) due to improvements and continuing steps to optimize the odor control treatment process as well as timing and FOD (\$33,000) due to lower than expected cost at NITP; and Sodium Hypochlorite of \$99,000 due to less than anticipated usage. This is offset by higher than budget spending on Sodium Bisulfite of \$95,000 driven by DITP (\$98,000) due to increasing inventory. DITP flows are 0.2% higher than the budget and CWTP flows are 3.4% less than the budget through February. It is important to note that Chemical variances are also based on deliveries which in general reflect the usage patterns. However, the timing of deliveries is an important factor.
Utilities	16,273,461	15,794,336	(479,125)	-2.9%	Underspending in Electricity of \$1.1 million primarily at DITP (\$649,000) driven by less purchased power in August when DI operated the CTGs during the HEEC cable installation and lower pricing. Also, Field Operations (\$322,000) is under budget primarily due to lower rates for Interval accounts. Diesel Fuel is overspent by \$564,000 driven by DITP 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).
Maintenance	21,423,225	21,229,350	(193,875)	-0.9%	Underspending in Ongoing Maintenance by \$194,000 is largely driven by the timing of projects. <i>Maintenance Services</i> are under budget by \$634,000 driven by Plant and Machine Services (\$1.0 million), Social Equipment Services (\$0.2 million), and Pipe Services (\$0.1 million) and overspending in Building and Grounds Services by (\$0.7 million). This is offset by <i>Maintenance Materials</i> which are over budget by \$0.4 million, driven by Plant and Machine Materials (\$0.6 million).

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD February	FY20 Actuals YTD February	FY20 YTD Actual vs. FY20 Budget		Explanations
			\$	%	
Training & Meetings	283,464	278,263	(5,201)	-1.8%	Lower than budget spending on Training & Meetings by \$5,000 is driven by Tunnel Redundancy (\$20,000), Emergency Preparedness (\$9,000), Deer Island (\$9,000), and Field Operations (\$6,000).
Professional Services	5,575,417	4,581,494	(993,923)	-17.8%	Lower than budget spending in Computer Systems Consultant of \$699,000 in MIS; Other Professional Services of \$216,000 in Administration, Finance, and Law; and Legal of \$121,000 in Administration and Law.
Other Materials	3,467,401	3,174,212	(293,189)	-8.5%	Driven by lower than budgeted spending for Computer Hardware of \$557,000 in MIS primarily due to timing. This is partially offset by Vehicle Purchases of \$304,000 due to timing of purchases.
Other Services	16,394,126	16,584,338	190,212	1.2%	Higher than budgeted spending for Sludge Pelletization of \$595,000 due to higher year-to-date quantities, offset by lower spending for Telecommunication Services of \$327,000 in MIS and FOD and Other Services of \$137,000 for a number of services.
Total Direct Expenses	162,233,185	156,734,366	(5,498,819)	-3.4%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD February	FY20 Actuals YTD February	FY20 YTD Actual vs. FY20 Budget		Explanations
			\$	%	
Indirect Expenses					
Insurance	1,757,554	1,620,048	(137,506)	-7.8%	Lower claims than budgeted of \$138,000.
Watershed/PILOT	18,061,077	14,220,416	(3,840,661)	-21.3%	Lower Watershed Reimbursement of \$3.8 million due to \$1.1 million over accrual at end of FY19 as compared to actual amount paid in first quarter of FY20. February FY20 YTD favorable variance to budget estimated to be \$2.7 million driven by (1) lower Wages & Salaries of \$950,000 (136 FTEs vs budget of 150), (2) lower Fringe Benefits of \$1.0 million due to timing of payments to the Commonwealth, (3) lower spending on Equipment of \$318,000 due to timing of purchases, and (4) lower spending on Professional Services of \$160,000.
HEEC Payment	1,540,841	1,540,840	(1)	0.0%	
Mitigation	1,113,685	1,111,296	(2,389)	-0.2%	
Addition to Reserves	1,409,614	1,409,614	-	0.0%	
Pension Expense	7,315,000	7,315,000	-	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	31,197,771	27,217,214	(3,980,557)	-12.8%	
Debt Service					
Debt Service	308,079,532	308,079,532	-	0.0%	Senior debt service is over budget by \$10.2 million as a result of the 2019 Series G refunding for savings which moved debt service expense from the subordinate to the senior lien. This increase is offset by a corresponding decrease of \$12.0 million to the subordinate debt service expense.
Debt Service Assistance	(890,235)	(890,235)	-	0.0%	
Total Debt Service Expenses	307,189,297	307,189,297	-	0.0%	
Total Expenses	500,620,253	491,140,877	(9,479,376)	-1.9%	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY20 Budget YTD February	FY20 Actuals YTD February	FY20 YTD Actual vs. FY20 Budget		Explanations
			\$	%	
Revenue & Income					
Rate Revenue	512,727,789	512,727,788	(1)	0.0%	
Other User Charges	6,312,336	7,191,040	878,704	13.9%	\$1.1 million prepayment of entrance fee note by Stoughton.
Other Revenue	4,584,843	5,753,999	1,169,156	25.5%	Energy Revenue for RPS credit of \$366,000; Disposal of surplus materials of \$333,000; Miscellaneous Revenue of \$249,000 primarily associated with worker's compensation reimbursement for older claims; \$140,000 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	9,950,241	10,127,004	176,763	1.8%	Investment Income is favorable due to higher than anticipated balances offset by lower than budget short-term rates (2.06% actual vs. 2.25% budget).
Total Revenue	533,575,209	535,799,831	2,224,622	0.4%	
Net Revenue in Excess of Expenses	32,954,956	44,658,954	11,703,998		

**ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report (\$000's)**

	FY20 Budget YTD February	FY20 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Wastewater					
Interception & Pumping (I&P)	\$22,879	\$18,815	(\$4,064)	-17.8%	<u>Underspending</u> Nut Island Odor Control & HVAC Improvements - Design/CA/REI and Construction: \$3.2M, and Interceptor Renewal No. 3, Dorchester Interceptor Sewer - Design, CA/RI and Construction: \$1.6M (delay in construction awards) Sections 191 & 192 Rehabilitation: \$375k (delay in the contract notice-to-proceed) Prison Point Rehabilitation - Design/CA/RI: \$246k (delay in 100% Design Report review) Wastewater Meter System Planning/Study/Design: \$243k, and Wastewater Central Monitoring Design & Programming Services: \$188k (less than anticipated budgeted work) Remote Headworks and Deer Island Shaft Study: \$114k (contract time extension) Other smaller projects totaling \$284k. <u>Offset Overspending</u> Chelsea Creek Headworks Upgrades - Construction: \$1.7M (contractor progress) Wastewater Metering Asset Protection/Equipment Purchases: \$486k (earlier than anticipated equipment purchases)
Treatment	\$10,125	\$7,800	(\$2,324)	-23.0%	<u>Underspending</u> Winthrop Terminal Facility VFD and Motors Replacements: \$758k (vibration issue with VFD No. 5). Gravity Thickener Rehab: \$714k, Digester Tank Rehab and Pipe Replacement: \$362k, Combined Heat and Power Energy Alternatives Study: \$291k, and Motor Control Center Switchgear Replacement/ESDC/REI \$245k (timing of work) Clinton Valves and Pipe Replacement: \$333k and Deer Island HVAC - Design/ESDC: \$140k (projects being re-scoped) Eastern Seawall - Design/ESDC/REI: \$125k (schedule shift) <u>Offset Overspending</u> Clinton Roofing Rehabilitation: \$536k (work scheduled for FY19 performed in FY20) Gas Protection System Replacement - Phase 1: \$164k (pre-purchase of equipment)
Residuals	\$4,594	\$7,429	\$2,835	61.7%	<u>Overspending</u> Residuals Electrical/Mechanical/Drum Replacements: \$3.0M (contractor progress and greater than anticipated engineering costs) <u>Offset Underspending</u> Pellet Conveyance Relocation: \$244k (timing of work)

**ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report (\$000's)**

	FY20 Budget YTD February	FY20 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
CSO	\$1,407	\$826	(\$581)	-41.3%	<u>Underspending</u> Dorchester Inflow Removal Construction: \$628k (updated schedule) <u>Offset Overspending</u> CSO Performance Assessment: \$122K (greater than anticipated consultant progress)
Other Wastewater	\$16,818	\$27,418	\$10,600	63.0%	<u>Overspending</u> I/I Local Financial Assistance: \$10.6M (timing of community requests for grants and loans)
Total Wastewater	\$55,823	\$62,289	\$6,466	11.6%	

**ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report (\$000's)**

	FY20 Budget YTD February	FY20 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Waterworks					
Drinking Water Quality Improvements	\$1,528	\$875	(\$653)	-42.7%	<u>Underspending</u> Carroll Water Treatment Plant Ancillary Modifications - Construction: \$473k (updated schedule) Technical Assistance 9 & 10: \$167k (timing of task order work) HVAC Equipment Replacement: \$170k (long lead time for equipment)
Transmission	\$9,719	\$8,776	(\$942)	-9.7%	<u>Underspending</u> CP-1 Shafts 6, 8, and 9A: \$323k, Weston Aqueduct Sluice Gates - Construction: \$246k, and Wachusett Lower Gatehouse Pipe Replacement - Construction: \$133k (schedule changes) Commonwealth Ave Pumping Station Improvements Construction: \$171k, and WASM 3 - MEPA/Design/CA/RI: \$258k (progress less than anticipated) Wachusett Lower Gate House Interim Pipe Repair: \$200k (delayed notice-to-proceed) Chestnut Hill Emergency Pump Station - Design/CA: \$144k (longer than anticipated receipt of hydraulic information) <u>Offset Overspending</u> Watershed Land Acquisition: \$509k (timing of land purchases) Program Support Services: \$127k (consultant progress)
Distribution & Pumping	\$19,011	\$18,635	(\$376)	-2.0%	<u>Underspending</u> Sections 50 & 57 Water & 21/20/19 Sewer Rehab - Design/CA/RI: \$779k (less than anticipated consultant work) Section 89 & 29 Redundancy - Design/CA: \$281k (Construction Administration and Resident Inspection services less than anticipated) Cathodic Protection Shafts E & L: \$212k (work scheduled for FY20 performed in FY19) SEH Redundancy Pipeline Section 111 - Construction Phase 2: \$162k (paving delayed due to Eversource work) Sections 25, 75, 59 & 60 Replacement - Design/CA: \$153k (boring program delayed pending receipt of base maps) Sections 53 and 99 Connections - Design/CA: \$105K (delay in award) <u>Offset Overspending</u> Section 89 & 29 Redundancy Construction Phase 2: \$582k (contractor progress) SEH Redundancy Pipeline Section 111 - Construction Phase 3: \$462k, and Redundancy Pipeline Phase 1 - CA/RI: \$190k (contractor and consultant progress)

**ATTACHMENT 3
FY20 CIP Year-to-Date Variance Report (\$000's)**

	FY20 Budget YTD February	FY20 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Other Waterworks	\$11,487	\$5,629	(\$5,858)	-51.0%	<u>Underspending</u> Local Water Pipeline Financial Assistance Program: \$6.5M (timing of requests for loans) Gillis Pump Station and Cottage Farm Roof Replacements: \$307k (delay in contractor mobilization) Deer Island Water Tank Repainting: \$182k (timing of final work and pending credit change order) Steel Tanks Improvements - Design/CA: \$100k (schedule shift) <u>Offset Overspending</u> 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: \$173k (timing of work)
Total Waterworks	\$41,744	\$33,915	(\$7,830)	-18.8%	
Business & Operations Support					
Total Business & Operations Support	\$6,167	\$2,781	(\$3,386)	-54.9%	<u>Underspending</u> MIS Projects: \$2.3M (timing of work) As-Needed Technical Assistance and REI Services: \$602k (timing of task order work) Security Equipment & Installation: \$361k (timing of purchases)
Total MWRA	\$103,734	\$98,984	(\$4,750)	-4.6%	


Attachment 4
FY20 Budget vs. FY20 Projection

TOTAL MWRA	FY20 Budget	FY20 Projection	Change FY20 Budget vs FY20 Projection	
			\$	%
EXPENSES				
WAGES AND SALARIES	\$ 109,953,483	\$ 106,463,279	\$ (3,490,204)	-3.2%
OVERTIME	4,898,965	4,977,878	78,913	1.6%
FRINGE BENEFITS	21,717,533	20,631,657	(1,085,876)	-5.0%
WORKERS' COMPENSATION	2,354,256	2,354,256	-	0.0%
CHEMICALS	11,811,222	11,518,199	(293,023)	-2.5%
ENERGY AND UTILITIES	24,454,796	23,757,226	(697,570)	-2.9%
MAINTENANCE	32,726,954	32,001,220	(725,734)	-2.2%
TRAINING AND MEETINGS	504,394	462,592	(41,802)	-8.3%
PROFESSIONAL SERVICES	8,295,315	6,559,062	(1,736,253)	-20.9%
OTHER MATERIALS	6,867,239	5,779,741	(1,087,498)	-15.8%
OTHER SERVICES	24,683,370	25,136,763	453,393	1.8%
TOTAL DIRECT EXPENSES	\$ 248,267,527	\$ 239,641,872	\$ (8,625,655)	-3.5%
INSURANCE	\$ 2,611,222	\$ 2,511,222	(100,000)	-3.8%
WATERSHED/PILOT	26,833,600	23,423,930	(3,409,670)	-12.7%
HEEC PAYMENT	4,429,316	4,429,316	-	0.0%
MITIGATION	1,654,618	1,654,618	-	0.0%
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	\$ 50,900,497	\$ 47,390,827	\$ (3,509,670)	-6.9%
STATE REVOLVING FUND	\$ 92,797,295	\$ 92,420,886	(376,409)	-0.4%
SENIOR DEBT	202,299,609	221,069,643	18,770,034	9.3%
SUBORDINATE DEBT	169,609,844	139,672,356	(29,937,488)	-17.7%
LOCAL WATER PIPELINE CP	5,846,827	5,846,827	-	0.0%
CURRENT REVENUE/CAPITAL	15,200,000	15,200,000	-	0.0%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	5,000,000	5,000,000	-	0.0%
DEBT SERVICE ASSISTANCE	(890,239)	(890,239)	-	0.0%
TOTAL DEBT SERVICE	\$ 493,080,395	\$ 481,536,533	\$ (11,543,863)	-2.3%
TOTAL EXPENSES	\$ 792,248,419	\$ 768,569,232	\$ (23,679,188)	-3.0%
REVENUE & INCOME				
RATE REVENUE	\$ 761,767,000	\$ 761,767,000	-	0.0%
OTHER USER CHARGES	9,216,425	9,957,409	740,984	8.0%
OTHER REVENUE	5,761,022	6,049,073	288,051	5.0%
RATE STABILIZATION	-	-	-	0.0%
INVESTMENT INCOME	15,503,973	14,575,465	(928,508)	-6.0%
TOTAL REVENUE & INCOME	\$ 792,248,420	\$ 792,348,947	\$ 100,527	0.0%

VARIANCE:

\$ (23,779,714) \$ (23,779,714)

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Amendments to Capital Finance Management Policy

COMMITTEE: Administration, Finance & Audit

VOTE
 INFORMATION

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


Thomas J. Durkin
Director of Finance

In July 2010, the Commonwealth's Finance Advisory Board, which became the State Finance and Governance Board (SFGB) in 2013, required that all quasi-public and state level debt issuers, including MWRA, formally adopt a debt management policy. The Board of Directors first approved that policy on October 13, 2010. The SFGB regulations previously required that all issuers review their Policy and present it to their governing body for adoption every two years. The new regulations require that the policy be provided to the SFGB only in the event substantial revisions are made. After review by various parties, including MWRA's Financial Advisor and Bond Counsel, staff are proposing a few changes to the Policy to reflect new continuing disclosure regulations, and updates to the Internal Revenue Service post issuance compliance guidance.

RECOMMENDATION:

That in compliance with the State Finance and Governance Board's regulations (976 CMR 2.04), the Board adopt the amendments to the Capital Finance Management Policy, substantially in the form filed with the records of the meeting.

DISCUSSION:

In October 2010, the Board approved a Capital Finance Management Policy to provide a framework regarding the administration and internal policy for the issuance, management, and reporting on all debt obligations of MWRA. The issuance of MWRA debt is governed by the conditions set forth in the Enabling Act and the General Revenue Bond Resolution, as well as federal and state laws and regulations. All debt issuances require the approval of the Board. Once the debt has been issued, these documents continue to provide direction on the use and investment of funds as well as continuing compliance requirements. The Policy is designed to be a distilled version of the General Revenue Bond Resolution, as well as to detail some of the procedural steps taken prior to and after the issuance of debt. The document contains many of MWRA's standard

policies related to debt issuance including call options and refunding savings threshold standards. It will be available for Board Members' review at the meeting.

A copy of the approved Policy was first provided to the Commonwealth's Finance Advisory Board (FAB) in 2010 to comply with its regulations (976 CMR 2.04). As originally drafted, the FAB regulations required that the debt policy be adopted by the Board of Directors every two years and submitted to the FAB. MWRA complied with that requirement in 2012, 2014, 2016 and 2018. The Commonwealth's State Finance and Governance Board, which replaced the FAB, amended 976 CMR 2.04 to require that policy be submitted only upon adoption of substantive revisions. Staff will continue to periodically review the policy and recommend amendments as necessary.

The majority of the updates are related to new requirements related to new regulatory requirements which added two new listed events to the Continuing Disclosure requirement. Continuing Disclosure is required by the Securities and Exchange Commission Rule 15c2-12. The SEC Rule requires that issuers of tax-exempt debt provide updated financial information, including financial audits, to the marketplace. In addition to the financial information, the SEC Rule also includes a series of specific events ("listed events") which may have an impact on repayment of bonds. Originally, the SEC Rule included 13 events and was amended to add two new events. These two new events relate to new financial obligations and defaults, accelerated termination events, modification of terms or similar events for any financial obligation. The term financial obligation is relatively broad and includes debt obligations, derivatives, or other agreements but does not include municipal securities which have a final official statement. While some agreements like direct purchase bonds clearly fall into the financial obligation category, there are other long-term agreements like leases of vehicles or equipment or power purchase agreements which might require public disclosure. Staff from Law, Procurement and Treasury in consultation with Bond and Disclosure Counsel will work to review those agreements and determine if a disclosure is required. The last set of changes are contained in Attachment A and are designed to bring the document into closer alignment with the guidance from the Internal Revenue Service related to expenditures and investments, as well as other minor changes.

While this Policy will provide a framework for the management of MWRA's debt portfolio, it is not designed to replace the requirements put forth in the Enabling Act and General Revenue Bond Resolution. Attached is a red-lined version of the Policy showing the proposed changes. Acceptance of the amendments to this Policy will not constitute a change to the Authority's procedures for issuing debt and all new and refunding debt issuances will continue to require prior Board approval.

Massachusetts Water Resources Authority

Capital Finance Management Policy

1. Purpose

The purpose of the Capital Finance Management Policy is to provide a framework regarding administration and internal policy for the issuance, management, and reporting on all debt obligations of the Massachusetts Water Resources Authority.

2. General Policy

All debt obligations of the Authority will be issued in compliance with Chapter 372 of the Acts of 1984 of The Commonwealth of Massachusetts (Enabling Act), Amended and Restated General Revenue Bond Resolution and Supplemental Bond Resolutions, and all applicable state and federal laws governing the issuance of debt, including, to the extent applicable, federal and state securities law. As required by the Enabling Act, all new debt issuances must be presented to the Board of Directors for review, evaluation and approval prior to the transaction. It will be the Authority's policy to:

- A. Undertake a multi-year approach to the planning of debt financings to borrow funds in a timely fashion to provide funding for the Authority's Capital Improvement Program (CIP) and other corporate purposes;
- B. Assure the Authority's ability to access the capital markets through a strong credit rating and maintaining investor interest in the issuances;
- C. Achieve the lowest cost of borrowing while minimizing the risk of market fluctuations; and
- D. Manage its debt financings responsibly mindful of generational equity and long-term financial impacts.

3. Planning for Future Borrowings

The Authority will continually monitor its multi-year borrowing plan to reflect changes to the CIP, actual expenditures, and borrowings. The borrowing plan will assist in the development of the schedule for the sale of debt obligations over a three fiscal year cycle. It is understood that market conditions, changes in size and/or timing of capital projects, and other factors outside the control of the Authority may necessitate changes to the schedule for the sale of debt obligations. The borrowing plan is not a commitment by the Authority to sell debt obligations at such times.

4. Issuance Related Policies

4.1 Pre-Issuance Evaluation:

The Authority will review the various factors that impact the issuance of debt including legal, economic, financial and market conditions. All of these factors are continuously changing and any decisions related to the issuance of new debt should be done only after careful consideration of all the factors that impact the issuance. Some of the factors that should be considered include, but are not limited to, the following:

- A. The legal constraints on the Authority's issuance of debt including debt capacity and the various other limitations included in the Enabling Act and in the Amended and Restated General Revenue Bond Resolution and Supplemental Bond Resolutions.
- B. The availability of other funding sources including grant funds, loans through the Massachusetts Clean Water Trust and pay-as-you go capital.
- C. The condition of the municipal bond market, including current interest rates, access to different investor groups, and the availability of alternatives to traditional tax-exempt financing.
- D. Whether the new debt would be issued as Senior or Subordinate lien indebtedness, including a cost/benefit analysis of choosing one lien over the other, including credit enhancement costs if applicable.
- E. Type of debt obligations to be issued.
- F. The nature of the projects and/or equipment to be financed.

4.2 Issuance Procedures

The Authority will issue long-term debt for the purposes of funding the CIP, refunding or restructuring outstanding debt and for other purposes authorized by the Authority's Enabling Act and permitted by the Amended and Restated General Revenue Bond Resolution and Supplemental Resolutions. All debt issuances will be presented to the Board of Directors for review and evaluation and will require its approval as required by the Enabling Act and Amended and Restated General Revenue Bond Resolution. In general, the Authority will follow the procedures outlined below:

4.2.1 *Long-Term Borrowings:*

- A. All new debt issuances will receive prior approval of the Board of Directors as required by the Enabling Act and the Amended and Restated General Revenue Bond Resolution.
- B. The Authority will not issue debt in excess of its statutory debt cap.
- C. The Authority will utilize long-term debt, as necessary, to permanently finance capital improvements to its infrastructure. Typical features of long-term fixed rate debt will be:
 - a. The expected useful life of the projects to be financed will be taken into account in determining the appropriate maturity of the debt issue.
 - b. In general, the Authority's debt will carry a call provision for maturities longer than 10 years, subject to market considerations and in light of the elimination of tax-exempt advance refundings under the federal tax code.
- D. The Authority will determine based on market conditions whether a public competitive or negotiated sale, or a direct purchase transaction would be more advantageous. Some factors impacting that decision include:
 - a. Stability of bond prices and investor demand in the market;
 - b. The complexity of the transaction and any issues which may impact investor demand for the bonds;
 - c. Size of the transaction; and
 - d. Importance of flexibility to adjust sizing and structuring to respond to investor demand which is particularly important for refunding transactions.
- E. The Authority will manage its debt portfolio and financial position to obtain and maintain the highest credit rating possible. While high credit ratings generally reduce the Authority's cost of debt and improve market access, these rating considerations must be balanced with maintaining flexibility and managing risk to meet its operational and capital needs.

- F. Credit enhancements, such as bond insurance and letters of credit, will only be used when the anticipated present value savings in terms of reduced interest expense exceeds the cost of the enhancement and the covenants are acceptable to MWRA.
- G. To provide budget certainty the Authority typically issues fixed interest rate debt. However, it should be recognized that certain circumstances may merit the issuance of variable rate debt. Prior to the issuance of any variable rate debt, the savings and other possible advantages over a comparable fixed rate borrowing will be evaluated and a comparative analysis presented to the Board of Directors as part of the approval process.

4.2.2 *Refunding Transactions*

The Authority will monitor its debt portfolio for opportunities to refund any outstanding debt when debt service savings will be realized. In reviewing refunding options, the Authority will use the following criteria to evaluate the bonds available for refunding to ensure there are sufficient savings to justify the issuance of new debt:

- Overall present value savings will generally be considered at 4% or greater;
- Individual maturities must have at least a 3% present value savings or an option value above 70%; and
- Efficiency of the escrow as determined by dividing the present value savings by the negative arbitrage on the escrow should be over 50%.

At the direction of the Board, the Authority may refund or restructure existing debt to meet particular organizational and/or strategic needs when it is advantageous to do so.

4.2.3 *Short-Term Borrowing*

The Authority typically utilizes its short-term Tax-Exempt Commercial Paper (TECP) program and Revolving Loans to only finance assets during design and construction. The TECP/Revolving Loans generally will be permanently financed by long-term debt no later than six-months after the asset is placed into service. In some instances TECP/Revolving Loans may be used to refund outstanding debt as is provided for in the associated Supplemental Resolution and as directed by the Board.

4.2.4 *Derivative Transactions*

While the Authority does not anticipate entering into any additional derivatives (including Interest Rate Swaps, Caps, Collars, etc.), it may consider their use as a hedge against future interest rate risk

when appropriate, but in no event will derivatives be used for speculative purposes. Further, the Authority will use derivatives only when it has a complete understanding of the derivative product and the benefits are substantially larger than the potential risks associated with it. Derivative products will only be utilized when it can be demonstrated that their usage would provide significant debt service savings or mitigation of the risk of fluctuations in interest rates. The Authority will review all proposed derivative transactions with its Swap Advisor. Prior to entering into any derivative product the following criteria would be evaluated:

- A. Are there sufficient counterparties with appropriate ratings to competitively bid on the derivative transaction;
- B. Does the transaction hedged against create any new interest rate volatility and are such risks appropriate for the Authority and the transaction;
- C. The basis risk and likelihood that the Authority will receive a rate that matches the rate paid on the hedged bonds;
- D. The tax risk associated with any potential future changes to the federal tax code;
- E. The termination risks associated with the derivative transaction including counterparty risk;
- F. The creditworthiness of the proposed counterparty will be thoroughly evaluated and any downgrade and collateral provisions that might be necessary to reduce risks;
- G. Comply with all applicable statutory and regulatory requirements associated with the entering into of derivative transactions, including those of the Commodity Futures Trading Commission, and the Commonwealth's State Finance and Governance Board; and
- H. Any derivative transactions would be presented and evaluated by the Board of Directors prior to approval.

5. Bond Compliance

The Authority will maintain an adequate system of internal controls to provide compliance with applicable laws, rules, regulations, and covenants associated with outstanding debt.

5.1 General Resolution Compliance

The Authority will take all necessary steps to ensure compliance with its Amended and Restated General Revenue Bond Resolution and all Supplemental Resolutions. Compliance with the Amended and Restated General Revenue Bond Resolution includes but is not limited to:

- A. Ensuring that all principal and interest accounts are funded in equal 1/12 installments for principal and 1/6 installments for semi-annual interest payments and that the accounts will be fully funded one month and one day prior to the payment date, as required by the Amended and Restated General Revenue Bond Resolution.
- B. Maintaining rolling coverage levels at a minimum level of 120% for senior debt service and 110% for combined senior and subordinated debt service as required by the Amended and Restated General Revenue Bond Resolution.
- C. Maintaining reserve funds at the required levels and provide all annual certifications to Trustee.
- D. Providing the Trustee with all required certifications related to coverage, budget, reporting and all other requirements included in the General Bond Resolution and the Enabling Act.

5.2 Tax-Exempt Status Requirement Compliance

The Authority will comply with all relevant federal tax law provisions including without limitation arbitrage requirements, limitations on nongovernmental use of tax-exempt bond financed facilities, recordkeeping requirements, and remediation requirements with respect to nonqualified bonds. The Authority will take all appropriate actions to ensure that the interest paid on its tax-exempt debt obligations to investors maintains its tax-exempt status. Additionally, the Authority will establish and maintain a sound arbitrage compliance program that incorporates strategies to limit negative arbitrage. Neither the Authority nor any other person under its control or direction will make any investment or other use of tax exempt bond proceeds in any manner which would cause the bonds to be private activity bonds or arbitrage bonds, or would otherwise cause the bonds to lose their tax-exempt status. In connection with the maintenance of such tax-exempt status, the Authority will utilize the procedures set forth in the Authority's Post Issuance Compliance Guide Regarding Use of Tax-Exempt Bond Financed Property and Proceeds included as Attachment A to this document.

5.3 Derivative Compliance

- A. The Authority will routinely monitor all of its derivative transactions to ensure that all the terms of the agreements are being met. The counterparties will be routinely monitored and evaluated for termination risk and collateral requirements, if applicable. In addition, the agreements will be regularly monitored for basis, tax, and termination risk. The Authority will have the termination values of all existing agreements calculated on a weekly basis.

The Authority will comply with the requirements relating to legislation and regulations for derivatives transactions under the Wall Street Transparency and Accountability Act of 2010, as supplemented and amended from time to time (herein collectively referred to as “Dodd-Frank”). Pursuant to such intent, it is the policy of the Authority that it will only utilize a designated Qualified Independent Representative (QIR or Swap Advisor) that meets the requirements specified in Commodity Futures Trading Commission Regulation 23.450(b)(1) or any successor regulation thereto (herein referred to as the “Representative Regulation”); the designated Swap Advisor will provide a written certification to the Authority to the effect that such designated QIR agrees to meet and meets the requirements specified in the Representative Regulation; (iii) Authority staff will monitor the performance of each designated Swap Advisor consistent with the requirements specified in the Representative Regulation; (iv) Authority staff will exercise independent judgment in consultation with the Authority’s designated Swap Advisor in evaluating all recommendations, if any, presented by any counterparty with respect to transactions authorized pursuant to this policy; and (v) Authority staff will rely on the advice of the Authority’s designated Swap Advisor with respect to potential derivative transactions and will not rely on recommendations, if any, presented by any counterparty with respect to transactions authorized pursuant to this policy.

- B. Any new swap will not exceed the final maturity of the associated bonds. The notional amount of the swaps shall not exceed the amount of associated bonds outstanding.
- C. Optional Termination/Amendment
With prior approval of the Board of Directors the Authority, in consultation with its Swap Advisor and Bond Counsel, may terminate or amend a swap if it is determined that it is financially advantageous or to meet another business need of the Authority.
- D. Mandatory Termination

In the event a swap is terminated as a result of a termination event, the Authority will work with its Swap Advisor and Bond Counsel to evaluate options including obtaining a replacement swap, or, make/receive a termination payment.

5.4 Debt Cap

The Authority will routinely examine its future borrowing needs, repayment schedules and capacity under the debt cap to ensure that it will be able to fund the CIP. The Authority will seek increases to the debt cap as necessary to meet the needs of the CIP.

5.5 Other Contractual Agreements

The Authority will comply with all of the terms and conditions contained within other contractual agreements associated with the issuance and maintenance of debt, including but not limited to the Direct Purchases, Revolving Loan Agreements, Standby Bond Purchase Agreements, and Letters of Credit.

6. **Primary and Continuing Disclosure Policy**

The Authority will provide certain continuing disclosure pursuant to the provision of Rule 15c2-12(b)(5) promulgated under the Securities Exchange Act of 1934 (as amended, the "Rule"). Specifically, the Authority and its Trustee, U.S. Bank National Association, as Dissemination Agent (the "Dissemination Agent"), have entered into existing Continuing Disclosure Agreement dated November 21, 1995 (as amended, the "Continuing Disclosure Agreement"). The Continuing Disclosure Agreement will transfer to any successor to U.S. Bank N.A. as Dissemination Agent. The Treasury Department will be responsible for the Authority's continuing disclosure obligations.

6.1 Annual Continuing Disclosure

Pursuant to the Continuing Disclosure Agreement, the Authority will provide an annual filing, not later than 15 business days prior to January 1 of each year to the Dissemination Agent, each nationally recognized municipal securities information repository, and any other public or private repository (currently, the Municipal Securities Rulemaking Board) or entity designated by the Commonwealth as a state information depository for the purpose of the Rule (State Depository). Currently, the annual filing is only required to be submitted to the Municipal Securities Rulemaking Board (MSRB) through its Electronic Municipal Market Access system, known as "EMMA" The annual filing will include or incorporate by reference the following information:

- A. Quantitative information for, or as of the end of, the preceding fiscal year of the type presented in the Authority's most recent official statement including:
 - a. Summary of revenues, expense, and fund deposits;
 - b. Amount of outstanding indebtedness and debt limitation as of the end of the fiscal year;
 - c. Summary table with respect to the coverage covenants in accordance with the Amended and Restated General Revenue Bond Resolution; and
 - d. Summary table showing the capital investments by major category during the preceding fiscal year.
- B. Quantitative information for the current fiscal year of the type presented in the Authority's most recent official statement including:
 - a. A summary table of the Authority's current water and wastewater charges by Local Body;
 - b. The Current Expense Budget rate revenue requirement and percentage increase for water and wastewater over the prior fiscal year; and
 - c. Executive summaries of the Authority's most recently adopted Current Expense Budget and Capital Improvement Program.
- C. The most recently available audited financial statements of the Authority, prepared in accordance with accounting principles generally accepted in the United States of America.

6.2 Reporting of Material Events

Pursuant to the Continuing Disclosure Agreement, the Authority in a timely manner not in excess of 10 business days after the occurrence of any of the following listed events, shall file or cause to be filed a notice of such occurrence with the MSRB. The Authority also shall provide a copy of each such notice to the Dissemination Agent. The events covered under this reporting requirement include the following:

1. Principal and interest payment delinquencies.
2. Non-payment related defaults, if material..

3. Unscheduled draws on debt service reserve reflecting financial difficulties.
4. Unscheduled draws on credit enhancements reflecting financial difficulties.
5. Substitution of credit or liquidity providers, or their failure to perform.
6. Adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of Additional Bonds, or other material events affecting the tax-exempt status of Additional Bonds.
7. Modifications to the rights of the Owners of Additional Bonds, if material.
8. Bond Calls, if material and tender offers.
9. Defeasance of Additional Bonds or any portion thereof.
10. Release, substitution or sale of property securing repayment of the Additional Bonds, if material.
11. Rating changes.
12. Bankruptcy, insolvency, receivership or similar event of the Authority.¹
13. The consummation of a merger, consolidation, or acquisition involving the Authority or the sale of all or substantially all of the assets of the Authority, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material.
14. Appointment of a successor or additional trustee or the change of name of a trustee if material.

¹ As noted in the Rule, this event is considered to occur when any of the following occur: (i) the appointment of a receiver, fiscal agent or similar officer for the Authority in a proceeding under the U.S. Bankruptcy Code or in any proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the Authority, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or (ii) the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the Authority.

15. The incurrence of a financial obligation of the Authority, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation of the Authority, any of which affect Bond owners, if material.

16. A default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a financial obligation of the Authority, any of which reflect financial difficulties.

For the purposes of the events identified in paragraphs 15 and 16 above, the Rule provides that the term “financial obligation” means (i) a debt obligation, (ii) a derivative instrument entered into in connection with or pledged as security or a source of payment for, an existing or planned debt obligation or (iii) a guaranty of an instrument described in (i) or (ii). The term does not include municipal securities as to which a final official statement has been provided to the MSRB consistent with the Rule. The Treasury Department will work with the Procurement Department and the Law Division to monitor all such financial obligations to determine whether a notice should be filed with EMMA as described above.

6.3 Disclosure Training

The Authority will periodically conduct training for staff members involved in the development of the Authority’s primary disclosure documents and other public information. Staff will work with Authority’s Disclosure Counsel to identify those staff members who should receive training, and develop a schedule and program for the training consistent with federal and state securities laws and best practices.

7. Credit Rating

The Authority will attempt to maintain its current ratings while at the same time strive to enhance its overall credit quality. While high credit ratings generally reduce the Authority’s cost of debt and increase market access, credit ratings must be balanced with maintaining flexibility to meet its operational and capital needs.

8. Investment of Bond Proceeds

The security of the principal amount is regarded as the highest priority in handling the investment of bond proceeds. All other investment objectives are secondary to the maintenance of the principal amount. Each investment transaction shall seek to first ensure that capital losses are avoided.

Bond proceeds are only to be invested in permitted investments, as defined in the Amended and Restated General Revenue Bond Resolution. Neither the Authority nor any other person under its control or direction will make any investment of bond proceeds in any manner which would cause the bonds to be private activity bonds or arbitrage bonds. The Authority will comply with all federal tax arbitrage regulations.

9. Budgeting Debt Service

The Authority will develop a debt service budget based on the known costs for all fixed rate transactions. For variable rate debt, the Authority will budget at the fixed principal amortization amounts, plus an assumed interest rate based on market conditions and historic interest rate trends. The annual debt service budget will also include assumptions for the planned borrowings which will include an assumed interest rate and principal amortization schedule.

10. Review of Policy

This policy should be reviewed by staff at least once every two years. However, reviews may be made as often as deemed necessary. Pursuant to 976 CMR 2.04, upon adoption of any substantial revisions to this policy a copy shall be provided to the Commonwealth's State Finance and Governance Board, the successor to the Finance Advisory Board.

Attachment A

MASSACHUSETTS WATER RESOURCES AUTHORITY POST ISSUANCE COMPLIANCE GUIDE REGARDING USE OF TAX-EXEMPT BOND FINANCED PROPERTY AND PROCEEDS

March 2018

The purpose of this Post Issuance Compliance Guide Regarding Use of Tax-Exempt Bond Financed Property and Proceeds (the “Guide”) of the Massachusetts Water Resources Authority (the “Authority”) is to facilitate continuing compliance with the federal income tax requirements relating to the tax-exempt status of the Authority’s outstanding tax-exempt note and bond issues and to quickly identify and correct any noncompliance. The Director of Finance of the Authority will act as the Tax Compliance Officer who will have the primary responsibility to monitor the Authority’s compliance with federal tax requirements for the Issuer’s bonds and notes, including without limitation consulting with the Authority’s Bond Counsel regarding following the procedures set forth in this Guide. The tax requirements include both limitations on the private use of bond-financed facilities and arbitrage limitations under the Internal Revenue Code of 1986, as amended (the “Code”). Set forth below are the procedures that will be undertaken.

BOND-FINANCED PROPERTY

The Tax Compliance Officer will identify all outstanding tax-exempt obligations of the Issuer by reference to the listing of tax-exempt obligations (the “Obligations”) in the audited financial statement for the fiscal year and any interim unaudited financial statements. ~~The~~ and the property that was financed by such Obligations. As further described herein, the Tax Compliance Officer will ensure that the investment and expenditure of proceeds of such Obligations, and the use of any property financed by such Obligations, are timely monitored for compliance with the Code. In addition to monitoring when particular events occur that could impact compliance, the Tax Compliance Officer will from time to time review the existing books and records of the Authority that reflect the actual investment, expenditure, and use of proceeds of particular Obligations on specific projects (the “Bond-Financed Property”) for compliance, and implement any necessary revisions to the compliance and recordkeeping procedures. The Tax Compliance Officer will maintain ~~these~~ books and records relating to compliance until seven years after the Obligations (and any Obligations issued to refund such Obligation) are redeemed.

PRIVATE ACTIVITY LIMITATIONS

Private Activity Review

Reference should be made to the Private Activity Restrictions on Private Business Use and accompanying attachments, attached as Tab I, for further guidance on the Private Activity Limitations of Section 141 of the Code.

In order to demonstrate compliance with the Private Activity Limitations of the Code, the Tax Compliance Officer will make inquiry of knowledgeable persons on a periodic basis as to the use of Bond-Financed Property by any non-governmental persons ~~on a periodic basis~~ (the "Tax Review"). A form of Private Business Use Questionnaire that can be utilized for this inquiry is attached at Tab II. (It is not necessary that the questionnaire actually be filled out by Authority personnel if the Tax Compliance Officer decides to use the questionnaire as a guide to making inquiries of appropriate Authority personnel as to potential private use of a Bond-Financed Property.) The Tax Compliance Officer will coordinate with the Treasury Department, the Procurement Department and the Law Division to identify the potential occurrence of any of the events set forth below (a "Tax Event") with respect to any Bond-Financed Property. On or prior to the occurrence of any Tax Event, the Tax Compliance Officer will consult with Bond Counsel for the Obligations to ascertain what effect, if any, a contemplated Tax Event may have on the tax-exempt of interest on the Obligations. In certain circumstances it may be necessary for the Authority to take a remedial action under Treasury Regulation Section 1.141-12 to preserve the tax-exempt status of interest on the Obligations. See Tab III regarding available remedial actions. Events that may trigger the necessity of a remedial action include without limitation the following:

Change of ownership of the financed property - the ownership of any portion of the Bond-Financed Property is transferred to anyone, prior to the earlier of the end of the expected economic life of the property, or the latest maturity date of any bond of the issue financing (or refinancing) the property.

Private business use of the Bond-Financed Property -- any portion of the Bond-Financed Property will be used by anyone other than a State or local governmental unit or as members of the general public who are not using the property in the conduct of a trade or business. Examples of uses that can give rise to private business use include use by a person as an owner, lessee, purchaser of the output of facilities under a "take" or "take or pay" contract, purchaser or licensee of research, a manager or independent contractor under certain management or professional service contracts or any other arrangement that conveys special legal entitlements (*e.g.*, arrangement that conveys priority rights to the use or capacity of the financed property) for beneficial use of the property financed with proceeds of tax-exempt debt or special economic benefit.

Leases of the Bond Financed Property -- any portion of the Bond-Financed Property is to be leased, or otherwise subject to an agreement which gives possession-of, control, or other special legal entitlement, of all or any portion of the Bond-Financed Property to anyone, other than a State or local governmental unit.

Private Loan of Bond Proceeds -- any portion of the proceeds of the bonds (including any investment earnings thereon) are to be loaned by the Issuer to any person other than a State or local government.

Management agreement or service agreement -- any portion of the Bond-Financed Property is to be used under a management contract or professional service contract (e.g., medical group), other than a contract for services that are solely incidental to the primary function of Bond-Financed Property, such as janitorial services or office equipment repair.

Naming rights agreements for the Bond-Financed Property -- any portion of the Bond-Financed Property will become subject to a naming rights or sponsorship agreement, other than a “brass plaque” dedication.

Research using the Bond-Financed Property -- any portion of the Bond-Financed Property will be used for the conduct of research under the sponsorship, or for the benefit of, any organization other than a State or local governmental unit.

In addition, the Tax Compliance Officer will undertake an annual Tax Review regarding the ownership and use of the Bond-Financed Property to determine whether any Tax Event has occurred since the later of the date of issue of the Obligations or the date of the last annual Tax Review. If a Tax Event has already occurred, the Tax Compliance Officer will contact Bond Counsel to determine the proper course of action.

Recordkeeping

The Internal Revenue Service has advised issuers of tax-exempt obligations that they have post-issuance recordkeeping responsibilities that are necessary to satisfy the Internal Revenue Service in the event of any future audit of the Obligations. See IRS FAQs on Record Retention, attached as Tab IV. These recordkeeping obligations include the following ones, which demonstrate compliance with the private activity limitations:

1. Information and records regarding any use of proceeds Obligations to make or finance a loan to any person other than a State or local governmental unit;
2. Information and records regarding the continued use and ownership of the Bond-Financed Property; and
3. Any use arrangements, affecting the Bond-Financed Property, which results in private business use of any portion of the Bond-Financed Property.

EXPENDITURE COMPLIANCE

Proceeds of Obligations must be allocated to qualifying expenditures. The Tax Compliance Officer shall ensure that such allocations are made as expected and that any equity that was also used to finance the Bond-Financed Property is allocated as expected. The Tax Compliance Officer shall monitor to ensure that the proceeds are being spent in

accordance with the expected spend-down schedule and if not, that Bond Counsel is consulted. The Tax Compliance Officer also shall ensure that a final allocation of the Obligation proceeds is timely made.

Recordkeeping

In order to satisfy the recordkeeping requirements, the Tax Compliance Officer shall create and maintain, or cause to be created and maintained, records of:

1. Proof of expenditures, including the payee and the amount, along with supporting invoices support expenditure of proceeds.

2. A final allocation of proceeds and equity, if any, to expenditures.

ARBITRAGE COMPLIANCE

The arbitrage restrictions imposed under the Code include restrictions on the investment of proceeds of tax-exempt obligations at an unrestricted yield and the rebate of excess investment earnings to the federal government, as more fully described in the Tax Certificates for each of the Obligations and the Arbitrage Letter of Instructions, attached at Tab V.

Arbitrage Review

For each issue of Obligations, the Tax Compliance Officer will maintain the Tax Certificate for such Obligations and the records described below under “Recordkeeping”. For each issue of Obligations, the Tax Compliance Officer will establish a timeline for review of arbitrage-related issues as more fully described below.

Temporary Period

For all issues the Tax Compliance Officer will note the date of expiration of the three year temporary period for unrestricted investment of the proceeds of the Obligations. The three year temporary period runs from the date of issue of the original new money issue and is unaffected by note rollovers. Note, however, that the issuance of advance refunding bonds will terminate the three year temporary period of any issue that is advance refunded. For all Obligations which have unexpended proceeds held beyond the temporary period, the Tax Compliance Officer will assure that the proceeds are yield restricted. The relevant yield will be the yield on the original Obligations until and to the extent that those obligations are paid with the proceeds of another issue of Obligations (a “Refunding Issue”), at which time the relevant yield will be the yield on the Refunding Issue. Yield restriction will be accomplished through either an actual investment below the relevant yield or the making of yield reduction payments, as described in Section 3(b) of the Arbitrage Letter of Instructions found in Tab V. The Tax Compliance officer will work with its auditor or other rebate consultant to make timely yield reduction payments.

Other Yield Exempted Funds

Certain other funds that may hold proceeds, including a debt service fund that is expected to pay debt service on an Obligation, or a debt service reserve fund may be exempt from yield restriction provided that certain restrictions are met. The Tax Compliance Office will monitor the account statements received from the Trustee to assure that either (1) the prescribed restrictions are met, or (2) the fund is yield restricted as required.

Rebate

For each issue of Obligations the Tax Compliance Officer will note whether a rebate exception is available for the issue. The rebate exceptions include the small issuer exception of Section 148(f)(4)(D) of the Code and the spending exceptions described in section 4(a)(ii) of the Arbitrage Letter of Instructions found in Tab V. If the Obligation is expected to meet one of the three spending exceptions to rebate, the six-month exception, the 18-month exception or the 2-year construction exception, the Tax Compliance Officer will establish a timeline of six month intervals following the date of issue of the Obligations and note whether the spending requirements related to that exception are met at the end of each period.

If no rebate exception is expected to apply or if a spending requirement is not met, the Tax Compliance Officer will establish a timeline for rebate analysis for each issue of Obligations. For bond issues, the timeline will provide for a rebate analysis to be conducted at least every five years and when the bonds are discharged, as more fully described in Section 4 of the Arbitrage Letter of Instructions. For note issues the timeline will provide for a rebate analysis to be undertaken at the time of the retirement of the note issue. The Tax Compliance Officer will consult with its auditor or other rebate consultant and make timely filing of any rebate amount with the Internal Revenue Service, as more fully described in Section 4 of the Arbitrage Letter of Instructions.

Recordkeeping

In order to satisfy the arbitrage recordkeeping requirements, the Tax Compliance Officer shall create and maintain, or cause to be created and maintained, records of:

1. Purchases or sales of investments made with bond proceeds (including amounts treated as “gross proceeds” as a result being part of a sinking fund or pledge fund) and receipts of earnings on those investments;
- ~~2. The final allocation of the proceeds of the Obligations to expenditures;~~
2. ~~3.~~ Information and records showing that investments made with unspent proceeds of the Obligations after the expiration of the applicable temporary period were not invested in higher-yielding investments;
3. ~~4.~~ Information, if applicable, that will be sufficient to demonstrate to the Internal Revenue Service upon an audit of the Obligations that the Obligations have complied with one or more available spending exceptions to the yield restriction and arbitrage rebate requirement with respect of the Bonds;

4. ~~5.~~ Information and calculations, when applicable, that will be sufficient to demonstrate to the Internal Revenue Service, upon an audit of the Obligations, for which an exception to the arbitrage rebate requirement was not applicable, that the rebate amount, if any, that was payable to the United States of America with respect to investments made with gross proceeds of the Obligations was calculated and timely paid with Form 8038-T timely filed with the Internal Revenue Service;
5. ~~6.~~ Information and records showing that investments held in yield-restricted advance refunding or defeasance escrows for Obligations, were not invested in higher-yielding investments.

Attachments

Tab I	Private Activity Restrictions on Private Business Use
Tab II	Private Business Use Questionnaire
Tab III	Remedial Actions
Tab IV	IRS FAQs on Record Retention
Tab V	Arbitrage Letter of Instructions

TAB I
SUMMARY OF
PRIVATE ACTIVITY RESTRICTIONS ON PRIVATE BUSINESS USE
GOVERNMENTAL BONDS

Introduction

The Internal Revenue Code of 1986, as amended (the “Code”) limits the amount of proceeds of tax-exempt governmental bonds that can be used for the benefit of private businesses. Section 141 of the Code treats as a taxable private activity bond a bond issued as part of an issue that meets the private business use test and the private security or payment test, or the private loan test. The private business use test is met if the amount of proceeds of bonds that are used in a private business use is more than ten percent of total proceeds. The private security or payment test is met if the payment of debt service on more than 10 percent of the issue is directly or indirectly (i) secured by any interest in property used for a private business use or payments in respect of such property or (ii) derived from payments in respect of property or borrowed money used for a private business use. For purposes of Section 141, the term private business includes nonprofit, 501(c)(3) organizations as well as the federal government.

Private business use generally

Private business use can arise from almost any use of tax exempt bond financed property by anyone other than a state or local governmental unit (“Governmental Unit”) or members of the general public who are not using the property in the conduct of a trade or business. Examples of uses which can give rise to private business use include use (a) by a person as (i) an owner, (ii) a lessee, (iii) a purchaser of the output of facilities under a “take and pay” or “take or pay” contract, (iv) a purchaser, sponsor or licensee of research and (v) a manager or independent contractor under certain management or professional service contracts, (b) pursuant to an arrangement that conveys (i) special legal entitlements (e.g., an arrangement that conveys priority rights to the use or capacity of the financed property) for beneficial use of the property financed with proceeds of tax exempt debt or (ii) other special economic benefits, (c) use by the United States government and its agencies and instrumentalities and (d) use by nonprofit corporations.

The purpose of this Summary is to assist employees of an Governmental Unit in recognizing uses, actions or other arrangements with respect to tax exempt bond financed property which may not comply with the requirements of the Internal Revenue Code of 1986, as amended, and which could jeopardize the tax exempt status of bonds issued to finance such property. It is not exhaustive and may not be relied upon as legal advice. Before any use, action or other arrangement described herein is commenced, such use,

action or other arrangement should be reviewed by bond counsel to the Governmental Unit.

Leases of the Financed Property. Leases and certain other agreements which transfer possession of tax exempt financed property will result in a private business use if the party to whom the property is leased is not a Governmental Unit. Examples include leases of space for book stores and cafeterias.

Priority Rights. Arrangements that convey special legal entitlements (e.g., arrangements that convey priority rights to the use or capacity of the financed property) for control or beneficial use of property financed with proceeds of tax exempt debt are treated as private business uses. Examples of such arrangements are contracts with research companies to set aside space for the testing of new products or arrangements pursuant to which a person which is not an Governmental Unit is entitled to limit, or control charges for, access to all or a portion of tax-exempt bond financed property.

Naming Rights and Sponsorship Payments. Agreements which permit a private company or organization to make payments for the right to have its name or logo used in connection with property financed with tax exempt debt may result in private business use. The rules in this area continue to evolve but “qualified sponsorship payments” should not give rise to a private business use. A qualified sponsorship payment means any payment made by any person engaged in a trade or business with respect to which there is no arrangement or expectation that such person will receive any substantial return benefit other than the use or acknowledgement of the sponsor’s name or logo in connection with the activities of the Governmental Unit. Such use or acknowledgement may not include advertising such person’s products or services. The qualified sponsorship payment would not include (a) any payment that is contingent upon attendance at events or (b) any payment that entitles the payor to the use or acknowledgement of the payor’s name or logo in regularly scheduled and printed material published by or on behalf of the Governmental Unit. This would allow donations in exchange for the usual “brass plaque” but call into question arrangements such as the right to name a facility of the Governmental Unit and control how that facility is referred to in publications and press releases.

Research Arrangements. Research conducted under the sponsorship or for the benefit of organizations other than Governmental Units, including research sponsored by any branch of the Federal government, can result in the private business use of any property financed with tax exempt debt which is used in the conduct of the research. The Internal Revenue Service has published guidance on the circumstances under which a research agreement does not result in private business use. The guidance for safe harbor research arrangements is set forth in Rev. Proc. 2007-47 (2007 IRB LEXIS 570; 2007-29 I.R.B. 108) attached hereto as Exhibit 1.

Management and Service Contracts. Both contracts for the management of property financed with tax exempt debt and certain contracts for the provision of services in connection with property financed with tax exempt debt can result in private business use. Contracts which may result in a private business use include management, service, or

incentive payment contracts between the Governmental Unit and a service provider under which the service provider provides services involving all, a portion of, or any function of, a facility financed with tax exempt debt. For example, a contract for the provision of management services for an entire facility, and a contract for management services for a specific portion of a facility, such as a cafeteria are each treated as a management contract. However, contracts for services that are solely incidental to the primary function of the property financed with tax exempt debt, such as janitorial services or office equipment repair, are not regarded as management or service contracts for this purpose. The Internal Revenue Service has published safe harbor guidance on the circumstances under which a management, service or incentive payments contract does not result in private business use. The guidance is set forth in Rev. Proc. 97-13, 1997-1 C.B. 632, as modified by Rev. Proc. 2001-39, 2001-2 C.B. 38, and as amplified by Notice 2014-67, all of which are attached hereto as Exhibit 2. The chart below summarizes the safe harbor guidance:

Maximum Length of Contract¹	Permitted Fee Arrangement²
Lesser of 15 years or 80% of the economic life of the property	95% periodic fixed fee with single, one time (stated dollar amount) incentive payment)
Lesser of 10 years or 80% of property life	80% periodic fixed fee
5 years.	(i) stated amount (ii) periodic fixed fee, (iii) capitation fee, ³ (iv) per –unit fee, (v) percentage of gross revenues, adjusted gross revenues or expenses (but not both revenues and expenses), or (vi) combination of (i) –(v).
3 years cancelable upon reasonable notice by Governmental Unit at end of the second year	100% per unit fee or combination of per unit and periodic fixed fee
2 years cancelable upon reasonable notice by Governmental Unit at end of the first year	Percentage of fees charged or a combination of a per unit fee and a percentage of revenue or expense fee ⁴

¹Contract term includes any legally enforceable renewal right.

²No portion of the fee may be a net profits interest.

³A fixed amount per person for a given period of time.

⁴This option is restricted to contracts to provide services to third parties or contracts during a initial startup period of a facility.

The Internal Revenue Service, in Rev. Proc. 2017-13, 2017-6 C.B. 787, attached hereto as Exhibit 3, has updated its safe harbor guidance on the circumstances under which a management, service or incentive payments contract does not result in private business use. Rev. Proc. 2017-13 applies to any such contract entered into on or after January 17, 2017, and may be applied to any such contract entered into before January 17, 2017. Rev. Proc. 97-13, as modified by Rev. Proc. 2001-39 and amplified by the Notice 2014-67, may be applied to any such contract entered into before August 18, 2017 and that is not materially modified or extended on or after August 18, 2017 (other than pursuant to a

renewal option as defined in Section 1.141-1(b) of the Treasury Regulations). Attached hereto as Exhibit 4 is a summary of Rev. Proc. 2017-13.

Output Facilities. Occasionally a Governmental Unit will acquire facilities such as co-generation facilities. The sale of output (as distinguished from consumption of the output by the Governmental Unit) from an output type facility can result in a private business use.

Joint Ventures. Joint venture arrangements between a Governmental Unit and persons other than an Governmental Unit may result in private business use. These arrangements need to be examined to see if they are viewed as partnerships for federal tax purposes.

Exclusions from Private Business Use.

Incidental Uses. A very limited spectrum of incidental uses are not treated as private business uses if certain conditions are met. Those conditions are: (a) except for vending machines, pay telephones, kiosks and similar uses, the use must not involve the transfer to the private user of possession and control of space that is separated from the other areas of the facility by a physical barrier; (b) the use must not be functionally related to another use of the facility by the same private user; and (c) such incidental uses may not, in the aggregate involve more than 2.5 percent of the facility. Examples of incidental uses include pay telephones, vending machines and advertising displays.

General Public Use. Use of facilities intended for general public use is not considered “use” by nongovernmental persons in a trade or business if such persons use the facilities in their trade or business on the same basis as other members of the public. Use of the financed facilities by organizations such as school groups, church groups, and fraternal organizations and numerous commercial organizations for a short period of time on a rate scale basis will not be considered use by nongovernmental persons in a trade or business if the rights of such a user are only those of a transient occupant rather than the full legal possessory interests of a lessee. Any arrangement that conveys priority rights to the use or capacity of the financed property will be treated a private business use.

Short Term Uses. Certain short term uses will not be treated as private use. Use by a nongovernmental person is not private use if either:

- i. (A) the term of the use under the arrangement, including all renewal options is not longer than 200 days, and (B) the use of the financed property under the same or similar arrangements is predominantly by natural persons who are not engaged in a trade or business.
- ii. (A) the term of the use under the arrangement, including all renewal options, is not longer than 100 days, and (B) the arrangement would be treated as general public use, except that it is not available for use on the same basis by natural persons not engaged in a trade or business because generally applicable

and uniformly applied rates are not reasonably available to natural persons not engaged in a trade or business;

- iii. (A) the term of the use under the arrangement, including all renewal options, is not longer than 50 days; and (B) the arrangement is a negotiated arm's-length arrangement, and compensation under the arrangement is at fair market value. In addition, in each case the property must not be financed for the principal purpose of providing that property for use by that non-Governmental Unit.

Qualified improvements. Proceeds of tax exempt bonds that provide a governmentally owned improvement to a governmentally owned building (including its structural components and land functionally related and subordinate to the building) are not used for a private business use if

- i. The building was placed in service more than 1 year before the construction or acquisition of the improvement is begun;
- ii. The improvement is not an enlargement of the building or an improvement of interior space occupied exclusively for any private business use;
- iii. No portion of the improved building or any payments in respect of the improved building secures payment of the tax exempt bonds; and
- iv. No more than 15 percent of the improved building is used for a private business use.

EXHIBIT 1

RESEARCH CONTRACT GUIDELINES

Rev. Proc. 2007-47 - Operating Guidelines for Research Agreements

*(Also Part I, § § 103, 141, 145; 1.141-3, 1.145-2.)
June 26, 2007*

SECTION 1. PURPOSE

The purpose of this revenue procedure is to set forth conditions under which a research agreement does not result in private business use under § 141(b) of the Internal Revenue Code of 1986 (the Code). This revenue procedure also addresses whether a research agreement causes the modified private business use test in § 145(a)(2)(B) of the Code to be met for qualified 501(c)(3) bonds. This revenue procedure modifies and supersedes Rev. Proc. 97-14, 1997-1 C.B. 634.

SECTION 2. BACKGROUND

.01 Private Business Use.

(1) Under § 103(a) of the Code, gross income does not include interest on any State or local bond. Under § 103(b)(1), however, § 103(a) does not apply to a private activity bond, unless it is a qualified bond under § 141(e). Section 141(a)(1) defines “private activity bond” as any bond issued as part of an issue that meets both the private business use and the private security or payment tests. Under § 141(b)(1), an issue generally meets the private business use test if more than 10 percent of the proceeds of the issue are to be used for any private business use. Under § 141(b)(6)(A), private business use means direct or indirect use in a trade or business carried on by any person other than a governmental unit. Section 150(a)(2) provides that the term “governmental unit” does not include the United States or any agency or instrumentality thereof. Section 145(a) also applies the private business use test of § 141(b)(1) to qualified 501(c)(3) bonds, with certain modifications.

(2) Section 1.141-3(b)(1) of the Income Tax Regulations provides that both actual and beneficial use by a nongovernmental person may be treated as private business use. In most cases, the private business use test is met only if a nongovernmental person has special legal entitlements to use the financed property under an arrangement with the issuer. In general, a nongovernmental person is treated as a private business user of proceeds and financed property as a result of ownership; actual or beneficial use of property pursuant to a lease, or a management or incentive payment contract; or certain other arrangements such as a take or pay or other output-type contract.

(3) Section 1.141-3(b)(6)(i) provides generally that an agreement by a nongovernmental person to sponsor research performed by a governmental person may result in private

business use of the property used for the research, based on all the facts and circumstances.

(4) Section 1.141-3(b)(6)(ii) provides generally that a research agreement with respect to financed property results in private business use of that property if the sponsor is treated as the lessee or owner of financed property for Federal income tax purposes.

(5) Section 1.141-1(b) provides that the term “governmental person” means a State or local governmental unit as defined in § 1.103-1 or any instrumentality thereof. Section 1.141-1(b) further provides that governmental person does not include the United States or any agency or instrumentality thereof. Section 1.141-1(b) further provides that “nongovernmental person” means a person other than a governmental person.

(6) Section 1.145-2 provides that §§ 1.141-0 through 1.141-15 apply to qualified 501(c)(3) bonds under § 145(a) of the Code with certain modifications and exceptions.

(7) Section 1.145-2(b)(1) provides that, in applying §§ 1.141-0 through 1.141-15 to § 145(a) of the Code, references to governmental persons include § 501(c)(3) organizations with respect to their activities that do not constitute unrelated trades or businesses under § 513(a).

.02 Federal Government rights under the Bayh-Dole Act.

(1) The Patent and Trademark Law Amendments Act of 1980, as amended, 35 U.S.C. § 200 et seq. (2006) (the “Bayh-Dole Act”), generally applies to any contract, grant, or cooperative agreement with any Federal agency for the performance of research funded by the Federal Government.

(2) The policies and objectives of the Bayh-Dole Act include promoting the utilization of inventions arising from federally supported research and development programs, encouraging maximum participation of small business firms in federally supported research and development efforts, promoting collaboration between commercial concerns and nonprofit organizations, ensuring that inventions made by nonprofit organizations and small business firms are used in a manner to promote free competition and enterprise, and promoting the commercialization and public availability of inventions made in the United States by United States industry and labor.

(3) Under the Bayh-Dole Act, the Federal Government and sponsoring Federal agencies receive certain rights to inventions that result from federally funded research activities performed by non-sponsoring parties pursuant to contracts, grants, or cooperative research agreements with the sponsoring Federal agencies. The rights granted to the Federal Government and its agencies under the Bayh-Dole Act generally include, among others, nonexclusive, nontransferable, irrevocable, paid-up licenses to use the products of federally sponsored research and certain so-called “march-in rights” over licensing under limited circumstances. Here, the term “march-in rights” refers to certain rights granted to the sponsoring Federal agencies under the Bayh-Dole Act, 35 U.S.C. § 203 (2006), to take certain actions, including granting licenses to third parties to ensure public benefits from the dissemination and use of the results of federally sponsored research in

circumstances in which the original contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the product of that research. The general purpose of these rights is to ensure the expenditure of Federal research funds in accordance with the policies and objectives of the Bayh-Dole Act.

SECTION 3. DEFINITIONS

.01 *Basic research*, for purposes of § 141 of the Code, means any original investigation for the advancement of scientific knowledge not having a specific commercial objective. For example, product testing supporting the trade or business of a specific nongovernmental person is not treated as basic research.

.02 *Qualified user* means any State or local governmental unit as defined in § 1.1031 or any instrumentality thereof. The term also includes a § 501(c)(3) organization if the financed property is not used in an unrelated trade or business under § 513(a) of the Code. The term does not include the United States or any agency or instrumentality thereof.

.03 *Sponsor* means any person, other than a qualified user, that supports or sponsors research under a contract.

SECTION 4. CHANGES

This revenue procedure modifies and supersedes Rev. Proc. 97-14 by making changes that are described generally as follows:

.01 Section 6.03 of this revenue procedure modifies the operating guidelines on cooperative research agreements to include agreements regarding industry or federally sponsored research with either a single sponsor or multiple sponsors.

.02 Section 6.04 of this revenue procedure provides special rules for applying the revised operating guidelines under section 6.03 of this revenue procedure to federally sponsored research. These special rules provide that the rights of the Federal Government and its agencies mandated by the Bayh-Dole Act will not cause research agreements to fail to meet the requirements of section 6.03, upon satisfaction of the requirements of section 6.04 of this revenue procedure. Thus, under the stated conditions, such rights themselves will not result in private business use by the Federal Government or its agencies of property used in research performed under research agreements. These special rules do not address the use by third parties that actually receive more than non-exclusive, royalty-free licenses as the result of the exercise by a sponsoring Federal agency of its rights under the Bayh-Dole Act, such as its march-in rights.

SECTION 5. SCOPE

This revenue procedure applies when, under a research agreement, a sponsor uses property financed with proceeds of an issue of State or local bonds subject to § 141 or §145(a)(2)(B) of the Code

SECTION 6. OPERATING GUIDELINES FOR RESEARCH AGREEMENTS

.01 *In general.* If a research agreement is described in either section 6.02 or 6.03 of this revenue procedure, the research agreement itself does not result in private business use. In applying the operating guidelines under section 6.03 of this revenue procedure to federally sponsored research, the special rules under section 6.04 of this revenue procedure (regarding the effect of the rights of the Federal Government and its agencies under the Bayh-Dole Act) apply.

.02 *Corporate-sponsored research.* A research agreement relating to property used for basic research supported or sponsored by a sponsor is described in this section 6.02 if any license or other use of resulting technology by the sponsor is permitted only on the same terms as the recipient would permit that use by any unrelated, non-sponsoring party (that is, the sponsor must pay a competitive price for its use), and the price paid for that use must be determined at the time the license or other resulting technology is available for use. Although the recipient need not permit persons other than the sponsor to use any license or other resulting technology, the price paid by the sponsor must be no less than the price that would be paid by any non-sponsoring party for those same rights.

.03 *Industry or federally-sponsored research agreements.* A research agreement relating to property used pursuant to an industry or federally-sponsored research arrangement is described in this section 6.03 if the following requirements are met, taking into account the special rules set forth in section 6.04 of this revenue procedure in the case of federally sponsored research —

- 1) A single sponsor agrees, or multiple sponsors agree, to fund governmentally performed basic research;
- 2) The qualified user determines the research to be performed and the manner in which it is to be performed (for example, selection of the personnel to perform the research);
- 3) Title to any patent or other product incidentally resulting from the basic research lies exclusively with the qualified user; and
- 4) The sponsor or sponsors are entitled to no more than a nonexclusive, royalty-free license to use the product of any of that research.

.04 *Federal Government rights under the Bayh-Dole Act.* In applying the operating guidelines on industry and federally-sponsored research agreements under section 6.03 of this revenue procedure to federally sponsored research, the rights of the Federal Government and its agencies mandated by the Bayh-Dole Act will not cause a research agreement to fail to meet the requirements of section 6.03, provided that the requirements of sections 6.03(2), and (3) are met, and the license granted to any party other than the qualified user to use the product of the research is no more than a nonexclusive, royalty-free license. Thus, to illustrate, the existence of march-in rights or other special rights of the Federal Government or the sponsoring Federal agency mandated by the

Bayh-Dole Act will not cause a research agreement to fail to meet the requirements of section 6.03 of this revenue procedure, provided that the qualified user determines the subject and manner of the research in accordance with section 6.03(2), the qualified user retains exclusive title to any patent or other product of the research in accordance with section 6.03(3), and the nature of any license granted to the Federal Government or the sponsoring Federal agency (or to any third party nongovernmental person) to use the product of the research is no more than a nonexclusive, royalty-free license.

SECTION 7. EFFECT ON OTHER DOCUMENTS

Rev. Proc. 97-14 is modified and superseded.

SECTION 8. EFFECTIVE DATE

This revenue procedure is effective for any research agreement entered into, materially modified, or extended on or after June 26, 2007. In addition, an issuer may apply this revenue procedure to any research agreement entered into prior to June 26, 2007.

SECTION 9. DRAFTING INFORMATION

The principal authors of this revenue procedure are Vicky Tsilas and Johanna Som de Cerff of the Office of Associate Chief Counsel (Financial Institutions & Products). For further information regarding this revenue procedure, contact Johanna Som de Cerff at (202) 622-3980 (not a toll-free call).

EXHIBIT 2

MANAGEMENT CONTRACT GUIDELINES

Rev. Proc. 97-13, 1997-1 C.B. 632--Management Contract Guidelines (Supersedes Rev. Proc. 93-19), as amended by Rev. Proc. 2001-39, 2001-2 C.B. 38

1997-1 C.B. 632; 1997 IRB LEXIS 14; 1997-5 I.R.B. 18; REV. PROV 97-13

(Also Part I, §§ 103, 141, 145; 1.141-3, 1.145-2.)

February 3, 1997 , amended July 9, 2001.

SECTION 1. PURPOSE

The purpose of this revenue procedure is to set forth conditions under which a management contract does not result in private business use under § 141(b) of the Internal Revenue Code of 1986. This revenue procedure also applies to determinations of whether a management contract causes the test in § 145(a)(2)(B) of the 1986 Code to be met for qualified 501(c)(3) bonds.

SECTION 2. BACKGROUND

.01 Private Business Use.

- 1) Under § 103(a) of the 1986 Code, gross income does not include interest on any state or local bond. Under § 103(b)(1) of the 1986 Code, however, § 103(a) of the 1986 Code does not apply to a private activity bond, unless it is a qualified bond under § 141(e) of the 1986 Code. Section 141(a)(1) of the 1986 Code defines "private activity bond" as any bond issued as part of an issue that meets both the private business use and the private security or payment tests. Under § 141(b)(1) of the 1986 Code, an issue generally meets the private business use test if more than 10 percent of the proceeds of the issue are to be used for any private business use. Under § 141(b)(6)(A) of the 1986 Code, private business use means direct or indirect use in a trade or business carried on by any person other than a governmental unit. Section 145(a) of the 1986 Code also applies the private business use test of § 141(b)(1) of the 1986 Code, with certain modifications.
- 2) Corresponding provisions of the Internal Revenue Code of 1954 set forth the requirements for the exclusion from gross income of the interest on state or local bonds. For purposes of this revenue procedure, any reference to a 1986 Code provision includes a reference to the corresponding provision, if any, under the 1954 Code.
- 3) Private business use can arise by ownership, actual or beneficial use of property pursuant to a lease, a management or incentive payment contract, or certain other

arrangements. The Conference Report for the Tax Reform Act of 1986, provides as follows:

The conference agreement generally retains the present-law rules under which use by persons other than governmental units is determined for purposes of the trade or business use test. Thus, as under present law, the use of bond-financed property is treated as a use of bond proceeds. As under present law, a person may be a user of bond proceeds and bond-financed property as a result of (1) ownership or (2) actual or beneficial use of property pursuant to a lease, a management or incentive payment contract, or (3) any other arrangement such as a take-or-pay or other output-type contract. 2 H.R. Conf. Rep. No. 841, 99th Cong., 2d Sess. II-687-688, (1986) 1986-3 (Vol. 4) C.B. 687-688 (footnote omitted).

- 4) A management contract that gives a nongovernmental service provider an ownership or leasehold interest in financed property is not the only situation in which a contract may result in private business use.
- 5) Section 1.141-3(b)(4)(i) of the Income Tax Regulations provides, in general, that a management contract (within the meaning of § 1.141-3(b)(4)(ii)) with respect to financed property may result in private business use of that property, based on all the facts and circumstances.
- 6) Section 1.141-3(b)(4)(i) provides that a management contract with respect to financed property generally results in private business use of that property if the contract provides for compensation for services rendered with compensation based, in whole or in part, on a share of net profits from the operation of the facility.
- 7) Section 1.141-3(b)(4)(iii), in general, provides that certain arrangements generally are not treated as management contracts that may give rise to private business use. These are--
 - a) Contracts for services that are solely incidental to the primary governmental function or functions of a financed facility (for example, contracts for janitorial, office equipment repair, hospital billing or similar services);
 - b) The mere granting of admitting privileges by a hospital to a doctor, even if those privileges are conditioned on the provision of de minimis services, if those privileges are available to all qualified physicians in the area, consistent with the size and nature of its facilities;
 - c) A contract to provide for the operation of a facility or system of facilities that consists predominantly of public utility property (as defined in § 168(i)(10) of the 1986 Code), if the only compensation is the reimbursement of actual and direct expenses of the service provider and reasonable administrative overhead expenses of the service provider; and

- d) A contract to provide for services, if the only compensation is the reimbursement of the service provider for actual and direct expenses paid by the service provider to unrelated parties.
- 8) Section 1.145-2(a) provides generally that §§ 1.141-0 through 1.141-15 apply to § 145(a) of the 1986 Code.
- 9) Section 1.145-2(b)(1) provides that in applying §§ 1.141-0 through 1.141-15 to § 145(a) of the 1986 Code, references to governmental persons include section 501(c)(3) organizations with respect to their activities that do not constitute unrelated trades or businesses under § 513(a) of the 1986 Code.

.02 *Existing Advance Ruling Guidelines.* Rev. Proc. 93-19, 1993-1 C.B. 526, contains advance ruling guidelines for determining whether a management contract results in private business use under § 141(b) of the 1986 Code.

SECTION 3. DEFINITIONS

.01 *Adjusted gross revenues* means gross revenues of all or a portion of a facility, less allowances for bad debts and contractual and similar allowances.

.02 *Capitation fee* means a fixed periodic amount for each person for whom the service provider or the qualified user assumes the responsibility to provide all needed services for a specified period so long as the quantity and type of services actually provided to covered persons varies substantially. For example, a capitation fee includes a fixed dollar amount payable per month to a medical service provider for each member of a health maintenance organization plan for whom the provider agrees to provide all needed medical services for a specified period. *A fixed periodic amount may include an automatic increase according to a specified, objective, external standard that is not linked to the output or efficiency of a facility. For example, the Consumer Price Index and similar external indices that track increases in prices in an area or increases in revenues or costs in an industry are objective external standards².* A capitation fee may include a variable component of up to 20 percent of the total capitation fee designed to protect the service provider against risks such as catastrophic loss.

.03 *Management contract* means a management, service, or incentive payment contract between a qualified user and a service provider under which the service provider provides services involving all, a portion of, or any function of, a facility. For example, a contract for the provision of management services for an entire hospital, a contract for management services for a specific department of a hospital, and an incentive payment contract for physician services to patients of a hospital are each treated as a management contract. See §§ 1.141-3(b)(4)(ii) and 1.145-2.

.04 *Penalties* for terminating a contract include a limitation on the qualified user's right to compete with the service provider; a requirement that the qualified user purchase equipment, goods, or services from the service provider; and a requirement that the

² Added by Rev. Proc. 2001-39, section 4.01.

qualified user pay liquidated damages for cancellation of the contract. In contrast, a requirement effective on cancellation that the qualified user reimburse the service provider for ordinary and necessary expenses or a restriction on the qualified user against hiring key personnel of the service provider is generally not a contract termination penalty. Another contract between the service provider and the qualified user, such as a loan or guarantee by the service provider, is treated as creating a contract termination penalty if that contract contains terms that are not customary or arm's-length that could operate to prevent the qualified user from terminating the contract (for example, provisions under which the contract terminates if the management contract is terminated or that place substantial restrictions on the selection of a substitute service provider).

.05 *Periodic fixed fee* means a stated dollar amount for services rendered for a specified period of time. For example, a stated dollar amount per month is a periodic fixed fee. The stated dollar amount may automatically increase according to a specified, objective, external standard that is not linked to the output or efficiency of a facility. For example, the Consumer Price Index and similar external indices that track increases in prices in an area or increases in revenues or costs in an industry are objective external standards. Capitation fees and per-unit fees are not periodic fixed fees.

.06 *Per-unit fee* means a fee based on a unit of service provided specified in the contract or otherwise specifically determined by an independent third party, such as the administrator of the Medicare program, or the qualified user. For example, a stated dollar amount for each specified medical procedure performed, car parked, or passenger mile is a per-unit fee. Separate billing arrangements between physicians and hospitals generally are treated as per-unit fee arrangements. *A fee that is a stated dollar amount specified in the contract does not fail to be a per-unit fee as a result of a provision under which the fee may automatically increase according to a specified, objective, external standard that is not linked to the output or efficiency of a facility. For example, the Consumer Price Index and similar external indices that track increases in prices in an area or increases in revenues or costs in an industry are objective external standards.*³

.07 *Qualified user* means any state or local governmental unit as defined in § 1.103-1 or any instrumentality thereof. The term also includes a section 501(c)(3) organization if the financed property is not used in an unrelated trade or business under § 513(a) of the 1986 Code. The term does not include the United States or any agency or instrumentality thereof.

.08 *Renewal option* means a provision under which the service provider has a legally enforceable right to renew the contract. Thus, for example, a provision under which a contract is automatically renewed for one-year periods absent cancellation by either party is not a renewal option (even if it is expected to be renewed).

.09 *Service provider* means any person other than a qualified user that provides services under a contract to, or for the benefit of, a qualified user.

SECTION 4. SCOPE

³ Added by Rev. Proc. 2001-39, section 4.02.

This revenue procedure applies when, under a management contract, a service provider provides management or other services involving property financed with proceeds of an issue of state or local bonds subject to § 141 or § 145(a)(2)(B) of the 1986 Code.

SECTION 5. OPERATING GUIDELINES FOR MANAGEMENT CONTRACTS

.01 *In general.* If the requirements of section 5 of this revenue procedure are satisfied, the management contract does not itself result in private business use. In addition, the use of financed property, pursuant to a management contract meeting the requirements of section 5 of this revenue procedure, is not private business use if that use is functionally related and subordinate to that management contract and that use is not, in substance, a separate contractual agreement (for example, a separate lease of a portion of the financed property). Thus, for example, exclusive use of storage areas by the manager for equipment that is necessary for it to perform activities required under a management contract that meets the requirements of section 5 of this revenue procedure, is not private business use.

.02 *General compensation requirements.*

- 1) *In general.* The contract must provide for reasonable compensation for services rendered with no compensation based, in whole or in part, on a share of net profits from the operation of the facility. Reimbursement of the service provider for actual and direct expenses paid by the service provider to unrelated parties is not by itself treated as compensation.
- 2) *Arrangements that generally are not treated as net profits arrangements.* For purposes of § 1.141-3(b)(4)(i) and this revenue procedure, compensation based on--
 - a) A percentage of gross revenues (or adjusted gross revenues) of a facility or a percentage of expenses from a facility, but not both;
 - b) A capitation fee; or
 - c) A per-unit fee is generally not considered to be based on a share of net profits.
- (3) *Productivity reward.* For purposes of § 1.141-3(b)(4)(i) and this revenue procedure, a productivity reward equal to a stated dollar amount based on increases or decreases in gross revenues (or adjusted gross revenues), or reductions in total expenses (but not both increases in gross revenues (or adjusted gross revenues) and reductions in total expenses) in any annual period during the term of the contract, generally does not cause the compensation to be based on a share of net profits.
- (4) *Revision of compensation arrangements.* In general, if the compensation arrangements of a management contract are materially revised, the requirements for compensation arrangements under section 5 of this revenue procedure are retested as of the date of the material revision, and the management contract is treated as one that was newly entered into as of the date of the material revision.

.03 *Permissible Arrangements.* The management contract must be described in section 5.03(1), (2), (3), (4), (5), or (6) of this revenue procedure.

- 1) *95 percent periodic fixed fee arrangements.* At least 95 percent of the compensation for services for each annual period during the term of the contract is based on a periodic fixed fee. The term of the contract, including all renewal options, must not exceed the lesser of 80 percent of the reasonably expected useful life of the financed property and 15 years. For purposes of this section 5.03(1), a fee does not fail to qualify as a periodic fixed fee as a result of a one-time incentive award during the term of the contract under which compensation automatically increases when a gross revenue or expense target (but not both) is reached if that award is equal to a single, stated dollar amount.
- 2) *80 percent periodic fixed fee arrangements.* At least 80 percent of the compensation for services for each annual period during the term of the contract is based on a periodic fixed fee. The term of the contract, including all renewal options, must not exceed the lesser of 80 percent of the reasonably expected useful life of the financed property and 10 years. For purposes of this section 5.03(2), a fee does not fail to qualify as a periodic fixed fee as a result of a one-time incentive award during the term of the contract under which compensation automatically increases when a gross revenue or expense target (but not both) is reached if that award is equal to a single, stated dollar amount.
- 3) *Special rule for public utility property.* If all of the financed property subject to the contract is a facility or system of facilities consisting of predominantly public utility property (as defined in § 168(i)(10) of the 1986 Code), then "20 years" is substituted--
 - a) For "15 years" in applying section 5.03(1) of this revenue procedure;
and
 - b) For "10 years" in applying section 5.03(2) of this revenue procedure.
- 4) *50 percent periodic fixed fee arrangements.* Either at least 50 percent of the compensation for services for each annual period during the term of the contract is based on a periodic fixed fee or all of the compensation for services is based on a capitation fee or a combination of a capitation fee and a periodic fixed fee. The term of the contract, including all renewal options, must not exceed 5 years. The contract must be terminable by the qualified user on reasonable notice, without penalty or cause, at the end of the third year of the contract term.
- 5) *Per-unit fee arrangements in certain 3-year contracts.* All of the compensation for services is based on a per-unit fee or a combination of a per-unit fee and a periodic fixed fee. The term of the contract, including all renewal options, must not exceed 3 years. The contract must be terminable by the qualified user on reasonable notice, without penalty or cause, at the end of the second year of the contract term.

- 6) *Percentage of revenue or expense fee arrangements in certain 2-year contracts.* All the compensation for services is based on a percentage of fees charged or a combination of a per-unit fee and a percentage of revenue or expense fee. During the start-up period, however, compensation may be based on a percentage of either gross revenues, adjusted gross revenues, or expenses of a facility. The term of the contract, including renewal options, must not exceed 2 years. The contract must be terminable by the qualified user on reasonable notice, without penalty or cause, at the end of the first year of the contract term. This section 5.03(6) applies only to--
- a) Contracts under which the service provider primarily provides services to third parties (for example, radiology services to patients); and
 - b) Management contracts involving a facility during an initial start-up period for which there have been insufficient operations to establish a reasonable estimate of the amount of the annual gross revenues and expenses (for example, a contract for general management services for the first year of operations).

.04 No Circumstances Substantially Limiting Exercise of Rights.

(1) *In general.* The service provider must not have any role or relationship with the qualified user that, in effect, substantially limits the qualified user's ability to exercise its rights, including cancellation rights, under the contract, based on all the facts and circumstances.

(2) *Safe harbor.* This requirement is satisfied if--

- a) Not more than 20 percent of the voting power of the governing body of the qualified user in the aggregate is vested in the service provider and its directors, officers, shareholders, and employees;
- b) Overlapping board members do not include the chief executive officers of the service provider or its governing body or the qualified user or its governing body; and
- c) The qualified user and the service provider under the contract are not related parties, as defined in § 1.150-1(b).

SECTION 6. EFFECT ON OTHER DOCUMENTS

Rev. Proc. 93-19, 1993-1 C.B. 526, is made obsolete on the effective date of this revenue procedure.

SECTION 7. EFFECTIVE DATE

This revenue procedure is effective for any management contract entered into, materially modified, or extended (other than pursuant to a renewal option) on or after May 16, 1997.

In addition, an issuer may apply this revenue procedure to any management contract entered into prior to May 16, 1997.

DRAFTING INFORMATION

The principal author of this revenue procedure is Loretta J. Finger of the Office of Assistant Chief Counsel (Financial Institutions and Products). For further information regarding this revenue procedure contact Loretta J. Finger on (202) 622-3980 (not a toll-free call).

EXHIBIT 3

26 CFR 601.601: Rules and regulations. (Also: §§ 141, 145, 1.141-3, 1.145-2)

Rev. Proc. 2017-13

SECTION 1. PURPOSE

This revenue procedure provides safe harbor conditions under which a management contract does not result in private business use of property financed with governmental tax-exempt bonds under § 141 (b) of the Internal Revenue Code or cause the modified private business use test for property financed with qualified 501(c)(3) bonds under § 145(a)(2)(B) to be met. This revenue procedure modifies, amplifies, and supersedes Rev. Proc. 2016-44, 2016-36 IRB 316, to address certain types of compensation, the timing of payment of compensation, the treatment of land, and methods of approval of rates. sections 2.11 through 2.14 of this revenue procedure generally describe the modifications and amplifications made to Rev. Proc. 2016-44 by this revenue procedure.

SECTION 2. BACKGROUND

.01 Section 103(a) provides that, except as provided in § 103(b), gross income does not include interest on any State or local bond. Section 103(b)(1) provides that § 103(a) shall not apply to any private activity bond that is not a qualified bond (within the meaning of § 141). Section 141 (a) provides that the term “private activity bond” means any bond issued as part of an issue (1) that meets the private business use test and private security or payment test, or (2) that meets the private loan financing test.

.02 Section 141(b)(1) provides generally that an issue meets the private business use test if more than 10 percent of the proceeds of the issue are to be used for any private business use. Section 141(b)(6) defines “private business use” as use (directly or indirectly) in a trade or business carried on by any person other than a governmental unit. For this purpose, any activity carried on by a person other than a natural person must be treated as a trade or business.

.03 Section 1.141-3(a)(1) of the Income Tax Regulations provides, in part, that the 10 percent private business use test of § 141(b)(1) is met if more than 10 percent of the proceeds of an issue is used in a trade or business of a nongovernmental person. For this purpose, the use of financed property is treated as the direct use of proceeds. Section

1.141-3(a)(2) provides that, in determining whether an issue meets the private business use test, it is necessary to look at both indirect and direct use of proceeds. Proceeds are treated as used in the trade or business of a nongovernmental person if a nongovernmental person, as a result of a single transaction or a series of related transactions, uses property acquired with the proceeds of an issue.

.04 Section 1.141-3(b)(1) provides that both actual and beneficial use by a nongovernmental person may be treated as private business use. In most cases, the private business use test is met only if a nongovernmental person has special legal entitlements to use the financed property under an arrangement with the issuer. In general, a nongovernmental person is treated as a private business user as a result of ownership; actual or beneficial use of property pursuant to a lease, a management contract, or an incentive payment contract; or certain other arrangements such as a take or pay or other output-type contract.

.05 Section 1.141-3(b)(3) provides generally that the lease of financed property to a nongovernmental person is private business use of that property. For this purpose, any arrangement that is properly characterized as a lease for federal income tax purposes is treated as a lease. Section 1.141-3(b)(3) further provides that, in determining whether a management contract is properly characterized as a lease, it is necessary to consider all the facts and circumstances, including the following factors: (1) the degree of control over the property that is exercised by a nongovernmental person; and (2) whether a nongovernmental person bears the risk of loss of the financed property.

.06 Section 1.141-3(b)(4)(i) provides generally that a management contract with respect to financed property may result in private business use of that property, based on all of the facts and circumstances. A management contract with respect to financed property generally results in private business use of that property if the contract provides for compensation for services rendered with compensation based, in whole or in part, on a share of net profits from the operations of the facility. Section 1.141-3(b)(4)(iv) provides generally that a management contract with respect to financed property results in private business use of that property if the service provider is treated as the lessee or owner of financed property for federal income tax purposes.

.07 Section 1.141-3(b)(4)(ii) defines “management contract” as a management, service, or incentive payment contract between a governmental person and a service provider under which the service provider provides services involving all, a portion, or any function, of a facility. For example, a contract for the provision of management services for an entire hospital, a contract for management services for a specific department of a hospital, and an incentive payment contract for physician services to patients of a hospital are each treated as a management contract.

.08 Section 1.141-3(b)(4)(iii) provides that the following arrangements generally are not treated as management contracts that give rise to private business use: (A) contracts for services that are solely incidental to the primary governmental function or functions of a financed facility (for example, contracts for janitorial, office equipment repair, hospital billing, or similar services); (B) the mere granting of admitting privileges by a hospital to

a doctor, even if those privileges are conditioned on the provision of de minimis services if those privileges are available to all qualified physicians in the area, consistent with the size and nature of the hospital's facilities; (C) a contract to provide for the operation of a facility or system of facilities that consists primarily of public utility property, if the only compensation is the reimbursement of actual and direct expenses of the service provider and reasonable administrative overhead expenses of the service provider; and (D) a contract to provide for services, if the only compensation is the reimbursement of the service provider for actual and direct expenses paid by the service provider to unrelated parties.

.09 Section 141(e) provides, in part, that the term "qualified bond" includes a qualified 501(c)(3) bond if certain requirements stated therein are met. Section 145(a) provides generally that "qualified 501(c)(3) bond" means any private activity bond issued as part of an issue if (1) all property that is to be provided by the net proceeds of the issue is to be owned by a 501(c)(3) organization or a governmental unit, and (2) such bond would not be a private activity bond if (A) 501(c)(3) organizations were treated as governmental units with respect to their activities that do not constitute unrelated trades or businesses, determined by applying § 513(a), and (B) § 141(b)(1) and (2) were applied by substituting "5 percent" for "10 percent" each place it appears and by substituting "net proceeds" for "proceeds" each place it appears. Section 1.145-2 provides that, with certain exceptions and modifications, §§ 1.141-0 through 1.141-15 apply to § 145(a).

.10 Rev. Proc. 2016-44 provides safe harbor conditions under which a management contract does not result in private business use of property financed with governmental tax-exempt bonds under § 141(b) or cause the modified private business use test for property financed with qualified 501(c)(3) bonds under § 145(a)(2)(B) to be met. Rev. Proc. 2016-44 modified and superseded Rev. Proc. 97-13, 1997-1 C.B. 632; Rev. Proc. 2001-39, 2001-2 C.B. 38; and Section 3.02 of Notice 2014-67, 2014-46 I.R.B. 822.

.11 Section 5.02 of Rev. Proc. 2016-44 sets forth general financial requirements for management compensation arrangements eligible for the safe harbor. sections 5.02(2) and 5.02(3) of Rev. Proc. 2016-44 provide that the contract must neither provide to the service provider a share of net profits nor impose on the service provider the burden of bearing any share of net losses from the operation of the managed property. Before the publication of Rev. Proc. 2016-44, previously applicable revenue procedures expressly treated certain types of compensation, including capitation fees, periodic fixed fees, and per-unit fees (as defined therein), as not providing a share of net profits. Questions have arisen regarding whether these common types of compensation continue to be treated in a similar manner under Rev. Proc. 2016-44. Related questions have arisen about whether a service provider's payment of expenses of the operation of the managed property without reimbursement from the qualified user (as defined in section 4.04 of Rev. Proc. 2016-44) affects the treatment of these types of compensation. To provide continuity with the previous safe harbors, this revenue procedure clarifies that these types of compensation and certain incentive compensation will not be treated as providing a share of net profits or requiring the service provider to bear a share of net losses.

.12 Sections 5.02(2) and 5.02(3) of Rev. Proc. 2016-44 also provide that the timing of payment of compensation cannot be contingent upon net profits or net losses from the operation of the managed property. Questions have arisen about the effect of these restrictions on the timing of payment of compensation. This revenue procedure clarifies that compensation subject to an annual payment requirement and reasonable consequences for late payment (such as interest charges or late payment fees) will not be treated as contingent upon net profits or net losses if the contract includes a requirement that the qualified user will pay the deferred compensation within five years of the original due date of the payment.

.13 Section 5.03 of Rev. Proc. 2016-44 provides that the term of the contract, including all renewal options (as defined in § 1.141-1 (b)), must be no greater than the lesser of 30 years or 80 percent of the weighted average reasonably expected economic life of the managed property. For this purpose, under Rev. Proc. 2016-44, economic life is determined in the same manner as under § 147(b), but without regard to §147(b)(3)(B)(ii), as of the beginning of the term of contract. Section 147(b)(3)(B)(i) provides that generally land is not taken into account, but § 147(b)(3)(B)(ii) provides that if 25 percent or more of the net proceeds of any issue is to be used to finance the acquisition of land, such land shall be taken into account and treated as having an economic life of 30 years. Questions have arisen about excluding land when the cost of the land accounts for a significant portion of the managed property. This revenue procedure provides that economic life is determined in the same manner as under § 147(b) as of the beginning of the term of the contract. Thus, land will be treated as having an economic life of 30 years if 25 percent or more of the net proceeds of the issue that finances the managed property is to be used to finance the costs of such land.

.14 Section 5.04 of Rev. Proc. 2016-44 provides that the qualified user must exercise a significant degree of control over the use of the managed property. Section 5.04 of Rev. Proc. 2016-44 further provides that this requirement is met if the contract requires the qualified user to approve, among other things, the rates charged for use of the managed property. Section 5.04 of Rev. Proc. 2016-44 also provides that a qualified user may show approval of rates charged for use of the managed property by either expressly approving such rates (or the methodology for setting such rates) or by including in the contract a requirement that service provider charge rates that are reasonable and customary as specifically determined by an independent third party. Questions have arisen about the requirement to approve the rates in various circumstances in which it may not be feasible to approve each specific rate charged, such as for a physician's professional services at a § 501(c)(3) hospital or hotel room rates at a governmentally-owned hotel. This revenue procedure clarifies that a qualified user may satisfy the approval of rates requirement by approving a reasonable general description of the method used to set the rates or by requiring that the service provider charge rates that are reasonable and customary as specifically determined by, or negotiated with, an independent third party.

SECTION 3. SCOPE

This revenue procedure applies to a management contract (as defined in Section 4.03 of this revenue procedure) involving managed property (as defined in Section 4.04 of this revenue procedure) financed with the proceeds of an issue of governmental bonds (as defined in § 1.141-1(b)) or qualified 501(c)(3) bonds (as defined in § 145).

SECTION 4. DEFINITIONS

For purposes of this revenue procedure, the following definitions apply:

.01 Capitation fee means a fixed periodic amount for each person for whom the service provider or the qualified user assumes the responsibility to provide all needed services for a specified period so long as the quantity and type of services actually provided to such persons varies substantially. For example, a capitation fee includes a fixed dollar amount payable per month to a medical service provider for each member of a health maintenance organization plan for whom the provider agrees to provide all needed medical services for a specified period. A fixed periodic amount may include an automatic increase according to a specified, objective, external standard that is not linked to the output or efficiency of the managed property. For example, the Consumer Price Index and similar external indices that track increases in prices in an area or increases in revenues or costs in an industry are objective, external standards. A capitation fee may include a variable component of up to 20 percent of the total capitation fee designed to protect the service provider against risk such as risk of catastrophic loss.

.02 Eligible expense reimbursement arrangement means a management contract under which the only compensation consists of reimbursements of actual and direct expenses paid by the service provider to unrelated parties and reasonable related administrative overhead expenses of the service provider.

.03 Management contract means a management, service, or incentive payment contract between a qualified user and a service provider under which the service provider provides services for a managed property. A management contract does not include a contract or portion of a contract for the provision of services before a managed property is placed in service (for example, pre-operating services for construction design or construction management).

.04 Managed property means the portion of a project (as defined in § 1.141-6(a)(3)) with respect to which a service provider provides services.

.05 Periodic fixed fee means a stated dollar amount for services rendered for a specified period of time. For example, a stated dollar amount per month is a periodic fixed fee. The stated dollar amount may automatically increase according to a specified, objective external standard that is not linked to the output or efficiency of the managed property. For example, the Consumer Price Index and similar external indices that track increases in prices in an area or increases in revenues or costs in an industry are objective external standards. Capitation fees and per-unit fees are not periodic fixed fees.

.06 Per-unit fee means a fee based on a unit of service provided specified in the contract or otherwise specifically determined by an independent third party, such as the administrator of the Medicare program, or the qualified user. For example, a stated dollar amount for each specified medical procedure performed, car parked, or passenger mile is a per-unit fee. Separate billing arrangements between physicians and hospitals are treated as per-unit fee arrangements. A fee that is a stated dollar amount specified in the contract does not fail to be a per-unit fee as a result of a provision under which the fee may automatically increase according to a specified, objective, external standard that is not linked to the output or efficiency of the managed property. For example, the Consumer Price Index and similar external indices that track increases in prices in an area or increases in revenues or costs in an industry are objective, external standards.

.07 Qualified user means, for projects (as defined in § 1.141-6(a)(3)) financed with governmental bonds, any governmental person (as defined in § 1.141-1 (b)) or, for projects financed with qualified 501 (c)(3) bonds, any governmental person or any 501(c)(3) organization with respect to its activities which do not constitute an unrelated trade or business, determined by applying § 513(a).

.08 Service provider means any person other than a qualified user that provides services to, or for the benefit of, a qualified user under a management contract.

.09 Unrelated parties means persons other than either: (1) a related party (as defined in § 1.150-1 (b)) to the service provider or (2) a service provider's employee.

SECTION 5. SAFE HARBOR CONDITIONS UNDER WHICH MANAGEMENT CONTRACTS DO NOT RESULT IN PRIVATE BUSINESS USE

.01 In general. If a management contract meets all of the applicable conditions of sections 5.02 through Section 5.07 of this revenue procedure, or is an eligible expense reimbursement arrangement, the management contract does not result in private business use under § 141(b) or 145(a)(2)(B). Further, under Section 5.08 of this revenue procedure, use functionally related and subordinate to a management contract that meets these conditions does not result in private business use.

.02 General financial requirements.

(1) In general. The payments to the service provider under the contract must be reasonable compensation for services rendered during the term of the contract. Compensation includes payments to reimburse actual and direct expenses paid by the service provider and related administrative overhead expenses of the service provider.

(2) No net profits arrangements. The contract must not provide to the service provider a share of net profits from the operation of the managed property. Compensation to the service provider will not be treated as providing a share of net profits if no element of the compensation takes into account, or is contingent upon, either the managed property's net profits or both the managed property's revenues and expenses (other than any reimbursements of direct and actual expenses paid by the service provider

to unrelated third parties) for any fiscal period. For this purpose, the elements of the compensation are the eligibility for, the amount of, and the timing of the payment of the compensation. Incentive compensation will not be treated as providing a share of net profits if the eligibility for the incentive compensation is determined by the service provider's performance in meeting one or more standards that measure quality of services, performance, or productivity, and the amount and the timing of the payment of the compensation meet the requirements of this Section 5.02(2).

(3) No bearing of net losses of the managed property.

(a) The contract must not, in substance, impose upon the service provider the burden of bearing any share of net losses from the operation of the managed property. An arrangement will not be treated as requiring the service provider to bear a share of net losses if:

(i) The determination of the amount of the service provider's compensation and the amount of any expenses to be paid by the service provider (and not reimbursed), separately and collectively, do not take into account either the managed property's net losses or both the managed property's revenues and expenses for any fiscal period; and

(ii) The timing of the payment of compensation is not contingent upon the managed property's net losses.

(b) For example, a service provider whose compensation is reduced by a stated dollar amount (or one of multiple stated dollar amounts) for failure to keep the managed property's expenses below a specified target (or one of multiple specified targets) will not be treated as bearing a share of net losses as a result of this reduction.

(4) Treatment of certain types of compensation. Without regard to whether the service provider pays expenses with respect to the operation of the managed property without reimbursement by the qualified user, compensation for services will not be treated as providing a share of net profits or requiring the service provider to bear a share of net losses under sections 5.02(2) and 5.02(3) of this revenue procedure if the compensation for services is: (a) based solely on a capitation fee, a periodic fixed fee, or a per-unit fee; (b) incentive compensation described in the last sentence of Section 5.02(2) of this revenue procedure; or (c) a combination of these types of compensation.

(5) Treatment of timing of payment of compensation. Deferral due to insufficient net cash flows from the operation of the managed property of the payment of compensation that otherwise meets the requirements of sections 5.02(2) and 5.02(3) of this revenue procedure will not cause the deferred compensation to be treated as contingent upon net profits or net losses under sections 5.02(2) and 5.02(3) of this revenue procedure if the contract includes requirements that:

(a) The compensation is payable at least annually;

(b) The qualified user is subject to reasonable consequences for late payment, such as reasonable interest charges or late payment fees; and

(c) The qualified user will pay such deferred compensation (with interest or late payment fees) no later than the end of five years after the original due date of the payment.

.03 Term of the contract and revisions. The term of the contract, including all renewal options (as defined in § 1.141-1 (b)), must not be greater than the lesser of 30 years or 80 percent of the weighted average reasonably expected economic life of the managed property. For this purpose, economic life is determined in the same manner as under § 147(b) as of the beginning of the term of the contract. A contract that is materially modified with respect to any matters relevant to this Section 5 is retested under this Section 5 as a new contract as of the date of the material modification.

.04 Control over use of the managed property. The qualified user must exercise a significant degree of control over the use of the managed property. This control requirement is met if the contract requires the qualified user to approve the annual budget of the managed property, capital expenditures with respect to the managed property, each disposition of property that is part of the managed property, rates charged for the use of the managed property, and the general nature and type of use of the managed property (for example, the type of services). For this purpose, for example, a qualified user may show approval of capital expenditures for a managed property by approving an annual budget for capital expenditures described by functional purpose and specific maximum amounts; and a qualified user may show approval of dispositions of property that is part of the managed property in a similar manner. Further, for example, a qualified user may show approval of rates charged for use of the managed property by expressly approving such rates or a general description of the methodology for setting such rates (such as a method that establishes hotel room rates using specified revenue goals based on comparable properties), or by requiring that the service provider charge rates that are reasonable and customary as specifically determined by, or negotiated with, an independent third party (such as a medical insurance company).

.05 Risk of loss of the managed property. The qualified user must bear the risk of loss upon damage or destruction of the managed property (for example, due to force majeure). A qualified user does not fail to meet this risk of loss requirement as a result of insuring against risk of loss through a third party or imposing upon the service provider a penalty for failure to operate the managed property in accordance with the standards set forth in the management contract.

.06 No inconsistent tax position. The service provider must agree that it is not entitled to and will not take any tax position that is inconsistent with being a service provider to the qualified user with respect to the managed property. For example, the service provider must agree not to claim any depreciation or amortization deduction, investment tax credit, or deduction for any payment as rent with respect to the managed property.

.07 No circumstances substantially limiting exercise of rights.

(1) In general. The service provider must not have any role or relationship with the qualified user that, in effect, substantially limits the qualified user's ability to exercise its rights under the contract, based on all the facts and circumstances.

(2) Safe harbor. A service provider will not be treated as having a role or relationship prohibited under Section 5.07(1) of this revenue procedure if:

(a) No more than 20 percent of the voting power of the governing body of the qualified user is vested in the directors, officers, shareholders, partners, members, and employees of the service provider, in the aggregate;

(b) The governing body of the qualified user does not include the chief executive officer of the service provider or the chairperson (or equivalent executive) of the service provider's governing body; and

(c) The chief executive officer of the service provider is not the chief executive officer of the qualified user or any of the qualified user's related parties (as defined in §1.150-1(b)).

(d) For purposes of Section 5.07(2) of this revenue procedure, the phrase "service provider" includes the service provider's related parties (as defined in §1.150-1(b)) and the phrase "chief executive officer" includes a person with equivalent management responsibilities.

.08 Functionally related and subordinate use. A service provider's use of a project (as defined in § 1.141-6(a)(3)) that is functionally related and subordinate to performance of its services under a management contract for managed property that meets the conditions of this Section 5 does not result in private business use of that project. For example, use of storage areas to store equipment used to perform activities required under a management contract that meets the requirements of this Section 5 does not result in private business use.

SECTION 6. EFFECT ON OTHER DOCUMENTS

Rev. Proc. 2016-44 is modified, amplified, and superseded.

SECTION 7. DATE OF APPLICABILITY

This revenue procedure applies to any management contract that is entered into on or after January 17, 2017, and an issuer may apply this revenue procedure to any management contract that was entered into before January 17, 2017. In addition, an issuer may apply the safe harbors in Rev. Proc. 97-13, as modified by Rev. Proc. 2001-39 and amplified by Notice 2014-67, to a management contract that is entered into before August 18, 2017 and that is not materially modified or extended on or after August 18, 2017 (other than pursuant to a renewal option as defined in § 1.141-1(b)).

SECTION 8. DRAFTING INFORMATION

The principal authors of this revenue procedure are Johanna Som de Cerff and David White of the Office of Associate Chief Counsel (Financial Institutions & Products). For further information regarding this revenue procedure, contact David White on (202) 317-6980 (not a toll free call).

EXHIBIT 4

Summary of Revenue Procedure 2017-13

For management or service contracts entered into on or after January 17, 2017, or at the option of the qualified user (the term “qualified user” referring to the governmental unit entering into the contract), before January 17, 2017, there will be no private business use if the following requirements are met:

(i) The contract is either an eligible expense reimbursement arrangement, or the contract meets all the requirements set forth in (ii) through (vii) below. For purpose of this subparagraph an eligible expense reimbursement arrangement means a management contract under which the only compensation consists of reimbursements of actual and direct expenses paid by the service provider to unrelated parties and reasonable related administrative overhead expenses of the service provider.

(ii) The contract meets the following general financial requirements:

(A) Compensation for the service provider under the contract is reasonable in relationship to services rendered. Compensation includes payments to reimburse actual and direct expenses paid by the service provider and related administrative overhead expenses of the service provider.

(B) The contract does not provide to the service provider a share of net profits from the operation of the managed property. Compensation will not be treated as providing a share of net profits if no element of compensation, i.e., the eligibility for, amount of or timing of payment of compensation, takes into account or is contingent upon the managed property’s net profits or both the managed property’s revenues and expenses for any fiscal period. For this purpose, reimbursements of actual and direct expenses paid to unrelated parties are disregarded. ~~add~~Certain incentive payments are permitted if they are based on the provider meeting standards that measure quality, performance, or productivity and the payment and is not based on net profits.

(C) The contract does not impose on the service provider the burden of bearing any share of net losses from the operation of the managed property. The contract will not be treated as requiring the service provider to bear a share of net losses if (I) the determination of the amount of compensation and the amount of expenses to be paid by the service provider (and not reimbursed), separately and collectively, do not taken into account the managed property’s net losses or both the revenues and expenses for any fiscal period, and (II) the timing of payment of compensation is not contingent upon the managed property’s net losses. A reduction in compensation by a stated dollar amount for failure to keep expenses below a specified target will not be treated as a bearing of a share of net losses.

(D) Without regard to the whether the service provider pays expenses of operation without reimbursement, compensation will not be treated as providing a share of net profits or requiring the service provider to bear a share of net losses if compensation is (I) based solely on a capitation fee, a periodic fixed fee, or a per unit fee; (II) incentive compensation as described in the revenue procedure; or (III) a combination of these types of compensation.

(E) Deferral due to insufficient net cash flows of compensation that otherwise meets the foregoing requirements will not cause the compensation to be treated as contingent upon net profits or net losses if the contract contains requirements that (I) the compensation is payable at least annually; (II) the qualified user is subject to reasonable consequences for late payment, such as reasonable interest charges or late payment fees; and (III) the qualified user pays such deferred compensation (with interest or late payment fees) no later than five years after the original due date.

(iii) The term of the contract, including all renewal options, does not exceed the lesser of 30 years or 80% of the weighted average reasonably expected economic life of the managed property determined as of the beginning of the contract.

(iv) The qualified user must exercise a significant degree of control over the operation of the managed property. This control is met if the contract requires the qualified user to approve the annual budget for the managed property, capital expenditures with respect to the managed property, disposition of property that is part of the managed property, rates charged for the use of the managed property and the general nature and type of use of the managed property.

(v) The qualified user bears the risk of loss upon damage or destruction of the managed property. The qualified user does not fail to meet this requirement as a result of insuring against loss through a third party or imposing a penalty for failure to operate the property in accordance with standards set forth in the management contract.

(vi) The service provider agrees that it is not entitled to and will not take any tax position inconsistent with being a service provider. The service provider must agree not to take any depreciation or amortization, investment tax credit or deduction for any payment as rent with respect to the managed property.

(vii) The service provider under the contract may not have any role or relationship with the qualified user that, in effect, substantially limits the qualified user's ability to exercise its rights under the contract. No more than 20 percent of the voting power of the governing body of the qualified user, in the aggregate, may be vested in the service provider's directors, officers, shareholders, partners, members or employees of the service provider. The governing body of the qualified user does not include the chief executive officer or the chairperson of the governing body of the service provider. The chief executive officer of the service provider is not the chief executive officer of the qualified user or any related parties to the qualified user.

TAB II

PRIVATE BUSINESS USE QUESTIONNAIRE
GOVERNMENTAL BONDS

TO: [NAME]
[TITLE]

FROM:

DATE: [CURRENT DATE]

RE: Use of Tax-Exempt Bond-Financed Property

In order to maintain the tax exempt status of bonds which have been issued to finance facilities or equipment for the benefit of the Massachusetts Water Resources Authority (the "Authority"), the ownership and certain uses of the Bond-Financed Property must be monitored and recorded. In general, the ownership and use of the Bond-Financed Property must be monitored and recorded from the date of issue of the bonds until the earlier of the end of the expected life of the property, or the final maturity date of any bonds issued to finance the property. Because it is possible that the Internal Revenue Service's ~~position that will ask for~~ records ~~be maintained until 3~~ for up to seven years after the final maturity date of any bonds issued to finance (or refinance) the property, staff will be asked to update these records for changes in the use or ownership of the property.

Attached is a schedule with a brief description of property financed with proceeds of tax exempt bonds. Our records indicate the property is located at [NAME OF FACILITY]. Please review your records and respond to each of the questions for the Bond-Financed Property listed, including both the present use of the property and any past uses of it. Please do not skip questions. If you are uncertain how to respond to particular question please provide a brief explanation in the space immediately following the question. If necessary one of my staff members will contact you for clarification. Please refer to Tab I-A, Private Activity Restrictions on Private Business Use, of the Post-Issuance Compliance Guide, for a brief description of types of private use.

We recognize that some of the requested information and records may not be available. However, your cooperation is necessary in order to collect as much of this information as possible.

SCHEDULE

USE OF TAX EXEMPT BOND BOND-FINANCED PROPERTY

Description of property: [Description] (the “Bond-Financed Property”)
Location: [facility name]
Bond Issue [name of bonds]
Survey Date [current date]

PLEASE REVIEW APPENDIX A FOR APPLICABLE RULES ON PRIVATE USE

1 Familiarity with Uses.

1.2 My familiarity with, and/or the records with respect to, the uses made of the Bond-Financed Property, dates back to _____ [insert date].

1.3 For information on uses of the Bond-Financed Property prior to the date set forth in Section 1.1, I suggest contacting _____.

2 Ownership and Use of the Bond-Financed Property.

2.2 When was the Bond-Financed Property placed in service? _____

2.3 Is the Bond-Financed Property still owned by the Authority? Yes No

2.4 If, no, on what day was the Bond-Financed Property disposed of? _____. What were the terms of the disposition?

2.5 Is the Bond-Financed Property still in use? Yes No If No, please explain when it stopped being used and what its current state is.

2.6 Is the Bond-Financed Property still being used for its original purpose? Yes No If No, please explain how it is being used.

3 Leases of the Bond-Financed Property.

3.2 Has any portion of the Bond-Financed Property been leased to or been the subject of a possessory interest, such as a license in, any person? YES NO

3.3 If the answer to the preceding question is yes, describe the nature and the extent of all such interests, including the lease payments, and identify the persons or organizations to whom such interests have been given.

4 Priority Rights.

4.2 Has any portion of the Bond-Financed Property been the subject of an arrangement with a person other than a Governmental Unit for priority use or for use of certain capacity of the Bond-Financed Property on a basis different than the general public? YES NO

4.3 If the answer to the preceding question is Yes, describe the nature and the extent of all such interests, including any payments, and identify the persons or organizations to whom such interests have been given.

4.4 Has any portion of the Bond-Financed Property been used in the testing of products under a contract with a person other than a Governmental Unit? YES NO

4.5 If the answer to the preceding question is Yes, describe the nature and the extent of all such arrangements, and identify the persons or organizations with whom such arrangements have been entered into.

5 Naming Rights or Sponsorship Agreements.

5.2 Has any portion of the Bond-Financed Property been the subject of a contract or other arrangement with anyone pursuant to which the that person will make a payment to the Authority in return for the right to have its name or logo used in connection with the Authority or any portion thereof? YES NO If Yes, please provide details of the arrangement.

6 Research.

6.2 Has any portion of the Bond-Financed Property been used in research sponsored by anyone other than a Governmental Unit? (Note that the federal government is not a Governmental Unit.) YES NO

6.3 If Yes, please describe the nature and the extent of all such arrangements, and identify the persons or organizations with whom such arrangements have been entered into. Please attach a copy of any contract or arrangement relating to such research.

7 Management Agreements and Service Agreements.

7.1 Has any portion of the Bond-Financed Property been used in connection with any type of service contract or management contract described below?

- a) A contract with a non-employee group, other than a Governmental Unit, to provide services to, or manage any function of, the Authority? YES NO If Yes, identify the person or organization that is a party to the contract.
- b) A contract with an employee to provide services to, or manage any function of, the Authority, where such contract contains an incentive compensation arrangement? YES NO If Yes, identify the person or organization that is a party to the contract.
- c) A contract with a person other than a Governmental Unit to provide services, such as food services to the Authority? YES NO If Yes, identify the person or organization that is a party to the contract.

7.2 For each contract identified in Section 7.1 answer the following questions, which track the safe harbor requirements of Rev. Proc. ~~97~~2017-13. Identify the answer by the name of the contracting party. Attach a copy of the contract to this questionnaire response.

- a) What is or was the term of the contract/agreement, including all renewal options?
- b) Does the Authority have the option to cancel the contract/agreement without penalty or cause? YES NO
- c) Is or was any of the compensation of the manager/service provider based on a share of net profits or provide for a share of net losses, if any? YES NO
- d) If the compensation of the manager/service provider may be deferred for insufficient revenues, will there be interest on the late payments and will all deferred payment be paid within five years of the time it was originally due? YES NO
- e) Does the Authority retain control over the facility's budget, fees charged, the acquisition and disposition of capital assets, and the general operations of the facility? YES NO
- f) ~~d)~~ What is or was the annual compensation arrangement for the manager/service provider?
- g) ~~e)~~ Does the governing body of the Authority include the manager/service provider or any of its directors, officers, shareholders, or employees? YES NO

- ~~h)~~ ~~f)~~ Does the governing body of the manager/service provider include any of the Authority's governing body, officers, or employees? YES NO
- ~~i)~~ ~~g)~~ Is the chief executive officer of either the Authority or the manager/service provider a member of the governing body of the other? YES NO
- ~~j)~~ ~~h)~~ Does the manager/service provider have any role or relationship with the Authority that might limit the Authority's ability to exercise its rights (including cancellation rights) under the contract? YES NO This would include a limitation on the Authority's right to compete with the service provider; a requirement that the Authority purchase equipment, goods, or services from the service provider; or a requirement that the Authority pay liquidated damages for cancellation of the contract.
- ~~k)~~ ~~i)~~ Will the members of the governing body of the Authority own any interest in the management company? YES NO .

8 Output Facilities.

- 8.1 Is any portion of the Bond-Financed Property an output type facility? YES
NO
- 8.2 If the answer to the preceding question is yes, has any of the output from those facilities been sold or been used to service facilities used in the trade or business of persons other than Governmental Units? YES NO

9 Joint Ventures.

- 9.1 Has any portion of the Bond-Financed Property been used in any joint venture arrangement with any person other than a Governmental Unit? YES NO
If Yes, please provide details of the arrangement.

Date: _____

By: _____
Name:
Title:

TAB III

REMEDIAL ACTIONS

GOVERNMENTAL BONDS

INTRODUCTION

The Internal Revenue Code of 1986, as amended (the “Code”) limits the amount of proceeds of tax-exempt governmental bonds that can be used for the benefit of private businesses. Section 141 of the Code treats as a taxable private activity bond a bond issued as part of an issue that meets the private business use test and the private security or payment test, or the private loan test. The private business use test is met if the amount of proceeds of bonds that are used in a private business use is more than ten percent of total proceeds. The private security or payment test is met if the payment of debt service on more than 10 percent of the issue is directly or indirectly (i) secured by any interest in property used for a private business use or payments in respect of such property or (ii) derived from payments in respect of property or borrowed money used for a private business use. For purposes of Section 141, the term private business includes nonprofit, 501(c)(3) organizations as well as the federal government.

DELIBERATE ACTION

The Regulations promulgated by the Internal Revenue Service (“IRS”) under Section 141 of the Code, specifically provide that bonds will be treated as private activity bonds if the issuer takes a deliberate action subsequent to the issue date that causes the tests for a private activity bond to be met. An issuer cannot rely merely on its expectations on the date of issuance to avoid jeopardizing the status of its bonds as governmental bonds. A deliberate action is any action taken by an issuer, but not including an action, such as a condemnation, that would be treated as an involuntary or compulsory conversion under Section 1033 of the Code, or an action that is taken in response to a regulatory directive made by the federal government. A deliberate action is deemed to occur when the issuer enters into a binding contract with a nongovernmental person for use of the financed property that is not subject to any material contingencies. In most cases, material conditions to closing a transaction will be treated as material contingencies so that the date of deliberate action will be the date disposition proceeds are received.

CONDITIONS TO REMEDIAL ACTION

Under the Regulations, in order to take a remedial action to preserve the tax-exempt status of interest on bonds, the following conditions must be met:

- 1) *Reasonable expectations test.* The issuer must reasonably have expected on the issue date that neither the private business test nor the private loan test would be met. The period of time that has elapsed since the bonds were issued will be a factor in evaluating the reasonableness of expectations. Under certain conditions

an expectation on the issue date to take a deliberate action that would cause one of the tests to be met (e.g., a sale of the project) will be disregarded if the issuer expected on the issue date that the financed property would be used for a qualified purpose for a substantial period before such action, the issuer is required to redeem all nonqualifying bonds (without regard to the amount of disposition proceeds) within 6 months of the action, the redemption meets all the remedial action conditions (described below) and there was no arrangement on the date of issue with a nongovernmental person or a non-501 (c)(3) organization with respect to the activity;

- 2) *Maturity not unreasonably long.* The term of the bond *issue* must not be longer than is reasonably necessary for the governmental purpose of the issue. This requirement is met under a safe harbor if the weighted average maturity of the bonds is not greater than 120 percent of the average reasonably expected economic life of the financed property as of the issue date.
- 3) *Fair market value consideration.* The terms of any change in use or loan arrangement are bona fide and arms-length and the new user pays fair market value for the use of the financed property. For this purpose fair market value may take into account restrictions on the use of the financed property that serve a bona fide governmental purpose.
- 4) *Disposition proceeds treated as gross proceeds for arbitrage purposes.* Any disposition proceeds must be treated as gross proceeds for arbitrage purposes. This will require that the issuer meet yield restriction or rebate requirements with respect to these funds. The issuer may treat the date of receipt of the proceeds as an issue date for purposes of eligibility for temporary periods and exemptions from rebate.
- 5) *Proceeds expended on a governmental purpose.* Except where a redemption or defeasance remedial action is taken, the proceeds must have been expended on a governmental purposes before the date of the deliberate action.

Effect of Remedial Action

A remedial action is treated as curing a change in ownership or a private use or private loan of proceeds, thereby preserving the tax-exempt status of existing bonds. It does not cure a failure to meet the private payment or security interest limitation. In the case of advance refunding bonds, remedial action taken with respect to the refunding bonds proportionally reduces the amount of proceeds of the refunded bonds that is taken into account under the private business use or loan test. In other words, the remedial action taken with respect to the refunding bonds proportionally “cures” the refunded bonds.

Disposition Proceeds and Nonqualified Bonds

Generally, in order to take one of the remedial actions it is necessary to know what the disposition proceeds are and how much of the disposition proceeds are allocated to

particular issues. Disposition proceeds arise in a sale, exchange or other disposition of bond-financed property. Disposition proceeds do not arise, however, in an installment sale arrangement ([but see discussion of Rev. Proc. 2018-26 below](#)) and the bond proceeds remain allocated to the transferred property in that case. This distinction becomes important when determining what remedial action is appropriate.

In the case of property financed from different sources of funding, the disposition proceeds are first allocated to the outstanding bonds (both taxable and tax-exempt) that financed the property in proportion to the principal amount of the outstanding bonds. Disposition proceeds may not be allocated to bonds that are no longer outstanding or to revenues if the disposition proceeds are not greater than the total principal amount of the outstanding bonds allocable to that property. Only amounts in excess of that total may be allocated to another source.

Under the Regulations, the amount of nonqualified bonds that arise from a deliberate action is a percentage of the outstanding bonds equal to the highest percentage of private business use in any one-year period commencing with the deliberate action. Allocations to nonqualified bonds must be made on a pro-rata basis except that for purposes of the redemption or defeasance remedial action the issuer may treat bonds with longer maturities as the nonqualified bonds. This treatment would be necessary, for example, where the bonds are required to be called in inverse order of maturity rather than pro rata.

Permitted Remedial Actions

Redemptions or Defeasance

The first remedial action is redemption or defeasance which is available in the case of a deliberate action taking the form of a sale, lease or nonqualified management contract or other action. This remedial action probably will be the most frequently used remedial action in sale transactions. Under this remedial action, other than in the case of an exclusively cash disposition, all nonqualified bonds must be redeemed within 90 days of the deliberate action. Proceeds of tax-exempt bonds may not be used to effect the redemption unless they are proceeds of qualified private activity bonds (e.g., exempt facility bonds) taking into account the purchaser's use. If the bonds are not currently redeemable, a defeasance escrow must be established for all nonqualified bonds within 90 days of the deliberate action and notice of defeasance must be furnished to the Commissioner of Internal Revenue within 90 days of the escrow establishment. Defeasance is only available as a remedial action, however, if the period between the issue date and the first call date is not more than 10½ years. Thus, for example, if a bond-financed building is leased to a private for-profit entity, all tax-exempt bonds that financed that building would have to be redeemed or defeased within 90 days.

In the case of a disposition, a sale, exclusively for cash, if the disposition proceeds are less than the amount of the nonqualified bonds, only an amount equal to the disposition proceeds must be used to redeem or defease a pro rata portion of the nonqualified bonds.

Alternative Use of Disposition Proceeds

In the case of a disposition exclusively for cash, the issuer may, in lieu of redeeming or defeasing bonds, expend the disposition proceeds on other qualifying facilities. The issuer must reasonably expect to expend the disposition proceeds within two years of the deliberate action and must treat the disposition proceeds as bond proceeds for purposes of Section 141. The issuer must not use such proceeds in a manner that would cause the private business tests or the private loan test to be met. Furthermore the issuer must not take any action subsequent to the date of deliberate action to cause either of these tests to be met. This requirement precludes the issuer from repeatedly taking advantage of the remedial action provisions with respect to the same bond issue. If the issuer does not use all of the disposition proceeds for an alternative use it must use the remaining proceeds to redeem or defease bonds as described above.

If the disposition proceeds are to be used by a 501(c)(3) organization, the nonqualified bonds must, in addition, be treated as reissued and must, beginning on the date of the deliberate action, meet all the requirements for qualified 501(c)(3) bonds. For example, this requires that a TEFRA hearing be held and approval obtained with respect to the new uses of proceeds before the date of the deliberate action.

Alternative Use of Facility

The third remedial action, alternative use of a facility, permits the bonds to remain outstanding if the facility is now used for a qualifying purpose and the nonqualified bonds are treated as reissued as of the date of deliberate action as qualified bonds, e.g., qualified 501(c)(3) bonds or qualified exempt facility bonds. The nonqualified bonds must satisfy all the requirements for that particular type of issue from the date of deliberate action, including the volume cap limitation of Section 146 of the Code, if applicable. The Regulations specifically provide, however, that the used property limitation of Section 147 will not apply. In the case of exempt facility bonds, and other non-501(c)(3) qualified bonds, the interest will be treated as a preference item for alternative minimum tax ("AMT") purposes (see discussion below). This remedial action is not available if the deliberate action involves a disposition to a purchaser who finances the purchase with tax-exempt bonds.

The Regulations provide that any disposition proceeds, including proceeds from an installment sale, must be used to pay debt service on the bonds on the next available payment date or within 90 days of receipt, be deposited into a defeasance escrow, yield restricted and used to pay debt service on the bonds on the next available payment date. The Regulations do not address under this remedial action alternative how to deal with the change in status of interest from non-AMT to AMT. This is addressed, however, in *Rev. Proc. 97-15*, discussed below.

[Rev. Proc. 2018-26](#)

[Rev. Proc. 2018-26 provides new or additional remedial actions for issuers of tax-advantaged bond \(tax-exempt bonds, tax-credit bonds, and direct-pay bonds\), to \(1\) remediate certain long-term leases of financed property, and \(2\) to permit remedial action of certain types of direct-pay and tax-credit bonds. Under the remedial action for](#)

long-term leases, the Authority may be able to apply the remedial actions discussed above, with certain modification, including treating an amount equal to present value of the lease as disposition proceeds. Rev. Proc. 2018-26 allows tax-credit and direct-pay bonds to cure nonqualified use through special rules for redemption and defeasance, and under special rules of alternative qualifying use.

Rev. Proc. 97-15

Rev. Proc. 97-15 provides a program under which an issuer may request a closing agreement as a remedial action to prevent interest on outstanding bonds from being included in gross income or to prevent interest from being treated as an item of tax preference for AMT purposes as a result of a subsequent action. Closing agreements under this program will not resolve any other issue, nor will they preclude an examination by the IRS of any matters not addressed in the closing agreement. These closing agreements are not available with respect to an issue of outstanding bonds that is under examination by the IRS.

Closing Agreement as to Exclusion from Gross Income

A number of procedural and substantive conditions to obtaining a closing agreement are set forth in Rev. Proc. 97-~~15~~, 15 and Internal Revenue Manual 4.81.6 and IRM 7.2.3. In addition, in the case of a closing agreement that provides that interest will not be included in gross income, the issuer ~~must~~may have to agree to redeem the outstanding bonds at the next redemption date. The issuer also ~~must~~or in lieu of redemption, pay a closing agreement amount, which is generally determined to be equal to the sum of the present value amounts determined by multiplying the amount of interest accruing on the nonqualified bonds in each year ~~by .29~~(for the past three years and all future years that the bonds will be outstanding) by a rate equal to the sum of (j) the backup withholding rate on interest payments under Code Section 3406(1) and (ii) the net investment income tax rate in Code section 1411(a)(1), in effect during the calendar year and present valuing each such number from April 15 of the year after the interest accrues to the date on which the payment is sent to the IRS, using as the discount rate the taxable applicable federal rate for a term equal to the period from the subsequent action to the redemption date.

Alternative Minimum Tax Closing Agreement

In the case of a closing agreement that provides that the interest will not be treated as an item of tax preference, among other conditions, the issuer must pay an amount equal to the sum of certain present value amounts. These amounts are determined by multiplying the principal amount of the nonqualified bonds that will be outstanding on January 1 in each calendar year beginning in the year of the subsequent action and ending the first calendar year in which the bonds will no longer be outstanding, by .0014 and present valuing each such number from April 15 of the year following each such calendar year to the date of payment to the IRS, using the applicable federal rate for the period specified in the closing agreement as the discount rate.

VCAP

The IRS has adopted procedures for its Voluntary Closing Agreement Program (“VCAP”) under which issuers of tax exempt bonds can voluntarily resolve violations of the Code or Regulations on behalf of their bondholders or themselves through closing agreements with the IRS. These procedures are set forth in Internal Revenue Manual ~~7.2.3.1~~ ~~7.2.3~~ and 4.81.6. If a deliberate action has occurred that cannot be remedied with a remedial action, a VCAP should be considered.

TAB IV

INTERNAL REVENUE SERVICE – TAX EXEMPT BONDS

TAX EXEMPT BOND FAQS REGARDING RECORD RETENTION REQUIREMENTS

During the course of an examination, IRS Tax Exempt Bonds (TEB) agents will request all material records and information necessary to support a municipal bond issue's compliance with section 103 of the Internal Revenue Code. The following information is intended solely to answer frequently asked questions concerning how the broad record retention requirements under section 6001 of the Code apply to tax-exempt bond transactions. Although this document provides information with respect to many of the concerns raised by members of the municipal finance industry about record retention, it is not to be cited as an authoritative source on these requirements. TEB recommends that issuers and other parties to tax-exempt bond transactions review section 6001 of the Code and the corresponding Income Tax Regulations in consultation with their counsel.

These frequently asked questions and answers are provided for general information only and should not be cited as any type of legal authority. They are designed to provide the user with information required to respond to general inquiries. Due to the uniqueness and complexities of Federal tax law, it is imperative to ensure a full understanding of the specific question presented, and to perform the requisite research to ensure a correct response is provided.

The freely available Adobe Acrobat Reader software is required to view, print, and search the questions and answers listed below.

1. Why keep records with respect to tax-exempt bond transactions?
2. Who may maintain records?
3. What are the basic records that should be retained?
4. Are these the only records that need to be maintained?
5. In what format must the records be kept?
6. How long should records be kept?
7. How does this general rule apply to refundings?
8. What happens if records aren't maintained?
9. Can a failure to properly maintain records be corrected?

10. Are there exceptions to the general rule regarding record retention for certain types of records?

Why keep records with respect to tax-exempt bond transactions?

Section 6001 of the Internal Revenue Code provides the general rule for the proper retention of records for federal tax purposes. Under this provision, every person liable for any tax imposed by the Code, or for the collection thereof, must keep such records, render such statements, make such returns, and comply with such rules and regulations as the Secretary may from time to time prescribe. Section 1.6001-1(a) of the Income Tax Regulations amplifies this general rule by providing that any person subject to income tax, or any person required to file a return of information with respect to income, must keep such books and records, including inventories, as are sufficient to establish the amount of gross income, deductions, credits, or other matters required to be shown by that person in any return of such tax or information.

The IRS regularly advises taxpayers to maintain sufficient records to support their tax deductions, credits and exclusions. In the case of a tax-exempt bond transaction, the primary taxpayers are the beneficial holders of the bonds. However, in most cases, the beneficial holders of tax-exempt bonds will not have any records to support their exclusion of the interest paid on those bonds. Instead, these records will generally be found in the bond transcript and the books and records of the issuer, the conduit borrower, and other participants to the transaction. Therefore, in order to ensure the continued exclusion of interest by the beneficial holders, it is important that the issuer, the conduit borrower and other participants retain sufficient records to support the continued exclusion being taken by the beneficial holders of the bonds. Pursuant to this statutory regime, IRS agents conducting examinations of tax-exempt bond transactions will look to these parties to provide books, records, and other information documents supporting the bonds continued compliance with federal tax requirements.

Additionally, in the case of many private activity bonds, the conduit borrowers are also primary taxpayers. For instance, the conduit borrower will generally deduct the interest indirectly paid on the bond issue through the loan documents. Conduit borrowers are also often entitled to claim depreciation deductions for bond-financed property. Consequently, conduit borrowers should maintain sufficient records to support their interest deductions, depreciation deductions or other tax deductions, exclusions or credits related to the tax-exempt bond issue.

Moreover, issuers and conduit borrowers should retain sufficient records to show that all tax-exempt bond related returns submitted to the IRS are correct. Such returns include, for example, IRS Forms 8038, 8038-G, 8038-GC, 8038-T, and 8038-R.

In addition to the general rules under section 6001, issuers and conduit borrowers are subject to specific recordkeeping requirements imposed by various other Code sections and regulations. For example, section 1.148-5(d)(6)(iii)(E) of the arbitrage regulations requires that an issuer retain certain records necessary to qualify for the safe

harbor for establishing fair market value for guaranteed investment contracts and investments purchased for a yield restricted defeasance escrow.

Who may maintain records?

Read together, section 6001 of the Code and section 1.6001-1(a) of the Regulations apply to taxpayers and persons filing tax returns, including returns related to tax-exempt bond transactions (i.e., Forms 8038, 8038-G, 8038-GC, 8038-T, 8038-R, 8328, 8703). This encompasses several parties to the bond transaction including:

1. issuers as the party responsible for satisfying the filing requirements under section 149(e) of the Code;
2. conduit borrowers for deductions taken for payment of interest on outstanding bonds or depreciation of bond-financed facilities; and
3. bondholders, lenders, and lessors as recipients of exempt income from the interest paid on the bonds.

Since many of the same records may be examined to verify, for example, both the tax-exempt status of the bonds and the interest deductions of the conduit borrower, it is advisable for the bond documents to specify which party will bear the responsibility for maintaining the basic records relating to a bond transaction. Additional parties may also be responsible for maintaining records under contract with any of the parties named above. For example, a trustee may agree to maintain certain records pursuant to the trust indenture.

What are the basic records that should be retained?

Although the required records to be retained depend on the transaction and the requirements imposed by the Code and the regulations, records common to most tax-exempt bond transactions include:

Basic records relating to the bond transaction (including the trust indenture, loan agreements, and bond counsel opinion);

Documentation evidencing expenditure of bond proceeds;

Documentation evidencing use of bond-financed property by public and private sources (i.e., copies of management contracts and research agreements);

Documentation evidencing all sources of payment or security for the bonds; and

Documentation pertaining to any investment of bond proceeds (including the purchase and sale of securities,

SLGs subscriptions, yield calculations for each class of investments, actual investment income received the investment of proceeds, guaranteed investment contracts, and rebate calculations).

Are these the only records that need to be maintained?

No, the list above is very general and only highlights the basic records that are typically material to many types of tax-exempt bond financings. Each transaction is unique and may, accordingly, have other records that are material to the requirements applicable to that financing. The decision as to whether any particular record is material must be made on a case-by-case basis and could take into account a number of factors, including, for instance, the various expenditure exceptions. Moreover, certain records may be necessary to support information related to certain requirements applicable to specific types of qualified private activity bonds. With respect to single and multifamily housing bonds as well as small issue industrial development bonds, examples of such additional material records include:

Single Family Housing Bonds	Documents evidencing that at least 20% of proceeds were available for owner financing of targeted area residences.
	Documentation evidencing proper notification of each mortgagor of potential liability of the mortgage subsidy recapture tax.
Multi-Family Housing Bonds	Documentation evidencing that the facility is not used on a transient basis.
	Documentation evidencing compliance with the income set-aside requirements.
	Documentation evidencing timely correction, if any, of noncompliance with the income set-aside requirements.
Small Issue Industrial Development Bonds	Documentation evidencing compliance with the \$10,000,000 limitation on the aggregate face amount of the issue.
	Documentation evidencing that no test-period beneficiary has been allocated more than \$40,000,000 in bond proceeds.

In what format must the records be kept?

All records should be kept in a manner that ensures their complete access to the IRS for so long as they are material. While this is typically accomplished through the maintenance of hard copies, taxpayers may keep their records in an electronic format if certain requirements are satisfied.

Rev. Proc. 97-22, 1997-1 C.B. 652 provides guidance to taxpayers that maintain books and records by using an electronic storage system that either images their hardcopy (paper) books and records, or transfers their computerized books and records, to an electronic storage media. Such a system may also include reasonable data compression or formatting technologies so long as the requirements of the revenue procedure are satisfied. The general requirements for an electronic storage system of taxpayer records are provided in section 4.01 of Rev. Proc. 97-22. A summary of these requirements is as follows:

1. The system must ensure an accurate and complete transfer of the hardcopy books and records to the electronic storage system and contain a retrieval system that indexes, stores, preserves, retrieves, and reproduces all transferred information.
2. The system must include reasonable controls and quality assurance programs that (a) ensure the integrity, accuracy, and reliability of the system; (b) prevent and detect the unauthorized creation of, addition to, alteration of, deletion of, or deterioration of electronically stored books and records; (c) institute regular inspections and evaluations; and (d) reproduce hardcopies of electronically stored books and records that exhibit a high degree of legibility and readability.
3. The information maintained in the system must be cross-referenced with the taxpayer's books and records in a manner that provides an audit trail to the source document(s).
4. The taxpayer must maintain, and provide to the Service upon request, a complete description of the electronic storage system including all procedures relating to its use and the indexing system.
5. During an examination, the taxpayer must retrieve and reproduce hardcopies of all electronically stored books and records requested by the Service and provide the Service with the resources necessary to locate, retrieve, read and reproduce any electronically stored books and records.
6. The system must not be subject, in whole or in part, to any agreement that would limit the Service's access to and use of the system.
7. The taxpayer must retain electronically stored books and records so long as their contents may become material in the administration of federal tax law.

How long should records be kept?

Section 1.6001-1(e) of the Regulations provides that records should be retained for so long as the contents thereof are material in the administration of any internal revenue law. With respect to a tax-exempt bond transaction, the information contained in certain records support the exclusion from gross income taken at the bondholder level for both past and future tax years. Therefore, as long as the bondholders are excluding from gross income the interest received on account of their ownership of the tax-exempt bonds, certain bond records will be material. Similarly, in a conduit financing, the information

contained in the bond records is necessary to support the interest deduction taken by the conduit borrower for both past and future tax years for its payment of interest on the bonds.

To support these tax positions, material records should generally be kept for as long as the bonds are outstanding, plus 3 years after the final redemption date of the bonds. This rule is consistent with the specific record retention requirements under section 1.148-5(d)(6)(iii)(E) of the arbitrage regulations.

Certain federal, state, or local record retention requirements may also apply.

How does this general rule apply to refundings?

For certain federal tax purposes, a refunding bond issue is treated as replacing the original new money issue. To this end, the tax-exempt status of a refunding issue is dependent upon the tax-exempt status of the refunded bonds. Thus, certain material records relating to the original new money issue and all material records relating to the refunding issue should be maintained until 3 years after the final redemption of both bond issues.

What happens if records aren't maintained?

During the course of an examination, TEB agents will request material records and information in order to determine whether a tax-exempt bond transaction meets the requirements of the Code and regulations. If these records have not been maintained, then the issuer, conduit borrower or other party may have difficulty demonstrating compliance with all federal tax law requirements applicable to that transaction. A determination of noncompliance by the IRS with respect to a bond issue can have various outcomes, including a determination that the interest paid on the bonds should be treated as taxable, that additional arbitrage rebate may be owed, or that the conduit borrower is not entitled to certain deductions.

Additionally, a conduit borrower who fails to keep adequate records may also be subject to an accuracy-related penalty under section 6662 of the Code on the underpayment of tax attributable to any denied deductions. Section 6662 of the Code imposes a penalty on any portion of an underpayment of tax required to be shown on a return that is attributable to one of several factors, including negligence or disregard of rules or regulations. Section 1.6662-3(b)(1) of the Regulations provides that negligence includes any failure by the taxpayer to keep adequate books and records or to substantiate items properly. Under section 6662(a) of the Code, the penalty is equal to 20 percent of the portion of the underpayment of tax attributable to the negligence. Section 6664(c)(1) provides an exception to the imposition of accuracy-related penalties if the taxpayer shows that there was reasonable cause for the underpayment and that the taxpayer acted in good faith.

Can a failure to properly maintain records be corrected?

Yes, a failure to properly maintain records can be corrected through the Tax Exempt Bonds Voluntary Closing Agreement Program (TEB VCAP). This program provides an opportunity for state and local government issuers, conduit borrowers, and other parties to a tax-exempt bond transaction to voluntarily come forward to resolve specific matters through closing agreements with the IRS. For example, the TEB Office of Outreach, Planning & Review has resolved arbitrage rebate concerns in cases where issuers have approached the IRS and reported a failure to retain sufficient records to determine, precisely, the correct amount of arbitrage rebate due on a bond issue. Notice 2001-60, 2001-40 I.R.B. 304 provides more information about this program including the procedures for submitting a VCAP request.

Are there exceptions to the general rule regarding record retention for certain types of records?

No, but TEB encourages members of the municipal finance industry to submit comments and suggestions for developing record retention limitation programs for specific types of bond records, for specific classes of tax-exempt bond issues, or for specific segments of the bond industry. Comments can be submitted in writing to TEB and sent ~~to the following address:~~ by email to mailto:tege.teb_questions@irs.gov?subject=Record Retention.

**Internal Revenue Service (TE/GE)
Attention: ~~Clifford J. Gannett, Director, TEB~~
T:GE:TEB, Rm. 583
1111 Constitution Ave., NW
Washington, DC 20224**

You may also contact TEB by calling 202-283-2999 (not a toll-free call).

TAB V

ARBITRAGE LETTER OF INSTRUCTIONS

RE: MASSACHUSETTS WATER RESOURCES AUTHORITY

Definitions.

Capitalized terms not otherwise defined herein will have meanings given to them in sections 103, 141, 148, 149 and 150 of the Code and the Treasury Regulations promulgated thereunder.

“Authority” means the Massachusetts Water Resources Authority.

“Available Construction Proceeds” means, in general, an amount equal to the sum of (a) the issue price (within the meaning of sections 1273 and 1274 of the Code but without regard to accrued interest) of the Construction Issue, (b) investment earnings on a Reasonably Required Reserve or Replacement Fund allocable to the Construction Issue prior to the earlier of 2 years after the date of issue of the Obligations and the date that construction is substantially completed, and (c) the investment earnings on amounts described in (a) and (b), reduced by (i) the amount of the issue price deposited in a Reasonably Required Reserve or Replacement Fund and (ii) the amount of the issue price used to pay issuance costs. Available Construction Proceeds does not include (a) Sale Proceeds or Investment Proceeds derived from Payments under any Purpose Investment of the Construction Issue, (b) repayments of any Grants financed by the issue, (c) investment earnings on accrued interest, (d) amounts that are not Gross Proceeds as a result of the application of the Universal Cap under Treasury Regulations §1.148-6(b)(2) and (e), if the Authority has elected in its Tax Certificate, earnings with respect to any portion of a Reasonably Required Reserve or Replacement Fund allocable to the Construction Issue. For purposes of determining compliance with the spending requirements as of the end of each of the first three spending periods, Available Construction Proceeds includes the amount of future earnings that the Authority reasonably expected as of the date of issue of the Obligations.

“Bid Records” means: (i) a copy of the Guaranteed Investment Contract actually acquired or, in the case of Yield Restricted Defeasance Escrow Investments, a copy of the purchase agreement or confirmations for the investments; (ii) the receipt or other record of the amount actually paid by the Authority for the investments, including a record of any administrative costs paid by the Authority, and the certification of the provider as to administrative costs; (iii) either a written copy of each bid received or a written certification from the party receiving the bids which lists for each bid that is submitted, the name of the person and entity submitting the bid, the time and date of the bid, and the bid results; (iv) the bid solicitation form and, if the terms of the Guaranteed Investment Contract or purchase agreement deviated from the bid solicitation form or a submitted bid is modified, a brief statement explaining the deviation and stating the purpose for the

deviation; and (v) in the case of Yield Restricted Defeasance Escrow Investments, a schedule showing the cost of the most efficient portfolio of SLGS, determined at the time the bids were required to be submitted pursuant to the terms of the bid specifications.

“Bona Fide Debt Service Fund” means a bona fide debt service fund as defined in Treasury Regulations §1.148-1, *i.e.*, one or more funds (including portions of funds, to the extent that amounts deposited therein are reasonably expected to be used to pay debt service on an issue of bonds) that are used primarily to achieve a proper matching of revenues and debt service within each Bond Year and that is depleted at least once a year except for a reasonable carryover amount (not to exceed the greater of (i) the earnings on the fund for the immediately preceding Bond Year or (ii) one-twelfth the principal and interest payments on the issue for the immediately preceding Bond Year).

“Bona Fide Solicitation” means a solicitation that meets all of the following requirements: (i) the bid specifications are in writing and are timely forwarded to potential providers; (ii) the bid specifications include all material terms of the bid, *i.e.*, all terms that may directly or indirectly affect the yield of the investment; (iii) the bid specifications include a statement notifying potential providers that submission of a bid is a representation that the potential provider did not consult with any other potential provider about its bid, that the bid was determined without regard to any other formal or informal agreement that the potential provider has with the Authority or any other person (whether or not in connection with the Bond issue), and that the bid is not being submitted solely as a courtesy to the Authority or any other person for purposes of satisfying the requirements that there be at least three bids from persons with no Material Financial Interest, at least one of whom is a reasonably competitive provider; (iv) all the terms of the bid specifications are commercially reasonable in that there is a legitimate business purpose for the term other than to increase the purchase price or reduce the yield of the investment; (v) in the case of a Guaranteed Investment Contract, the terms of the solicitation take into account the Authority’s reasonably expected deposit and drawdown schedule for the amounts to be invested; (vi) all potential providers have an equal opportunity to bid and no potential provider is given the opportunity to review other bids before providing a bid; and (vii) at least three reasonably competitive providers are solicited for bids.

“Bond Year” means, in connection with the calculation of the Rebate Amount, each 1-year period (or shorter period from the date of issue) that ends at the close of business on the day in the calendar year that is selected by the Authority. If no day is selected by the Authority before the earlier of the final maturity date of the Obligations or the date that is 5 years after the issue date of the Obligations, each Bond Year ends at the close of business on the day preceding the anniversary of the date of issuance of the Obligations.

“Capital Expenditure” means any cost of a type that is properly chargeable to a capital account (or would be so chargeable with a proper election or with the application of the definition of Placed in Service under Treasury Regulations §1.150-2(c)) under general federal income tax principles.

“Code” means the Internal Revenue Code of 1986, as amended.

“Commingled Fund” means any fund or account containing both Gross Proceeds of an issue and amounts in excess of \$25,000 that are not Gross Proceeds of that issue if the amounts in the fund or account are invested and accounted for collectively, without regard to the source of funds deposited in the fund or account. An open-end regulated investment company under section 851 of the Code, however, is not a Commingled Fund.

“Computational Base” means (i) for a Guaranteed Investment Contract, the amount of Gross Proceeds the Authority reasonably expects, as of the date the Guaranteed Investment Contract is acquired, to be deposited in the Guaranteed Investment Contract over the term of the Guaranteed Investment Contract; and (ii) for investments (other than Guaranteed Investment Contracts) to be deposited in a Yield Restricted Defeasance Escrow, the amount of Gross Proceeds initially invested in those investments.

“Computation Period” means the period between the computation dates described in Section 4(b) hereof. The first begins on the Issue Date of the Obligations and ends on the initial rebate Computation Date. Each succeeding Computation Period begins on the date immediately following the preceding rebate Computation Date and ends on the next rebate Computation Date.

“Construction Expenditures” mean construction expenditures as defined in Treasury Regulations §1.148-7(g), i.e., Capital Expenditures that are allocable to the cost of real property or “constructed personal property.” In general, Construction Expenditures do not include expenditures for acquisitions of interests in land or other existing real property. Expenditures are not considered to be for the acquisition of an interest in existing real property, other than land, if the contract between the seller and the Authority requires the seller to build or install the property, but only to the extent that the property has not been built or installed at the time the parties enter into the contract. Constructed personal property means tangible personal property (or, if acquired pursuant to a single acquisition contract, properties) or “specially developed computer software” if: (a) a substantial portion of the property or properties is completed more than 6 months after the earlier of the date construction or rehabilitation commenced and the date the Authority entered into an acquisition contract; (b) based on the reasonable expectations of the Authority, if any, or representations of the person constructing the property, with the exercise of due diligence, completion of construction or rehabilitation (and delivery to the Authority) could not have occurred within that 6-month period; and (c) if the Authority itself builds or rehabilitates the property, not more than 75 percent of the capitalizable cost is attributable to property acquired by the Authority. Specially developed computer software means any programs or routines used to cause a computer to perform a desired task or set of tasks, and the documentation required to describe and maintain those programs, provided that the software is specially developed and is functionally related and subordinate to real property or other constructed personal property.

“Construction Issue” means, the portion (if any) of the Obligations determined to be a Construction Issue for purposes of the section 148(f)(4)(C) of the Code, Treasury Regulations §1.148-7(e) and Section 4 hereof. With respect to any issue refunded by the

Obligations, or which is a part of a series of issues refunded by the Obligations, “Construction Issue” means the portion (if any) of the original obligations issued to finance an expenditure (the “original obligations”) determined in the Tax Certificate with respect to original obligations to be a “Construction Issue” for purposes of the section 148(f)(4)(C) of the Code and Treasury Regulations §1.148-7(e).

“Controlled Group” means a group of entities controlled directly or indirectly by the same entity or group of entities. The determination of direct control is made on the basis of all the relevant facts and circumstances. One entity or group of entities generally controls another entity or group of entities if (i) the controlling entity possesses either (A) the right or power both to approve and to remove without cause a controlling portion of the governing body of the controlled entity, or (B) the right or power to require the use of funds or assets of the controlled entity for any purpose of the controlling entity; and (ii) the rights or powers are discretionary and non-ministerial. If a controlling entity controls another entity under this test the controlling entity also controls all entities controlled, directly or indirectly, by the controlled entity or entities. However, an entity is not controlled by another entity if the putative controlled entity possesses substantial taxing, eminent domain, and police powers.

“De Minimis Amount” means: (i) in reference to original issue discount (as defined in section 1273(a)(1) of the Code) or premium on an obligation, an amount that does not exceed 2 percent multiplied by the stated redemption price at maturity; plus any original issue premium that is attributable exclusively to reasonable underwriter’s compensation; and (ii) in reference to market discount (as defined in section 1278(a)(2)(A) of the Code) or premium on an obligation, an amount that does not exceed 2 percent multiplied by the stated redemption price at maturity.

“Fair Market Value” shall have the meaning set forth in Section 3(d) hereof.

“501(c)(3) Organization” means an organization that is described in section 501(c)(3) of the Code and is exempt from tax under section 501(a) of the Code.

“Fixed Rate Investment” means any investment whose yield is fixed and determinable on the issue date of the investment.

“Future Value” means such term as defined in Treasury Regulations section 1.148-3(c) or successor regulations applicable to the Obligations calculated based on the yield of the Obligations.

“Guaranteed Investment Contract” means, in general, any Nonpurpose Investment that has specifically negotiated withdrawal or reinvestment provisions and a specifically negotiated interest rate and includes any agreement to supply investments on two or more future dates (*e.g.*, a forward supply contract), debt service fund forward agreements and debt service reserve fund agreements (*e.g.*, agreements to deliver United States Treasury Obligations). The term “Guaranteed Investment Contract” does not include investments purchased for a yield restricted defeasance escrow, other than escrow float contracts and

similar agreements which provide securities for the period of 90 days or less following the maturity of defeasance escrow securities.

“Governmental Unit” means a governmental unit within the meaning of section 150(a)(2) of the Code (*i.e.*, any state or division of a state with a substantial amount of sovereign powers) or instrumentality of a state or political subdivision thereof. The term Governmental Unit does not include the United States or any agency or instrumentality of the United States.

“Grant” means a grant as defined in Treasury Regulations §1.148-6(d)(4)(iii), *i.e.*, a transfer for a governmental purpose of money or property to a transferee that is not a Related Party to, or an agent of, the transferor. The transfer must not impose any obligation or condition (directly or indirectly) to repay any amount to the transferor. Obligations or conditions intended solely to assure expenditure of the transferred moneys in accordance with the governmental purpose of the transfer do not prevent a transfer from being a Grant.

“Gross Proceeds” means, except as otherwise indicated, gross proceeds as defined in Treasury Regulations §1.148-1, *i.e.*, any Proceeds and Replacement Proceeds of an issue.

“Investment Proceeds” means investment proceeds as defined in Treasury Regulations §1.148-1, *i.e.*, any amounts actually or constructively received from investing Proceeds of the Obligations.

“Investment Property” means any investment which is: (i) a “security” (as defined in section 165(g)(2)(A) or (B) of the Code), *i.e.*, a share of stock in a corporation or a right to subscribe for or to receive a share of stock in a corporation; (ii) an obligation other than a Tax-exempt Bond, unless such obligation is a “specified private activity bond” within the meaning of section 57(a)(5)(C) of the Code (*i.e.*, a Tax-exempt Bond other than an obligation the interest on which is subject to the alternative minimum tax imposed on individuals and corporations); (iii) any “annuity contract” (as defined in section 72 of the Code); (iv) any “investment-type property” (within the meaning of Treasury Regulations §1.148-1(b)), *i.e.*, any property (other than property described in (i), (ii), (iii) or (v)) that is held principally as a passive vehicle for the production of income, including for this purpose, production of income includes any benefit based on the time value of money; or (v) any residential rental property for family units not located within the jurisdiction of the Authority unless such property is acquired to implement a court ordered or approved housing desegregation plan. A prepayment for property or services is “investment-type property” if a principal purpose for prepaying is to receive an investment return from the time the prepayment is made until the time payment otherwise would be made. However, a prepayment will not be treated as “investment-type property” if it is made for a substantial business purpose other than investment return and (i) the prepayment is on substantially the same terms as are made by a substantial percentage of persons who are similarly situated but who are not beneficiaries of tax exempt financing, (ii) the prepayment is made within 90 days of the reasonably expected date of delivery to the Authority of all of the property or services for which the

prepayment is made, (iii) the prepayment is made for maintenance, repair, or an extended warranty with respect to personal property (for example, automobiles or electronic equipment); or updates or maintenance or support services with respect to computer software; and the same maintenance, repair, extended warranty, updates or maintenance or support services, as applicable, are regularly provided to nongovernmental persons on the same terms or (iv) the prepayment is made to acquire a supply of natural gas or electricity within the meaning of Treasury Regulation §1.148-1(e)(2)(iii).

“Lowest Cost Bona Fide Bid” means, in the case of Yield Restricted Defeasance Escrow Investments, either the lowest cost bid for the portfolio or, if the Authority compares bids on an investment by investment basis, the aggregate cost of a portfolio comprised of the lowest cost bid for each investment. Any payment received by the Authority from a provider at the time a Guaranteed Investment Contract (*e.g.*, an escrow float contract) is purchased for a Yield Restricted Defeasance Escrow under a bidding procedure that meets the requirements of clause (iv) of the definition of Bona Fide Solicitation is taken into account in determining the lowest cost bid. The Lowest Cost Bona Fide Bid must not be greater than the cost of the most efficient portfolio comprised exclusively of SLGS determined at the time that bids are required to be submitted pursuant to the terms of the bid specifications. This cost comparison is not required to be made if SLGS are not available for purchase on the day the bids are required to be submitted because sales of those securities have been suspended.

“Material Financial Interest” shall have the meaning set forth in Section 3(d)(vi) hereof.

“Minor Portion” means, in general, a minor portion as defined in section 148(e) of the Code and Treasury Regulation §1.148-2(g), *i.e.*, the lesser of 5 percent of the Sale Proceeds of the Obligations or \$100,000.

“Net Sale Proceeds” means Sale Proceeds, less the portion of the Sale Proceeds invested in a Reasonably Required Reserve or Replacement Fund under section 148(d) of the Code and as part of the Minor Portion.

“Nonconstruction Issue” means the Gross Proceeds of the Obligations other than the portion of Gross Proceeds of the Bonds meeting the requirements of section 148(f)(4)(C) of the Code, Treasury Regulations §1.148-7(e) and Section 4 hereof as a Construction Issue.

“Nonpurpose Investment” means an investment allocated to Gross Proceeds of the Obligations that is not acquired to carry out the governmental purpose of an issue, *i.e.*, all Investment Property acquired or otherwise allocated to Gross Proceeds of the Obligations, other than any purpose investment.

“Obligations” means any tax-exempt bonds or notes of the Authority

“Opinion of Counsel” means, an opinion of McCarter & English, LLP or other nationally recognized bond counsel experienced in matters relating to the exclusion of

interest on state and local governmental Obligations from gross income for purposes of federal income taxation.

“Payment” means, in general, a payment as defined in Treasury Regulations §1.148-5(b), *i.e.*, amounts to be actually or constructively paid to acquire the investment. For purposes of calculating the Rebate Amount under Section 4 hereof “payment” means a payment as defined in Treasury Regulations §1.148-3(d), *i.e.*, (i) amounts actually or constructively paid to acquire a Nonpurpose Investment (or treated as paid to a Commingled Fund); (ii) for a Nonpurpose Investment that is first allocated to an issue on a date after it is actually acquired (*e.g.*, an investment that becomes allocable to Transferred Proceeds or to Replacement Proceeds) or that becomes subject to the rebate requirement on a date after it is actually acquired (*e.g.*, an investment allocated to a Reasonably Required Reserve or Replacement Fund for a construction issue at the end of the 2-year spending period), the value of that investment on that date; (iii) for a Nonpurpose Investment that was allocated to an issue at the end of the preceding computation period, the value of that investment at the beginning of the computation period; (iv) on the last day of each Bond Year during which there are amounts allocated to Gross Proceeds of the Obligations that are subject to the rebate requirement, and on the final maturity date of the Obligations, a computation credit in the amount provided under Treasury Regulation §1.148-3(d)(1)(iv); and (v) Yield Reduction Payments on Nonpurpose Investments made pursuant to Treasury Regulations §1.148-5(c).

“Placed in Service” means placed in service as defined in Treasury Regulations §1.150-2(c), *i.e.*, with respect to a facility, the date on which, based on all the facts and circumstances the facility has reached a degree of completion that would permit its operation at substantially its design level, and the facility is, in fact, in operation at such level.

“Plain Par Bond” means a qualified tender obligation or an obligation (i) that is issued with not more than a De Minimis Amount of original issue discount or premium; (ii) that is issued for a price that does not include accrued interest other than pre-issuance accrued interest; (iii) that bears interest from the issue date at a single, stated, fixed rate or that is a variable rate debt instrument under section 1275 of the Code, in each case with interest unconditionally payable at least annually; and (iv) that has a lowest stated redemption price that is not less than its outstanding stated principal amount.

“Plain Par Investment” means an investment that is an obligation (i) issued with not more than a De Minimis Amount of original issue discount or premium, or, if acquired on a date other than the issue date, acquired with not more than a De Minimis Amount of market discount or premium; (ii) issued for a price that does not include accrued interest other than pre-issuance accrued interest; (iii) that bears interest from the issue date at a single, stated, fixed rate or that is a variable rate debt instrument under section 1275 of the Code, in each case with interest unconditionally payable at least annually; and (iv) that has a lowest stated redemption price that is not less than its outstanding stated principal amount.

“Preliminary Expenditures” mean preliminary expenditures as defined in Treasury Regulations §1.150-2(f)(2), *e.g.*, architectural, engineering, surveying, soil testing, costs of issuance and similar costs that were incurred prior to commencement of acquisition, construction or rehabilitation of a project, other than land acquisition, site preparation and similar costs incident to commencement of construction.

“Present Value” is computed under the economic accrual method. For purposes of computing the value of Obligations and yield on the Obligations, Present Value is computed taking into account all the unconditionally payable Payments of principal, interest, and fees for a Qualified Guarantee to be paid on or after that date and using the yield on that Obligation as the discount rate, except that for purposes of Treasury Regulations §1.148-(6)(b)(2) (relating to the Universal Cap) these values may be determined by consistently using the yield on the entire issue of which such Obligations are a part. The Present Value of an investment on a date is equal to the Present Value of all unconditionally payable Receipts to be received from and Payments to be paid for the investment after that date, using the yield on the investment as the discount rate.

“Prior Issue” means an issue of Obligations all or a portion of the principal, interest, or call premium on which is paid or provided for with proceeds of a Refunding Issue.

“Proceeds” means, in general, any Sale Proceeds, Investment Proceeds, and Transferred Proceeds of an issue. However, Proceeds do not include (i) amounts actually or constructively received with respect to a Purpose Investment that are properly allocable to the yield on a Purpose Investment which is less than materially higher yield under Treasury Regulation §1.148-2(d) or (ii) Qualified Administrative Costs that may be recovered under Treasury Regulation §1.148-5(e).

“Purpose Investment” means an investment that is acquired to carry out the governmental purpose of an issue.

“Qualified Administrative Costs” mean, with respect to Nonpurpose Investments reasonable, direct administrative costs, other than carrying costs, such as separately stated brokerage or selling commissions, but not legal and accounting fees, recordkeeping, custody, and similar costs. General overhead costs and similar indirect costs of the Authority such as employee salaries and office expenses and costs associated with computing the Rebate Amount are not qualified administrative costs. In general, administrative costs with respect to Nonpurpose Investments are not reasonable unless they are comparable to administrative costs that would be charged for the same investment or a reasonably comparable investment if acquired with a source of funds other than Gross Proceeds of Tax-exempt Bonds. Qualified Administrative Costs of Nonpurpose Investments include all reasonable administrative costs, without limitation on indirect costs, incurred by a publicly offered regulated investment company (as defined in section 67(c)(2)(B) of the Code) or by a Commingled Fund in which the Authority and any Related Parties do not own more than 10 percent of the beneficial interest in the fund. A broker’s commission or similar fee for a Guaranteed Investment Contract or a Yield Restricted Defeasance Escrow Investment which is paid on behalf of

either the Authority or the provider is a Qualified Administrative Cost to the extent that (a) the amount of the fee that the Authority treats as a Qualified Administrative Cost does not exceed the lesser of (i) \$36,000 or (ii) 0.2% of the Computational Base or, if more, \$4,000, and (b) for any issue, the Authority does not treat as Qualified Administrative Costs more than \$101,000 in broker's commissions or similar fees with respect to all Guaranteed Investment Contracts or Yield Restricted Defeasance Escrow Investments purchased with Gross Proceeds of the issue. All amounts referenced in the preceding sentence reflect adjustments as of 2011, and all amounts for future calendar years shall be increased by a cost of living adjustment as provided in Treasury Regulation §1.148-5(e)(3)(B)(3). Qualified Administrative Costs of a Purpose Investment means costs or expenses paid, directly or indirectly, to purchase, carry, sell, or retire the Purpose Investment, and except with respect to a Program Investment, costs of issuing, carrying, or repaying the issue, and any underwriters' discount.

"Qualified Guarantee" means a qualified guarantee as defined in Treasury Regulations §1.148-4(f).

"Qualified Hedge" means a qualified hedge as defined in Treasury Regulations §1.148-4(h)(2), *i.e.*, (i) a contract entered into primarily to reduce the Authority's risk of interest rate changes with respect to a borrowing; (ii) the contract contains no significant investment element; (iii) the contract is entered into between the Authority and a provider that is not a Related Party; (iv) the hedge covers all of one or more groups of substantially identical Obligations; (v) changes in the value of the contract are based primarily on interest rate changes; (vi) the contract does not hedge an amount larger than the Authority's risk with respect to interest rate changes on the hedged Obligations; (vii) the payments to the Authority under the contract correspond closely, in both time and amount, to the specific interest payments being hedged; (viii) payments under the contract do not begin to accrue under the contract on a date earlier than the issue date of the hedged Obligations and do not accrue longer than the hedged interest payments on the hedged Obligations; (ix) payments to the hedge provider are reasonably expected to be made from the same source of funds that, absent the hedge, would be reasonably expected to be used to pay principal and interest on the hedged Obligations; and (x) the contract is identified by the Authority on its books and records maintained for the hedged Obligations not later than three days after the date on which the parties enter into the contract or the issue date of the hedged Obligations.

"Reasonable Retainage" means an amount not in excess of 5 percent of Available Construction Proceeds as of the end of the fourth spending period (or in the case of the *18-month Exception* set forth Treasury Regulations §1.148-7(d) and Section hereof, 5 percent of the Net Sale Proceeds on the date 18 months after the issue date) that is retained for reasonable business purposes relating to the property financed with the proceeds of the issue.

"Reasonably Required Reserve or Replacement Fund" means, in general, a reasonably required reserve or replacement fund as described in Treasury Regulations §1.148-2(f)(2).

“Receipt” means, except as otherwise provided with respect to the rebate requirement, a receipt as defined in Treasury Regulations §1.148-3(d), *i.e.*, amounts to be actually or constructively received from the investment, such as earnings and return of principal.

“Refunding Escrow” means one or more funds established as part of a single transaction or a series of related transactions, containing proceeds of a Refunding Issue and any other amounts to provide for payment of principal or interest on one or more Prior Issues. For this purpose, funds are generally not so established solely because of (i) the deposit of Proceeds of an issue and Replacement Proceeds of the Prior Issue in an escrow more than 6 months apart, or (ii) the deposit of Proceeds of completely separate issues in an escrow.

“Refunding Issue” means, a refunding issue as defined in Treasury Regulations §1.150-1(d). In general, a Refunding Issue means an issue (or the portion of an issue treated as a separate Refunding Issue under Treasury Regulations §1.148-9(h)), the proceeds of which are used to pay principal, interest, or redemption price on another issue.

“Related Party” means, in reference to a Governmental Unit or a 501(c)(3) Organization, any member of the same Controlled Group, and, in reference to any person that is not a Governmental Unit or 501(c)(3) Organization, a related person (as defined in section 144(a)(3) of the Code).

“Replacement Proceeds” means replacement proceeds as defined in Treasury Regulation §1.148-1(c).

“Sale Proceeds” means any amounts actually or constructively received from the sale of an issue, including amounts used to pay underwriter’s discount or compensation and accrued interest other than pre-issuance accrued interest.

“SLGS” means State and Local Government Series Securities purchased from the United States Department of Treasury, Bureau of Public Debt.

“Substantial Beneficiary” of the obligations means the Authority, any related party to the Authority and the State in which the Authority is located.

“Tax-exempt Bond” means any obligation of a State or political subdivision thereof under section 103(c)(1) of the Code (including financing leases and any other arrangements, however labeled) the interest on which is excludable from gross income under section 103(a) of the Code. Tax-exempt Bond includes an interest in a regulated investment company to the extent that at least 95 percent of the income to the holder of the interest is interest that is excludable from gross income under section 103(a) of the Code.

“Tax Certificate” means, with respect to each issue of Obligations, the Authority’s Tax Certificate delivered as part of the record of proceedings with respect to the issuance of the Obligations for the purpose of complying with Treasury Regulation §1.148(2)(b).

“Transferred Proceeds” means transferred proceeds as defined in Treasury Regulation §1.148-9.

“Universal Cap” means, on any date, either (i) the present value of the Obligations determined by taking into account all unconditionally payable payments of principal, interest and fees for a Qualified Guarantee to be paid on or after that date, using the yield on the Obligations as the discount rate, or (ii) in the case of any Obligations which are Plain Par Bonds, the outstanding stated principal amount of such Obligations, plus accrued unpaid interest.

2. Allocation and Accounting.

- (a) *In General.* Except as otherwise provided in this Section 2, the Authority may use any reasonable accounting method for purposes of accounting for Gross Proceeds, investments, and expenditures, provided the accounting method is consistently applied. An accounting method means both the overall method used to account for Gross Proceeds of an issue (e.g., the cash method or a modified accrual method) and the method used to account for or allocate any particular item within that overall accounting method (e.g., accounting for investments, expenditures, allocations to and from different sources, and particular items of the foregoing). Consistently applied means applied uniformly within a fiscal period and between fiscal periods to account for Gross Proceeds of an issue and any amounts that are in a Commingled Fund. An accounting method will not fail to be reasonable and consistently applied solely because a different accounting method is used for a bona fide governmental purpose to consistently account for a particular item.
- (b) *Allocation of Gross Proceeds to the Obligations.* (i) *In General.* Gross Proceeds will be allocated to the Obligations as Proceeds until those amounts are properly allocated to an expenditure for a governmental purpose or are allocated to Transferred Proceeds of another issue, or cease to be allocated to the Obligations under the Universal Cap.
- (i) *Universal Cap.* The Universal Cap provides an overall limitation on the amount of Gross Proceeds allocable to an issue. Except as provided in Section 2(b)(iii), unless the application of the Universal Cap would not result in a reduction or reallocation of Gross Proceeds of the Obligations on a date the Authority will determine or cause to be determined the Universal Cap with respect to the Obligations (A) as of the first day of each Bond Year, beginning with the first Bond Year that commences after the second anniversary of the date hereof, and (B) as of each date that, but for application of the Universal Cap, Proceeds of a refunded issue would become Transferred Proceeds of the Obligations but

need not determine the Universal Cap in the Bond Year in which that date occurs.

- (ii) If the Authority reasonably expects, as of the issue date of the Obligations that the Universal Cap will not reduce the amount of Gross Proceeds allocable to the Obligations during the term of the Obligations, the Universal Cap need not be calculated on any date on which: (A) no Replacement Proceeds are allocable to the Obligations, other than Replacement Proceeds in a Bona Fide Debt Service Fund or a Reasonably Required Reserve or Replacement Fund; (B) the Net Sale Proceeds of the Obligations qualified for one of the temporary periods provided in Treasury Regulations §1.148-2(e)(2), (e)(3), or (e)(4), and those Net Sales Proceeds are in fact allocated to expenditures prior to the expiration of the longest applicable temporary period; or the Net Sale Proceeds of the Obligations were deposited in a Refunding Escrow and expended as originally expected; (C) the Obligations do not refund an issue that, on any transfer date, has unspent proceeds allocable to it; (D) none of the Obligations are retired prior to the date on which those Obligations are treated as retired in computing the yield on the Obligations; and (E) no Proceeds of the Obligations are invested in “qualified student loans” or “qualified mortgage loans” (as defined in Treasury Regulations §1.150-1).
- (iii) If the value of all Nonpurpose Investments allocated to the Gross Proceeds of the Obligations exceeds the Universal Cap on a date as of which the Universal Cap is determined such Nonpurpose Investments allocable to Gross Proceeds of the Obligations necessary to eliminate that excess will cease to be allocated to the Obligations, in the following order of priority: (A) Nonpurpose Investments allocable to Replacement Proceeds; (B) Nonpurpose Investments allocable to Transferred Proceeds; and (C) Nonpurpose Investments allocable to Sale Proceeds and Investment Proceeds.

For this purpose Nonpurpose Investments may be valued (i) in the case of a Plain Par Investment at its principal amount plus any accrued unpaid interest on that date; (ii) in the case of fixed rate investments, at its Present Value on that date; or (iii) in the case of any other investment, at its Fair Market Value.

(1) *Allocations to Expenditures.*

- (i) *In General.* Reasonable accounting methods for allocating funds from different sources to expenditures for the same governmental purpose include any of the following methods if consistently applied: a specific tracing method; a Gross Proceeds spent first method; a first-in, first-out method; or a ratable allocation. An

allocation of Gross Proceeds of an issue to an expenditure must involve a current outlay of cash for a governmental purpose of the issue. A current outlay of cash means an outlay reasonably expected to occur not later than 5 banking days after the date as of which the allocation of Gross Proceeds to the expenditure is made. A payment of Gross Proceeds to a Related Party of the Authority is not an expenditure of those Gross Proceeds. Gross Proceeds paid to the Related Party are expended only when the Gross Proceeds are properly allocable to an expenditure by the Related Party.

(ii) *Expenditures for Working Capital Purposes.* Except as otherwise provided in Section 2(c)(iii), Proceeds of the Obligations and Replacement Proceeds of the Obligations that are allocated to the payment of expenditures or to the reimbursement of expenditures other than expenditures that are (A) Capital Expenditures; (B) Qualified Administrative Costs; (C) fees for Qualified Guarantees of the issue or payments for a Qualified Hedge; (D) interest on the Obligations for a period commencing on the issue date and ending on the date that is the later of three years from the issue date or one year after the date on which the Projects are Placed in Service; (E) a Rebate Amount or Yield Reduction Payment paid to the United States; (F) costs that are directly related to Capital Expenditures financed by the issue that, in total, do not exceed 5 percent of the Sale Proceeds of the Obligations; (G) principal or interest on the Obligations paid from unexpected excess Sale Proceeds or Investment Proceeds; (H) principal or interest on the Obligations paid from investment earnings on a reserve or replacement fund that are deposited in a Bona Fide Debt Service Fund; (I) to pay for extraordinary, nonrecurring items that are not customarily payable from current revenues, such as casualty losses or extraordinary legal judgments in amounts in excess of reasonable insurance coverage; (J) for payment of principal, interest, or redemption prices on a Prior Issue; and (K) for a crossover Refunding Issue, interest on that issue will be treated as spent to the extent that those working capital expenditures exceed available amounts (as defined in Treasury Regulations § 1.148-6(d)(3)(iii)) as of that date.

(iii) *Commingled Investment Earnings.* Notwithstanding Subsection 2(c)(ii), investment earnings on Sale Proceeds of the Obligations (other than investment earnings held in a Refunding Escrow) may be allocated to expenditures other than expenditures described in Subsection 2(c)(ii), if the investment earnings are commingled for the purpose of accounting for expenditures with substantial tax or other substantial revenues from operations of the Authority and they are reasonably expected to be allocated (using any reasonable, consistently applied accounting method) to

expenditures for governmental purposes of the Authority within a period not to exceed six months from the date of the commingling.

- d) *Allocations of Gross Proceeds to Investments.* Upon the purchase or sale of a Nonpurpose Investment, Gross Proceeds of an issue will not be allocated to a Payment for that Nonpurpose Investment in an amount greater than, or to a Receipt from that Nonpurpose Investment in an amount less than, the Fair Market Value of the Nonpurpose Investment (adjusted to take into account Qualified Administrative Costs allocable to the investment) as of the purchase or sale date.
- e) *Allocation of Investments Held by a Commingled Fund.* (i) *In General.* All Payments and Receipts (including deemed Payments and Receipts) on investments held by a Commingled Fund must be allocated among the different “investors” in the fund not less frequently than as of the close of each fiscal period. This allocation must be based on a consistently applied reasonable, ratable allocation method. Reasonable ratable allocation methods include, methods that allocate these items in proportion to either (A) the average daily balances of the amounts in the Commingled Fund from different “investors” during a fiscal period; or (B) the average of the beginning and ending balances of the amounts in the Commingled Fund from different investors for a fiscal period that does not exceed one month. For purposes of this Subsection 2(e), the term “investor” means each different source of funds invested in a Commingled Fund. A Commingled Fund may use any consistent fiscal period that does not exceed three months.
- (i) *Expenditures from a Commingled Fund.* If a ratable allocation method is used to allocate expenditures from the Commingled Fund, the same ratable allocation method must be used to allocate Payments and Receipts on investments in the Commingled Fund under this Subsection.
- (ii) *Common Reserve Funds, Replacement Funds or Sinking Funds.* If a Commingled Fund serves as a common reserve fund, replacement fund, or sinking fund for two or more issues, investments held by that Commingled Fund must be allocated ratably (after any reallocations of Proceeds under Section 2(b)) among the issues served by the Commingled Fund according to (A) the relative values of the bonds of those issues (as determined under Treasury Regulations §1.148-4(e)); (B) the relative amounts of the remaining maximum annual debt service requirements on the outstanding principal amounts of those issues; or (C) the relative original stated principal amounts of the outstanding issues. Such allocations must be made at least every three years and as of each date that an issue first becomes secured by the Commingled Fund. If relative original principal amounts are used to allocate,

allocations must also be made on the retirement of any issue secured by the Commingled Fund.

3. Yield and Valuation of Investments. (a) *Mark-to-Market Requirement*. If Gross Proceeds of the Obligations are invested in a Commingled Fund in which the Authority and any Related Party own more than 25 percent of the beneficial interests in the Commingled Fund, the Commingled Fund must treat all its investments as if sold at Fair Market Value either on the last day of the fiscal year or the last day of each fiscal period unless (i) the remaining weighted average maturity of all investments held by the Commingled Fund during the fiscal year does not exceed 18 months, and the investments held by the Commingled Fund during that fiscal year consist exclusively of Obligations, or (ii) the Commingled Fund operates exclusively as a reserve fund, sinking fund, or replacement fund for two or more issues of the same issuer. The net gains or losses from any such deemed sales of investments must be allocated to all investors of the Commingled Fund during the period since the last allocation. For purposes of this Subsection the “fiscal year” of a Commingled Fund is the calendar year unless the Commingled Fund adopts another “fiscal year”.

a) *In General*. Yield on an investment, the Present Value of an investment and the Fair Market Value of an investment allocated to the Obligations will be computed under the economic accrual method, using the same compounding interval and financial conventions used to compute the yield on the Obligations. Except as otherwise provided in this Section 3, the yield on an investment allocated to the Obligations is the discount rate that, when used in computing the Present Value as of the date the investment is first allocated to the issue of all unconditionally payable Receipts from the investment, produces an amount equal to the Present Value of all unconditionally payable Payments for the investment. The Present Value of an investment on a date is equal to the Present Value of all unconditionally payable Receipts to be received from and Payments to be paid for the investment after that date, using the yield on the investment as the discount rate. The yield on a variable rate investment is determined in a manner comparable to the determination of the yield on a variable rate issue of Tax-exempt Bonds for purposes of section 148 of the Code. For purposes of the Investment Limitation under paragraph 15 of the Tax Certificate, the yield on investments made with Sale Proceeds of the Obligations or investment earnings thereon that are subject to yield restriction will be computed separately from the yield on investments not subject to yield restriction.

b) *Yield Reduction Payments to the United States*. The yield on any investments allocable to Sale Proceeds of the Obligations or investment earnings thereon that qualified for one of the temporary periods described in the Tax Certificate, other than Replacement Proceeds, may be calculated by taking into account any amount paid to the United States in accordance with this Section 3(b), including any Rebate Amount, as a

Payment for that investment that reduces the yield on that investment. The yield on any investments allocable to Sale Proceeds may be calculated by taking into account any "Yield Reduction Payments," as described in this Section 3(b) (including any Rebate Amount) as a Payment for that investment that reduces the yield on that investment. Yield Reduction Payments include payments paid to the United States at the same time and in the same manner as rebate amounts are required to be paid except:

- (i) No Yield Reduction Payments are required to be paid until 60 days after the date on which the issue is no longer outstanding; and
 - (ii) For Yield Reduction Payments paid prior to the date on which the Obligations are retired, the Authority need not pay more than 75 percent of the amount otherwise required to be paid as of the date to which the payment relates.
- c) *Valuation of Investments.* The value of an investment (including a Payment or Receipt on the investment) on a date will be determined using one of the following valuation methods consistently for all purposes of section 148 of the Code to that investment on that date:
- (iii) A Plain Par Investment may be valued at its outstanding stated principal amount, plus any accrued unpaid interest on that date.
 - (iv) A Fixed Rate Investment may be valued at its Present Value on that date.
 - (v) Any investment may be valued at its Fair Market Value on that date.
- d) *Fair Market Value.* (i) *In General.* The Fair Market Value of an investment is the price at which a willing buyer would purchase the investment from a willing seller in a bona fide, arm's-length transaction. Fair Market Value generally is determined on the date on which a contract to purchase or sell the Nonpurpose Investment becomes binding. Except as otherwise provided in this Section, an investment that is not of a type traded on an established securities market, within the meaning of section 1273 of the Code, will not be considered acquired or disposed of for a price that is equal to its Fair Market Value.
- (i) *Direct United States Treasury Obligations.* The Fair Market Value of a United States Treasury obligation that is purchased directly from the United States Treasury is its purchase price.
 - (ii) *Certificate of Deposit.* The purchase price of a certificate of deposit that has a fixed interest rate, a fixed payment schedule, and a substantial penalty for early withdrawal may be treated as its Fair

Market Value on the purchase date if the yield on the certificate of deposit is not less than the yield on reasonably comparable direct Obligations of the United States and the highest yield that is published or posted by the provider to be currently available from the provider on reasonably comparable certificates of deposit offered to the public.

- (iii) *Guaranteed Investment Contracts.* The purchase price of a Guaranteed Investment Contract is treated as its Fair Market Value on the purchase date if: (A) the Authority makes a Bona Fide Solicitation for a specified Guaranteed Investment Contract; (B) the Authority receives at least three bids from providers for the specified Guaranteed Investment Contract that the Authority solicited under a Bona Fide Solicitation that have no Material Financial Interest in the issue, at least one of whom is a reasonably competitive provider, *i.e.*, a provider that has an established industry reputation as a provider of Guaranteed Investment Contracts; (C) the Authority purchases the highest-yielding Guaranteed Investment Contract for which a qualifying bid is made (determined net of broker's fees); (D) the obligor on the Guaranteed Investment Contract provides a written certification specifying all amounts that it is paying (or expects to pay) to third parties in connection with supplying the Guaranteed Investment Contract; and (E) the Authority retains the Bid Records with the bond documents until three years after the last outstanding Obligation is redeemed.
- (iv) *Yield Restricted Defeasance Escrow Investment.* The purchase price of a Yield Restricted Defeasance Escrow Investment is treated as its Fair Market Value on the purchase date if: (A) the Authority makes a Bona Fide Solicitation for the purchase of the investment; (B) the Authority receives at least three bids from providers that the Authority solicited under a Bona Fide Solicitation that have no Material Financial Interest in the issue, at least one of whom is a reasonably competitive provider, *i.e.*, a provider that has an established industry reputation as a provider of the type of investment being purchased; (C) the winning bid is the Lowest Cost Bona Fide Bid (including any broker's fees); (D) the provider of the investments certifies the administrative costs that it is paying (or expects to pay) to third parties in connection with supplying the investments; and (E) the Authority retains the Bid Records with the bond documents until three years after the last Obligation is redeemed.
- (v) *Material Financial Interest.* For purposes of paragraphs (iv) and (v) the following persons or entities are deemed to have a Material Financial Interest in the issue: (A) the lead underwriter in a

negotiated underwriting transaction until 15 days after the issue date; (B) any entity acting as a financial advisor with respect to the purchase of the investment at the time the bid specifications are forwarded to potential providers; and (C) a Related Party to a provider that has a Material Financial Interest in the issue.

- (vi) *Bidding*. If the Authority invests any Gross Proceeds of the Obligations in a Guaranteed Investment Contract or purchases with Gross Proceeds Yield Restricted Defeasance Escrow Investments, it will conduct, or will have conducted on its behalf, a Bona Fide Solicitation. The Authority will require the agent to certify as to the bidding process as set forth in the form of Certificate of Bidding Agent to be furnished by Bond Counsel, in the case of a Guaranteed Investment Contract or in the case of Yield Restricted Defeasance Escrow Investments. If the bidding process is not conducted through an agent, the Authority itself will provide a similar certificate. The Authority will file such certification together with the Bid Records, with the documents relating to the Obligations. If the Authority wishes to invest Gross Proceeds of the Obligations in Certificates of Deposit it will obtain from the provider a certification that the Certificate of Deposit has a fixed rate, a fixed payment schedule and a substantial penalty for early withdrawal, and the yield on the certificate of deposit is not less than (A) the yield on reasonably comparable direct Obligations of the United States and (B) the highest yield published by the provider and currently available from the provider on reasonably comparable certificates of deposit offered to the public.
- e) *Administrative Costs*. Except for Qualified Administrative Costs, costs or expenses paid, directly or indirectly, to purchase, carry, sell, or retire investments will not increase Payments made for investments and will not reduce Receipts from Investments. Qualified Administrative Costs will increase the Payments for, or decrease the Receipts from, investments.
- f) *Record Keeping*. The Authority will keep, or cause to be kept, accurate records of the status of compliance of the Obligations with respect to compliance with the expenditure requirements at the end of each 6-month period described in Section 4(a)(ii)(C) hereof. The Authority will keep, or cause to be kept, accurate records of each investment it makes in Investment Property acquired, directly or indirectly, with Gross Proceeds of the Obligations (other than revenues in a Bona Fide Debt Service Fund) and each expenditure it makes with Gross Proceeds of the Obligations. Such records will include all of the information necessary to compute the yield on each investment in Investment Property to the Authority, e.g., purchase price, nominal interest rate, dated date, maturity date, type of property, frequency of periodic payments, period of compounding, yield to maturity, amount actually or constructively received on disposition,

disposition date and evidence of the Fair Market Value of such property on the purchase date and disposition date (or deemed purchase or disposition date) for each item of such Investment Property.

b) Rebate Requirement.

(1) *Calculation of the Rebate Amount.* In general, the Rebate Amount, as of any date is the excess of the “future value”, as of that date, of all Receipts on Nonpurpose Investments allocated to the Obligations over the “future value”, as of that date, of all Payments on Nonpurpose Investments allocated to the Obligations. The “future value” of a Payment or Receipt at the end of any period is determined using the economic accrual method and equals the value of that Payment or Receipt when it is paid or received (or treated as paid or received), plus interest assumed to be earned and compounded over the period at a rate equal to the yield on the Obligations, using the same compounding interval and financial conventions used to compute the yield on the Obligations. Amounts earned on certain Gross Proceeds of the Obligations either may not, or are not required to be, taken into account in determining the Rebate Amount. The earnings on Gross Proceeds excepted from the calculation of the Rebate Amount include the following:

(i) *Bona Fide Debt Service Fund.* Amounts earned on a Bona Fide Debt Service Fund for the Obligations and amounts earned on such amounts may not be taken into account if the gross earnings on the Bona Fide Debt Service Fund for the Bond Year is less than \$100,000.

(ii) *Spending Exceptions.* Earnings with respect to certain Gross Proceeds described in 4(a)(ii) of this Section are not required to be taken into account in determining the Rebate Amount if requirements of 4(a)(ii)(B), 4(a)(ii)(C) or 4(a)(ii)(D) of this Section are met with respect to such Gross Proceeds.

A. *Special Rules.* For purposes of 4(a)(ii) of this Section the following special rules will apply.

- I. If any portion of the Obligations is treated as a separate Refunding Issue under Treasury Regulations §1.148-9(h), that portion is treated as a separate issue.
- II. The only spending exception applicable to a Refunding Issue is the *6-month Exception*.
- III. Solely for purposes of determining whether or not the expenditure requirement has been met under the *6-month Exception* for a Refunding Issue, proceeds of the refunded issue that become Transferred Proceeds of the Refunding Issue are, in general, not treated as “gross proceeds” of the Refunding

Issue and need not be spent for the Refunding Issue to satisfy that spending exception. However, Transferred Proceeds of the Refunding Issue that were from excluded “gross proceeds” of the refunded issue under the special definition of “gross proceeds” described in 4(a)(ii)(A)(IX) of this Section, and Transferred Proceeds from any prior taxable issue, are treated as “gross proceeds” of the Refunding Issue under the *6-month Exception* unless those Transferred Proceeds are used in a manner that causes those amounts to be excluded from gross proceeds under the special definition described in 4(a)(ii)(A)(IX) of this Section. Transferred Proceeds excluded from Gross Proceeds for purposes of determining whether or not the expenditure requirement has been met are subject to rebate as proceeds of the Refunding Issue unless an exception to rebate applied to those proceeds as proceeds of the refunded issue.

- IV. Proceeds of the refunded issue, which for other purposes become Transferred Proceeds of the Obligations, continue to be treated as unspent proceeds of the refunded issue for purposes of applying the spending exceptions to an issue refunded by the Obligations.
- V. If the refunded issue satisfies one of the spending exceptions, the proceeds of the refunded issue that are excepted from rebate under that spending exception are not subject to rebate either as proceeds of the refunded issue or as Transferred Proceeds of the Obligations.
- VI. Expenditures for the governmental purpose of an issue include payments for interest, but not principal, on the issue, and for principal or interest on another issue of obligations. The preceding sentence does not apply for purposes of the *18-month Exception* and *2-year Construction Exception* if those payments cause the issue to be a Refunding Issue.
- VII. Any failure to satisfy the final spending requirement of the *18-month Exception* or the *2-year Construction Exception* described in 4(a)(ii)(D) of this Section is disregarded if the Authority exercises due diligence to complete the Project and the amount of the failure does not exceed the lesser of (1) 3 percent of the Issue Price of the Nonconstruction Issue in the case of the *18-month Exception* or the Construction Issue in the case of the *2-year Construction Exception* or (2) \$250,000.
- VIII. For purposes of this Section only, a Reasonably Required Reserve or Replacement Fund also includes any fund to the

extent described in Treasury Regulations §1.148-5(c)(3)(i)(E) or (G).

IX. Solely for purposes of determining whether the expenditure requirements with respect to the *6-month Exception* (as described in Section 4(a)(ii)(B)(I)) and the *18-month Exception* (as described in Section 4(a)(ii)(C)(I)) have been met, “gross proceeds” does not include (1) amounts in a Bona Fide Debt Service Fund; (2) amounts in a Reasonably Required Reserve or Replacement Fund (as defined for purposes of this Section); (3) amounts that, as of the date the Bonds are issued, are not reasonably expected to be Gross Proceeds but that become Gross Proceeds after the end of the 6-month spending period (or the 1-year spending period in the case of the Minor Portion) and the third spending period in the case of the *18-month Exception*; and (4) amounts representing repayments of Grants financed by the Bonds (if any).

B. *6-month Exception*. Earnings with respect to Gross Proceeds of a Nonconstruction Issue or the Refunding Issue (treated as separate issues) during the 6-month period beginning on the date of issue of the Obligations (the “6-month spending period”) and earnings with respect to an amount of Gross Proceeds of the Obligations not in excess of the Minor Portion during the 1-year period beginning on the date of issue of the Obligations (the “1-year spending period”) need not be taken into account if:

I. The “gross proceeds” (as defined in this Section) of the respective issue are allocated to expenditures for the governmental purposes of the issue within the 6-month spending period, other than Gross Proceeds not in excess of the Minor Portion and such Minor Portion is allocated to expenditures for the governmental purposes of the issue within the 1-year spending period; and

II. The rebate requirement is met for amounts not required to be spent within the 6-month spending period (excluding earnings on a Bona Fide Debt Service Fund) or the 1-year spending period for the Minor Portion.

C. *18-month Exception*. Earnings with respect to Gross Proceeds of the New Money Portion of the Obligations need not be taken into account if:

I. The “gross proceeds” (as defined in this Section) are allocated to expenditures for a governmental purpose of

the New Money Portion of the Obligations in accordance with the following schedule: (1) at least fifteen percent (15%) within 6 months; (2) at least sixty percent (60%) within 12 months; and (3) one hundred percent (100%) within 18 months (the “third spending period”). The New Money Portion of the Obligations will not be regarded as failing to satisfy the spending requirement for the third spending period as a result of a Reasonable Retainage if the Reasonable Retainage is allocated to expenditures within 30 months of the issue date.

- II. The rebate requirement is met for all amounts not required to be spent in accordance with the 18-month expenditure schedule (other than earnings on a Bona Fide Debt Service Fund).
 - III. All of the “gross proceeds” (as defined in this Section) of the New Money Portion of the Obligations qualify for the initial temporary period under Treasury Regulations §1.148-2(e)(2).
 - IV. No portion of the New Money Portion of the Obligations is treated as meeting the exception from the rebate requirement for certain proceeds used to finance construction expenditures as provided in section 148(f)(4)(C) of Code and Treasury Regulations 1.148-7(e), as described in (D) of this Section.
- D. *2-year Construction Exception.* Amounts earned on Gross Proceeds which are Available Construction Proceeds of a Construction Issue are not required to be taken into account if Available Construction Proceeds of the Construction Issue are allocated to expenditures for the governmental purposes of the Construction Issue in accordance with the following schedule: (I) 10 percent or more within six months after the date of issue of the New Money Portion of the Obligations; (II) 45 percent or more within 1 year after the date of issue of the New Money Portion of the Obligations; (III) 75 percent or more within 18 months after the date of issue of the New Money Portion of the Obligations; and (IV) 100 percent within 2 years after the date of issue of the New Money Portion of the Obligations (the “fourth spending period”). The Construction Issue will not be regarded as failing to satisfy the spending requirement for the fourth spending period as a result of unspent amounts for Reasonable Retainage if those amounts are allocated to expenditures within 3 years of the issue date.

- a) *Computation Dates.* The Computation Date for the calculation of the Rebate Amount required by this Section 4 for Obligations with a term of less than five years will be the latest of: (i) the date that the Obligations are discharged; (ii) 8 months after the date the Obligations were issued; or (iii) the date the Authority no longer reasonably expects that any of the spending exceptions under Treasury Regulations §1.148-7 (as described in 4(a)(ii) of this Section) will apply to the Obligations. The Computation dates for the calculation of the Rebate Amount required by this Section 4 for Obligations with a term of five years or more will be: (i) a date selected by the Authority which is no later than 5 years after the issue date of the Obligations, (ii) each fifth year thereafter, and (iii) the date that the last of the Obligations are discharged (*i.e.*, the date of the retirement of the last maturity of the Obligations).
- b) *Rebate Payments.* The Authority will pay the Rebate Amount to the United States no later than 60 days after the Computation Date. Payment of a Rebate Amount will be filed with the Internal Revenue Service Center, Ogden, Utah 84201. Payment of a Rebate Amount will be accompanied by Form 8038-T.

END

ACTIVE ~~40387036v1~~ [49384330v2](#)


Document comparison by Workshare 9.5 on Monday, March 9, 2020 4:38:15 PM

Input:	
Document 1 ID	interwovenSite://DMS-AMERICAS/ACTIVE/49397936/1
Description	#49397936v1<ACTIVE> - MWRA Debt Policy -Board Approved March 21 2018
Document 2 ID	interwovenSite://DMS-AMERICAS/ACTIVE/49384330/2
Description	#49384330v2<ACTIVE> - Debt Policy -March 2020 Update DRAFTx (003)
Rendering set	GT-1

Legend:	
Insertion	
Deletion	
Moved from	
Moved to	
Style change	
Format change	
Moved deletion	
Inserted cell	
Deleted cell	
Moved cell	
Split/Merged cell	
Padding cell	



Statistics:	
	Count
Insertions	62
Deletions	29
Moved from	0
Moved to	0
Style change	0
Format changed	0
Total changes	91


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Approval of the Eighty-Second Supplemental Bond Resolution

COMMITTEE: Administration, Finance & Audit

VOTE
 INFORMATION

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


Thomas J. Durkin
Director, Finance

RECOMMENDATION:

To adopt the Eighty-Second Supplemental Resolution authorizing the issuance of up to \$75,000,000 of Massachusetts Water Resources Authority Subordinated General Revenue Bonds and the supporting issuance resolution.

DISCUSSION:

The Massachusetts Clean Water Trust ("Trust") provides subsidized financing for water and wastewater capital projects to Massachusetts governmental entities. MWRA annually submits new projects to the Massachusetts Department of Environmental Protection to be considered for inclusion on the Clean and Drinking Water Intended Use Plans. New and previously approved carry-over projects that are included on an Intended Use Plan are eligible to receive financing through the Trust. Historically, MWRA has drawn down its funding at the same time the Trust was closing its long-term bond transaction. This arrangement assisted the Trust in accessing its federal funding and prevented stress on the Trust's available funds given MWRA's relatively large draws.

While MWRA typically only seeks funding on an annual basis, many of the Trust's other borrowers periodically seek interim financing between the yearly long-term borrowing. The Trust uses its available cash to fund these interim loans. However, given the constraints on available cash and the size of the funding request, both the MWRA and the Trust had continued to utilize only the long-term borrowings for reimbursement. During the 2019 borrowing cycle, the Trust determined there was sufficient capacity for MWRA to utilize the interim financing. The Trust has confirmed that it will be able to provide MWRA with interim financing in 2020. Under this structure, MWRA will enter into interest free interim loans with Trust.

Currently MWRA has approximately \$37.3 million in expenses which are eligible for reimbursement that can be drawn down right now. Based on a discussion with staff at the Trust, MWRA should be able to utilize an interim loan to draw these funds. Once a sufficient amount of funds has been drawn by MWRA and other communities, the Trust will issue long-term debt to permanently finance the loans. At that time, MWRA will enter into the standard long-term loans

with the Trust as part of its Pool 23 borrowing. The total amount MWRA will borrow under the Trust's Pool 23 borrowing will not change, just the timing of when the funds are received.

In Fiscal Year 2020, MWRA anticipates receiving up to \$75 million in new, low-interest loans from the Trust to fund several water and wastewater projects. The loans will have a 20-year maturity at a fixed interest rate of 2.15%, including the Trust administrative fee of 0.15%. The Trust also charges a loan origination fee of \$5.50 per \$1,000 to cover its costs of issuance.


In order to move ahead with the Pool 23 interim and permanent borrowing, the Trust requires that all borrowers sign loan commitment documents which indicate that they have the authorization to borrow these funds. Once the documents are completed, MWRA will begin drawing funds. While this new structure will allow MWRA to access the interest free funds sooner, it may make budgeting for the debt service costs associated with the permanent financing less certain. MWRA is required by its General Bond Resolution to make monthly principal and interest deposits to the debt service accounts for these bonds. Since MWRA is required to budget the funds for anticipated principal and interest payments, shifts in timing of the permanent financing will change when deposits are required and may reduce budgeted debt service expenses.

MWRA expects to receive reimbursements for projects including: Chelsea Creek Headworks, Wachusett Aqueduct Pump Station, Alewife Brook Pump Station and Southern Extra High Service area work.

BUDGET/FISCAL IMPACT:

There are sufficient funds available in the FY20 CEB to pay the debt service costs associated with these borrowings.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Approval of the Eighty-Third Supplemental Resolution

COMMITTEE: Administration, Finance & Audit

X VOTE
INFORMATION

Matthew R. Horan, Deputy Director, Finance/Treasurer ^{MA}
Sean R. Cordy, Sr. Financial Analyst ^{SAC}
Preparer/Title


Thomas J. Durkin
Director of Finance

RECOMMENDATION:

To adopt the Eighty-third Supplemental Resolution authorizing the issuance of up to \$390,000,000 of Massachusetts Water Resources Authority Taxable and Tax-Exempt General Revenue Bonds and General Revenue Refunding Bonds and the supporting Issuance Resolution.

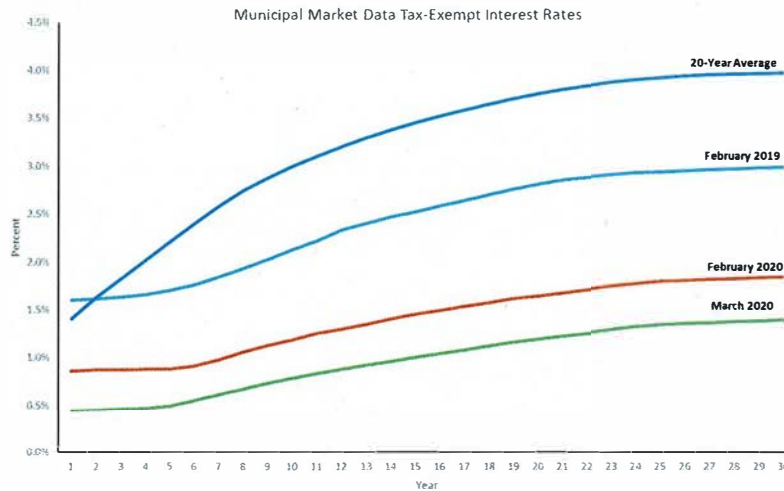
DISCUSSION:

The bonds to be issued under this authorization will include approximately \$230 million in taxable bonds and \$160 million in tax-exempt debt. The \$230 million in taxable bonds will be issued to advance refund outstanding bonds for interest rate savings. The \$160 million in tax-exempt bonds will be used to fund ongoing construction and permanently finance a portion of the outstanding commercial paper. The following table provides a breakdown of the components of the proposed transaction.

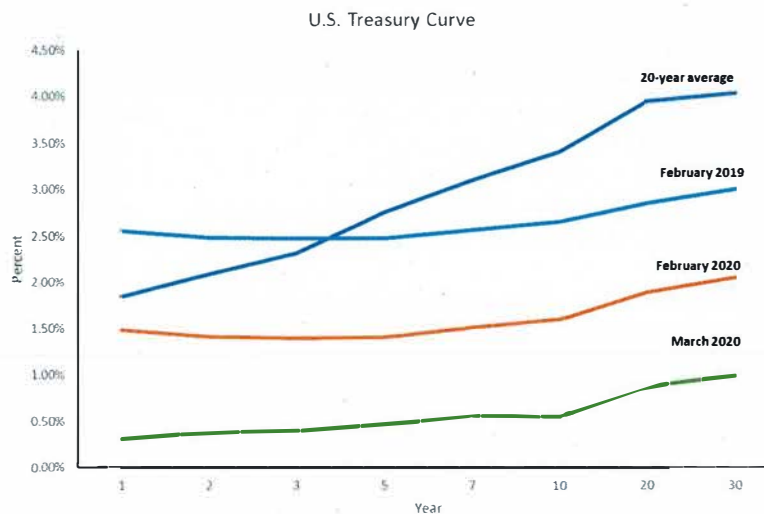
Bond Type	Proposed Issuance Amount
Taxable Refunding	\$ 230,000,000
Tax-Exempt New Money	\$ 160,000,000
Total Authorization	\$ 390,000,000

Over the last several weeks, global market conditions have resulted in continued downward pressure on long-term interest rates in the tax-exempt and taxable markets. The compression in the taxable and tax-exempt markets have resulted in historically low yields including the lowest U.S. Treasury Security rates across the yield curve ever recorded. In addition to lower rates, the overall compression has resulted in tightening of the spread between tax-exempt and taxable interest rates. In general, taxable interest rates are higher than tax-exempt rates because the bondholder wants compensation for paying taxes on the interest earnings. While the ratio would be different for each taxpayer, the market overall recognizes that tax-exempt rates should be approximately 67% of the taxable rate. Over the last several weeks this ratio has inverted to a

point where taxable Treasury Securities were trading at lower yields than tax-exempt debt. In addition to the lower long-term rates, the relative flat nature of the curve helps reduce the negative carry associated with the investments that comprise the refunding escrow making the transaction more efficient. The following graph details the current tax-exempt interest rates as compared to February 2019, February 2020 and the 20-year average.



Similar to the tax-exempt graph, the taxable interest rates shown in the following graph details the relationship of current rates, to February 2019, February 2020 and the 20 year average.



Prior to the passage of the Tax Reform and Jobs Act of 2017, MWRA would have utilized tax-exempt bonds to complete an advance refunding for interest rate savings. Unfortunately, the 2017 Act eliminated the ability to use tax-exempt debt to advance refund outstanding tax-exempt bonds. As a result, the use of tax-exempt debt for refundings is limited to current refundings, which limits the new debt issuance to within 90-days of the call date of the outstanding bonds. The advance refunding restriction does not apply to taxable bonds.

Due to the market conditions discussed above, MWRA has the opportunity to execute a taxable advance refunding for interest rate savings. Staff utilized MWRA's debt policy's parameters when reviewing candidates for a refunding for interest rate savings. The criteria are as follows:

- overall savings has a present value of 4.0% or greater;
- individual maturities have a 3% present value savings or an option value above 70%; and
- the efficiency of the escrow is greater than 50%.

In addition to these criteria, bonds may be refunded or restructured to meet particular organizational and/or strategic needs when it is advantageous to do so. All refunding transactions require the approval of the Board of Directors. Based on current taxable interest rates, the following bonds meet MWRA's refunding criteria.

Series	Principal to be Refunded	Call Date
2013 Series A	\$ 46,515,000	August 1, 2023
2014 Series D	\$ 53,885,000	August 1, 2024
2014 Series F	\$ 93,655,000	August 1, 2024
Total	\$ 194,055,000	

The difference between the \$194.1 million in principal to potentially be refunded and the \$230 million in authorization is related to the interest cost for the period between retirement of the old bonds and the issuance date. Current market conditions result in \$26.8 million in budgetary savings with \$20.2 million or 10.5% in present value savings for the bonds listed above. The table to the right details the taxable refunding savings by fiscal year.

The refunding bonds will represent only the second time that MWRA has issued taxable bonds in the public market. The taxable market is very different from the traditional tax-exempt market with different buyers and more daily volatility in interest rates. This transaction will offer MWRA the ability to attract new bondholders but it also has a greater risk that market conditions will eliminate the economic viability of the transaction. Long-term taxable fixed interest rates would have to increase by 48 basis points for the entire taxable refunding transaction to fall below the 4% threshold

Similar to the last six refunding transactions, staff intend to issue both the taxable and tax-exempt refunding bonds as "Green Bonds." Green Bonds are marketed to environmentally responsible investment funds. While there is no required certification for Green Bonds, MWRA will be required to document that the funds were used to pay for projects that provided an environmental benefit. Given MWRA's mission

Fiscal Year	Refunding Savings Based on Current Market		
	Prior Debt Service	Refunding Debt Service	Gross Savings
2020	\$ 4,448,100	\$ 1,191,785	\$ 3,256,316
2021	\$ 8,896,200	\$ 8,237,138	\$ 659,062
2022	\$ 8,896,200	\$ 8,237,091	\$ 659,109
2023	\$ 8,896,200	\$ 8,239,938	\$ 656,262
2024	\$ 10,941,200	\$ 10,129,171	\$ 812,030
2025	\$ 16,803,950	\$ 15,561,281	\$ 1,242,670
2026	\$ 17,541,300	\$ 16,244,216	\$ 1,297,085
2027	\$ 17,552,600	\$ 16,254,502	\$ 1,298,099
2028	\$ 19,632,100	\$ 18,180,060	\$ 1,452,041
2029	\$ 15,008,600	\$ 13,896,043	\$ 1,112,557
2030	\$ 15,033,450	\$ 13,921,886	\$ 1,111,564
2031	\$ 15,087,100	\$ 13,968,945	\$ 1,118,155
2032	\$ 15,109,600	\$ 13,991,199	\$ 1,118,402
2033	\$ 15,472,200	\$ 14,328,380	\$ 1,143,821
2034	\$ 15,495,900	\$ 14,348,009	\$ 1,147,891
2035	\$ 14,699,850	\$ 13,611,328	\$ 1,088,522
2036	\$ 15,141,000	\$ 14,019,690	\$ 1,121,310
2037	\$ 14,728,500	\$ 13,639,243	\$ 1,089,258
2038	\$ 14,755,150	\$ 13,660,650	\$ 1,094,500
2039	\$ 14,769,550	\$ 13,678,313	\$ 1,091,238
2040	\$ 14,801,200	\$ 13,707,098	\$ 1,094,103
2041	\$ 14,823,400	\$ 13,726,475	\$ 1,096,925
2042	\$ 4,810,500	\$ 4,453,425	\$ 357,075
2043	\$ 4,812,750	\$ 4,455,538	\$ 357,213
2044	\$ 4,819,500	\$ 4,464,488	\$ 355,013
Total	\$ 322,976,100	\$ 296,145,886	\$ 26,830,215

its projects are green by their nature. Currently MWRA is the seventh largest municipal Green Bond issuer in the country and the largest in Massachusetts.

Staff proposed issuing these bonds through a competitive transaction. Staff will continue to work with MWRA's financial advisor to determine the most appropriate size and structure for the transaction.

BUDGET/FISCAL IMPACT:

There are sufficient funds available in the FY20 CEBs to pay the debt service costs associated with these borrowings. The potential refunding for savings component will reduce future debt service. The amount of the potential reduction will be determined based on market conditions and the ultimate pricing of the refunding transaction.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 18, 2020
SUBJECT: Disclosure Counsel Services
McCarter & English, LLP
Contract F255



COMMITTEE: Administration, Finance & Audit

VOTE
 INFORMATION


Michele S. Gillen
Director, Administration


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


Thomas J. Durkin
Director, Finance

RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract F255 to McCarter & English, LLP for Disclosure Counsel Services and to authorize the Executive Director, on behalf of the Authority, to execute contract F255 in an amount not to exceed \$637,100 and for a term from the date indicated in the Notice to Proceed to June 30, 2024.

DISCUSSION:

MWRA requires the services of Disclosure Counsel for all of its bond issuances to ensure compliance with applicable rules and regulations from the Securities and Exchange Commission, as well as other state and federal requirements. In addition to the transactional work, they also assist with ongoing disclosure including material event notices and MWRA's annual continuing disclosure filings. When MWRA issues its own debt, Disclosure Counsel drafts a Preliminary Official Statement (POS). The POS contains a detailed overview of the MWRA, including its operational and financial status, any pending regulatory or legal issues as well as information on the General Bond Resolution and other security for the bondholders. Once the sale has been completed, Disclosure Counsel drafts the final Official Statement, which includes all the relevant information on the bonds as a result of the sale, including principal amortization, interest rates, call dates and other similar information.

In addition to the offering documents for MWRA's bond issuances, Disclosure Counsel develops the Information Statement required when the Massachusetts Clean Water Trust issues new debt and reviews the information related to MWRA in other entities' POS, including the Boston Water and Sewer Commission and Boston Redevelopment Authority. An information statement is similar to an Official Statement, but has several sections which are modified to reflect the nature

of the borrowing. Disclosure Counsel reviews the closing documents for all bond transactions to ensure compliance with disclosure requirements and issues a legal opinion indicating that the MWRA's disclosure is in compliance with applicable rules and regulations. MWRA's disclosure counsel may also provide assistance with the ongoing management of MWRA's debt portfolio on an as needed basis. Greenberg Traurig had served as Disclosure Counsel prior to being appointed Bond Counsel at the January 2020 Board Meeting. MWRA does not allow the same firm to serve as both Bond and Disclosure Counsel.

PROCUREMENT PROCESS:

The procurement process to select Disclosure Counsel utilized a one step Request for Qualification Statements and Proposals (RFQ/P), which was issued on January 27, 2020. In addition to MWRA's standard procurement advertising requirements, copies of the advertisement were sent directly to six firms. As in the past, firms serving as either MWRA's Bond Counsel or as Trustee's counsel were prohibited from proposing.

Four firms, Locke Lord, LLP (Locke), McCarter & English, LLP (McCarter), McGuire Woods (McGuire) and Mintz, Levin, Cohn, Ferris, Glovsky, and Popeo, P.C. (Mintz), submitted proposals on February 19, 2020.

As part of the procurement process, proposers are required to provide MWRA with Disclosure Statements assuring that the firm's engagement would not result in a form of Conflict of Interest or other activity prohibited by Rules 1.7-1.10, inclusive, under Rule 3:07 of the Massachusetts Supreme Judicial Court Rules (SJC Rules). Those statements are reviewed by a separate Disclosure Panel, comprised of staff from Procurement and the Law Division, which report any areas of non-compliance or concern to the Selection Committee. After review of the Disclosure Statements and clarifications received from Locke, McCarter, McGuire and Mintz the panel determined that those firms did not have conflicts of interest or other prohibited activities under the SJC Rules.

The Selection Committee evaluated and ranked the proposals from Locke, McCarter, McGuire and Mintz based on the criteria contained in the RFQ/P: Cost (30 pts), Qualifications and Key Personnel (30 pts), Experience and Past Performance (25 pts), Capacity/Organization, and Management and Technical Approach (15 pts). The proposals for Bond Counsel Services were ranked as follows:

Rank	Firm	Cost	Total Points	Total Ranking Points
1	McCarter & English	\$ 637,100	414	8
2	Locke Lord	\$ 1,236,894	405	10
3	Mintz	\$ 662,085	407	12
4	McGuire Woods	\$ 1,346,430	294.5	20

Total Ranking Points represents the sum of the individual Selection Committee members' ranking where the firm receiving the highest number of points is assigned a "1"; the firm receiving the next highest number of points a "2" and so on.

All four proposals reviewed by the Selection Committee demonstrated significant relevant experience and are well respected in the municipal bond market. McCarter's proposal offered the lowest overall cost to MWRA, with the lowest single hourly rates. McCarter had previously served as MWRA's Bond Counsel and did an excellent job. Locke, McGuire and Mintz proposed very qualified staff to provide Disclosure Counsel Services, but at a higher overall cost than those proposed by McCarter. Staff believe that McCarter is qualified and possesses the necessary experience to provide these services and, therefore, recommends award of the contract to McCarter.

BUDGET/FISCAL IMPACT:

Most costs associated with Disclosure Counsel Services are included as part of the cost of issuance and are funded from the proceeds of bond transactions. A small portion of the work is funded through the CEB. The FY20 CEB has sufficient funds to pay for the work included in this contract.

MBE/WBE PARTICIPATION:

No minimum MBE/WBE participation requirements were established due to the lack of subcontracting opportunities.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 18, 2020
SUBJECT: Deer Island Demand Response Services
Direct Energy Business Marketing, LLC
Contract S594



COMMITTEE: Administration, Finance & Audit

 INFORMATION

 X VOTE



Michele S. Gillen

Director of Administration

David F. Duest, Director, Deer Island Treatment Plant
Carolyn Fiore, Deputy Chief Operating Officer
Robert Huang, Program Manager, Energy Management
Preparer/Title



David W. Coppes, P.E.

Chief Operating Officer

RECOMMENDATION:

To approve the award of Contract S594, Deer Island Demand Response Services, to Direct Energy Business Marketing, LLC, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of six percent of the revenue received from ISO New England for a three-year term from June 1, 2024 through May 31, 2027.

DISCUSSION:

MWRA participates in ISO New England's (ISO-NE) Forward Capacity Market through its Demand Response Program at both the Deer Island and John J. Carroll treatment plants. Under this program, MWRA is paid monthly settlement payments to be available to deploy backup generators and take facilities off the electric grid during peak demand periods. In FY19, the participation of Deer Island's combustion turbine generator (CTG) in the ISO-NE Demand Response Program resulted in MWRA receiving \$1.3 million in settlement payments.

MWRA enrolls in these programs through contracts with Lead Market Participants (LMPs).¹ LMPs are authorized by ISO-NE to secure an allotment of capacity in the program through auctions held three years in advance, hence requiring advance coordination and planning. MWRA is not an LMP and thus is required to procure these services.

In March 2019, the Board approved a one-year extension to a sole source purchase order with Direct Energy Business Marketing, LLC (Direct Energy) for LMP services for Deer Island that

¹ The John J. Carroll Water Treatment Plant is enrolled through a Division of Capital Asset Management and Maintenance (DCAMM) contract.

expires on May 31, 2020 and allowed time to secure two competitive replacement contracts. The first Contract S590, awarded at the January 2020 Board of Directors' meeting, bridges from the time period of June 1, 2020 to May 31, 2024 for which forward capacity auctions have already been held. The second, Contract S594, covering June 1, 2024 to May 31, 2027, was bid with enough lead-time to allow Deer Island's load reduction to be entered into the forward capacity auction, in the interest of removing barriers to competition.

Procurement Process

On January 13, 2020, MWRA issued a request for bid (RFB) that was publicly advertised in the Goods and Services, the Boston Herald, Banner Publication and El Mundo, with notice sent directly to 13 potential bidders. Three firms requested the bid documents. On Friday, February 14, 2020, one bid was received as follows:

Share of ISO-NE Settlement Payments to MWRA	
Direct Energy: Proposed Share for June 1, 2024 to May 31, 2027	6%
<i>Contract S590: Share for June 1, 2020 to May 31, 2024</i>	5%
<i>Existing Purchase Order: Share for June 1, 2019 to May 31, 2020</i>	10%

While Direct Energy was the only firm to bid, a second interested firm indicated that it declined to bid primarily due to the substantial financial commitment required to establish 12 Megawatts of capacity in the ISO-NE forward capacity market.

Direct Energy's bid of 6% share of ISO-NE settlement payments is higher than the 5% share of Contract S590. Recent ISO-NE forward capacity auctions have resulted in decreasing market clearing capacity prices, which will result in lower settlement payments during the term of the contract. This trend is expected to continue during the following three years covered by the contract and may explain Direct Energy's decision to raise its share of settlement payment. For comparison, the LMP under the DCAMM contract receives 28% of ISO-NE settlement payments. Therefore, the 6% share was deemed very reasonable by staff.

Direct Energy (and formerly Direct Energy's predecessor Hess Corporation), a demand response provider since 2004, has been providing LMP services for Deer Island the past 14 years. Staff have been satisfied with the level of service provided by Direct Energy.

Staff recommend award of Contract S594 to Direct Energy, as the lowest responsive and responsible bidder, to provide demand response services for the Deer Island Treatment Plant.


BUDGET/FISCAL IMPACT:

The future price in the forward capacity market has not yet been determined. Based on the average market-clearing price from the last three years, the total of ISO-NE settlement payments for the next three-year term of the contract would be \$1,622,074. Direct Energy's 6% share of settlement payments would be \$97,324, resulting in \$1,524,750 payable to MWRA from the ISO-NE program over the three-year period. Actual return will depend on the results of future auctions.

MBE/WBE PARTICIPATION:

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


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Sole Source Purchase Order for One Year of Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System
Infor Inc.

COMMITTEE: Administration, Finance, & Audit

 INFORMATION
 X VOTE


Thomas Durkin
Director, Finance

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


Michele S. Gillen
Director, Administration

RECOMMENDATION:

To approve the award of a sole source purchase order contract for the annual maintenance and support of the integrated financial, procurement and human resources/payroll management system to Infor Inc. and to authorize the Executive Director to execute said purchase order contract in an amount not to exceed \$479,960.16 for a period of one year, from June 1, 2020 through May 31, 2021.

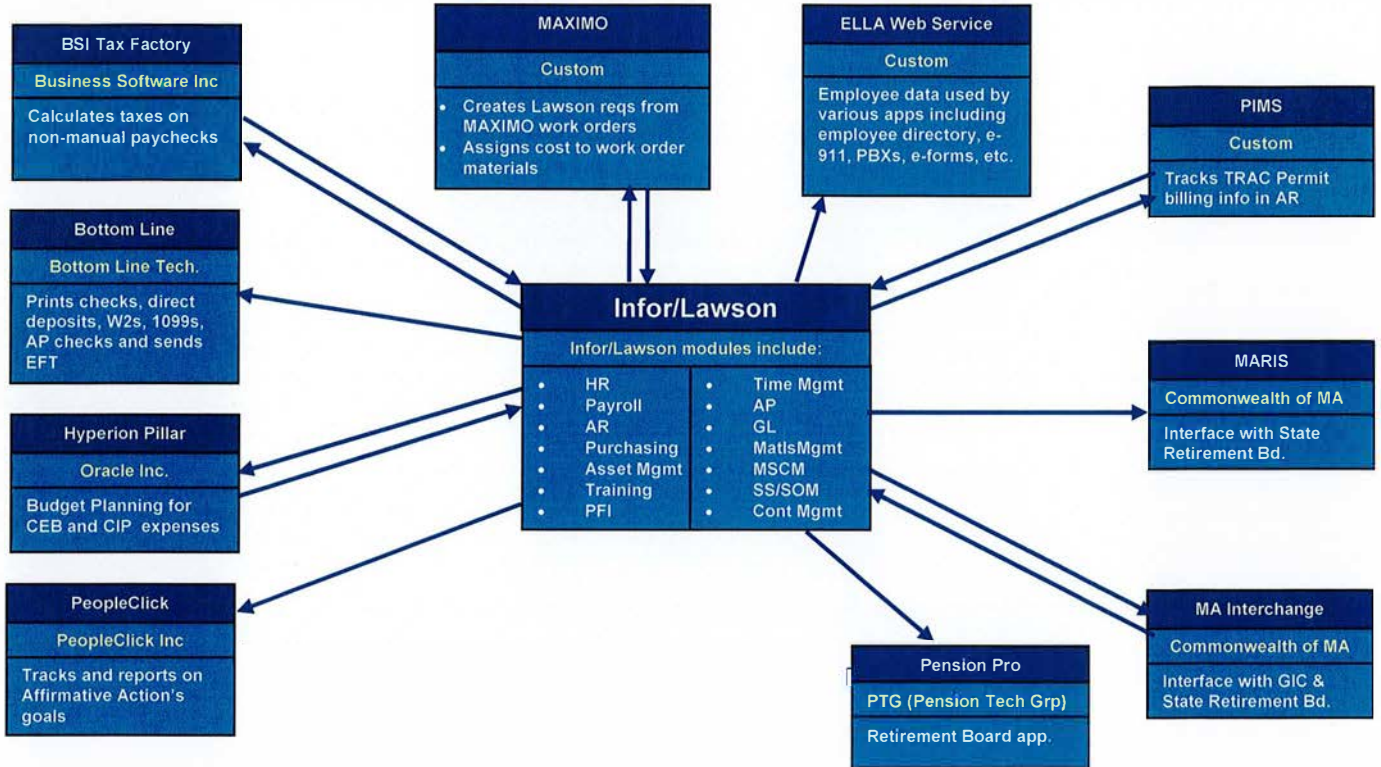
DISCUSSION:

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

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

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

Infor/Lawson Dependent Systems



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

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

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

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

BUDGET/FISCAL IMPACT:

This year's request of \$479,960.16 represents a 6% increase over last year's not-to-exceed amount of \$452,792.57. There are sufficient funds available in the FY20 CEB for this renewal.

MBE/WBE PARTICIPATION:

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



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

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

WASTEWATER POLICY & OVERSIGHT COMMITTEE MEETING

to be held on

Wednesday, March 18, 2020

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

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

Time: ~~Immediately following AF&F Committee~~

AGENDA

A. Information

1. Infiltration/Inflow Local Financial Assistance Program Annual Update

B. Contract Awards

1. MWRA Dorchester Interceptor Sewer Rehabilitation, Sections 240/241/242: Michels Corp., Contract 7279
2. Electrical Testing and Technical Services – Metropolitan Boston: Infra-Red Building and Power Service, Inc., Contract OP-409

C. Contract Amendments/Change Orders

1. Chelsea Creek Headworks Upgrade: BHD/BEC 2015, A Joint Venture, Contract 7161, Change Order 36
2. CSO Post-Construction Monitoring and Performance Assessment: AECOM Technical Services, Inc., Contract 7572, Amendment 2

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Wastewater Policy and Oversight Committee

February 19, 2020

A meeting of the Wastewater Policy and Oversight Committee was held on February 19, 2020 at the Authority headquarters in Charlestown. Committee Vice Chair Walsh presided. Present from the Board were Messrs. Carroll, Cook, Cotter, Foti, Pappastergion, Peña, and Vitale. Mr. Flanagan and Ms. Wolowicz and were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Thomas Durkin, Carolyn Fiore, Michele Gillen, Kathleen Murtagh, Bethany Card, Brian Kubaska, David Duest, Ethan Wenger, David Parker and Kristin MacDougall. The meeting was called to order at 12:18 p.m.

INFORMATION

Update on Long-Term CSO Control Plan

Staff made a verbal presentation. (Messrs. Pappastergion and Foti briefly left and returned to the meeting during the presentation.) There was discussion and questions and answers.

(ref. WW A.1)

CONTRACT AWARDS

* Oxygen Generation Facility Services, Deer Island Treatment Plant: Solutionwerks, Inc., Contract S587

There was brief discussion and questions and answers.

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

* Siphon and Junction Structure Rehabilitation, Design and Engineering Services During Construction: Kleinfelder Northeast, Inc., Contract 6224

* Committee recommendation approved by the Board on February 19, 2020

Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2020/o-2020-02-19.pdf>

There was brief discussion and questions and answers. (Mr. Peña briefly left and returned to the meeting during the discussion.)


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

The meeting adjourned at 12:46 p.m.

* Committee recommendation approved by the Board on February 19, 2020

Documents used for this meeting, referenced above, can be found here:
<http://www.mwra.com/monthly/bod/boardmaterials/2020/o-2020-02-19.pdf>


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Infiltration/Inflow Local Financial Assistance Program Annual Update

COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Stephen Estes-Smargiassi, Director, Planning and Sustainability
Carl H. Leone, P.E., Senior Program Manager, Planning
Jon F. Szarek, P.E., Project Manager, Planning
Preparer/Title


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

RECOMMENDATION:

For information only.

DISCUSSION:

MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program was initiated in May 1993 to provide funding to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned collection systems. The program's goal is to assist member communities in improving sewer system conditions to reduce I/I and ensure ongoing repair/replacement and efficient operation and maintenance of local collection systems. Staff review of long-term wastewater meter data and frequency and duration of sanitary sewer overflows (SSO) indicates MWRA's financial assistance for local I/I reduction and collection system rehabilitation projects, together with combined sewer overflows (CSO) control program projects, are providing gradual flow reduction improvements for the regional wastewater collection system.

The I/I Local Financial Assistance Program is a critical component of MWRA's Regional I/I Reduction Plan.¹ Specifically, local sewer system rehabilitation projects are intended to offset ongoing collection system deterioration to prevent a net increase in regional I/I. In the long-term, ongoing system rehabilitation should result in lower I/I, which will allow for future regional growth leading to increases in sanitary flows (residential, commercial, industrial, and institutional) without a net increase in total wastewater flow to the Deer Island Treatment Plant. Regional I/I reductions ensure that the dry day wastewater flow does not exceed the Deer Island NPDES permit limit of 436 mgd. Over the last 10 years, the dry day wastewater flow to the Deer Island plant has averaged 285 mgd, well below the NPDES permit limit (see Table 1).

¹ As required by the National Pollutant Discharge Elimination System (NPDES) Permit for the Deer Island Treatment Plant, MWRA's Regional Infiltration/Inflow Reduction Plan was approved by MassDEP in November 2002. MWRA is required to report annually on the I/I Reduction Plan and present estimates of I/I for each member sewer community.

Table 1 – Deer Island Treatment Plant Total and Dry Day Wastewater Flow

Calendar Year	Total Wastewater Flow	Dry Day Wastewater Flow
2010	358 mgd	310 mgd
2011	379 mgd	328 mgd
2012	292 mgd	268 mgd
2013	318 mgd	263 mgd
2014	326 mgd	284 mgd
2015	295 mgd	256 mgd
2016	284 mgd	256 mgd
2017	318 mgd	280 mgd
2018	362 mgd	308 mgd
2019	335 mgd	295 mgd
10 Year Average	327 mgd	285 mgd

Update on Distribution of I/I Financial Assistance to Communities

Since 1993, a total of \$760.75 million in grant and loan funds (13 funding Phases) have been authorized by the Board and allocated to member sewer communities based on their respective share of sewer charges. Most recently in June 2018, Phases 11, 12, and 13 were added at \$100 million each. Financial assistance under Phases 11 and 12 continues at 75% grants and 25% 10-year, interest-free loans (same as Phases 9 and 10). Phase 13 was added as a 10-year, interest-free loan-only phase, which communities can utilize if they exhaust their grant/loan allocations.

All 43 sewer customer communities are participating in the financial assistance program. Through December 2019, a total of \$426.0 million has been distributed to member communities to fund 593 local sewer rehabilitation projects. The remaining \$334.75 million is approved for distribution through FY30. All scheduled community loan repayments have been made, a total of \$174 million to date. Of the 593 total projects, 524 have been completed and 69 are ongoing in planning, design, or construction. Attachment 1 provides a summary of funds allocated, distributed, and remaining for each member community. Attachment 2 provides a summary of funding distributions by fiscal quarter since program inception in May 1993.

As recommended by the Advisory Board, sunset provisions for the grant portion of funding for Phases 6 and 7 were added in April 2014. The sunset provisions have proven successful in motivating communities to continue to invest in local sewer rehabilitation projects. In December 2018, the last of the Phase 6 funds were distributed. Only two communities have Phase 7 funds remaining to be distributed. The grant portion of Phase 7 funds will sunset at the end of FY21.

Grant and loan funding is provided to local communities for eligible I/I reduction projects including planning, design, construction, and engineering services during construction. These projects generally take one to three years to complete. Seventy-nine percent of the funds distributed to date have financed local construction projects. Table 2 details funds distributed for planning, design, construction and construction services for both completed and ongoing projects.

Table 2 – I/I Financial Assistance for Planning, Design, and Construction

PROJECT PHASE	COMPLETED PROJECTS (\$ millions)	ONGOING PROJECTS (\$ millions)	TOTAL (\$ millions)
Planning/Study:	\$ 45.5	\$ 6.1	\$ 51.6 (12%)
Design:	14.8	2.7	17.5 (4%)
Construction:	248.4	86.9	335.3 (79%)
Eng. Services During Const.:	17.5	4.1	21.6 (5%)
TOTAL	\$326.2 (77%)	\$ 99.8 (23%)	\$ 426.0 (100%)

Program Results from Local Projects

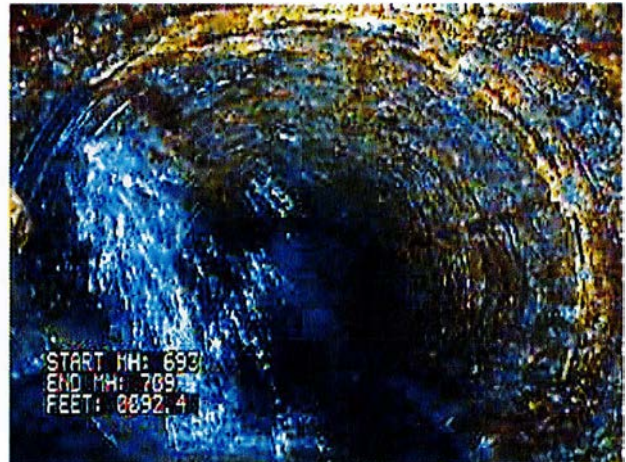
Through December 2019, a total of 593 local I/I reduction and sewer system rehabilitation projects have been funded through the MWRA’s I/I Local Financial Assistance (grant/loan) Program. Cumulative results are summarized below.

Results for planning and sewer inspection projects:

- 2,162 miles of sewer TV inspected
- 1,479 miles of sewer flow isolated
- 1,346 miles of sewer smoke tested
- 60,473 sewer manholes inspected
- 78,194 buildings inspected



Sewer TV Inspection



Infiltration Source Identified by Sewer TV Inspection

Results for projects targeting infiltration reduction:

- 76 miles of sewer replaced
- 254 miles of cured-in-place-pipe (CIPP) liner installed
- 184 miles of sewer tested/chemically sealed
- 2,880 sewer spot repairs
- 14,790 service connection repairs
- 4.8 miles of underdrains sealed

Results for projects targeting inflow reduction:

- 1,064 catch basins disconnected
- 44 miles of new or replaced storm drains
- 20,677 manholes rehabilitated/sealed
- 3,543 manhole covers replaced or inflow seals installed
- 551 sump pumps redirected
- 5,425 downspouts/area drains disconnected



Private Source Inflow from a Sump Pump



Sewer Manhole at Beach - Raised and Sealed

I/I and Stormwater Impacts on the MWRA Collection System

Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes/manholes or deteriorated joints. Typically, many sewer pipes and sewer service laterals are below the surrounding groundwater table. Therefore, leakage into the sewer (infiltration) is a broad problem that is difficult and expensive to identify and reduce.

Inflow is extraneous flow entering the collection system through point sources and may be directly related to storm water run-off from sources such as roof leaders, yard and area drains, basement sump pumps, ponded manhole covers, cross connections from storm drains or catch basins, and leaking tide gates. Inflow causes a rapid increase in wastewater flow during and continuing after storms and extreme high tides. The volume of inflow entering a collection system typically depends on the magnitude and duration of rainfall, as well as related impacts from snowmelt, flooding, and storm surge.

Storm Water in Combined Sewers is, by design, collected in the combined sewer system to be transported to a downstream treatment facility. During rainfall events that cause the combined sewer system to reach capacity, a portion of wastewater flow is diverted to CSO storage facilities and outfalls.



Infiltration into a Sanitary Sewer



Inflow into a Manhole during Flooding

The volume of infiltration, inflow, and stormwater (in combined sewers) that is discharged by member sewer communities into the MWRA collection system is influenced by seasonal and wet-weather conditions as well as tide height and storm surge. Infiltration and inflow is extraneous water that enters all wastewater collection systems through a variety of sources. I/I and stormwater take-up pipeline capacity in the collection system that would otherwise be available to transport sanitary flow. During extreme storm events, particularly during periods of high groundwater, excessive I/I may cause sewer system surcharging and sanitary sewer overflows (SSOs). I/I entering the collection system also results in the transport of groundwater and surface water out of the natural watershed.

Review of Long-Term Flows in the MWRA Collection System

Attachment 3 provides graphs of long-term wastewater flow data (31 years from 1989-2019) for the total collection system to the Deer Island Treatment Plant as well as flow data for the north and south collection systems. The five-year running average wastewater flow is overlaid on each flow graph to smooth the annual variability in the flow data. Annual rainfall from the Logan Airport gauge is also displayed on Attachment 3. The long-term average daily flow for the total system is 353 mgd and the average annual rainfall is 43.6 inches. Over the long-term, the total system wastewater average daily flow has declined approximately 75 mgd, a reduction of 20%. The north collection system wastewater flow has declined by approximately 57 mgd, while the south collection system wastewater flow has declined by approximately 18 mgd.

The long-term flow tributary to the Deer Island Treatment Plant is impacted by a variety of factors, some helping to decrease wastewater flow while others increase wastewater flow:

- CSO separation projects reduce stormwater tributary to the combined sewer system leading to decreased flows over time. However, MWRA's pumping and interceptor relief upgrades, as well as CSO optimization projects, are intended to maximize wastewater flow to the treatment plant and minimize CSOs and SSOs leading to increased flows over time.
- MWRA's financial assistance for local I/I reduction and sewer rehabilitation projects stimulate gradual improvements to the regional collection system reducing I/I and stormwater over time. However, the regional collection system continues to age and deteriorate, leading to increased I/I over time.
- Water use in the region has decreased significantly over the long-term. The reduction in indoor water use has directly resulted in a decrease in wastewater flow. However, decreases in outdoor water use and water system leakage will have no impact on wastewater flow. Within MWRA's sewer service area over the last 20 years, indoor water use has decreased by approximately 20 gallons per capita per day due to water conservation trends. However, over the same 20-year period, sewered area population has increased by approximately 275,000 due to larger population and new sewered areas. The net decrease in wastewater flow from reduced indoor water use is estimated at 20 mgd over the last 20 years.

Review of Frequency and Duration of Sanitary Sewer Overflow Events

Attachment 4 presents SSO event frequency data for MWRA's north and south collection systems over the last 21 years (1999-2019). Attachment 5 presents SSO duration data (number of hours the SSO occurred) for one representative SSO location in MWRA's south collection systems over the last 21 years (1999-2019). This data relates only to rainfall related wet-weather flows and excludes dry-weather SSOs that may have resulted from maintenance issues. SSO data pre-1999 has not

been presented, since 1999 represents the first complete year when full pumping capacity at Deer Island Treatment Plant was reached (following completion of the Nut Island Headworks and Inter-Island Tunnel). For periods of comparable rainfall, the frequency of SSOs pre-1999 was significantly higher.

Attachment 4 also shows that the frequency of SSOs has declined during periods of comparable rainfall over the last 21 years. A single month with very high rainfall, or the cumulative effect of consecutive months with medium to high rainfall, may put MWRA's regional collection system at risk of SSOs. Attachment 4 displays monthly rainfall totals (Logan Airport) with the blocks shaded darker blue to represent larger monthly rainfall totals. The blocks shaded pink list the number of north and south "SSO Risk Assessment Areas" that had an active SSO during the month (north SSOs are listed on top and south SSOs are listed on the bottom). The "SSO Risk Assessment Areas" (12 in the north and 8 in the south) are one or more manholes or structures where SSOs have historically occurred and are hydraulically connected within a small geographic area.

As shown on Attachment 4, there were SSOs in the north or south system during three different months in two years (2003 and 2008); there were SSOs during two different months in five years (2000, 2002, 2006, 2010, and 2015); there were SSOs during one month in eleven years; and only during 2009, 2016, and 2019 were there no wet-weather SSOs in either the north or south systems. The extraordinarily rainy spring of 2010 (over 14 inches of rain in March) and December 2014 (three consecutive months of over 5 inches of rain) were the last two extended wet-weather periods, which produced widespread SSOs in MWRA's system.

Attachment 5 again displays monthly rainfall totals (Logan Airport) with the blocks shaded darker blue to represent larger monthly rainfall totals. In Attachment 5, the blocks shaded pink list the duration of the SSO in hours at the most frequent South System SSO Risk Assessment Area (S-1 at Smelt Brook Siphon headhouse at the Braintree/Weymouth Town Line). The data displayed in Attachment 5 shows the duration of SSO at the Smelt Brook Siphon has declined for periods of comparable rainfall over the last 21 years. The most recent SSO at this site lasted for 26 hours during the March 2-3, 2018 severe storm event, which included multiple extreme high tides from storm surge and significant south coastal flooding. During this event, storm surge raised the high tide elevation a few inches above the Smelt Brook Siphon headhouse structure.

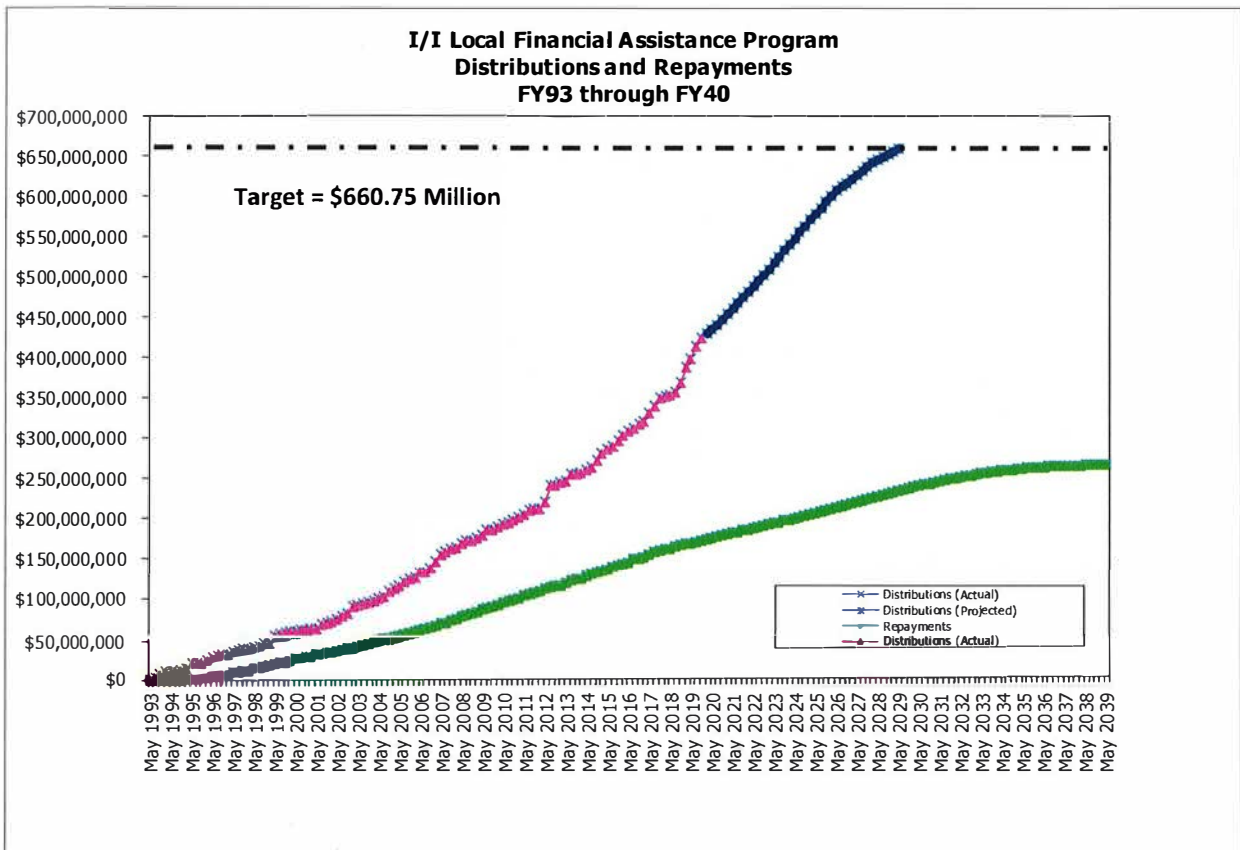
Wastewater Flow Reduction Summary

In summary, MWRA's financial assistance for local I/I reduction and collection system rehabilitation projects, in combination with long-term CSO Control Program project benefits and reductions in indoor water use, are providing gradual wastewater flow reduction in the regional collection system tributary to the Deer Island Treatment Plant.

BUDGET/FISCAL IMPACT:

The FY20 CIP includes an overall budget of \$392.6 million for the grant portion of the I/I Local Financial Assistance Program. An additional \$368.2 million is budgeted for the loan portion of the program. However, the loan portion is offset by an equal amount of loan repayments over time. Depending on the timing and level of community loan requests, loan distributions can fluctuate, sometimes causing overspending or underspending (versus budget) for any particular fiscal year.

For the total program, the budget target is \$760.75 million for grant and loan distributions. Through December 2019, \$426.0 million in grants and loans (\$217.9 million in grants and \$208.1 million in loans) have been distributed. The program has a remaining balance of \$334.75 million in future community grants and loans through FY30. Community loan repayments to date are \$174 million. As community loans are repaid, the funds are deposited into MWRA’s construction fund. Community grants and loans are financed through MWRA 30-year bonds. The graph below presents grant and loan distributions and loan repayments (actual and projected) for Program Phases 1-12 (FY93 through FY40), not including the 100 million loan only Phase 13.



MBE/WBE PARTICIPATION:

MBE/WBE participation goals are included in the Financial Assistance Program agreements.

ATTACHMENTS:

- Attachment 1 - Community Funding Summary
- Attachment 2 - Summary of Funding Distributions by Fiscal Quarter
- Attachment 3 - Long-Term Regional Flow Data
- Attachment 4 - Monthly Rainfall Data 1999-2019 and Number of SSOs at Risk Assessment Areas
- Attachment 5 - Monthly Rainfall Data 1999-2019 and Duration of SSO (Hours)
at Risk Assessment Area S-1 at Smelt Brook Siphon (South System)

ATTACHMENT 1
MWRA /I/ LOCAL FINANCIAL ASSISTANCE PROGRAM
FUNDING SUMMARY THROUGH DECEMBER 2019

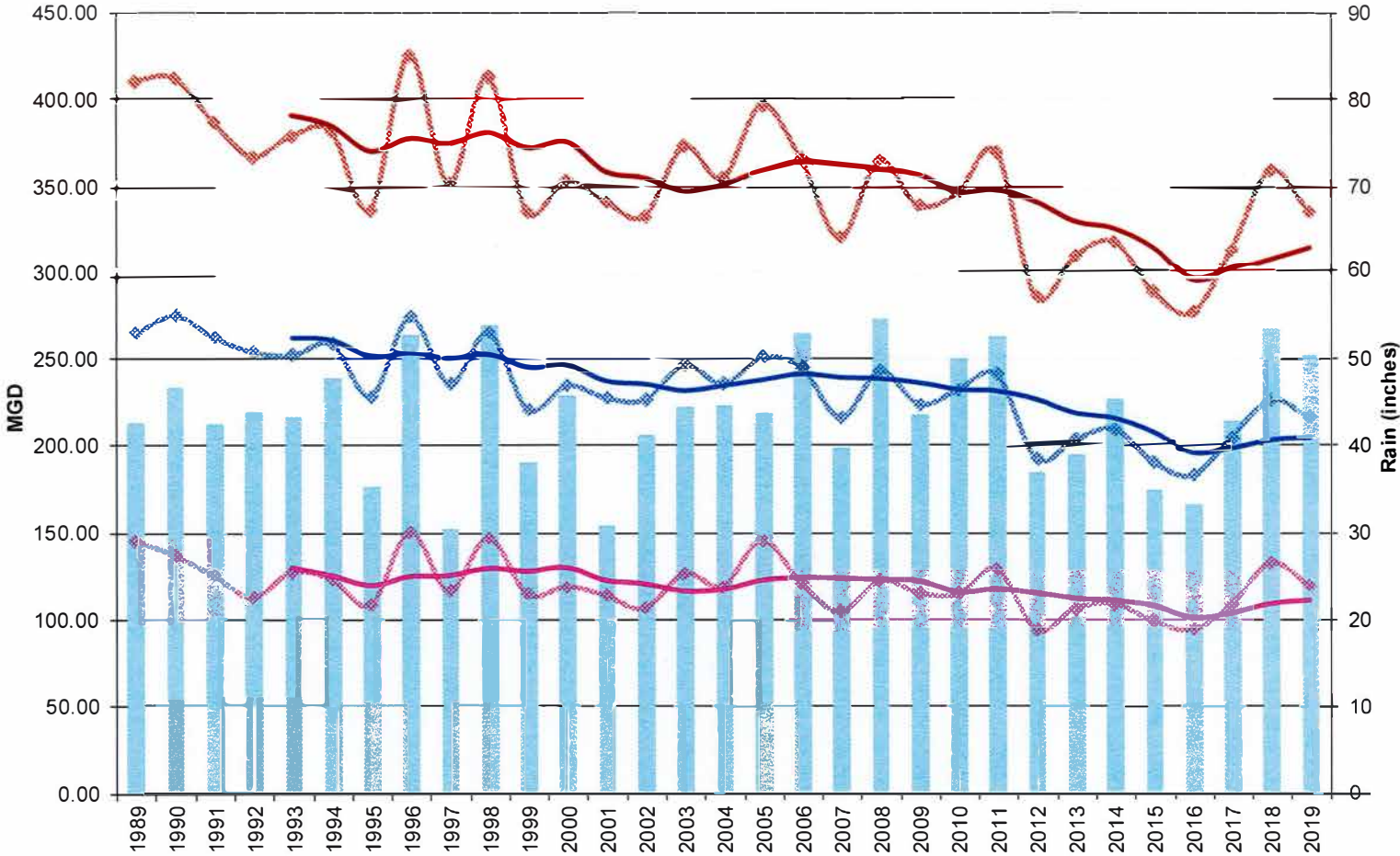
Community	Total Allocations (Phases 1 - 13)	Total Distributions (Phases 1 - 13)	Percent Distributed	Funds Remaining
Arlington	\$13,703,000	\$9,223,000	67%	\$4,480,000
Ashland	\$3,818,500	\$1,742,450	46%	\$2,076,050
Bedford	\$5,654,600	\$2,439,658	43%	\$3,214,942
Belmont	\$8,255,100	\$4,287,100	52%	\$3,968,000
Boston	\$218,001,200	\$97,064,876	45%	\$120,936,324
Braintree	\$14,419,000	\$9,048,840	63%	\$5,370,160
Brookline	\$21,355,200	\$7,666,200	36%	\$13,689,000
Burlington	\$8,432,800	\$6,212,800	74%	\$2,220,000
Cambridge	\$39,250,100	\$28,830,100	73%	\$10,420,000
Canton	\$6,635,900	\$2,675,900	40%	\$3,960,000
Chelsea	\$11,760,100	\$5,551,100	47%	\$6,209,000
Dedham	\$9,220,000	\$6,900,000	75%	\$2,320,000
Everett	\$13,381,500	\$6,650,500	50%	\$6,731,000
Framingham	\$20,375,000	\$12,125,000	60%	\$8,250,000
Hingham	\$2,802,500	\$2,412,500	86%	\$390,000
Holbrook	\$2,779,600	\$896,562	32%	\$1,883,038
Lexington	\$12,125,300	\$10,565,300	87%	\$1,560,000
Malden	\$20,683,900	\$5,641,900	27%	\$15,042,000
Medford	\$19,637,600	\$7,961,600	41%	\$11,676,000
Melrose	\$10,126,300	\$8,657,300	85%	\$1,469,000
Milton	\$9,014,500	\$6,714,500	74%	\$2,300,000
Natick	\$9,332,600	\$5,582,600	60%	\$3,750,000
Needham	\$9,977,600	\$4,018,600	40%	\$5,959,000
Newton	\$34,937,400	\$30,357,400	87%	\$4,580,000
Norwood	\$11,589,400	\$6,879,400	59%	\$4,710,000
Quincy	\$32,780,000	\$23,302,039	71%	\$9,477,961
Randolph	\$10,070,800	\$3,894,800	39%	\$6,176,000
Reading	\$7,749,100	\$5,669,100	73%	\$2,080,000
Revere	\$16,940,900	\$5,502,900	32%	\$11,438,000
Somerville	\$25,955,800	\$12,116,900	47%	\$13,838,900
Stoneham	\$7,829,900	\$5,889,900	75%	\$1,940,000
Stoughton	\$7,902,900	\$6,427,900	81%	\$1,475,000
Wakefield	\$9,806,900	\$6,493,310	66%	\$3,313,590
Walpole	\$6,110,000	\$3,680,000	60%	\$2,430,000
Waltham	\$22,282,400	\$15,226,900	68%	\$7,055,500
Watertown	\$10,155,800	\$6,285,800	62%	\$3,870,000
Wellesley	\$9,249,700	\$3,582,504	39%	\$5,667,196
Westwood	\$4,302,300	\$2,091,300	49%	\$2,211,000
Weymouth	\$19,100,900	\$10,425,900	55%	\$8,675,000
Wilmington	\$4,232,000	\$2,462,000	58%	\$1,770,000
Winchester	\$6,793,000	\$5,053,000	74%	\$1,740,000
Winthrop	\$5,553,400	\$3,066,900	55%	\$2,486,500
Woburn	\$16,665,500	\$14,675,500	88%	\$1,990,000
Totals	\$760,750,000	\$425,951,839	56 %	\$334,798,161

ATTACHMENT 2
MWRA I/I Local Financial Assistance Program - Fiscal Year Breakdown

FY	Distribution Cycle	Distribution Amount	Distribution Cycle	Distribution Amount	Distribution Cycle	Distribution Amount	Distribution Cycle	Distribution Amount	FY Total
FY93	Aug 1992	\$0	Nov 1992	\$0	Feb 1993	\$0	May 1993	\$2,714,883	\$2,714,883
FY94	Aug 1993	\$3,096,468	Nov 1993	\$4,096,133	Feb 1994	\$3,191,032	May 1994	\$251,494	\$10,635,127
FY95	Aug 1994	\$354,126	Nov 1994	\$976,700	Feb 1995	\$1,894,030	May 1995	\$6,489,891	\$9,714,747
FY96	Aug 1995	\$0	Nov 1995	\$504,100	Feb 1996	\$2,921,600	May 1996	\$3,902,426	\$7,328,126
FY97	Aug 1996	\$1,682,061	Nov 1996	\$1,581,266	Feb 1997	\$395,100	May 1997	\$3,530,758	\$7,189,185
FY98	Aug 1997	\$1,066,300	Nov 1997	\$1,157,260	Feb 1998	\$909,350	May 1998	\$2,001,608	\$5,134,518
FY99	Aug 1998	\$1,521,100	Nov 1998	\$2,464,263	Feb 1999	\$1,481,700	May 1999	\$5,758,077	\$11,225,140
FY00	Aug 1999	\$1,315,767	Nov 1999	\$1,847,900	Feb 2000	\$1,679,000	May 2000	\$1,070,100	\$5,912,767
FY01	Aug 2000	\$1,148,400	Nov 2000	\$388,000	Feb 2001	\$1,640,931	May 2001	\$804,800	\$3,982,131
FY02	Aug 2001	\$4,480,735	Nov 2001	\$704,040	Feb 2002	\$1,804,200	May 2002	\$5,002,691	\$11,991,666
FY03	Aug 2002	\$1,962,600	Nov 2002	\$4,461,768	Feb 2003	\$7,955,752	May 2003	\$1,836,600	\$16,216,720
FY04	Aug 2003	\$2,021,940	Nov 2003	\$1,306,200	Feb 2004	\$1,770,760	May 2004	\$3,295,400	\$8,394,300
FY05	Aug 2004	\$2,756,659	Nov 2004	\$6,013,436	Feb 2005	\$4,054,060	May 2005	\$2,636,700	\$15,460,855
FY06	Aug 2005	\$5,377,487	Nov 2005	\$4,589,600	Feb 2006	\$1,519,463	May 2006	\$6,489,676	\$17,976,226
FY07	Aug 2006	\$0	Nov 2006	\$4,947,414	Feb 2007	\$8,789,300	May 2007	\$8,121,023	\$21,857,737
FY08	Aug 2007	\$3,915,500	Nov 2007	\$4,355,750	Feb 2008	\$1,392,400	May 2008	\$4,436,600	\$14,100,250
FY09	Aug 2008	\$4,196,399	Nov 2008	\$352,000	Feb 2009	\$1,990,300	May 2009	\$4,872,400	\$11,411,099
FY10	Aug 2009	\$5,462,736	Nov 2009	\$616,600	Feb 2010	\$2,679,600	May 2010	\$4,845,000	\$13,603,936
FY11	Aug 2010	\$723,700	Nov 2010	\$3,183,250	Feb 2011	\$4,123,100	May 2011	\$4,258,900	\$12,288,950
FY12	Aug 2011	\$3,695,100	Nov 2011	\$2,417,378	Feb 2012	\$848,300	May 2012	\$7,010,324	\$13,971,102
FY13	Aug 2012	\$21,299,965	Nov 2012	\$1,004,610	Feb 2013	\$2,460,000	May 2013	\$2,675,000	\$27,439,575
FY14	Aug 2013	\$7,550,310	Nov 2013	\$0	Feb 2014	\$2,929,700	May 2014	\$2,271,852	\$12,751,862
FY15	Aug 2014	\$4,053,000	Nov 2014	\$7,647,400	Feb 2015	\$10,128,648	May 2015	\$4,803,450	\$26,632,498
FY16	Aug 2015	\$3,983,100	Nov 2015	\$5,783,000	Feb 2016	\$7,195,116	May 2016	\$5,483,000	\$22,444,216
FY17	Aug 2016	\$2,352,100	Nov 2016	\$6,553,210	Feb 2017	\$2,918,900	May 2017	\$10,434,030	\$22,258,240
FY18	Aug 2017	\$8,085,900	Nov 2017	\$10,311,545	Feb 2018	\$1,377,800	May 2018	\$1,909,730	\$21,684,975
FY19	Aug 2018	\$4,107,370	Nov 2018	\$12,150,449	Feb 2019	\$19,027,200	May 2019	\$11,067,748	\$46,352,767
FY20	Aug 2019	\$14,287,100	Nov 2019	\$10,990,840	Feb 2020		May 2020		\$25,277,940
Total		\$110,495,923		\$100,404,112		\$97,077,342		\$117,974,461	\$425,951,839
Average		\$4,092,442		\$3,718,671		\$3,733,744		\$4,433,049	\$15,977,905

**ATTACHMENT 3
MWRA Long-Term Regional Flow Data
NOAA Annual Rainfall at Logan Airport**

■ Rain
 ● Total
 — Total 5 Yr Running Avg
 ◆ North
 — North 5 Yr Running Avg
 ● South
 — South 5 Yr Running Avg



10

**ATTACHMENT 4
Community Support Program Tracking**

Monthly Rainfall Data 1999-2019 and SSOs at Risk Assessment Areas



Year	Jan	N/S SSOs	Feb	N/S SSOs	Mar	N/S SSOs	Apr	N/S SSOs	May	N/S SSOs	Jun	N/S SSOs	Jul	N/S SSOs	Aug	N/S SSOs	Sep	N/S SSOs	Oct	N/S SSOs	Nov	N/S SSOs	Dec	N/S SSOs	Total
1999	5.69		3.51		2.52		0.83		2.70		0.00		3.51		1.33		2.87	2 1	4.30		2.14		1.52		37.91
2000	2.62		2.55		3.59		5.02	4 2	2.88		6.61	2 0	5.20		2.22		2.87		2.86		4.51		4.67		45.60
2001	1.58		1.37		7.57	10 3	0.88		1.23		4.99		2.13		4.14		2.29		0.98		0.73		2.83		30.72
2002	3.14		1.81		3.52		2.61		4.48		4.77		1.42		2.13		3.39		3.47		5.03	0 1	5.30	1 1	41.07
2003	1.81		4.21		4.00	0 1	4.00	0 1	4.12		4.69		2.11		2.89		2.65		6.20		2.63		5.06	0 1	44.37
2004	1.01		1.45		3.38		9.57	7 2	3.07		1.95		3.87		4.38		7.44		1.88		2.91		3.66		44.57
2005	4.45		2.70		3.89		3.17		3.98		1.46		3.37		2.88		1.78		9.41	4 1	3.71		2.87		43.67
2006	4.55		2.64		0.56		1.83		12.48	7 3	10.08	3 3	3.58		3.20		1.72		4.50		5.80		1.89		52.84
2007	2.57		2.20		4.31		6.71	5 3	3.70		2.12		5.26		0.66		1.81		2.08		2.80		5.25		39.47
2008	2.69		7.94	2 4	4.66	0 2	2.98		2.73		3.46		6.00		4.47		6.45		1.41		4.57		7.10	4 3	54.46
2009	3.35		1.94		2.51		4.13		2.69		3.22		6.90		3.24		3.09		5.17		3.34		3.91		43.49
2010	2.91		3.34	4** 1**	14.87	11 8	1.78		2.90		3.18		2.66		5.75		1.80		3.90		2.96		3.61		49.66
2011	4.57		4.57		2.10	2 0	4.03		3.23		4.76		2.04		7.74		4.40		6.77		4.21		3.97		52.39
2012	2.67		1.00		1.21		3.09		3.43		4.71		3.88		3.08		4.10		2.62		1.01		5.93	2** 0	36.73
2013	1.08		3.66	0 1*	3.32		1.37		3.22		10.50		3.61		1.84		2.21		0.61		2.72		4.62		38.76
2014	3.24		4.13		4.48		3.24		2.86		2.62		4.57		1.75		0.70		5.83		5.27		6.56	7 3	45.25
2015	3.57		3.37		3.05	0 1**	2.28		1.22		5.01		2.09		2.19		3.93	2 0	1.74		2.07		4.28		34.80
2016	3.27		4.17		3.16		2.91		2.83		1.33		0.87		1.72		1.38		5.46		2.70		3.25		33.05
2017	3.50		3.22		4.18		5.73	0 1	3.45		4.85		4.03		1.58		3.73		4.14		1.80		2.49		42.70
2018	4.92		3.76		5.07	0 2**	4.62		1.90		2.96		4.55		4.65		5.12		3.78		3.22		2.72		53.31
2019	3.62		3.45		2.95		6.52		3.35		5.15		5.81		3.48		2.16		4.45		3.37		6.07		50.38

* Rag clogging at B/W Pump Stations - Limited Pumping
 ** Significant Snow Melt
 *** Extreme High Tide with Storm Surge on South Coast

**ATTACHMENT 5
Community Support Program Tracking**


**Monthly Rainfall Data 1999-2019 and Duration of SSO (Hours) at Risk Assessment Area S-1
Smelt Brook Siphon - Braintree/Weymouth**

South System

	Monthly Rainfall >= 9.0"	Average Annual Rainfall	1872-2018	41.9"		# of Hours of SSO at Risk Assessment Area S-1
	Monthly Rainfall >= 5.0" and < 9.0"	Average Monthly Rainfall	1996-2018	43.1"		
	Monthly Rainfall >= 3.5" and < 5.0"	Average Monthly Rainfall	1872-2018	3.5"		
			1996-2018	3.6"		

Year	Jan	South SSOs	Feb	South SSOs	Mar	South SSOs	Apr	South SSOs	May	South SSOs	Jun	South SSOs	Jul	South SSOs	Aug	South SSOs	Sep	South SSOs	Oct	South SSOs	Nov	South SSOs	Dec	South SSOs	Total
1999	5.69		3.51		2.52		0.83		2.70		0.00		3.51		1.33		3.31	9	4.30		2.14		1.52		37.91
2000	2.62		2.55		3.59		5.02	97	2.88		6.61		5.20		2.22		2.87		2.86		4.51		4.67		45.60
2001	1.58		1.37		7.57	151	0.88		1.23		4.99		2.13		4.14		2.29		0.98		0.73		2.83		30.72
2002	3.14		1.81		3.52		2.61		4.48		4.77		1.42		2.13		3.39		3.47		5.03	4	5.30	24	41.07
2003	1.81		4.21		4.00	48	4.00	77	4.12		4.69		2.11		2.89		2.65		6.20		2.63		5.06	30	44.37
2004	1.01		1.45		3.38		9.57	54	3.07		1.95		3.87		4.38		7.44		1.88		2.91		3.66		44.57
2005	4.45		2.70		3.89		3.17		3.98		1.46		3.37		2.88		1.78		9.41	0	3.71		2.87		43.67
2006	4.55		2.64		0.56		1.83		12.48	52	10.09	28	3.58		3.20		1.72		4.50		5.80		1.89		52.84
2007	2.57		2.20		4.31		6.71	18	3.70		2.12		5.26		0.66		1.81		2.08		2.80		5.25		39.47
2008	2.69		7.94	8	4.66	7	2.98		2.73		3.46		6.00		4.47		6.45		1.41		4.57		7.10	23	54.46
2009	3.35		1.94		2.51		4.13		2.69		3.22		6.90		3.24		3.09		5.17		3.34		3.91		43.49
2010	2.91		3.34	0	14.87	105	1.78		2.90		3.18		2.66		5.75		1.80		3.90		2.96		3.61		49.66
2011	4.57		4.57		2.10		4.03		3.23		4.76		2.04		7.74		4.40		6.77		4.21		3.97		52.39
2012	2.67		1.00		1.21		3.09		3.43		4.71		3.88		3.08		4.10		2.62		1.01		5.93		36.73
2013	1.08		3.66	8	3.32		1.37		3.22		10.50		3.61		1.84		2.21		0.61		2.72		4.62		38.76
2014	3.24		4.13		4.48		3.24		2.86		2.62		4.57		1.75		0.70		5.83		5.27		6.56	10	45.25
2015	3.57		3.37		3.05	4	2.28		1.22		5.01		2.09		2.19		3.93		1.74		2.07		4.28		34.80
2016	3.27		4.17		3.16		2.91		2.83		1.33		0.87		1.72		1.38		5.46		2.70		3.25		33.05
2017	3.50		3.22		4.18		5.73	11	3.45		4.85		4.03		1.58		3.73		4.14		1.80		2.49		42.70
2018	4.92		3.76		5.07	26	4.62		1.90		2.96		4.55		4.65		5.12		3.78		3.33		2.72		53.31
2019	3.62		3.45		2.95		6.52		3.35		5.15		5.81		3.48		2.16		4.45		3.37		6.07		50.38



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Dorchester Interceptor Sewer Rehabilitation, Sections 240/241/242
Michels Corporation
Contract 7279

COMMITTEE: Wastewater Policy & Oversight

 INFORMATION
 X VOTE

Milan A. Horbaczewski, P.E., Program Manager
John P. Colbert, P.E., Chief Engineer
Preparer/Title


Michele S. Gillen
Director of Administration

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

RECOMMENDATION:

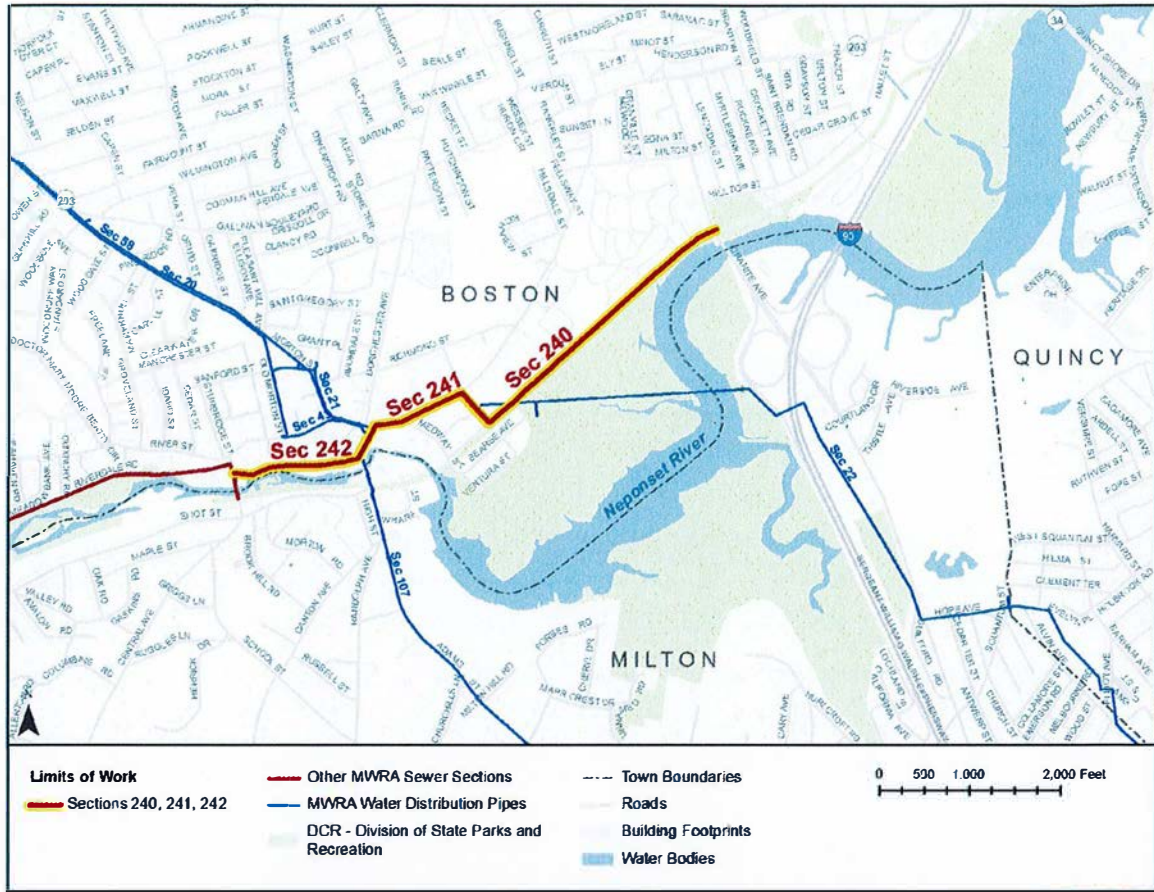
To approve the award of Contract 7279, Dorchester Interceptor Sewer Rehabilitation, Sections 240/241/242, to the lowest responsible and eligible bidder, Michels Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$4,707,485, with a contract term of 540 calendar days from the Notice to Proceed.

DISCUSSION:

MWRA's Dorchester Interceptor conveys flows from MWRA's Neponset Valley Sewer, as well as directly connected service areas in Boston and Milton, and discharges its flows to BWSC's "BWSC Dorchester Interceptor" that carries flows to MWRA's Columbus Park Connection and Headworks in South Boston (see map on next page).

The Dorchester Interceptor Sewer is a 6,500-foot brick sewer constructed in 1895-1896. The sewer is comprised of three sections:

- Section 242 is 42-inch by 28-inch egg shaped
- Section 241 is 48-inch by 36-inch egg shaped
- Section 240 is 48-inch by 36-inch egg shaped with approximately 1,000 feet replaced with 48-inch by 36-inch oval concrete pipe



Dorchester Interceptor Sewer (Sections 240/241/242) Location Map

Recent internal inspections have revealed that several segments of the interceptor have progressed from cracked to broken pipe since previous inspections a decade ago. In addition to cracked, broken and deformed pipe segments, numerous areas of heavy root intrusion and light infiltration also exist. Manholes along the Dorchester Interceptor are mostly constructed of brick with observed infiltration/inflow and deteriorating mortar issues.



Representative Dorchester Interceptor Sewer Section

This Contract

On March 15, 2017, the Board approved the award of Contract 7512 to CDM Smith Inc. to provide design, construction administration and resident engineering/inspection services for the rehabilitation of the Dorchester Interceptor Sewer, Sections 240/241/242. The consultant recommended one construction contract to make the necessary repairs.

Contract 7279 will primarily involve trenchless technology for rehabilitation. It will include the relining of 6,500 linear feet of the MWRA Dorchester Interceptor Sewer using Cured-in-Place Pipe (CIPP) structural liner, spot repairs to prepare the existing pipe for CIPP lining, rehabilitation/lining of 26 associated manholes, bypass pumping and flow diversion; and associated site and restoration work. Bypass piping required for flow diversion will be located away from streets to minimize disruption to traffic. Construction duration is eighteen months.

Procurement Process

Contract 7279 was advertised in the Boston Herald, El Mundo, Banner Publications, Central Register and COMMBUYS, and bid in accordance with Massachusetts General Laws, Chapter 30. Bids were received and opened on November 12, 2019, with the following results:

<u>Contractor</u>	<u>Bid Amount</u>
Michels Corporation	\$4,707,485
Insituform Technologies, LLC	\$5,695,000
Green Mountain Pipeline Services, Inc.	\$5,769,400
<i>Engineer's Estimate</i>	<i>\$5,800,000</i>
RJV Construction Corp.	\$9,285,000

Michels Corporation's bid is the lowest at \$4,707,485, which is \$1,092,515, (18.8%) below the Engineer's Estimate.

The major differences between the Engineer's Estimate and Michels Corporation's low bid are lower overhead cost as one of the country's largest general contractors and a higher assumed rate of productivity.

MWRA staff and CDM Smith have reviewed Michels Corporation's bid in detail and discussed the major bid items with the company. Based on the bid review and subsequent discussions with Michels Corporation, staff are satisfied that Michels Corporation understands the full scope of work and can perform the work for the bid price, which includes the payment of prevailing wages and all police services required in its lump sum bid. Michels Corporation affirmatively stated that it bid competitively and aggressively, based on its vast experience in successfully completing projects of similar complexity. Michels Corporation is a major pipeline and full service general contracting company that has completed many projects nationally and is pursuing work in the New England region. It has been in business for over 60 years in the pipeline rehabilitation industry.

Michels Corporation indicated that its skill, experience and efficiency in this type of work will result in a more aggressive installation rate, which includes longer lining reaches up to 1,400 feet per setup, a rate that it has regularly achieved on other projects. The Engineer's Estimate

conservatively estimated pipeline rehabilitation reaches and corresponding lining set-ups, with a typical set-up of approximately 800 feet that is achievable by all cured-in-place pipe materials and curing methods and able to be executed by most contractors. Michels Corporation indicated it can line through greater changes in direction than the Engineer estimated. Longer reaches minimize the number of lining set-ups, lowering equipment time and direct labor costs; reducing bypass pumping time; resulting in less traffic impacts; and creating other associated efficiencies.

References were checked and found to be favorable. Michels Corporation has successfully completed several contracts as general contractor on rehabilitation projects of similar pipe size to the Dorchester Interceptor Sewer Rehabilitation project. Outside references noted excellent performance on projects of similar length and size to this contract.

Staff are of the opinion that Michels Corporation 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 Michels Corporation as the lowest responsible and eligible bidder.


BUDGET/FISCAL IMPACT:

The FY20 CIP includes a budget of \$5,580,000 for Contract 7279. The contract award amount is \$4,707,485. It should be noted that Contract 7279 will receive funding through the DEP State Revolving Fund, of which the DEP has indicated that an amount of \$4,707,485 is eligible for loan participation.

MBE/WBE PARTICIPATION:

Contract 7279 will receive CWSRF funding from the Massachusetts Clean Water Trust. The D/MBE and D/WBE participation requirements for this contract were established by DEP at 4.2% and 4.5%, respectively. Michels Corporation requested a partial waiver of these requirements citing insufficient certified D/MBE and D/WBE subcontractors available to work on the project despite good faith efforts made by Michels Corporation to solicit participation. The partial waiver was granted by DEP. Michels Corporation will provide 0.3% D/WBE participation.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Electrical Testing and Technical Services – Metropolitan Boston
Infra-Red Building and Power Service, Inc.
Contract OP-409

COMMITTEE: Wastewater Policy & Oversight

George Bacon, Project Manager, Operations Engineering
Lisa Bina, Senior Program Manager, Operations Engineering
Charles B. Ryan, Director, Wastewater O&M
Preparer

 INFORMATION

 X VOTE


Michele S. Gillen

Director of Administration


David W. Coppes, P.E.

Chief Operating Officer

RECOMMENDATION:

To approve the award of Contract OP-409, Electrical Testing and Technical Services – Metropolitan Boston, to the lowest, responsive bidder, Infra-Red Building and Power Service, Inc., and authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$658,802, for a contract term of 1,095 calendar days from the Notice to Proceed.

DISCUSSION:

Contract OP-409 is for periodic testing of low- and medium-voltage electrical equipment, such as switchgear, circuit breakers, motor controls, transformers, surge arrestors, batteries and uninterruptable power supplies at 32 of MWRA's metropolitan water and wastewater facilities excluding Deer Island¹ (see attached map). Electrical equipment at each facility will be tested and calibrated during this three-year contract. Although MWRA staff perform routine preventive and corrective maintenance of this equipment, the testing and calibration of the equipment must be performed by certified technicians.

Staff have developed the schedule on the following page for testing based on the equipment at each facility. Facilities with medium-voltage equipment will be tested every other year; the facilities with only low-voltage equipment will be tested once every three years.

Additionally, the main power transformers will be tested every other year at all facilities, and 13 uninterruptable power supply batteries will be tested annually.

¹ Electrical testing for Western Operations and Deer Island are performed under separate three-year contracts.

	YEAR 1	YEAR 2	YEAR 3
FACILITIES TESTED EVERY TWO YEARS	Intermediate PS Nut Island Headworks Commonwealth Ave. PS DeLauri PS Prison Point CSO	Gillis PS Chestnut Hill Underground PS Newton St. PS Braintree-Weymouth Replacement PS	Intermediate PS Nut Island Headworks Commonwealth Ave. PS DeLauri PS Prison Point CSO
FACILITIES TESTED EVERY THREE YEARS	Hough's Neck PS Alewife Brook PS South Boston CSO PS South Boston Vent Bldg. Spot Pond PS	New Neponset PS Framingham PS Hayes PS Ward St. Headworks Columbus Pk. Headworks Quincy PS Squantum PS Somerville Marginal CSO	Lexington St. PS Hingham PS Caruso PS Cottage Farm CSO BOS019 Storage Conduit Loring Rd. Covered Storage Brattle Ct. PS Hyde Pk. PS Belmont PS Spring St. PS

The contract includes provisions for unscheduled, as-needed electrical testing and technical services at any of the metropolitan water and wastewater facilities, not including Deer Island. If an emergency occurs with the electrical equipment, staff will be able to immediately notify the testing company to perform electrical testing to identify the cause of the electrical issue.

Procurement Process

Contract OP-409 was advertised as a non-professional services contract in the Boston Herald, Goods and Services, El Mundo, Banner Publications, and utilizing MWRA's e-Procurement system (Event 4144). A pre-bid meeting was held on January 7, 2020. Two bids were received on January 16, 2020:

<u>Bidders</u>	<u>Bid Amount</u>
<i>Engineer's Estimate</i>	\$670,000
Infra-Red Building and Power Service, Inc.	\$658,802
3C Electrical Company	\$668,757

Infra-Red Building and Power Service, Inc.'s bid price is 1.7% below the Engineer's Estimate, which was prepared by MWRA staff based on historical data from prior contracts. Infra-Red has been performing electrical testing for MWRA since 2007. Staff reviewed the bid and contacted a representative from Infra-Red to discuss the firm's bid. References were checked and found to be favorable. Staff have been very satisfied with Infra-Red's past performance on prior MWRA electrical testing work. Staff are confident that Infra-Red understands the full nature and scope of work under this contract. Staff have determined that the bid price is reasonable and complete.

Staff are of the opinion that Infra-Red possesses the skill, ability and integrity necessary for the successful performance of this work. Therefore, staff recommend the award of this contract to Infra-Red Building and Power Service, Inc., as the lowest responsive bidder.

BUDGET/FISCAL IMPACT:

The FY21 Proposed Current Expense Budget contains sufficient funding for the first year of this contract. Appropriate funding will be included in subsequent Proposed CEB requests for the remaining term of the contract.

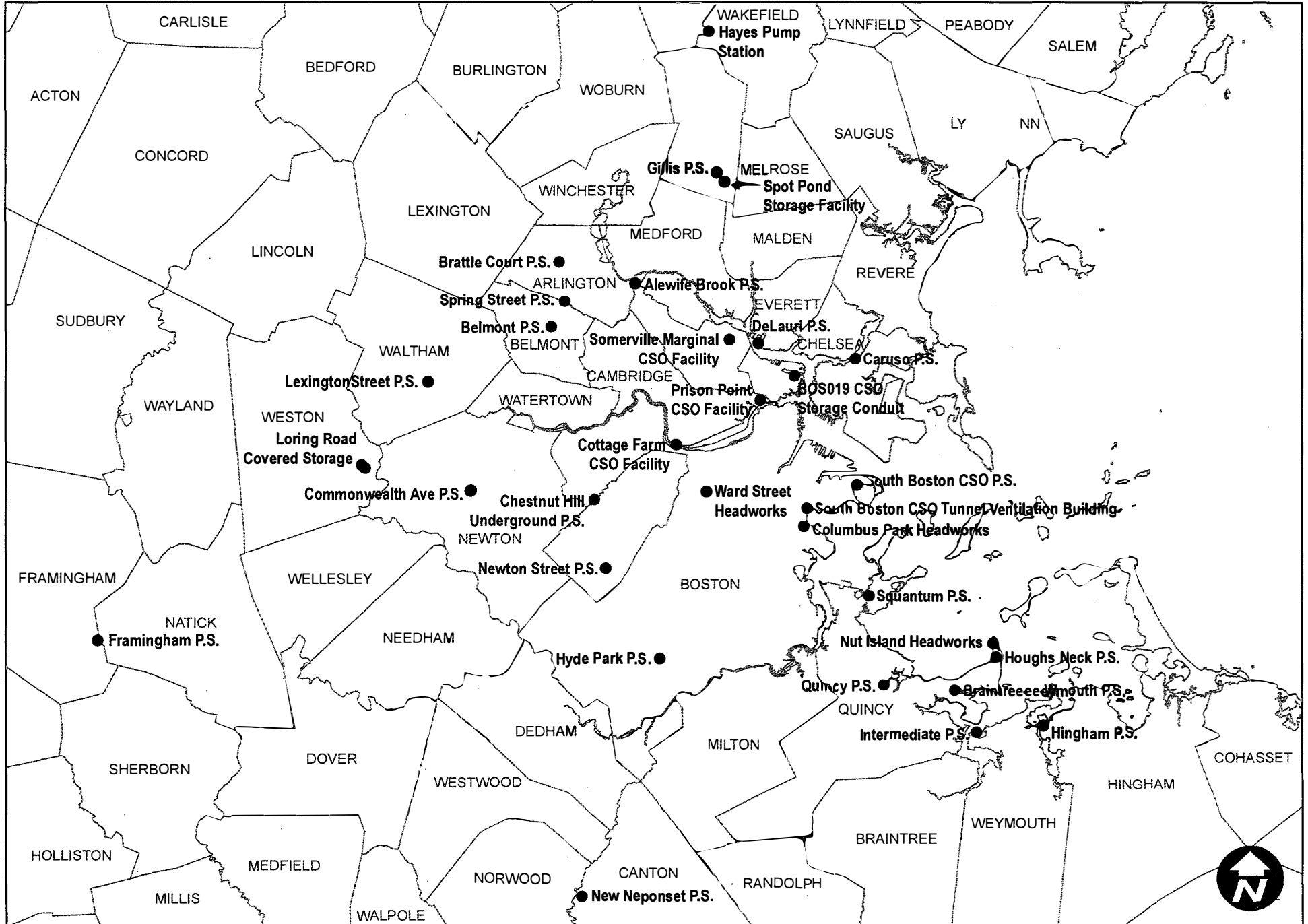
MBE/WBE PARTICIPATION:

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


ATTACHMENT:

Scheduled Electrical Testing Locations.

MWRA Contract OP-409 Scheduled Electrical Testing Locations




STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Chelsea Creek Headworks Upgrade
BHD/BEC 2015, A Joint Venture
Contract 7161, Change Order 36

COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE

Corinne M. Barrett, Director, Construction
Martin E. McGowan, Construction Coordinator
Preparer/Title


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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 36 to Contract 7161, Chelsea Creek Headworks Upgrade, with BHD/BEC 2015, A Joint Venture, for an amount not to exceed \$144,652.00, increasing the contract amount from \$82,664,390.06 to \$82,809,042.06, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7161 in an amount not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

DISCUSSION:

The Chelsea Creek Headworks is one of three remote headworks facilities that provides preliminary treatment and flow control of the wastewater from MWRA's Northern Service Area before reaching the Deer Island Treatment Plant. Preliminary treatment at the headworks facilities includes grit and screenings removal, which prevents excessive wear and maintenance of equipment at the North Main Pump Station, and protects the cross harbor tunnels from filling with debris. The Chelsea Creek Headworks was constructed in the 1960s and received its last significant upgrade in 1987.

This project is a major upgrade of the entire facility and includes automation of the screenings collection and solids conveyance system, allowing the facility to be unstaffed during dry weather flow. The grit collector systems are being replaced and existing climber screens are being replaced with catenary screens. Influent and effluent sluice gates are being replaced and the gate hydraulic operating system is being replaced with electric gate actuators. Carbon adsorbers are being installed for odor control, HVAC systems are being upgraded, and redundancy is being added to

both systems. Ancillary systems including the emergency generator, fuel oil tank, and transformer are being replaced. Instrumentation and control systems are being upgraded, the communications tower is being replaced and a communications building is being added. Abatement of hazardous building materials including paint containing PCBs, flood protection measures to protect the facility to the 100-year flood elevation plus 2.5 feet, and upgrades to meet current code requirements for egress, electrical, plumbing and fire suppression are also included.

Project Update

- The first two process channels were accepted in April 2019 and November 2019, respectively. There have been multiple failures of the new stainless steel grit collector chain in both channels. MWRA, the Contractor, and the chain supplier disagree as to the cause of the failure and the parties have reserved their respective rights. The Contractor continues to repair the chain as it fails. The Contractor will provide temporary chain until the permanent chain can be fabricated and installed.
- The new odor control fans and carbon adsorbers will begin functional testing this month.
- Demolition of the existing wet scrubber system will commence as soon as the new carbon adsorber system is accepted.
- Hazardous material abatement is approximately 96% complete.

This Change Order

Change Order 36 consists of the following five items:

Odor Control Condensate System Modifications

Not to Exceed \$50,000

The Contractor is required to furnish and install a condensate drain system for the new odor control equipment. The condensate drain system is comprised of low point drains, traps and piping to remove accumulated water and moisture from the ductwork, filters, fans and carbon adsorbers. All of the condensate discharges to the sanitary drain system inside the facility. It is important that moisture be removed from the odorous airstream since moisture will reduce the capacity of the activated carbon used to treat the air.

After commencement of the contract, it was noted a number of components necessary for a complete condensate system were not included in the original design. Additional trap assemblies are required on the grease filter mist eliminators and fans. Low point drains are provided in the upstream and downstream section of each filter and fan housing. The design included a single, common trap assembly for each unit. Since there is a pressure differential in the upstream and downstream sections, each drain requires its own trap assembly for proper drainage. The odor control fans are located outdoors and will require heat trace and insulation to prevent freezing on the added condensate piping. To correct this omission, the Contractor will furnish and install additional trap assemblies at the three mist eliminators and three odor control fans. Heat tracing and insulation will be installed on the piping for the outdoor fans.

Finally, there is a buried condensate piping system for the outdoor odor control equipment that collects all of the condensate and discharges inside the facility to the sanitary drain system. The design of this buried piping system only accounted for the condensate drains on the three carbon adsorbers. The piping did not include connections to the fans, ductwork or stack. To correct this omission, the Contractor must extend the condensate piping to these locations so that all condensate is collected and discharged.



Additional Traps Assembly at Odor Control Fan



Buried Condensate Drain Lines

This item was identified by MWRA staff as a design omission and the design consultant agreed. MWRA staff, the Consultant, and the Contractor have agreed to a not to exceed amount of \$50,000 for this additional work. The Contractor proceeded with this work at its own risk in order to proceed with the remainder of the contract work.

Carbon Adsorber Piping Modifications

Not to Exceed \$40,000

The Contractor is required to furnish and install three single-pass V-bank style carbon adsorbers to treat the odorous air from the facility. Each vessel holds approximately 110,000 pounds of high capacity activated carbon configured in two vertical beds. Each bed of carbon is approximately 3-foot wide, 12-foot high and 54-foot long. Each vessel is equipped with nozzles and piping used for sampling the air and carbon as well as monitoring the pressure drop across each bed.

There are 12 sampling locations on each of the three units. Staff are required to collect and analyze daily air samples from each carbon adsorber in service. The daily air samples confirm that treatment parameters are being met and are a useful indicator of the quality and remaining life of the activated carbon. In addition to air samples, staff need the ability to extract the activated carbon from inside the vessel for additional lab analysis for a more definitive assessment of the carbon quality. After commencement of the contract, it was realized that the sample lines had no provisions for extracting carbon from the vessel. To correct this omission, the Contractor must furnish and install additional ball valves and fittings at the 36 sample locations.

Each carbon adsorber has two differential pressure gauges used to monitor the pressure drop across each bed. Differential pressure is an important indicator of even air distribution between the two beds to ensure proper air treatment. During initial commissioning, staff will establish baseline differential pressure with new activated carbon. Increasing differential pressure will be indicative

of the bed becoming fouled and decreasing differential pressure will be indicative of excessive carbon settlement and potential short-circuiting. Both situations would require staff to take the unit out of service for further investigation. After commencement of the contract, staff requested that the differential pressure gauges be relocated from the sidewall of the vessels to the top of the tank, so that they can be viewed side-by-side for comparison. This design change requires the Contractor to furnish and install additional stainless steel tubing, fittings and supports for the pressure sensing lines to the six carbon adsorber differential pressure gauges.



Carbon Bed Sampling Valves



Sensing Lines for Differential Pressure Gauge

This item was identified by MWRA staff as a design omission and design change and the design consultant agreed. MWRA staff, the Consultant, and the Contractor have agreed to a not to exceed amount of \$40,000 for this additional work. The Contractor proceeded with this work at its own risk in order to proceed with the remainder of the contract work.

Temporary Odor Control Damper Controls

\$22,321

The Contractor is required to furnish and install a new odor control system using carbon adsorbers to replace the existing wet scrubber system. In order to maintain continuous and uninterrupted odor control at the facility, the new system will be implemented in two phases. The first phase will include the new fans and carbon adsorbers with temporary grease filter mist eliminators, dampers and ductwork. After commencement of the contract and during planning sessions for the new odor control system, the Contractor included manually operated dampers on the temporary ductwork at the fan inlets. The Authority requires these dampers be automated to provide status and control at SCADA because there are critical fan interlocks necessary to prevent damage to the fans and associated equipment. The contract documents include the automation for the permanent dampers, but there are no requirements for automation of the temporary dampers used in this interim condition. To correct this omission, the Contractor will furnish and install electrically operated damper actuators with temporary wiring to provide status and control to SCADA on the three temporary fan inlet dampers.

This item was identified by MWRA staff as a design omission and the design consultant agreed. MWRA staff, the Consultant, and the Contractor have agreed to a lump sum amount of \$22,321

for this additional work. The Contractor proceeded with this work at its own risk in order to proceed with the remainder of the contract work.

Tunnel Shaft Flood Wall Modification

Not to Exceed \$20,000

The Contractor is required to furnish and install a 5-foot perimeter wall around Shaft 2 as part of the new flood protection improvements at the Chelsea Creek site. Shaft 2 is the part of North Metropolitan Relief Tunnel that connects the Chelsea Creek Headworks to the Deer Island Treatment Plant. The top of the existing shaft is located within the flood plain and this new wall will prevent floodwaters from entering the tunnel shaft and inundating the pumps at Deer Island. The design called for a cast-in-place reinforced concrete wall constructed on top of the existing shaft foundation located below finished grade. After commencement of the contract, the Contractor excavated down to the shaft foundation and found the existing concrete uneven and unsuitable for constructing a new wall. Since the foundation is located below grade, its condition could not be assessed during design. At the time this condition was discovered, the Contractor had already constructed the inner forms for the wall and the rebar was delivered to the site. The structural design engineer revised the design to construct the perimeter wall on top of the existing shaft. To correct this unforeseen condition, the Contractor must reconstruct new formwork and furnish new rebar bent for a smaller diameter wall constructed on top of the tunnel shaft.



Tunnel Shaft Flood Wall

This item was identified by MWRA staff as an unforeseen condition. MWRA staff, the Consultant, and the Contractor have agreed to a not to exceed amount of \$20,000 for this additional work. The Contractor proceeded with this work at its own risk in order to proceed with the remainder of the contract work.

Column Reinforcement and Damper Modification

\$12,331

The Contractor is required to furnish and install a 20-foot x 10-foot outside air control damper on the south wall of the generator room. This damper provides combustion air and cooling air for the new one-megawatt standby generator. The existing standby generator is a 400-kilowatt unit and the new airflow requirements are significantly higher. To accommodate the additional airflow, the Contractor is required to demolish the southern wall of the generator room and install a larger opening for the new damper. After demolition of the wall, an existing column was exposed and found to have significant corrosion. The structural engineer inspected the column and determined that additional reinforcement was necessary to provide support for the building. The reinforcement includes a steel encasement of the existing column with new connections to the floor and ceiling. Because of this column encasement, the new outside air damper will not fit in the space as originally designed. When this issue was identified, the new dampers had already been fabricated and delivered to the site. To account for this new and unforeseen conflict, the control dampers

must be installed in two segments and staggered by approximately 4-inches to get past the new column encasement. By staggering the dampers, the two segments of dampers cannot be linked to a common shaft as originally specified. This requires two additional actuators to open and close the second segment of dampers. The Contractor must now reinforce an existing column, revise the outside air control dampers along the south wall of the generator room, furnish, and install two additional damper actuators and associated conduit and wire.



Deteriorated Column Requiring Reinforcement



Staggered Dampers around Reinforced Column

This item was identified by MWRA staff as an unforeseen condition. MWRA staff, the Consultant, and the Contractor have agreed to a lump sum of \$12,331 for this additional work. The Contractor proceeded with this work at its own risk in order to proceed with the remainder of the contract work.

Although the Contractor agrees with the pricing for the five items included in this change order, it does not agree with MWRA's determination of no increase in contract term. Therefore, MWRA staff anticipate that Change Order 36 will be executed unilaterally; and the Contractor will likely proceed with a claim for additional time.

Staff are compiling a list of all change order items that have resulted from an error or omission and will conduct a review at the end of the project regarding responsibility of the Design Consultant, Arcadis U.S., Inc., and the potential for any cost recovery.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract:	\$72,859,000.00	1,460 Days	11/22/16
Change Orders:			
Change Order 1	\$252,512.00	0 Days	06/29/17
Change Order 2*	\$208,431.00	0 Days	07/24/17
Change Order 3	\$1,129,740.20	0 Days	07/24/17
Change Order 4*	\$237,870.00	0 Days	10/18/17
Change Order 5	\$304,036.26	0 Days	12/21/17
Change Order 6*	\$207,226.00	0 Days	01/26/18
Change Order 7	\$1,278,783.00	0 Days	02/07/18

Change Order 8	\$937,267.00	0 Days	02/22/18
Change Order 9	\$17,321.00	0 Days	04/03/18
Change Order 10*	\$20,879.00	0 Days	04/11/18
Change Order 11*	\$200,000.00	0 Days	05/18/18
Change Order 12	\$1,000,000.00	0 Days	05/31/18
Change Order 13*	\$129,783.00	0 Days	06/12/18
Change Order 14	\$500,000.00	0 Days	06/28/18
Change Order 15*	\$24,634.00	0 Days	08/20/18
Change Order 16*	\$21,584.00	0 Days	08/24/18
Change Order 17*	\$109,065.00	0 Days	09/13/18
Change Order 18	\$395,742.00	0 Days	09/28/18
Change Order 19*	\$18,351.00	0 Days	10/26/18
Change Order 20*	\$20,123.00	0 Days	11/06/18
Change Order 21*	\$82,621.00	0 Days	11/13/18
Change Order 22	\$182,792.00	0 Days	11/19/18
Change Order 23*	\$70,125.00	0 Days	12/17/18
Change Order 24*	\$15,618.00	0 Days	01/24/19
Change Order 25*	\$149,469.00	0 Days	02/19/19
Change Order 26	\$375,000.00	0 Days	03/14/19
Change Order 27*	\$24,238.00	0 Days	05/21/19
Change Order 28*	\$213,402.00	0 Days	06/17/19
Change Order 29	\$400,000.00	0 Days	07/16/19
Change Order 30*	\$24,122.00	0 Days	08/12/19
Change Order 31*	\$164,177.00	0 Days	09/16/19
Change Order 32	\$236,588.00	0 Days	09/25/19
Change Order 33*	\$200,073.00	0 Days	11/20/19
Change Order 34	\$425,000.00	0 Days	12/09/19
Change Order 35*	\$248,039.60	0 Days	02/20/20
Change Order 36	<u>\$144,652.00</u>	<u>0 Days</u>	Pending
Total of Change Orders:	\$9,950,042.06	0 Days	
Adjusted Contract:	\$82,809,042.06	1,460 Days	

* Approved under delegated authority

If Change Order 36 is approved, the cumulative value of all change orders to this contract will be \$9,950,042.06 or 13.7% of the original contract amount. Work on this contract is approximately 71% complete.


BUDGET/FISCAL IMPACT:

The FY20 Capital Improvement Program budget includes \$82,503,972 for Contract 7161. Including this change order for an amount not to exceed \$144,652.00, the adjusted subphase total will be \$82,809,042.06 or \$305,070.06 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The MBE/WBE participation requirements for this project were established at 3.4% and 3.8%, respectively. The Contractor has been notified that these requirements are still expected to be met.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: CSO Post-Construction Monitoring and Performance Assessment
AECOM Technical Services, Inc.
Contract 7572, Amendment 2

COMMITTEE: Wastewater Policy & Oversight

INFORMATION
 VOTE

John P. Colbert, P.E. Chief Engineer
Brian L. Kubaska, P.E., Assist. Director of Engineering, E&C
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 7572, CSO Post-Construction Monitoring and Performance Assessment with AECOM Technical Services, Inc., to increase the contract amount by \$1,431,700 from \$3,852,705 to \$5,284,405 with no increase in contract term.

DISCUSSION:

Since commencement of Contract 7572 in November 2017, AECOM has provided professional engineering services to support MWRA's compliance with the last milestone in the Federal District Court schedule. The milestone, requires MWRA to submit, by December 2021, the results of a performance assessment of its Long-Term Combined Sewer Overflow (CSO) Control Plan (the "LTCP") to determine if it has met the levels of control in the Court Order. Contract 7572 services include extensive metering at CSO regulators and outfalls; rainfall analyses; hydraulic modeling updates, calibration and verification; quantification and evaluation of remaining CSO discharges relative to the court ordered levels of control; and updated characterization and analyses of remaining CSO impacts on the Alewife Brook, Upper Mystic River, and Charles River Basin using receiving water quality modeling.

The original contract was extended by one year under Amendment 1, as approved by the Board of Directors on April 17, 2019. Amendment 1 also increased Contract 7572's scope of services for out-of-scope work to 1) add receiving water quality modeling for the Lower Charles River and the Alewife Brook/Upper Mystic River; 2) extend temporary metering at certain combined sewer overflow (CSO) outfalls and overflow regulators through June 2020; and 3) provide for purchase by MWRA of overflow meters associated with MWRA's CSO outfalls at the end of the temporary metering program in June 2020 for its long-term use.

Over the past several months MWRA and its consultant has made substantial progress in development and calibration of the hydraulic model used in determining the frequency and volume of CSO discharges during a typical year for comparison with the court ordered LTCP goals. These

results were recently filed as a supplemental progress report to the Court on February 14, 2020, and subsequently reported to the Board of Directors on February 19, 2020 as an informational staff summary. As noted in the Court report, MWRA staff have concluded that the newly calibrated hydraulic model currently predicts CSO activations and/or volumes at higher levels than the LTCP at twenty-five locations. Prior to the final model calibration in early 2020, MWRA seemed to be on track to meet the goals of the LTCP. Now, with new model results, it is understood that additional efforts will be needed, prior to the completion of the CSO performance assessment in December 2021, in order to improve performance in the typical year. Both the pre and post model calibration results are provided in Attachment A. This will be done through evaluation and implementation of improvements (weir adjustments, ongoing or planned maintenance work, and ongoing or scheduled sewer separation work). Time is of the essence to perform this work as any structure modification or system changes will need to be in place and fully evaluated to support the results in the final CSO performance assessment report to be submitted by December 2021.

This Amendment:

Staff considered separating all of this evaluation work into independent pieces and either procuring new consultants through proposals or through negotiating task orders under existing technical assistance contracts. Each of the alternative procurement strategies required more oversight, coordination, and familiarization effort than the proposed amendment with AECOM. AECOM's work to date has been excellent and their extensive experience with the CSO systems, CSO communities, and newly calibrated model will allow them to be more efficient in completing the additional work defined in this amendment both in terms of level of effort and in time to completion. AECOM has worked over the past 2 years as MWRA's CSO consultant, calibrating the wastewater hydraulic model against temporary and permanent flow meters installed throughout the CSO tributary areas. The hydraulic model results have been used to determine if the Long Term Control Plans goals have been attained. Extensive and complex analysis was completed to improve the accuracy of the hydraulic model and some of these analyses are on-going. AECOM has a thorough understanding of the intricate CSO systems and regulators and their interdependency; and has demonstrated an ability to perform the analysis and continued interpretation of project meters, rainfall gauges, and MWRA interceptor and facility meters; comparison of this meter data to model results and making appropriate changes to modeling parameters (pipe roughness, tributary area percent impervious, etc.). They have developed an understanding of the impacts of spatial rainfall variations and intensities and elevated groundwater on MWRA's CSOs; and have made detailed model adjustment to reflect system hydraulics for pipe condition and unique structures.

Amendment 2 will increase the contract amount by \$1,431,700 allowing AECOM to perform additional services of: modeling and evaluating planned CSO community system improvements (cleaning, currently planned and funded sewer separation) to the collection system and CSO regulator adjustments (weir increases) to improve CSO performance for several CSOs currently predicted to have CSO activation frequencies or volumes above the LTCP; studying to evaluate further CSO reduction as required within the current 5-year CSO variance granted to MWRA, Cambridge and Somerville for continued discharge of CSO to the Alewife Brook/Upper Mystic River and Charles River Basin; and to address additional level of effort and out of scope activities not included in the original scope of services. AECOM will provide a consistent approach for further model refinements and hydraulic analysis that will support our regulatory and legal commitments. This work includes development of the final CSO performance assessment report

to document conditions after MWRA makes short term system improvements in an effort to meet our LTCP goals and potential longer term CSO improvements that are required by the Water Quality Standards variances that were issued by the Massachusetts Department of Environmental Protection in August 2019.

LTCP Evaluations

\$219,125

In the Supplemental Court Report the MWRA committed to continue system review and optimization work to yield additional improvements to activations and volumes prior to the December 2021 Final Performance Assessment. The focus of these evaluations will be for the CSOs with significant predicted frequency and volume discrepancies from the LTCP goals in the areas of East Boston, the Cottage Farm Facility, located on the Lower Charles, and the Somerville Marginal Facility with the Mystic/Chelsea confluence.

AECOM will perform site investigations, develop alternatives and modeling approach, and evaluate the effectiveness of the alternatives. Conceptual level plans, cost estimates, and a technical memorandum on alternative evaluations and recommendations will be prepared for each of the areas studied.

Within East Boston, although substantial progress has been made in CSO reductions from 1992 levels, including closing two outfall expected to remain active under the LTCP, four of the remaining six CSO discharges are predicted to have higher activation frequency and volumes than the LTCP. The East Boston evaluation will include analysis of BWSC's planned sewer separation projects in the next two years, removal of dry weather flow connection restrictions, balancing of interceptor flows to optimize conveyance, and weir adjustments.

Within the Charles River, four of the eleven active CSO discharges are predicted to have higher activations and volumes than the LTCP. The City of Cambridge is moving forward on a trial basis with a partial sewer separation pilot program to remove peak stormwater flows that contribute to CSO discharges at the Cottage Farm Facility. Cambridge is installing meters at these connections and the meter data will be used to calibrate the model and determine the impact of this sewer separation. In addition, three additional CSOs (MWR018, MWR019, and MWRA020) will be evaluated to determine if weir adjustments or operational changes will provide CSO improvements to help meet LTCP goals.

For the Somerville Marginal Facility, MWRA modeling staff will perform model simulations in-house to determine if raising stop logs upstream of the facility can help reduce the facility's predicted CSO discharge volume by holding more CSO in the tributary system and force more flow into the downstream interceptors.

Variance Project Requirements

\$893,175

The Massachusetts Department of Environmental Protection (MassDEP) issued a five-year Water Quality Standards Variance for Combined Sewer Overflow Discharges to the Alewife Brook/Upper Mystic River Basin and Charles River Basin on August 31, 2019. The Variance requires additional system optimization measures that include further efforts to reduce CSO activations and volumes. These projects are intended to improve the water quality in the Lower Charles River, Upper Mystic River, and Alewife Brook. The variance requirements include the

following:

- Alewife Brook Pump Station Optimization Evaluation Project (one year project to start by April 30, 2020);
- MWR205 & SOM007/MWR205A Somerville Marginal CSO Reduction Project, Study and Preliminary Design (one year project to start by December 31, 2020); and
- CSO System Optimization for Alewife Brook and Lower Charles River Basin Project (one year project to start by December 31, 2020).

For these three Variance projects, AECOM will perform site investigations, work with member CSO communities and MWRA to develop alternatives, perform hydraulic modeling for typical year rain events as well as larger storm events to determine if the proposed modification provide beneficial CSO reductions but will not have adverse impacts (unacceptable wastewater levels and/or flooding). Conceptual level plans, cost estimates, and a technical memorandum on alternative evaluations and recommendations will be prepared for each of the areas studied.

Alewife Brook CSOs evaluations will include maximizing the beneficial use of enhanced pumping capacity at the recently rehabilitated Alewife Brook Pump Station to determine if operating the pump station at lower wetwell levels will provide reductions in CSO activations and volumes at upstream CSO outfalls which discharges to the Alewife Brook. If modeled predictions indicate improvements, revised operational procedures will be tested through field trials with consultant support for a range of storm events. Field testing will be followed by the consultant developing an implementation plan to include SCADA programming modifications and operator training.

The Somerville Marginal CSO facility discharges through outfall MWR205 to the Mystic River. Under high tide conditions, treated flow that passes through the facility can also discharge through SOM007A/MWRA205A, to the Mystic River upstream of the Amelia Earhart Dam. AECOM will evaluate alternatives to reduce CSO frequency and volumes including: relief of the dry weather connection to the City of Somerville's CSO regulator RE071 to MWRA's Somerville-Medford Branch Sewer; and relocation of a 72-inch MassDOT I-93 drain line from upstream to downstream of the Somerville-Marginal facility.

The CSO system optimization for Alewife Brook and Lower Charles River Basin Project will include using the calibrated hydraulic model and coordinating technical evaluations with the cities of Cambridge and Somerville and BWSC. AECOM will conduct system optimization evaluations at the remaining regulators tributary to CSO outfalls discharging to the Alewife Brook and Charles River watersheds to determine possible improvements to further reduce CSO flows. The evaluation will include evaluating optimization measures such as regulator closing, overflow weir modification or raising, dry weather connection relief and flow reallocation opportunities.

Out of Scope Additions

\$319,400

AECOM performed the hydraulic model calibrations and verification for this project including adjustments to modeling parameters to correlate to the fifty seven CSO project meters, MWRA interceptor meters, and CSO facility SCADA data over a six month period. The initial calibration was accepted by MWRA. After completion of the calibration, additional meter data was compared against the model predictions for the entire fourteen months of data collection. Ten locations were

identified where the meter data did not correlate to the model data. This required AECOM to perform additional unforeseen and extraordinary efforts to make further adjustments to improve the calibration. These efforts were documented in the supplemental court report. A calibration report for the entire system, not required in AECOM’s original scope of services will be completed to document the process of model calibration due to their additional efforts. AECOM also expended and expects to incur significantly more effort to coordinate with the MWRA, outside agencies, and the CSO communities. In addition, as mentioned, the Court granted a one year extension on the final CSO performance assessment report to December 2021. Along with this extension, MWRA will now be required to submit two additional semiannual CSO reports to DEP and EPA, as part of the Alewife/Mystic and Charles River Variance requirement. MWRA staff did not include additional services under AECOM’s contract to develop and submit these reports as part of Amendment 1, and, therefore, request these additional services be included under this amendment.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>End Date</u>
Original Contract	\$2,921,215	41 Months	4/7/2021
Amendment 1	\$931,490	12 Months	4/7/2022
Proposed Amendment 2	<u>\$1,431,700</u>	<u>0 Months</u>	<u>Pending</u>
Adjusted Contract	\$5,284,405	53 Months	4/7/2022

BUDGET/FISCAL IMPACT:

The FY20 Capital Improvement Plan includes a budget of \$3,852,705 for Contract 7572. Including this amendment for \$1,431,700, the adjusted contract amount will be \$5,284,405 or \$1,431,700 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

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

ATTACHMENTS:

Attachment A – CSO LTCP Model Results

ATTACHMENT A
PRELIMINARY TYPICAL YEAR MODEL SIMULATION RESULTS FOR
BASELINE 1992 CONDITIONS, 2019 CONDITIONS AND LONG-TERM CSO CONTROL PLAN (LTCP)

Outfall	1992 SYSTEM CONDITIONS ⁽¹⁾		2019 SYSTEM CONDITIONS (Before Model Calibration)		2019 SYSTEM CONDITIONS (After Model Calibration)		LONG TERM CONTROL PLAN ⁽²⁾	
	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)
ALEWIFE BROOK								
CAM001	5	0.15	1	0.03	1	0.02	5	0.19
CAM002	11	2.73	0	0.00	0	0.00	4	0.69
MWR003	6	0.67	4	0.79	3 ⁽³⁾	1.62 ⁽³⁾	5	0.98
CAM004	20	8.19	Closed	N/A	Closed	N/A	Closed	N/A
CAM400	13	0.93	Closed	N/A	Closed	N/A	Closed	N/A
CAM401A	18	2.12	2	0.49	10	3.61	5	1.61
CAM401B			5	0.58	6	0.76	7	2.15
SOM001A	10	11.93	4	2.38	6	4.04	3	1.67
SOM001	0	0.00	Closed	N/A	Closed	N/A	Closed	N/A
SOM002	0	0.00	Closed	N/A	Closed	N/A	N/A ⁽⁴⁾	N/A ⁽⁴⁾
SOM002A	0	0.00	Closed	N/A	Closed	N/A	Closed	N/A
SOM003	0	0.00	Closed	N/A	Closed	N/A	Closed	N/A
SOM004	5	0.09	Closed	N/A	Closed	N/A	Closed	N/A
TOTAL		26.81		4.27		10.05		7.29
UPPER MYSTIC RIVER								
SOM007A/MWR205A	9	7.61	2	1.85	6	4.85	3	3.48
SOM006 ⁽⁴⁾	0	0.00	Closed	N/A	Closed	N/A	N/A ⁽⁴⁾	N/A ⁽⁴⁾
SOM007	3	0.06	Closed	N/A	Closed	N/A	Closed	N/A
TOTAL		7.67		1.85		4.85		3.48
MYSTIC/CHELSEA CONFLUENCE								
MWR205 (Somerville Marginal Facility)	33	120.37	22	67.91	39	110.17	39	60.58
BOS013	36	4.40	4	0.13	10	0.74	4	0.54
BOS014	20	4.91	4	0.45	8	1.38	0	0.00
BOS015	76	2.76	Closed	N/A	Closed	N/A	Closed	N/A
BOS017	49	7.16	0	0.00	7	0.44	1	0.02
CHE002	49	2.51	Closed	N/A	Closed	N/A	4	0.22
CHE003	39	3.39	0	0.00	0	0.00	3	0.04
CHE004	44	18.11	1	0.10	7	1.01	3	0.32
CHE008	35	22.35	7	1.83	11	3.81	0	0.00
TOTAL		185.96		70.42		117.55		61.72
UPPER INNER HARBOR								
BOS009	34	3.60	3	0.10	10	0.70	5	0.59
BOS010	48	11.83	6	0.46	9	1.05	4	0.72
BOS012	41	7.90	7	0.55	13	1.34	5	0.72
BOS019	107	4.48	1	0.20	1	0.09	2	0.58
BOS050	No Data		Closed	N/A	Closed	N/A	Closed	N/A
BOS052	0	0.00	Closed	N/A	Closed	N/A	Closed	N/A
BOS057	33	14.71	2	0.58	2	1.37	1	0.43
BOS058	17	0.29	Closed	N/A	Closed	N/A	Closed	N/A
BOS060	64	2.90	1	0.02	2	0.16	0	0.00
MWR203 (Prison Point)	28	261.85	17	239.18	17	244.41	17	243.00
TOTAL		307.56		241.09		249.12		246.04
LOWER INNER HARBOR								
BOS003	28	18.09	18	11.80	25	17.41	4	2.87
BOS004	34	3.43	5	0.28	0	0.00	5	1.84
BOS005	4	10.23	0	0.00	0	0.00	1	0.01
BOS006	17	1.21	Closed	N/A	Closed	N/A	4	0.24
BOS007	34	3.93	Closed	N/A	Closed	N/A	6	1.05
TOTAL		36.89		12.08		17.41		6.01
CONSTITUTION BEACH								
MWR207	24	4.00	Closed	N/A	Closed	N/A	Closed	N/A
TOTAL		4.00		N/A		N/A		N/A

ATTACHMENT A
PRELIMINARY TYPICAL YEAR MODEL SIMULATION RESULTS FOR
BASELINE 1992 CONDITIONS, 2019 CONDITIONS AND LONG-TERM CSO CONTROL PLAN (LTCP)

Outfall	1992 SYSTEM CONDITIONS ⁽¹⁾		2019 SYSTEM CONDITIONS (Before Model Calibration)		2019 SYSTEM CONDITIONS (After Model Calibration)		LONG TERM CONTROL PLAN ⁽²⁾	
	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)
FORT POINT CHANNEL								
BOS062	8	4.15	0	0.00	4	0.97	1	0.01
BOS064	14	0.99	1	0.02	0	0.00	0	0.00
BOS065	11	3.08	1	0.62	3	0.71	1	0.06
BOS068	4	0.62	0	0.00	0	0.00	0	0.00
BOS070	4	281.62						
BOS070/DBC			4	3.30	7	6.21	3	2.19
MWR215 (Union Park)			11	33.85	10	26.30	17	71.37
BOS070/RCC			0	0.00	0	0.00	2	0.26
BOS072	21	3.62	Closed	N/A	Closed	N/A	0	0.00
BOS073	23	4.73	0	0.00	0	0.00	0	0.00
TOTAL		298.81		37.78		34.19		73.89
RESERVED CHANNEL								
BOS076	65	65.94	6	1.19	2	0.22	3	0.91
BOS078	41	14.84	0	0.00	0	0.00	3	0.28
BOS079	18	2.10	0	0.00	0	0.00	1	0.04
BOS080	33	6.21	3	0.08	0	0.00	3	0.25
TOTAL		89.09		1.27		0.22		1.48
NORTHERN DORCHESTER BAY								
BOS081	13	0.32	0 / 25 year	N/A	0 / 25 year	N/A	0 / 25 year	N/A
BOS082	28	3.75	0 / 25 year	N/A	0 / 25 year	N/A	0 / 25 year	N/A
BOS083	14	1.05	Closed	N/A	Closed	N/A	0 / 25 year	N/A
BOS084	15	3.22	0 / 25 year	N/A	0 / 25 year	N/A	0 / 25 year	N/A
BOS085	12	1.31	0 / 25 year	N/A	0 / 25 year	N/A	0 / 25 year	N/A
BOS086	80	3.31	0 / 25 year	N/A	0 / 25 year	N/A	0 / 25 year	N/A
BOS087	9	1.27	Closed	N/A	Closed	N/A	Closed	N/A
TOTAL		14.23		0.00		0.00		0.00
SOUTHERN DORCHESTER BAY								
BOS088	0	0.00	Closed	N/A	Closed	N/A	Closed	N/A
BOS089 (Fox Pt.)	31	87.11	Closed	N/A	Closed	N/A	Closed	N/A
BOS090 (Commercial Pt.)	19	10.16	Closed	N/A	Closed	N/A	Closed	N/A
TOTAL		97.27		0.00		0.00		0.00
UPPER CHARLES								
BOS032	4	3.17	Closed	N/A	Closed	N/A	Closed	N/A
BOS033	7	0.26	Closed	N/A	Closed	N/A	Closed	N/A
CAM005	6	41.56	3	1.36	8	0.73	3	0.84
CAM007	1	0.81	2	0.25	2	0.42	1	0.03
CAM009	19	0.19	Closed	N/A	Closed	N/A	2	0.01
CAM011	1	0.07	Closed	N/A	Closed	N/A	0	0.00
TOTAL		46.06		1.60		1.15		0.88
LOWER CHARLES								
BOS028	4	0.02	Closed	N/A	Closed	N/A	Closed	N/A
BOS042	0	0.00	Closed	N/A	Closed	N/A	Closed	N/A
BOS049	1	0.01	Closed	N/A	Closed	N/A	Closed	N/A
CAM017	6	4.72	1	1.26	0	0.00	1	0.45
MWR010	16	0.08	0	0.00	0	0.00	0	0.00
MWR018	2	3.18	0	0.00	2	1.93	0	0.00
MWR019	2	1.32	0	0.00	2	0.57	0	0.00
MWR020	2	0.64	0	0.00	2	0.32	0	0.00
MWR021	2	0.50	Closed	N/A	Closed	N/A	Closed	N/A
MWR022	2	0.43	Closed	N/A	Closed	N/A	Closed	N/A
MWR201 (Cottage Farm)	18	214.10	3	10.50	4	12.43	2	6.30
MWR023	39	114.60	1	0.02	1	0.14	2	0.13
SOM010	18	3.38	Closed	N/A	Closed	N/A	Closed	N/A
TOTAL		342.98		11.78		15.39		6.88

ATTACHMENT A
PRELIMINARY TYPICAL YEAR MODEL SIMULATION RESULTS FOR
BASELINE 1992 CONDITIONS, 2019 CONDITIONS AND LONG-TERM CSO CONTROL PLAN (LTCP)

Outfall	1992 SYSTEM CONDITIONS ⁽¹⁾		2019 SYSTEM CONDITIONS (Before Model Calibration)		2019 SYSTEM CONDITIONS (After Model Calibration)		LONG TERM CONTROL PLAN ⁽²⁾	
	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)
NEPONSET RIVER								
BOS093	72	1.61	Closed	N/A	Closed	N/A	Closed	N/A
BOS095	11	5.37	Closed	N/A	Closed	N/A	Closed	N/A
TOTAL		6.98		0.00		0.00		0.00
BACK BAY FENS								
BOS046	2	5.25	1	1.57	0	0.00	2	5.38
TOTAL		5.25		1.57		0.00		5.38
Total Treated		698		351		393		381
Total Untreated		759		29		52		23
GRAND TOTAL		1457		380		445		404

- (1) 1992 System Conditions include completion of Deer Island Fast-Track Improvements, upgrades to headworks and new Caruso and DeLauri pumping stations.
- (2) From Exhibit B to Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows, as amended by the Federal District Court on May 7, 2008 (the "Second CSO Stipulation").
- (3) Value under further review pending model calibration of Outfall MWR003.
- (4) N/I: Outfall was closed by MWRA Long-Term Control Plan but is not included in Exhibit B to the Second CSO Stipulation.



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

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

WATER POLICY & OVERSIGHT COMMITTEE MEETING

to be held on

Wednesday, March 18, 2020

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

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

Time: ~~Immediately following Wastewater Committee~~

AGENDA

A. Information

1. Local Water System Assistance Program Annual Update

B. Approvals

1. Memorandum of Agreement between MWRA and the Town of Arlington, Contract 6554 – Rehabilitation of WASM 3

C. Contract Awards

1. Diver Assisted Suction Harvesting of Invasive Plants at Wachusett Reservoir Lower Basin and Coves: AE Commercial Diving Services, WRA-4814

D. Contract Amendments/Change Orders

1. Northern Intermediate High Section 110 – Stoneham: Albanese D&S Inc., Contract 7067, Change Order 13
2. Southern Extra High Pipeline Section 111 – Dedham South: RJV Construction Corp., Contract 7505, Change Order 4
3. Commonwealth Avenue Pumping Station Improvements: WES Construction Corp., Contract 7524, Change Order 4

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the

Water Policy and Oversight Committee

February 19, 2020

A meeting of the Water Policy and Oversight Committee was held on February 19, 2020 at the Authority headquarters in Charlestown. Committee Chair Peña presided. Present from the Board were Messrs. Carroll, Cook, Cotter, Foti, Pappastergion, Vitale and Walsh. Mr. Flanagan and Ms. Wolowicz were absent. Among those present from the Authority staff were Frederick Laskey, Carolyn Francisco Murphy, David Coppes, Carolyn Fiore, Thomas Durkin, Michele Gillen, Kathleen Murtagh, John Colbert, John Gregoire, Stephen Estes-Smargiassi and Kristin MacDougall. The meeting was called to order at 10:16 a.m.

INFORMATION

Update on Invasive Aquatic Plants Management at MWRA Source and Emergency Reservoirs

Staff made a presentation. (Messrs. Carroll and Cook joined the meeting, and Mr. Foti briefly left and returned to the meeting during the presentation.) There were questions and answers. (ref. W A.1)

Report on 2019 Water Use Trends and Reservoir Status

Staff made a presentation. There was brief discussion and questions and answers. (ref. W A.2)

Chloride Levels in Drinking Water

Item deferred to Board of Directors Meeting.

The meeting adjourned at 10:47 a.m.

STAFF SUMMARY


TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 18, 2020
SUBJECT: Local Water System Assistance Program Annual Update



COMMITTEE: Water Policy & Oversight

INFORMATION
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
Stephen Estes-Smargiassi, Director, Planning and Sustainability
Carl H. Leone, P.E., Senior Program Manager, Planning
David A. Granados, Project Manager, Planning
Preparer/Title

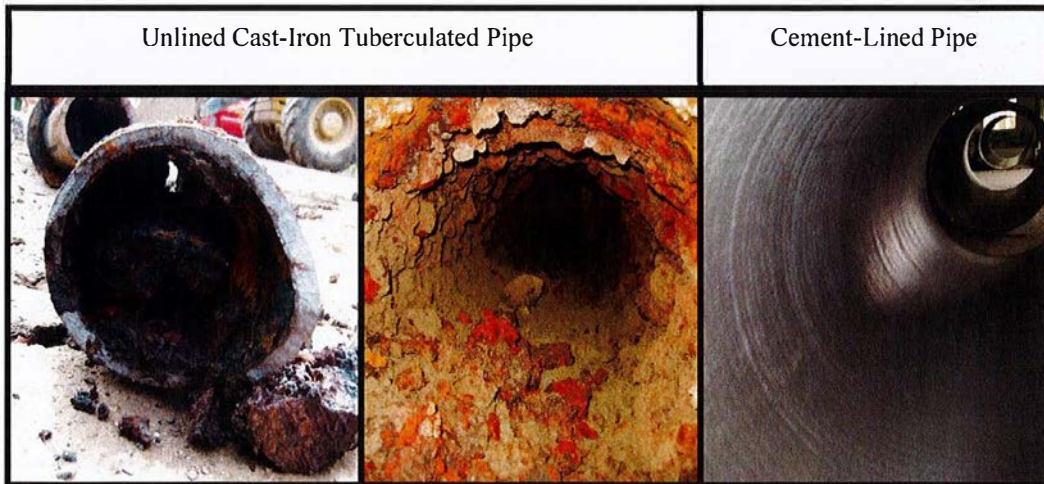

David W. Coppes, P.E.
Chief Operating Officer

RECOMMENDATION:

For information only.

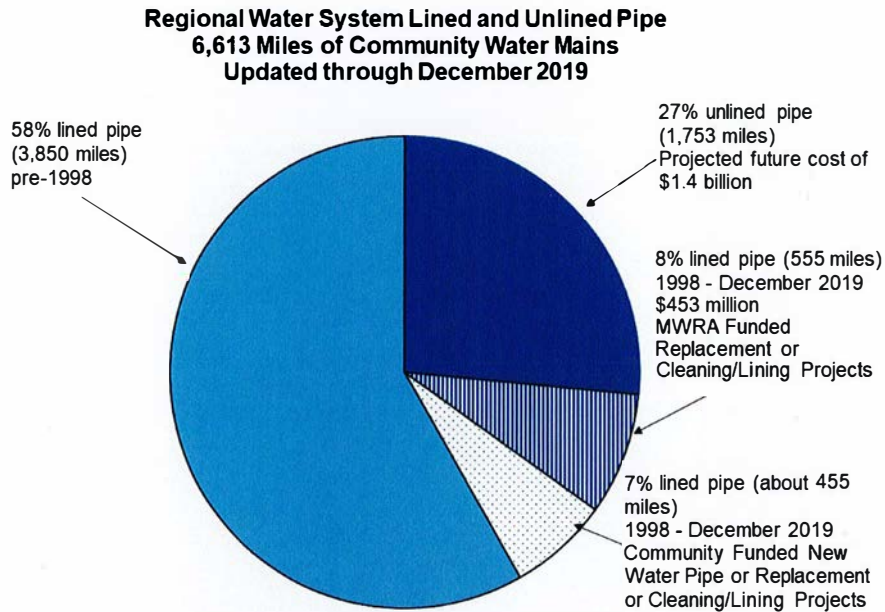
DISCUSSION:

MWRA's goal in providing financial assistance to member communities is to improve local water systems to help maintain high water quality as it passes from MWRA's facilities through local pipelines to customers' taps. Older water mains, particularly those constructed of unlined cast-iron pipe, need to be replaced or cleaned and lined to prevent tuberculation (rust build-up), loss of disinfectant residual, and potential bacteria growth. Replacement of lead service lines improves water quality by reducing the risk that lead can leach into the water consumed in customer's homes.



Prior to 1998, 3,850 miles (58%) of the 6,613-mile regional distribution system was lined water pipe. Since 1998, MWRA's community financial assistance programs (including the \$30 million pilot program in 1998/99) have invested \$453 million in local water distribution systems and

resulted in the replacement or cleaning and lining of 555 miles of water mains. Additional community-only funded rehabilitation or new pipeline projects have added 455 miles of lined water mains. Approximately 1,753 miles (27%) of locally-owned distribution systems remain unlined, representing a regional need of about \$1.4 billion for future water main rehabilitation. Attachment 1 provides individual statistics for the total miles of lined and unlined water main in each member communities' water system.



Update on Distribution of Water Loan Funds

Under the Local Water System Assistance Program, the Board has authorized a total of \$724 million for community water loans from FY01 through FY30. Loan funds are allocated to member water communities based on a combination of their percent share of unlined pipe and wholesale water charge. MWRA's partially supplied communities receive pro-rated shares based on their percentage use of MWRA water. Through December 2019, \$423 million in 10-year interest-free loans have been distributed to member communities to finance 458 projects that will help maintain high water quality in local distribution systems. Of the 458 total projects, 383 have been completed and 75 are in construction. Community loans are repaid to MWRA over a ten-year period. All scheduled community loan repayments have been made: a total of \$281 million to date. Forty-two of the 45 eligible member water communities¹ have participated in the Program. Five additional water loans totaling \$8.0 million are scheduled for the February/March 2020 distribution cycle.

¹ MWRA has a total of 50 water communities (with Dedham/Westwood Water District counted as one). Under MWRA's Local Water System Assistance Program, 45 are allocated loan funds. The five ineligible water communities have special case considerations: Cambridge receives water on an emergency-only basis; Lynn receives water only for the GE plant; and Clinton, Leominster, and Worcester (also emergency only) receive untreated water from the Wachusett Reservoir. The three Chicopee Valley Aqueduct (CVA) communities (Chicopee, South Hadley FD#1, and Wilbraham) are allocated funds under Phases 2 and 3 of the Loan Program, but were not originally allocated loan funds under the Phase 1 – Local Pipeline Assistance Program, as that program was initiated as part of the treatment decision for the John J. Carroll Water Treatment Plant.

The photos below are typical examples of local water system rehabilitation construction work funded through the MWRA Local Water System Assistance Program.



Water Main Replacement Construction



Old Unlined Cast Iron Water Main Pipe



Rehabilitated Water Storage Tank

The Phase 1 - Local Pipeline Assistance Program began in FY01 and was completed at the end of FY13. It provided \$222.3 million in 10-year interest-free loans to water system communities for water main replacement, cleaning and lining projects, and lead service line replacements.

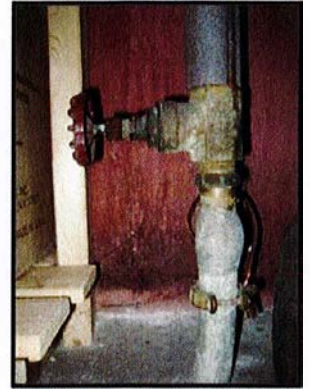
The Phase 2 - Local Water System Assistance Program commenced in FY11 and distributions are approved through FY23. The Phase 2 expansion of the water loan program added \$210 million in interest-free loans for member water communities (including a \$10 million allocation for the three Chicopee Valley Aqueduct (CVA) communities – Chicopee, South Hadley FD#1, and Wilbraham). Through December 2019, \$171.0 million in Phase 2 funds have been distributed and \$39.0 million remain to be distributed. Twenty-one communities have received their entire Phase 2 funding allocation (see Attachment 2 - Allocation and Fund Utilization by Community).

The Phase 3 - Local Water System Assistance Program commenced in FY18 and distributions are approved through FY30. The Phase 3 expansion of the water loan program added \$292 million in interest-free loans for member water communities (including a \$14 million allocation for the three CVA communities). Through December 2019, \$30.1 million in Phase 3 funds have been distributed and \$261.9 million remain to be distributed (see Attachment 2 - Allocation and Fund Utilization by Community).

The majority of financial assistance loans (98%) under Phases 2 and 3 have continued to fund replacement/rehabilitation of unlined water mains, lead service line replacements, water tank rehabilitation, and other water quality projects. In addition, some communities have undertaken system efficiency (Tier 2) projects such as water meter replacements, automated meter reading systems, and booster pump station rehabilitation.

Lead Service Line Replacement Loan Program

In March 2016, the Board approved an enhancement to the Local Water System Assistance Program to provide up to an additional \$100 million in 10-year interest-free loans to communities solely for efforts to fully replace lead service lines. Under MWRA's Lead Service Line Replacement Loan Program, each community can develop its own program tailored to its local circumstances. Some communities are implementing a phased approach with multiple loans financing lead service replacements over a number of construction seasons. Through December 2019, MWRA has distributed a total of \$13.8 million in lead loans (15 separate distributions) to ten communities:



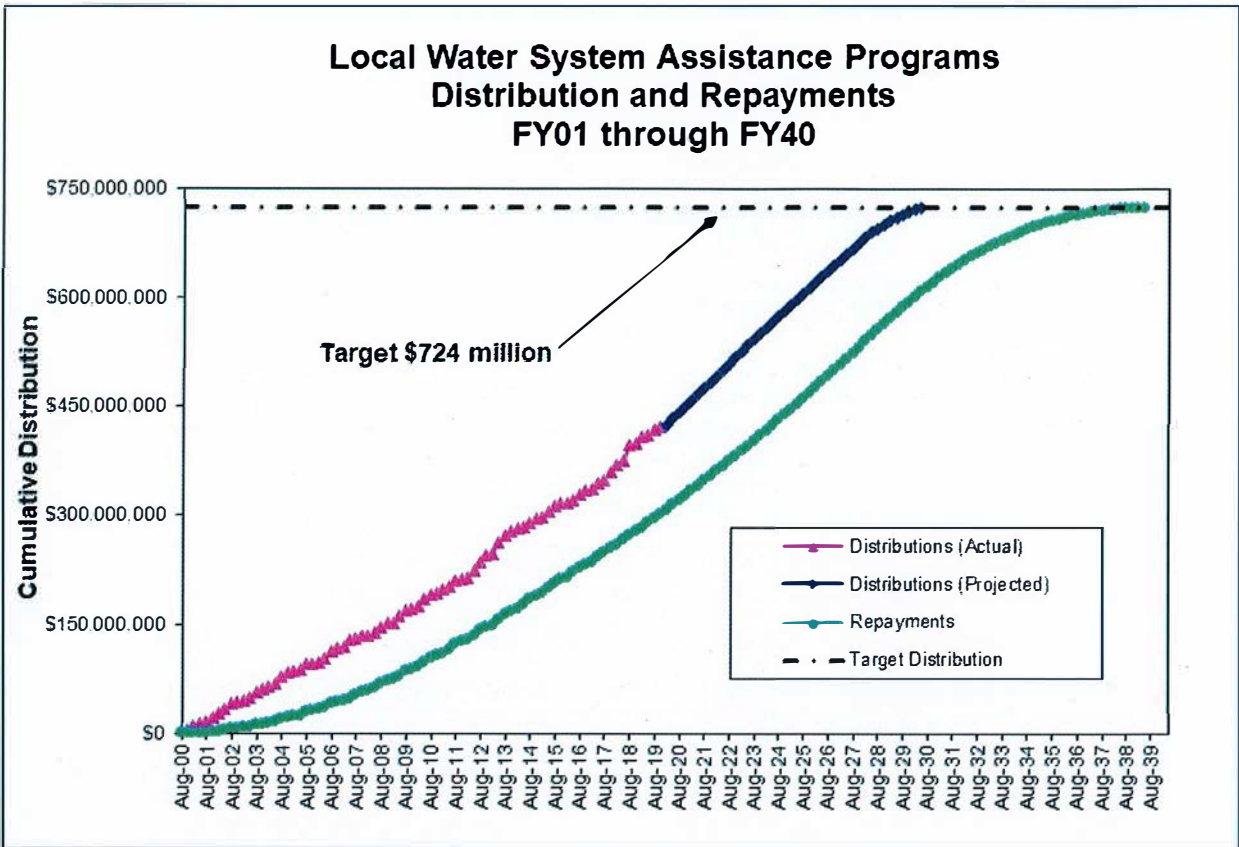
- Quincy: \$1.5 million in FY17;
- Winchester: \$500,000 in FY17 and \$500,000 second phase in FY18;
- Newton: \$4.0 million in FY17;
- Marlborough: \$1.0 million in FY18 and \$1.0 million in FY19;
- Revere: \$195,000 in FY18;
- Winthrop: \$284,000 in FY18 and \$487,850 in FY19;
- Needham: \$1.0 million in FY18;
- Everett: \$1.0 million in FY19 and \$1.0 million in FY20;
- Chelsea: \$100,000 in FY19 and \$300,000 in FY20; and,
- Somerville: \$900,000 in FY20.

Two additional Lead Service Line Replacement Loan Program applications have been received for distributions during the remainder of FY20, including: \$160,000 for Weston and \$690,000 for Winthrop's third phase project.

BUDGET/FISCAL IMPACT:

The FY20 CIP includes an overall net budget of zero dollars for both the Local Water System Assistance Program and the Lead Service Line Replacement Loan Program because community loans are offset by repayments over time. However, depending on the timing and level of community loan requests, annual loan distributions can fluctuate, sometimes causing over-spending or under-spending (versus budget) for any particular quarter or year. The Local Water System Assistance Program Guidelines restrict each community's annual allocation to the larger of: (1) 10% of their total allocation, or (2) \$500,000. If not utilized in a given year, annual allocations roll-over and accumulate up to the community's total allocation. The annual allocation restrictions are intended to limit MWRA's annual financial exposure for community loan distributions.

The program budget target is \$724 million for water system rehabilitation loan distributions and repayments (not including the \$100 million for additional lead service line replacement loans). To date, \$423 million in loans have been distributed and community loan repayments are \$281 million. As community loans are repaid, the funds are deposited into MWRA's construction fund. The FY20 CEB budget includes \$5.8 million for the cost of loan interest as a separate line item



under Debt Service. The graph below presents loan funding distributions (actual and projected) and corresponding repayments for the water system loans program - FY01 through FY40.

MBE/WBE PARTICIPATION:

MBE/WBE goals for community projects are established in the Program Guidelines.

ATTACHMENTS:

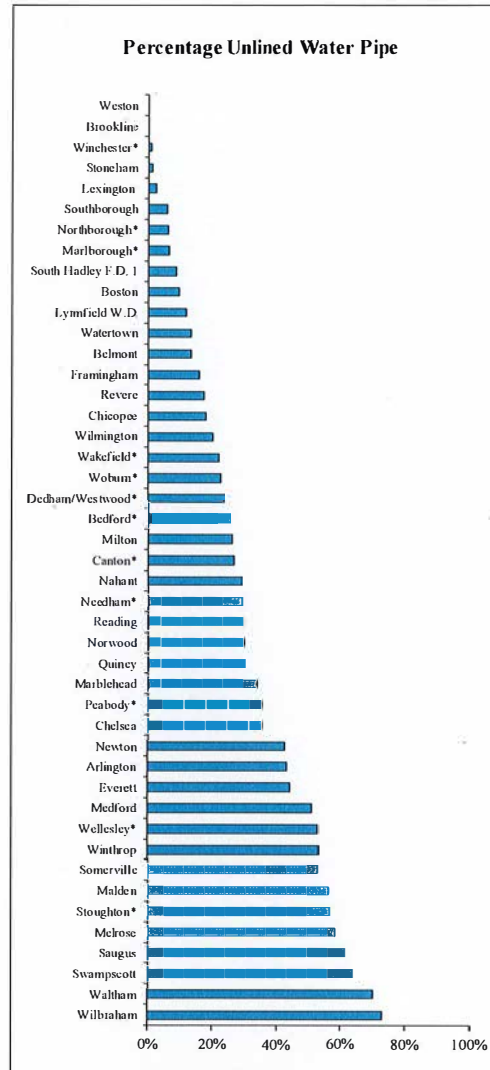
Attachment 1 – Lined and Unlined Pipe by Community

Attachment 2 – Phase 2 and 3 – Local Water System Assistance Program Allocation and Fund Utilization by Community

ATTACHMENT 1
MWRA LOCAL WATER SYSTEM ASSISTANCE PROGRAM
LINED AND UNLINED PIPE BY COMMUNITY
THROUGH DECEMBER 2019

Community	Total Miles of Pipe	Miles of Lined Pipe	Miles of Unlined Pipe	Percent Unlined
Arlington	132	75	57	43%
Bedford*	85	63	22	26%
Belmont	93	81	12	13%
Boston	1011	916	95	9%
Brookline	140	140	0	0%
Canton*	128	94	34	27%
Chelsea	59	38	21	36%
Chicopee	269	221	48	18%
Dedham/Westwood*	203	155	48	24%
Everett	68	38	30	44%
Frammingham	276	233	43	16%
Lexington	165	161	4	2%
Lynnfield W.D.	29	26	3	12%
Malden	121	53	68	56%
Marblehead	97	64	33	34%
Marlborough*	180	169	11	6%
Medford	144	71	73	51%
Melrose	82	34	48	58%
Milton	138	102	36	26%
Nahant	23	16	7	29%
Needham*	135	95	40	29%
Newton	319	184	135	42%
Northborough*	65	61	4	6%
Norwood	119	83	36	30%
Peabody*	208	134	74	36%
Quincy	240	167	73	30%
Reading	114	80	34	30%
Revere	107	89	18	17%
Saugus	125	48	77	62%
Somerville	125	59	66	53%
South Hadley F.D. 1	83	76	7	9%
Southborough	87	82	5	6%
Stoneham	80	79	1	1%
Stoughton*	151	65	86	57%
Swampscott	58	21	37	64%
Wakefield*	114	89	25	22%
Waltham	150	45	105	70%
Watertown	82	71	11	13%
Wellesley*	150	71	79	53%
Weston	111	111	0	0%
Wilbraham	74	20	54	73%
Wilmington	126	101	25	20%
Winchester*	112	111	1	1%
Winthrop	45	21	24	53%
Woburn*	190	147	43	22%
TOTAL	6,613	4,860	1,753	27%

* Partially Served Communities




ATTACHMENT 2
MWRA LOCAL WATER SYSTEM ASSISTANCE PROGRAM
ALLOCATION AND FUND UTILIZATION BY COMMUNITY
THROUGH DECEMBER 2019

Community	Community Total Phase 2 Allocation	Phase 2 Funds Distributed thru November 2019	Total Remaining Phase 2 Funds	Community Total Phase 3 Allocation	Community Phase 3 Annual Allocation	Phase 3 Allocation To Date (Year 3)	Phase 3 Funds Distributed thru November 2019	Phase 3 Funds Currently Available	Total Phase 2 and 3 Funds Available
Arlington	\$6,225,000	\$5,700,000	\$525,000	\$8,687,000	\$868,700	\$2,606,100	\$0	\$2,606,100	\$3,131,100
Bedford *	\$2,418,000	\$2,418,000	\$0	\$3,649,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$1,500,000
Belmont	\$3,477,000	\$3,477,000	\$0	\$3,852,000	\$500,000	\$1,500,000	\$1,500,000	\$0	\$0
Boston	\$38,754,000	\$38,754,000	\$0	\$52,787,000	\$5,278,700	\$15,836,100	\$6,420,098	\$9,416,002	\$9,416,002
Brookline	\$3,426,000	\$660,000	\$2,766,000	\$4,585,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$4,266,000
Carlton *	\$3,216,000	\$2,000,000	\$1,216,000	\$2,971,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$2,716,000
Chelsea	\$3,814,000	\$3,706,200	\$107,800	\$5,039,000	\$503,900	\$1,511,700	\$0	\$1,511,700	\$1,619,500
Dedham/Westwood *	\$503,000	\$503,000	\$0	\$849,000	\$500,000	\$849,000	\$0	\$849,000	\$849,000
Everett	\$4,672,000	\$4,672,000	\$0	\$6,298,000	\$629,800	\$1,889,400	\$990,300	\$899,100	\$899,100
Framingham	\$7,357,000	\$7,357,000	\$0	\$9,003,000	\$900,300	\$2,700,900	\$2,700,900	\$0	\$0
Lexington	\$3,024,000	\$1,145,015	\$1,878,985	\$3,777,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$3,378,985
Lynnfield Water Dist.	\$1,396,000	\$1,146,800	\$249,200	\$1,678,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$1,749,200
Malden	\$7,272,000	\$4,629,400	\$2,642,600	\$10,605,000	\$1,060,500	\$3,181,500	\$0	\$3,181,500	\$5,824,100
Marblehead	\$4,237,000	\$0	\$4,237,000	\$5,112,000	\$511,200	\$1,533,600	\$0	\$1,533,600	\$5,770,600
Marlborough *	\$1,917,000	\$1,283,800	\$633,200	\$3,512,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$2,133,200
Medford	\$6,959,000	\$2,075,000	\$4,884,000	\$10,800,000	\$1,080,000	\$3,240,000	\$0	\$3,240,000	\$8,124,000
Melrose	\$3,988,000	\$3,988,000	\$0	\$6,865,000	\$686,500	\$2,059,500	\$1,871,000	\$188,500	\$188,500
Milton	\$4,123,000	\$3,500,000	\$623,000	\$5,967,000	\$596,700	\$1,790,100	\$0	\$1,790,100	\$2,413,100
Nahant	\$1,490,000	\$1,142,100	\$347,900	\$1,835,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$1,847,900
Needham *	\$794,000	\$794,000	\$0	\$1,894,000	\$500,000	\$1,500,000	\$337,265	\$1,162,735	\$1,162,735
Newton	\$13,602,000	\$12,241,800	\$1,360,200	\$20,837,000	\$2,083,700	\$6,251,100	\$0	\$6,251,100	\$7,611,300
Northborough *	\$1,048,000	\$986,053	\$61,947	\$1,450,000	\$500,000	\$1,450,000	\$0	\$1,450,000	\$1,511,947
Norwood	\$4,395,000	\$4,395,000	\$0	\$6,296,000	\$629,600	\$1,888,800	\$1,888,800	\$0	\$0
Peabody *	\$1,089,000	\$1,089,000	\$0	\$2,756,000	N/A +	\$2,756,000	\$2,756,000	\$0	\$0
Quincy	\$10,505,000	\$10,505,000	\$0	\$14,252,000	\$1,425,200	\$4,275,600	\$4,275,600	\$0	\$0
Reading	\$4,146,000	\$4,146,000	\$0	\$5,073,000	\$507,300	\$1,521,900	\$0	\$1,521,900	\$1,521,900
Revere	\$5,034,000	\$5,034,000	\$0	\$5,315,000	\$531,500	\$1,594,500	\$1,016,000	\$578,500	\$578,500
Saugus	\$6,621,000	\$4,234,994	\$2,386,006	\$9,688,000	\$968,800	\$2,906,400	\$0	\$2,906,400	\$5,292,406
Somerville	\$7,419,000	\$5,898,234	\$1,520,766	\$10,791,000	\$1,079,100	\$3,237,300	\$0	\$3,237,300	\$4,758,066
Southborough	\$1,512,000	\$0	\$1,512,000	\$1,920,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$3,012,000
Stoneham	\$2,339,000	\$2,339,000	\$0	\$2,742,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$1,500,000
Stoughton*	\$2,506,000	\$2,506,000	\$0	\$3,547,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$1,500,000
Swampscott	\$3,755,000	\$3,755,000	\$0	\$5,276,000	\$527,600	\$1,582,800	\$194,468	\$1,388,332	\$1,388,332
Wakefield *	\$2,325,000	\$2,325,000	\$0	\$3,356,000	\$500,000	\$1,500,000	\$1,000,000	\$500,000	\$500,000
Waltham	\$10,293,000	\$5,520,201	\$4,772,799	\$14,904,000	\$1,490,400	\$4,471,200	\$0	\$4,471,200	\$9,243,999
Watertown	\$2,978,000	\$2,978,000	\$0	\$3,745,000	\$500,000	\$1,500,000	\$500,000	\$1,000,000	\$1,000,000
Wellesley *	\$2,350,000	\$241,569	\$2,108,431	\$3,268,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$3,608,431
Weston	\$1,625,000	\$1,005,000	\$620,000	\$2,295,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$2,120,000
Wilmington *	\$611,000	\$611,000	\$0	\$1,306,000	\$500,000	\$1,306,000	\$0	\$1,306,000	\$1,306,000
Winchester *	\$882,000	\$775,000	\$107,000	\$1,394,000	\$500,000	\$1,394,000	\$0	\$1,394,000	\$1,501,000
Wintrop	\$3,312,000	\$3,312,000	\$0	\$4,119,000	N/A +	\$4,119,000	\$4,119,000	\$0	\$0
Woburn *	\$2,591,000	\$2,591,000	\$0	\$3,905,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$1,500,000
SUBTOTAL	\$200,000,000	\$165,440,166	\$34,559,834	\$278,000,000	\$31,859,500	\$101,452,500	\$29,569,431	\$71,883,069	\$106,442,903
Chicopee	\$7,153,000	\$4,035,000	\$3,118,000	\$9,774,000	\$977,400	\$2,932,200	\$0	\$2,932,200	\$6,050,200
South Hadley F.D. 1	\$1,538,000	\$1,538,000	\$0	\$2,026,000	\$500,000	\$1,500,000	\$500,000	\$1,000,000	\$1,000,000
Wilbraham	\$1,309,000	\$0	\$1,309,000	\$2,200,000	\$500,000	\$1,500,000	\$0	\$1,500,000	\$2,809,000
SUBTOTAL	\$10,000,000	\$5,573,000	\$4,427,000	\$14,000,000	\$1,977,400	\$5,932,200	\$500,000	\$5,432,200	\$9,859,200
TOTAL	\$210,000,000	\$171,013,166	\$38,986,834	\$292,000,000	\$33,836,900	\$107,384,700	\$30,069,431	\$77,315,269	\$116,302,103

* Partially Served Communities
* Exempt per Board Approval


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Memorandum of Agreement between MWRA and the Town of Arlington regarding Contract 6544 – Rehabilitation of WASM3

COMMITTEE: Water Policy & Oversight

INFORMATION
 VOTE

John P. Colbert, P.E., Chief Engineer
Michael 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 execute a Memorandum of Agreement with the Town of Arlington regarding Contract 6544, Rehabilitation of WASM 3, substantially in the form attached hereto, related to cost sharing between the Town of Arlington and the Authority for construction costs associated with the reconstruction of Broadway Plaza.

BACKGROUND:

MWRA's Weston Aqueduct Supply Main (WASM) 3 pipeline is located in Weston, Waltham, Belmont, Arlington, Somerville and Medford. The 56-inch to 60-inch diameter water pipe supplies approximately 250,000 customers in the Northern High, Intermediate High and Northern Extra High pressure zones. The pipeline is nearly 100 years old and serves as a major component of the MWRA water distribution system and as the backup to the City Tunnel system. The pipeline is scheduled to be rehabilitated by cleaning and cement mortar lining in three phases as shown in Figure 1. The first construction package (Contract 6544) includes rehabilitation of pipe in Arlington, Somerville and Medford is planned to be advertised this spring.

Two additional phases for the future rehabilitation of WASM 3 in Weston, Waltham, and Belmont are planned.

DISCUSSION:

A portion of WASM 3 is located under an outdoor brick paved commercial plaza, Broadway Plaza, in Arlington Center where Broadway and Massachusetts Avenue intersect. Work under Contract 6544 in the plaza area includes removal of an old 36-inch diameter gate valve and reducers that restrict the hydraulic capacity of the pipeline. This location also provides good access for internal cleaning and cement mortar lining of the pipe interior. The Town of Arlington is currently

developing plans for reconstructing the sidewalks along Massachusetts Avenue and the Broadway Plaza area and replacing the brick with concrete. The uneven walking surfaces of the existing brick pavement have become a public hazard and Arlington is eager to replace the bricks this summer. However, due to scheduling constraints for Contract 6544 that require pipe work to be completed during non-peak water demand periods, the pipeline work at Broadway Plaza is planned to occur during the Fall/Winter of 2020/2021 at the earliest. The Town has requested that MWRA include reconstruction of the entire plaza area under Contract 6544.

Proposed Cost Sharing Agreement

Subject to the Board's approval, MWRA has agreed to include reconstruction of the Broadway Plaza in the Contract 6544 bid documents and pay a portion of the reconstruction costs equal to the estimated cost of restoring the original brick pavement that would be disturbed or damaged as a result of the Authority's pipe rehabilitation work. Based on estimated costs of restoration of the affected area by the MWRA work (Figure 2) staff believe an equitable split of the costs is 70% MWRA and 30% Arlington for the Plaza reconstruction work. The estimated cost of the entire Plaza reconstruction is approximately \$400,000. The bid documents for Contract 6544 will include a separate line item for the Plaza reconstruction work that will serve as the basis for payment. The proposed Memorandum of Agreement provides for reimbursement to MWRA of Arlington's 30% share of the costs.

Other Major Provisions of the Agreement

- Arlington will provide drawings and specifications for the Broadway Plaza reconstruction work.
- Arlington will provide construction administration support for the Plaza reconstruction work.
- MWRA will require its selected contractor for the Project to: (i) name Arlington as an additional insured on all insurance policies required to be provided by the contractor, except for Workers Compensation; and (ii) name Arlington as an obligee on all Performance and Labor and Materials Payment Bonds provided by the contractor.
- Arlington will be responsible for its share of any potential construction change orders based on the predetermined (70/30) cost share percentages.
- MWRA will require the contractor to warrant, for the benefit of Arlington, the Plaza reconstruction work.

BUDGET/FISCAL IMPACT:

The FY20 Capital Improvement Plan includes a budget of \$20,366,500 for Contract 6544, including this Agreement.

MBE/WBE PARTICIPATION:

The D/MBE and WBE participation requirements for this contract will be established by MWRA's Affirmative Action and Compliance Unit.

ATTACHMENTS:

Figure 1: WASM 3 Rehabilitation

Figure 2: Broadway Plaza

Draft Town of Arlington - Memorandum of Agreement

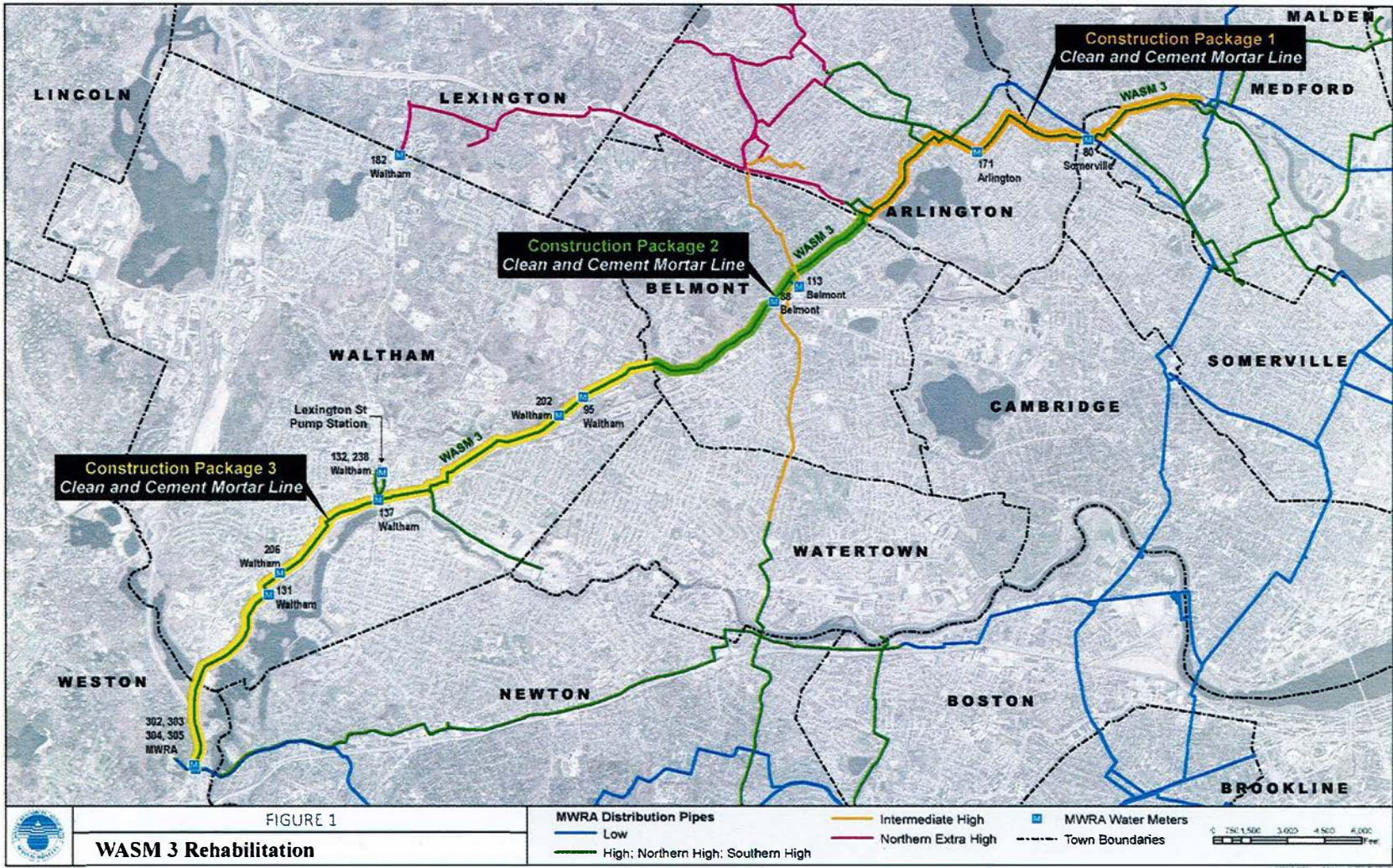




Figure 2 Broadway Plaza

MEMORANDUM OF AGREEMENT
BETWEEN
MASSACHUSETTS WATER RESOURCES AUTHORITY
AND
THE TOWN OF ARLINGTON

This MEMORANDUM OF AGREEMENT (“MOA”) is made this ____ day of _____, 2020, by and between the MASSACHUSETTS WATER RESOURCES AUTHORITY (“MWRA”), a body corporate and politic and an independent authority pursuant to St. 1984, c.372 of the laws of the Commonwealth of Massachusetts, as amended, and the TOWN of ARLINGTON (“ARLINGTON”), a municipal corporation duly organized and existing under the laws of the Commonwealth of Massachusetts having an address of 730 Massachusetts Avenue, Arlington, Massachusetts 02476 (each individually a “Party” and collectively the “Parties”).

RECITALS

WHEREAS, MWRA is undertaking a project to rehabilitate its Weston Aqueduct Supply Main 3 (“WASM 3”) located in Weston, Waltham, Belmont, Arlington, Somerville, and Medford;

WHEREAS, MWRA will have three separate WASM 3 rehabilitation contracts;

WHEREAS, the first of the three rehabilitation contracts is MWRA Contract No. 6544 - Rehabilitation of WASM 3 Sections W11/W12/W16/51 Water Mains, Medford, Somerville, and Arlington (“Project”);

WHEREAS, as part of MWRA Contract No. 6544, MWRA is planning to rehabilitate its water pipe in Arlington including removal of a valve and replacement of approximately 65 feet of 36-inch to 60-inch diameter water pipe with 60-inch diameter water pipe in Arlington's Broadway Plaza;

WHEREAS, MWRA has permanent water easements that encompass the Broadway Plaza area, which give MWRA the permanent right to access, construct, inspect, repair, renew, replace, operate and forever maintain water supply pipes, mains, gates, valves, and other related appurtenances;

WHEREAS, as part of its work in the Broadway Plaza, MWRA will need to remove and replace a significant portion of the existing brick pavers on the surface of the Plaza as well as perform tree removal;

WHEREAS, ARLINGTON has plans to renovate the Broadway Plaza in Arlington Center, and whereby ARLINGTON plans to replace the brick throughout the Plaza in a new configuration consisting of concrete panels and sidewalk between Medford Street and Broadway Avenue and add new seating and landscaping (“Broadway Plaza Renovation work”) in 2020;

WHEREAS, ARLINGTON has requested that MWRA include its Broadway Plaza Renovation work as part of MWRA's Contract 6544;

WHEREAS, MWRA and ARLINGTON have determined that it is in the best interest of both MWRA and ARLINGTON to include Arlington's Broadway Plaza Renovation work as part of MWRA's Contract 6544, and to have MWRA advertise and accept bids for MWRA Contract 6544;

WHEREAS, MWRA and ARLINGTON have agreed to be responsible for a share of the costs for the Broadway Plaza Renovation work, with MWRA being responsible for seventy (70) percent of the costs and ARLINGTON being responsible for thirty (30) percent of the costs;

WHEREAS, MWRA plans to award MWRA Contract 6544 to the lowest eligible and responsible bidder, with a Notice to Proceed expected in _____ 2020; and

WHEREAS, MWRA and ARLINGTON wish to enter into this MOA regarding certain aspects of the construction, as well as payment for and sharing of costs with respect to the Broadway Plaza Renovation work.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. PROJECT RESPONSIBILITIES AND ALLOCATION OF COSTS

1.1 MWRA will include the scope of the Broadway Plaza Renovation work in the contract documents for Contract 6544. ARLINGTON shall be responsible for the construction administrative services associated with the Broadway Plaza Renovation work including, without limitation, review of submittals, Requests for Information and Change Order requests by its consultant, Vanasse Hangen Brustlin, Inc.

1.2 The bid documents for MWRA Contract 6544 will include a separate line item for the Broadway Plaza Renovation work. MWRA will be responsible for seventy (70) percent of this line item and ARLINGTON will be responsible for thirty (30) percent of this line item. The Broadway Plaza Renovation work is detailed in the plans and specifications dated January 31, 2020 for MWRA Contract 6544. ARLINGTON shall pay MWRA for its thirty (30) percent share of the line item for the Broadway Plaza Renovation work in accordance with Section 6 of this MOA.

1.3 Consistent with the provisions of G.L. c. 44, §31C, ARLINGTON certifies that it has duly appropriated funds for its portion of the costs of the Broadway Plaza Renovation work that is being constructed on its behalf based upon the current cost estimate of Four Hundred Thousand Dollars (\$400,000). Following the opening by MWRA of bids for Contract 6544 and prior to award by MWRA, ARLINGTON shall re-certify that it has duly appropriated funds to cover all its costs for both the design and construction portions of the Broadway Plaza Renovation work.

1.4 In the MWRA Contract 6544 contract documents, MWRA shall require its selected contractor for the Project to: (i) name ARLINGTON as an additional insured on

all insurance policies required to be provided by such contractor for the Project, except for Workers Compensation; and (ii) name ARLINGTON as an obligee on all Performance and Labor and Materials Payment Bonds provided by the contractor under the construction contract.

1.5 In the MWRA Contract 6544 contract documents, MWRA shall cause its contractor to warrant, for the benefit of ARLINGTON, all work related to the Broadway Plaza Renovation as part of MWRA Contract 6544 against defects in materials and workmanship for a period of one (1) year from substantial completion of the Project in accordance with standard MWRA contract terms. Provision shall be made for the contractor to repair or replace all defective work within said one-year period in accordance with standard MWRA contract terms.

1.6 In the MWRA Contract 6544 contract documents, MWRA shall cause its contractor to indemnify and hold harmless ARLINGTON to the same extent that MWRA requires its contractor to indemnify and hold harmless the MWRA.

1.7 ARLINGTON reserves the right to provide and pay for its own resident inspection solely for that portion of the Project concerning its Broadway Plaza Renovation work. MWRA agrees that it shall provide access to ARLINGTON's inspector at the work site and shall cooperate with ARLINGTON's inspector with regard to any reasonable requests for assistance in inspecting the work.

2. ADVERTISEMENT AND AWARD OF CONTRACT

2.1 In accordance with Massachusetts public construction bid laws, MWRA shall advertise and accept bids for MWRA Contract 6544. MWRA, in its sole discretion, reserves the right to reject any and/or all bids for the reasons articulated in the MWRA Contract 6544 bid solicitation materials and/or as provided by law.

2.2 If and/or when MWRA awards a contract for the Project and enters into a contract with the successful bidder, such contract shall include the Broadway Plaza Renovation work in accordance with the plans and specifications dated January 31, 2020 for Contract 6544.

3. CHANGE ORDERS & CLAIMS

In the event of a request for a Change Order relating to or arising out of the Broadway Plaza Renovation work, MWRA will provide ARLINGTON with a copy of the proposed Change Order for review. After conferring with ARLINGTON, MWRA shall process such Change Order that MWRA approves. MWRA will be responsible for payment of seventy (70) percent and ARLINGTON will be responsible for payment of thirty (30) percent of the costs of such approved Change Orders. The costs for such approved Change Orders shall be included in the contractor's monthly invoices to MWRA. ARLINGTON shall pay MWRA for its thirty (30) percent share of such approved Change Orders in accordance with Section 6 of this MOA.

In the event the contractor submits a claim for additional compensation relating to or arising out of the Broadway Plaza Renovation work, which claim sums are not included in an approved Change Order, MWRA shall provide ARLINGTON a copy of such claim and the parties shall confer and cooperate with each other and assist in the defense of and/or resolution of such claim.

4. HAZARDOUS MATERIALS

MWRA shall take all actions necessary or appropriate in accordance with G.L. c. 21E and the Massachusetts Contingency Plan (“MCP”) Utility Related Abatement Measures (“URAM”) necessary to conduct the work under the Project.

5. TERM

The term of this MOA shall, unless otherwise agreed to by the Parties, commence on the date written above and continue until final completion of the Project and any Warranty period in MWRA Contract 6544.

6. PAYMENT BY ARLINGTON

The contractor shall submit monthly invoices to MWRA for the work on the Project, including the Broadway Plaza Renovation work and approved Change Orders, in accordance with the contract documents. MWRA shall pay the contractor its monthly invoices in accordance with the contract documents. ARLINGTON shall make payment to MWRA of its thirty (30) percent share of the amounts requested in the contractor’s monthly invoice for the work in the line item associated with the Broadway Plaza Renovation and for approved Change Orders, as referenced herein, within 15 days of receiving invoices from MWRA. Payment amounts shall be in accordance with the Schedule of Values submitted by the contractor and approved by MWRA. The MWRA will invoice ARLINGTON on a monthly basis.

7. AMENDMENTS

The Parties may amend this MOA only by a writing duly executed by both Parties.

8. SEVERABILITY

If any part of this MOA is determined to be invalid, illegal, or unenforceable, such determination shall not affect the validity, legality, or enforceability of any other part of the Agreement and the remaining parts of this MOA shall be enforced as if such invalid, illegal or unenforceable part were not contained herein, unless continued performance of the remaining provisions of this MOA, which have not been determined to be invalid, illegal or unenforceable, would result in the substantial loss of the benefit of the bargain to either MWRA or ARLINGTON.

9. NOTICE

Whenever, by the terms of this instrument, notices may or are to be given either to ARLINGTON or MWRA, such notice shall be deemed to have been given, if in writing and either delivered by hand or by U.S. mail to the following addresses:

To ARLINGTON: Adam Chapdelaine, Town Manager
Town of Arlington
730 Massachusetts Avenue
Arlington, MA 02476

To MWRA: John Colbert, Chief Engineer
Massachusetts Water Resources Authority
2 Griffin Way
Chelsea, MA 02150

10. ENTIRE AGREEMENT

This MOA constitutes the entire agreement between the Parties with respect to the subject matter hereof and supersedes all prior agreements, understandings, expectations, negotiations, and discussions of the Parties, whether oral or written. There are no representations by either Party, which are not specifically set forth in this MOA.

11. GOVERNING LAW

This MOA shall be executed and delivered in the Commonwealth of Massachusetts and shall be construed and enforced in accordance with, and shall be governed by, the laws of the Commonwealth of Massachusetts.

12. DISPUTES/COOPERATION

The Parties shall each use their best efforts to cooperate in the performance of the Project by appointing appropriate representatives who, respectively, shall be responsible for expediting and responding to any and all inquiries, problems, and matters requiring coordination among the Parties concerning the bid pricing, scheduling, performance, progress or completion of the Project. Any and all disputes which arise and which the Parties cannot amicably resolve during the course of the performance of the Project, if at all possible, shall be resolved after the completion of the Project.

13. COUNTERPARTS

This MOA may be executed in duplicate counterparts, each of which shall be deemed an original and both of which shall constitute one and the same instrument.

14. AUTHORITY

Each person signing in an official or representative capacity warrants that he or she is duly authorized to act for his or her principal and that he or she is so acting when signing this MOA, and that, when executed this MOA shall be a valid and binding obligation, enforceable in accordance with its terms.

15. NO PRESUMPTION

The Parties agree that this MOA shall be construed without any regard to any presumption or other rule requiring construction or interpretation against the party causing this Agreement to be drafted.

IN WITNESS WHEREOF, the Parties hereto have caused the MOA to be executed as a sealed instrument and signed in duplicate by their duly authorized representatives.

EXECUTED AS A SEALED INSTRUMENT this _____ day of _____, 2020.


MASSACHUSETTS WATER RESOURCES
AUTHORITY

TOWN OF ARLINGTON

By: _____
Frederick A. Laskey
Executive Director

By: _____
Adam Chapdelaine
Town Manager

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Diver Assisted Suction Harvesting of Invasive Aquatic Plants at Wachusett Reservoir Lower Basins and Coves, 2020 Season, AE Commercial Diving Services
WRA-4814

COMMITTEE: Water Policy & Oversight

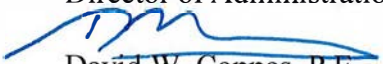
INFORMATION

VOTE


Michele S. Gillen

Director of Administration

John J. Gregoire, Program Manager, Reservoir Operations
Mark Johnson, P.E., Director of Waterworks
Preparer/Title


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

RECOMMENDATION:

To approve the award of a purchase order contract for the control of invasive plants in the Wachusett Reservoir lower basins and main reservoir coves to the lowest responsive bidder under Bid WRA-4814, AE Commercial Diving Services, and to authorize the Executive Director, on behalf of the Authority, to execute said purchase order contract in the bid amount of \$375,200 for a term of six months from July 1, 2020 to November 30, 2020.

DISCUSSION:

MWRA first began to address invasive aquatic plants at Wachusett Reservoir in 2002, when they were raised as a concern. Since that time, MWRA's program to control and eradicate aquatic invasive plants has evolved based on reservoir conditions and techniques available. Early efforts involved laborious diver hand pulling of these plants. The current method deployed here is Diver Assisted Suction Harvesting (DASH), a proven combination of diver and mechanical vacuum approach.

The target invasive plants in these areas are Eurasian Watermilfoil (*Myriophyllum spicatum*), Fanwort (*Cabomba caroliniana*), and Variable Leaf Milfoil (*Myriophyllum heterophyllum*). All three of these plants are known to aggressively displace native vegetation and grow to nuisance densities with associated impairments to water quality. Staff are focused on keeping these plants from colonizing new areas of Wachusett Reservoir, especially the large North Basin shallows near the Cosgrove Intake (Figure 1).

As reported to the Board of Directors in February 2020, staff are having success on the upstream Stillwater Basin DASH project, which has allowed for evolution to a scaled-down spot removal effort there. The lower basins and coves throughout the reservoir (Figure 1) are also showing reductions in the invasive plant populations and the robust return of native plants.

The focus of this contract is for a maintenance level of effort for the lower basins and coves and for large-scale basin-wide removal in the Quinapoxet Basin (Figure 2), which has dense Variable Leaf Milfoil growth.

One DASH boat and crew will operate across two phases (early growth in the summer months and in the fall to address regrowth) in the lower basins and main body coves from July through November 2020.

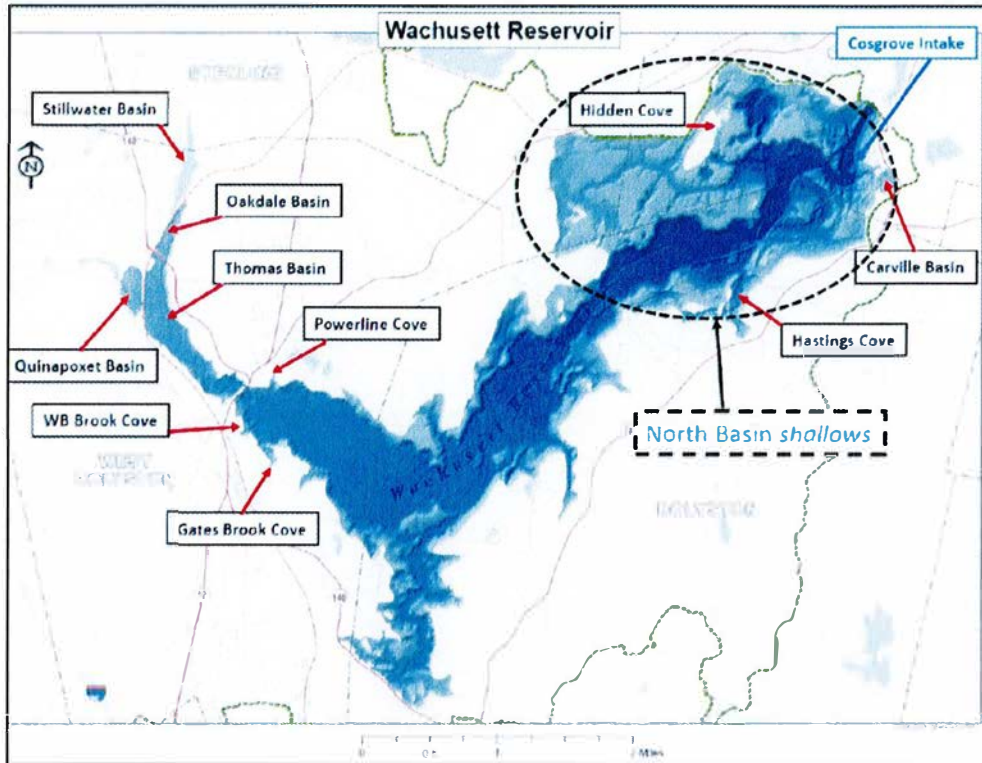


Figure 1. Wachusett Reservoir DASH work areas

A second DASH boat and full crew of divers and surface tenders will be dedicated to work the entire Quinapoxet Basin over one full pass, including the immediate upstream Quinapoxet River area, from July through November.

The contract also includes provisions for a stand-by DASH boat and crew as needed, and an allowance of \$9,600 for rapid response in the event of new invasive plant discovery.

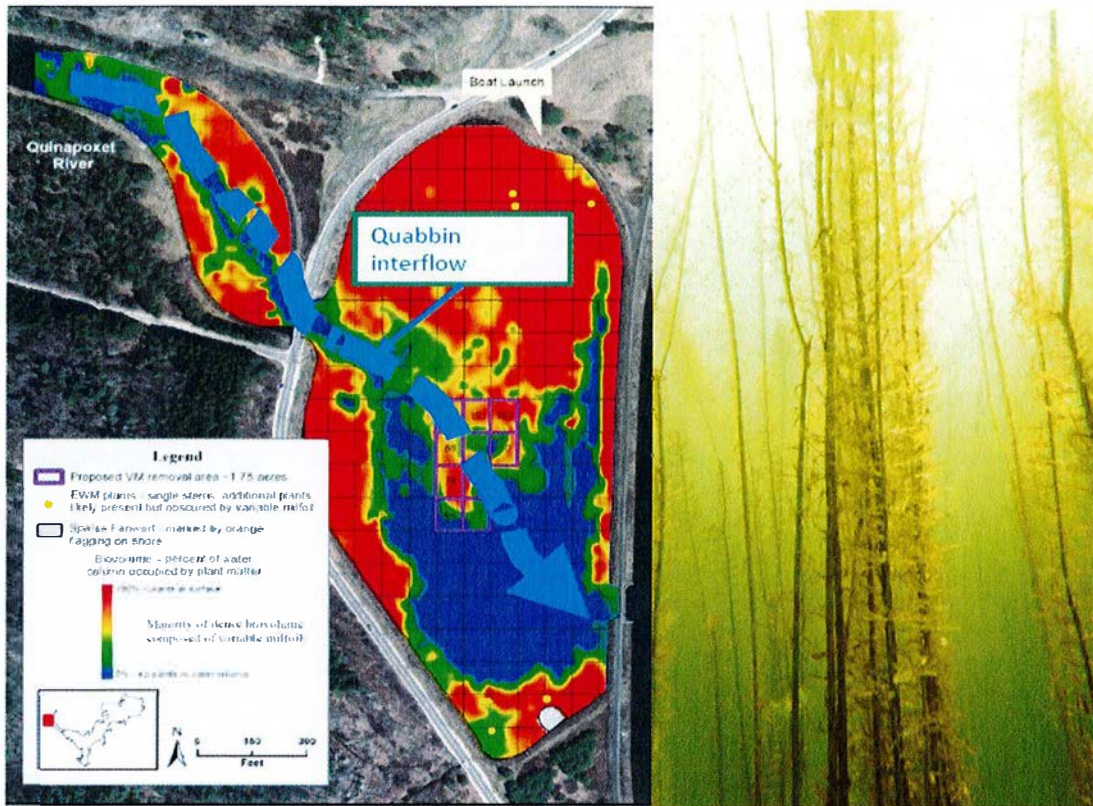


Figure 2. Quinapoxet Basin density (red areas) and underwater photo of VLM

A Quality Assurance diving contractor will be procured separately to inspect the DASH work zones weekly after this contractor has reported work completion in these areas. These areas will be mapped and videotaped for documentary purposes, to support pay requisitions by the DASH contractor, and to ensure that specific target areas are easily identified if contractor re-work is necessary. The QA Diver also documents the return of native plants to the DASH harvest areas.

Procurement Process

Bid WRA-4184 was advertised in the following publications: Boston Herald, Goods and Services Bulletin, El Mundo, and Banner Publications. In addition, bids were made available for public downloading on MWRA’s e-procurement system (Event 4184).

On February 18, 2020 Event 4184 closed with the following results

<u>BIDDERS</u>	<u>BID AMOUNT</u>
AE Commercial Diving Services	\$375,200
<i>Staff Estimate</i>	<i>\$300,000</i>

Procurement solicited six potential vendors with no response. As in 2019, only one bid was received. Staff are aware that, while there are other environmental companies doing lake treatment work, there are few vendors doing Diver Assisted Suction Harvesting in our region. The current vendor is based out of Vermont and relocates his operation and personnel to Massachusetts for this work. The only other vendor who had performed DASH for MWRA previously has relocated

business operations to upstate New York.

The staff estimate was under the bid price due to some difficulty forecasting a first full-basin DASH effort in Quinapoxet Basin, which included the upstream river component that had not been previously performed.

Staff have reviewed AE Commercial Diving Services' bid and have determined that it meets all of the requirements of the specifications. Staff contacted the firm about the bid price and the firm confirmed that it could perform the work for the bid price. AE Commercial Diving has successfully performed the Stillwater Basin and the Lower Basins seasonal DASH work in 2014 through 2019. The firm demonstrated that it has the qualifications, skill, ability, equipment, and experience necessary to satisfactorily complete all requirements of this purchase order contract. References were checked and found to be favorable.

BUDGET/FISCAL IMPACT:

The FY21 Proposed CEB includes \$300,000 for this DASH project. The FY21 Current Expense Budget will absorb the difference.

MBE/WBE PARTICIPATION:

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

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 18, 2020
SUBJECT: Northern Intermediate High Section 110 – Stoneham
Albanese D&S Inc.
Contract 7067, Change Order 13



COMMITTEE: Water Policy and Oversight

INFORMATION
 VOTE

Corinne M. Barrett, Director, Construction
Jeremiah Sheehan, Construction Coordinator
Preparer/Title



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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 13 to Contract 7067, Northern Intermediate High Section 110 Stoneham, with Albanese D&S Inc., for an amount not to exceed \$75,000, increasing the contract amount from \$25,342,047.60 to \$25,417,047.60, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7067 in an amount not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

DISCUSSION:

MWRA's Northern Intermediate High service area provides water to the communities of Reading, Stoneham, Wakefield, Wilmington, Winchester, and Woburn through a single 48-inch pipeline, which is fed by the Gillis Pump Station at Spot Pond in Stoneham. Although some of these communities are partially served by MWRA, the loss of this single transmission main would result in a rapid loss of service in Reading, Stoneham and Woburn, and potential water restrictions in Wakefield, Wilmington and Winchester.

The existing main pipeline that served this area (Section 89) is a three-mile-long, 4-foot diameter, pre-stressed concrete cylinder pipe transmission main with limited redundancy except for Section 29, which is a 24-inch century old pipeline that parallels Section 89 for a short distance. Due to the lack of redundancy, Section 89 could not be taken out of service for inspection or for repairs. The project goal was to design and construct a new pipeline that will provide redundancy to the community meters so that Section 89 can be removed from service for inspection and rehabilitation. Under Contract 7067, or Contract 4, the Contractor excavated and installed 13,215 linear feet of 48-inch water transmission main connecting to previous MWRA construction contracts in the Town of Stoneham.

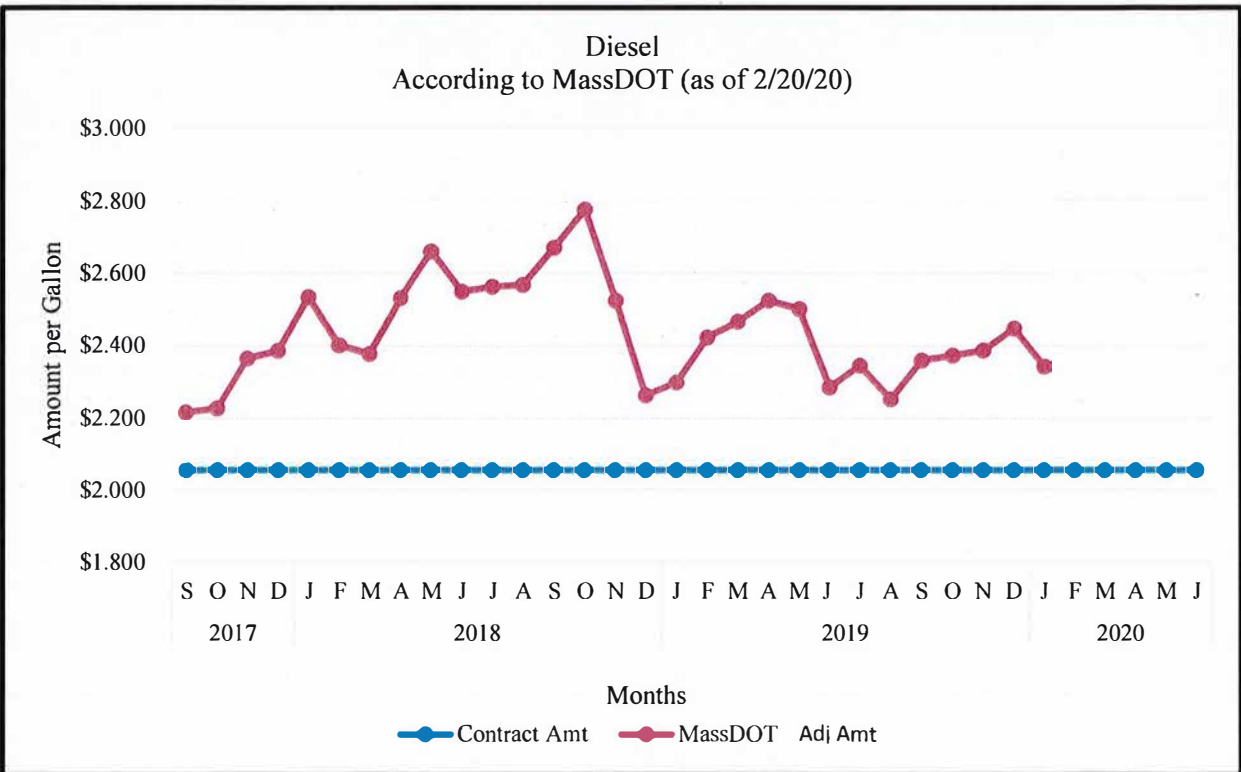
This Change Order

Change Order 13 consists of the following item:

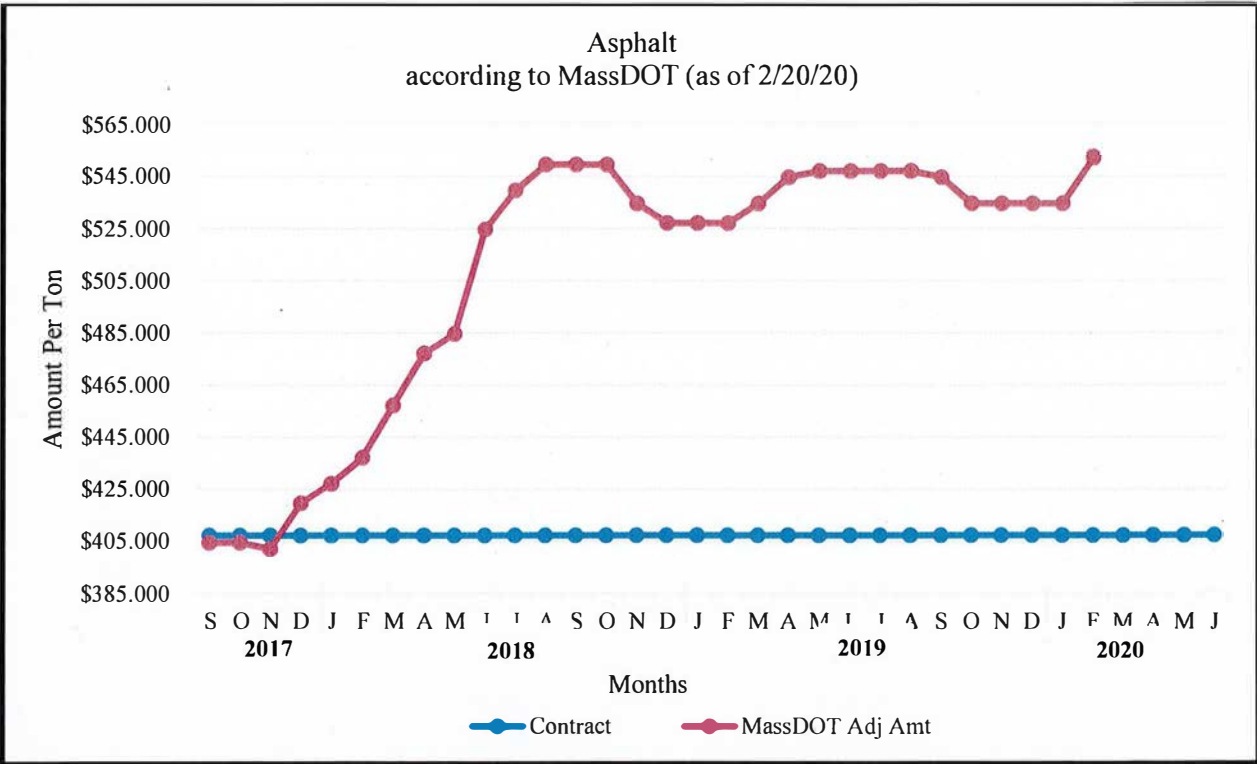
Increase Diesel Fuel, Gasoline, Liquid Asphalt and Portland Cement Allowance NTE \$75,000

Due to the price uncertainty of certain commodities such as liquid asphalt, portland cement, diesel fuel, gasoline, structural steel, and reinforcing steel, M.G.L. c. 30, sec. 38A requires that selected projects must make contract adjustments if the commodity prices vary more than 5% from the original stated amount at the time of bid. MassDOT collects and publishes the allowable reimbursement rate for commodities on a monthly basis on their website.

MWRA’s contract was awarded in September 2017 and included an allowance for price adjustments of diesel fuel, gasoline, liquid asphalt, and portland cement in the amount of \$30,000.00. The original designated cost for diesel fuel oil at that time was \$2.055 per gallon and the original designated cost for liquid asphalt was \$407.50 per ton. Since the contract award, the price of diesel fuel and liquid asphalt has steadily increased with rates for diesel fuel oil fluctuating as high as \$2.77 (35% increase) and liquid asphalt as high as \$550.00 (35% increase). Change Order 8 which increased Line Item 4 allowance in the amount of \$60,000 has been expended due to the continuing escalation in price. The contract expires on June 1, 2020 and staff anticipate that the prices will remain at this higher level until the end of the contract. Staff estimate that the remaining work which includes a substantial amount of paving or liquid asphalt, will require an additional \$75,000.00 to reimburse the Contractor for the escalation costs of these commodities.



Graph of Diesel Price from September 2017 to February 2020



Graph of Asphalt Prices from September 2017 to February 2020

The approved PCO has been identified by staff as an overrun in quantities. MWRA staff, the Consultant, and the Contractor have agreed to an amount not to exceed \$75,000.00.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract:	\$22,737,300.00	1,000 Days	07/31/17
Change Orders:			
Change Order 1*	\$20,000.00	0 Days	07/31/18
Change Order 2	\$350,000.00	0 Days	07/31/18
Change Order 3	\$283,500.00	0 Days	11/30/18
Change Order 4*	\$150,000.00	0 Days	12/18/18
Change Order 5	\$1,038,806.52	0 Days	02/07/19
Change Order 6*	\$20,389.20	0 Days	03/05/19
Change Order 7*	\$13,297.25	0 Days	04/09/19
Change Order 8*	\$118,908.00	0 Days	08/14/19
Change Order 9*	\$79,713.94	0 Days	10/15/19
Change Order 10	\$302,959.00	0 Days	10/29/19
Change Order 11*	\$129,494.59	0 Days	02/18/20
Change Order 12*	\$97,679.10	0 Days	Pending
Change Order 13	<u>\$75,000.00</u>	<u>0 Days</u>	Pending
Total of Change Orders:	\$2,679,747.60	0 Days	
Adjusted Contract:	\$25,417,047.60	1,000 Days	

*Approved under delegated authority

If Change Order 13 is approved, the cumulative value of all change orders to this contract will be \$2,679,747.60 or 11.8% of the original contract amount. Work on this contract is approximately 88% complete.


BUDGET/FISCAL IMPACT:

The FY20 Capital Improvement Program budget includes \$24,803,496 for Contract 7067. Including this change order for \$75,000, the adjusted subphase total will be \$25,417,047.60 or \$613,551.60 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The MBE/WBE participation requirements for this project were established at 7.24% and 3.6%, respectively. The Contractor has been notified that these requirements are still expected to be met.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Southern Extra High Pipeline Section 111 - Dedham South
RJV Construction Corp.
Contract 7505, Change Order 4

COMMITTEE: Water Policy and Oversight

INFORMATION
 VOTE

Corinne M. Barrett, Director, Construction
Terrence Flynn, P.E., Construction Coordinator
Preparer/Title


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

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 4 to Contract 7505, Southern Extra High Pipeline Section 111 - Dedham South, with RJV Construction Corp., for an amount not to exceed \$1,325,000, increasing the contract amount from \$19,576,087.42 to \$20,901,087.42, and extending the contract term by 205 calendar days from November 7, 2020 to May 31, 2021.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7505 in an amount not to exceed the aggregate of \$250,000 and 180 days, in accordance with the Management Policies and Procedures of the Board of Directors.

DISCUSSION:

Contract 7505, Section 111 - Dedham South is the third of three construction contracts under the Southern Extra High Redundancy Project. It consists of installation of 6,800 linear feet of 36-inch water main in Dedham and in Westwood, and includes pipe jackings at the Dedham Corporate MBTA Station and at the MassDOT Route 95 East Street Rotary. Also included are connections to the recently installed Section 111 and tapping into the existing Section 77 at two locations. In addition, the contract includes installation of large isolation valves at MWRA Meters 188 and 330; installation of 4,000 feet of local water main with hydrants, valves and services; and roadway restoration along with disinfection and activation of the pipeline of all three Southern Extra High contracts, which is scheduled for late 2020.

This Change Order

Change Order 4 consists of the following three items:

Provide Full Width Road Reconstruction Including Pulverization
In Lieu of the Specified Full Width Mill and Overlay

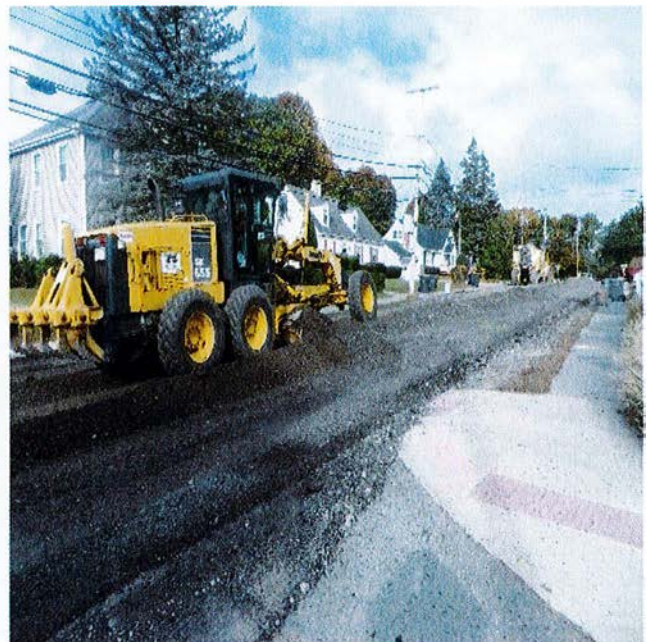
Not to Exceed \$550,000

The contract requires installation of temporary pavement, permanent trench patch, and full width mill and overlay for pavement restoration on the upper 2,800 feet of Rustcraft Road that was excavated for the installation of the new 36-inch ductile iron pipe. The contract requires the remaining pipeline alignment on Town of Dedham roadways to be pulverized for a full depth reclamation with only a base coarse of pavement placed because of upcoming work by Dedham on these roadways. After commencement of the contract, the Dedham Town Engineer and Department of Public Works noted that multiple temporary trenches on Rustcraft Road required for the relocation of adjacent utilities and the installation of the new 36-inch main have resulted in the majority of the upper portion of Rustcraft Road having been excavated and temporarily patched. These trenches included the installation of the new MWRA pipeline, replacement of the Dedham Westwood Water District water main, several unanticipated trenches for gas main relocations by Eversource and replacement of a Town of Dedham drain line.

Installation of multiple permanent trench patches with a full width mill overlay would not provide a stable and durable roadway surface. Therefore, pulverization of the top 12-inches of roadway followed by full width reconstruction and an asphalt overlay for the first 2,800 feet of Rustcraft Road will be required. The lower portion of Rustcraft Road will remain as specified.



Paving after pulverization (from similar project)



Grading after pulverization (from similar project)

This item has been identified as an unforeseen condition. MWRA staff, the Consultant, and the Contractor have agreed to a not to exceed amount of \$550,000 for this additional work with no increase in contract term.

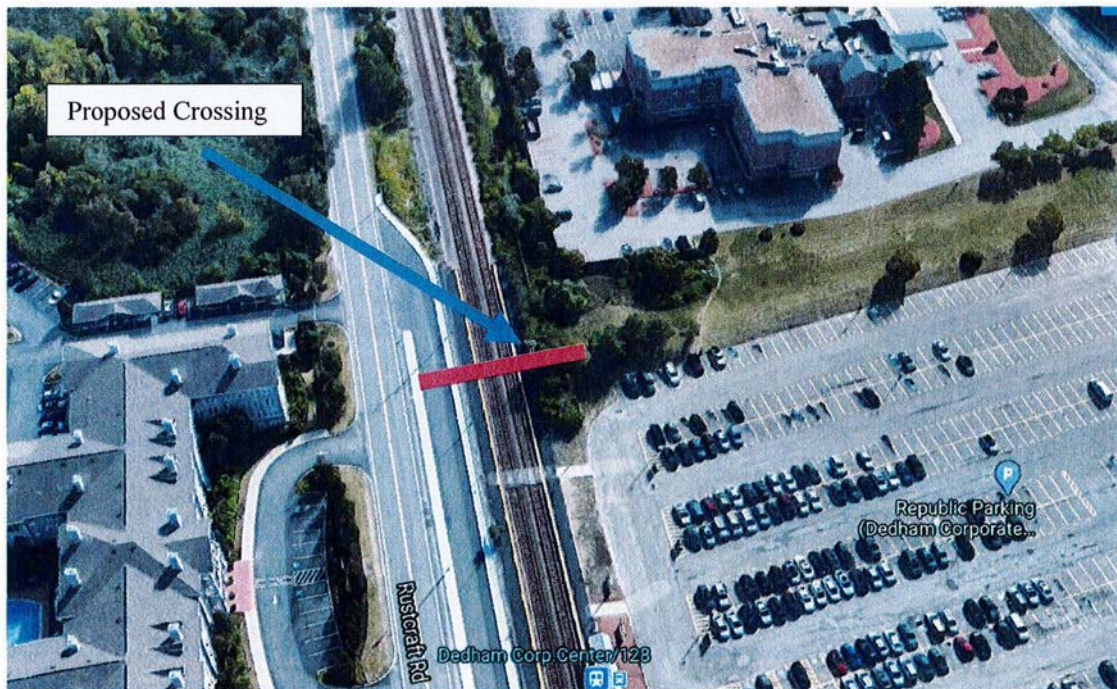
Furnish and Install Casing Pipe Under the MBTA Tracks
By Alternate Auger Bore Method and Deep Well Dewatering
And Extend the Contract Time by 205 Calendar Days

Not to Exceed \$550,000

The contract work includes a trenchless crossing under the MBTA Commuter Rail tracks adjacent to Rustcraft Road in Dedham by “Open Shield Pipe Jacking.” During design, staff were not successful in getting MBTA to commit to construction parameters and based the design on a 2014 MBTA Railroad Directorate.

After commencement of the contract, the MBTA indicated that the specified method of “Open Shield Pipe Jacking” utilizing chemical grouting for soil stabilization for this crossing would not be allowed. Without chemical grouting, the design omitted groundwater dewatering necessary due to the depth of crossing and high groundwater. The MBTA in its post bid review of this crossing denied the use of chemical grout for soil stabilization and required the casing installation be completed by an alternate, “Auger Bore,” method. MWRA staff met with MBTA staff numerous times to attempt to receive approval of alternative installation methods; however, the MBTA determined that the only crossing method acceptable at this location would be the auger bore method with deep well dewatering for groundwater control. In addition, the contract must be extended by 205 calendar days to complete the remaining work.

The deep well dewatering system results in expanding the area of influence to the trenchless crossing that will require additional monitoring. The monitoring will include a number of utilities, roadway and sidewalk settlement, and an extended length of MBTA track that will require continuous surveying monitoring systems.



MBTA Overhead view

This item has been identified as an unforeseen condition and a design omission. MWRA staff and the Contractor have agreed to a not to exceed amount of \$550,000 for this additional work and to extend the contract term by 205 calendar days from November 7, 2020 to May 31, 2021.

Although the Consultant agrees with the pricing for this item included in this change order, it does not agree with MWRA's determination of design omission.

Remove and Replace Drain Pipes; Bypass Existing
Drain for Two Months; Furnish and Install New Culvert
Then Remove the Temporary System

Not to Exceed \$225,000

When the Contractor began excavating to install the new 36-inch ductile iron water main heading south on Rustcraft Road from the new valve vault, the existing 36-inch ABS plastic drain line was found to be surcharged due to the drain outlet being below the water level in the brook where it discharges. The drain was also perforated and off center from the drain manholes resulting in the drain being about 1-foot closer to the new water main alignment than shown on the design drawings. Base mapping produced to develop the design drawings did not pick up the offset of the drain piping from the existing drain manholes and it was not shown on Town records. The close proximity of the existing drain to the new pipe, along with it being surcharged resulted in not only drainage of the water from the brook back towards the Contractor's excavation, but the full drain pipe sagging towards the Contractor's excavated trench. In order to complete the water pipeline installation, the existing drain had to be dewatered, removed, and replaced where it sagged towards the trench. The bypass of the existing drain must remain in place until approximately 1,000 linear feet of the new 36-inch ductile iron is installed beyond the brook to ensure more of the drain does not become damaged.

Additionally, when the Contractor's excavation for the new 36-inch ductile iron pipe reached farther south on Rustcraft Road, an existing 30-inch double barrel concrete culvert was found crossing Rustcraft Road. The Town had no knowledge of this culvert and the drain was not identified during the design phase base mapping of existing utilities as the outlets on either side of Rustcraft Road appear to be normally submerged. The Town indicated that this culvert may have been installed by the MBTA when they were working on their tracks to connect wetlands on either side of Rustcraft Road to divert standing water away from the tracks. In order to complete the water pipeline installation, the existing culvert had to be plugged, dewatered, and removed while the 36-inch ductile iron pipe was being installed, and then replaced with new 30-inch double barrel reinforced concrete pipe.



ABS Pipe Along Side New Section 111 Trench



Double Barrel RCP Drain Replacement

This item has been identified as an unforeseen condition. MWRA staff, the Consultant, and the Contractor have agreed to a not to exceed amount of \$225,000 for this additional work with no increase in contract term.

Staff are compiling a list of all change order items that have resulted from an error or omission and will conduct a review at the end of the project regarding responsibility of the Design Consultant, Stantec, and the potential for any cost recovery.

CONTRACT SUMMARY:

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract:	\$19,375,000.00	820 Days	08/10/18
Change Orders:			
Change Order 1*	\$77,981.22	0 Days	11/15/19
Change Order 2*	\$15,850.00	0 Days	01/23/20
Change Order 3*	\$107,256.20	0 Days	03/06/20
Change Order 4	<u>\$1,325,000.00</u>	<u>205 Days</u>	Pending
Total of Change Orders:	<u>\$1,526,087.42</u>	<u>205 Days</u>	
Adjusted Contract:	\$20,901,087.42	1,025 Days	

*Approved under delegated authority

If Change Order 4 is approved, the cumulative value of all change orders to this contract will be \$1,526,087.42 or 8% of the original contract amount. Work on this contract is approximately 50% complete.


BUDGET/FISCAL IMPACT:

The FY20 CIP includes a budget of \$19,085,000 for Contract 7505. Including this change order for \$1,325,000, the adjusted subphase total will be \$20,901,087.42 or \$1,816,087.42 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The D/MBE and WBE participation requirements for this project were established at 4.2% and 4.5%, respectively. The Contractor has been notified that these requirements are still expected to be met.


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: March 18, 2020
SUBJECT: Commonwealth Avenue Pumping Station Improvements
WES Construction Corp.
Contract 7524, Change Order 4

COMMITTEE: Water Policy and Oversight

INFORMATION
 VOTE

Corinne M. Barrett, Director, Construction
Eleanor Duffy, P.E., Asst. 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 Change Order 4 to Contract 7524, Commonwealth Avenue Pumping Station Improvements, with WES Construction Corp., for a not to exceed amount of \$225,000, increasing the contract amount from \$7,128,123.12 to \$7,353,123.12, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7524 in an amount not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

DISCUSSION:

The Commonwealth Avenue Pumping Station supplies water to 85 percent of the City of Newton. The pumping station is supplied through a single connection to Shaft 6 of MWRA's High Service City Tunnel.

The Commonwealth Avenue Pumping Station was originally placed into service in 1953 and has received a variety of improvements over the years including a renovation completed in 1999. That renovation upgraded the capacity and reliability of the pump station, included the construction of a new West Building to contain two additional pumps and a 900kW diesel-generator, and rehabilitation of the existing East Building with new piping, valves and two pumps.

This construction contract includes the installation of a new 24-inch diameter suction pipe to the East Building from the Weston Aqueduct Supply Main Low Service 48-inch (WASM 1) and 60-inch (WASM 2) pipes located in the Carriage Lane of Commonwealth Avenue across the street from the pump station, and the installation of two new pumps (one replacement and one new) capable of pumping from the low service gradelines to provide water supply redundancy. This redundancy will allow the pump station to operate in the event that Shaft 6 of the City Tunnel cannot provide suction to the pump station. The project also includes new Supervisory Control

and Data Acquisition (SCADA) instrumentation and controls, new heating, ventilation and air conditioning equipment to replace older equipment that has a history of maintenance issues, painting of the suction and discharge piping, and new suspended ceilings in the office/control rooms and bathrooms.

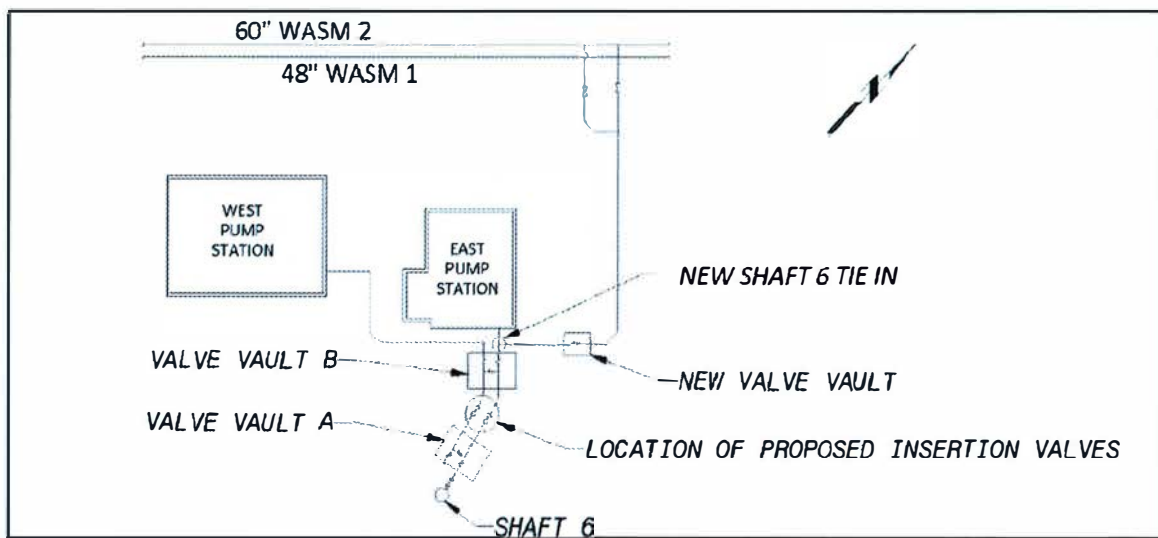
This Change Order

Change Order 4 consists of the following item:

Furnish and Install Two 24-inch Insertion Valves

Not to Exceed \$225,000

The new 24-inch suction pipe will connect into the existing Shaft 6 suction main to the East Building. In order to perform this tie in, the existing Shaft 6 suction main to the East Building must be isolated and dewatered.



Location Plan for Insertion Valve

After commencement of the contract, isolation of the existing Shaft 6 suction mains was attempted. The existing valves were fully closed, but there was excessive leakage that will prohibit the tie-in work. The isolation valves had been operated during design to ensure closure, but dewatering of the line had not been attempted. The valves were installed in 1999 as part of the last pump station overhaul. Given the age of the valves and operability, it was assumed they would stop flow with acceptable leakage to allow the work to be performed. Staff suspect the rubber seats have degraded due to disinfectant breakdown; an analysis of the failed valves will be performed after this work is completed. Rubber seats and gaskets have evolved in the last 20 years in response to water industry reports of failures of materials in contact with chloramines, the residual disinfectant used by the MWRA and many other water systems. MWRA switched to purchasing chloramine-resistant EPDM materials for valve seats and gaskets years ago to prevent this type of failure.

Two new insertion valves will need to be installed on the existing Shaft 6 suction mains in order to perform the contract work while maintaining suction service to the pump station. The work in this change order includes a 10-foot excavation to the existing pipeline, installation of the valves, and site restoration.

The change has been identified by staff as an unforeseen condition. MWRA staff, the Consultant, and the Contractor have agreed to an amount not to exceed \$225,000. This work has not begun.

CONTRACT SUMMARY:

	AMOUNT	TIME	DATED
Original Contract:	\$6,879,500.00	580 Days	02/04/19
CHANGE ORDERS:			
Change Order 1*	\$7,261.59	0 Days	12/09/19
Change Order 2*	\$146,503.51	0 Days	02/03/20
Change Order 3*	\$94,858.02	0 Days	Pending
Change Order 4*	<u>\$225,000.00</u>	<u>0 Days</u>	Pending
Total Change Orders	\$473,623.12	0 Days	
Adjusted Contract:	\$7,353,123.12	580 Days	

*Approved under delegated authority

If Change Order 4 is approved, the cumulative total value of all change orders to this contract will be \$473,623.12 or 7% of the original contract amount. Work on this project is approximately 52% complete.

BUDGET/FISCAL IMPACT:

The FY20 CIP includes a budget of \$6,879,500 for Contract 7524. Including this change order for \$225,000, the adjusted subphase will be \$7,353,123.12 or \$473,623.12 over budget. This amount will be absorbed within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The D/MBE and D/WBE participation requirements for this project were established at 4.2% and 4.5%, respectively. The Contractor has been notified that these requirements are still expected to be met.



MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

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

BOARD OF DIRECTORS' MEETING

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

to be held on

Wednesday, March 18, 2020

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

Time: 1:00 p.m.

AGENDA

I. APPROVAL OF MINUTES

II. REPORT OF THE CHAIR

III. REPORT OF THE EXECUTIVE DIRECTOR

A. Update on Pandemic Response

IV. BOARD ACTIONS

A. Approvals

1. PCR Amendments – March 2020 (ref. P&C A.1)
2. Amendments to Capital Finance Management Policy (ref. AF&A B.1)
3. Approval of the Eighty-Second Supplemental Resolution (ref. AF&A B.2)
4. Approval of the Eighty-Third Supplemental Resolution (ref. AF&A B.3)
5. Memorandum of Agreement between MWRA and the Town of Arlington, Contract 6554 – Rehabilitation of WASM 3 (ref. W B.1)

B. Contract Awards

1. Employee Assistance Services: Employee Assistance Services: AllOne Health, Contract A625 (ref. P&C B.1)
2. Disclosure Counsel Services, McCarter & English LLP, Contract F255 (ref. AF&A C.1)

B. Contract Awards (continued)

3. Deer Island Demand Response Services: Direct Energy Business Marketing, LLC, Contract S594 (ref. AF&A C.2)
4. Maintenance and Support of the Integrated Financial, Procurement and Human Resources/Payroll Management System: Infor Inc. (ref. AF&A C.3)
5. MWRA Dorchester Interceptor Sewer Rehabilitation, Sections 240/241/242: Michels Corp., Contract 7279 (ref. WW B.1)
6. Electrical Testing and Technical Services – Metropolitan Boston: Infra-Red Building and Power Service, Inc., Contract OP-409 (ref. WW B.2)
7. Diver Assisted Suction Harvesting of Invasive Plants at Wachusett Reservoir Lower Basin and Coves: AE Commercial Diving Services, WRA-4814 (ref. W C.1)

C. Contract Amendments/Change Orders

1. Chelsea Creek Headworks Upgrade: BHD/BEC 2015, A Joint Venture, Contract 7161, Change Order 36 (ref. WW C.1)
2. CSO Post-Construction Monitoring and Performance Assessment: AECOM Technical Services, Inc., Contract 7572, Amendment 2 (ref. WW C.2)
3. Northern Intermediate High Section 110 – Stoneham: Albanese D&S Inc., Contract 7067, Change Order 13 (ref. W D.1)
4. Southern Extra High Pipeline Section 111 – Dedham South: RJV Construction Corp., Contract 7505, Change Order 4 (ref. W D.2)
5. Commonwealth Avenue Pumping Station Improvements: WES Construction Corp., Contract 7524, Change Order 4 (ref. W D.3)

V. OTHER BUSINESS

VI. CORRESPONDENCE TO THE BOARD

VII. EXECUTIVE SESSION

A. Real Estate:

1. Watershed Land Acquisition
2. Update on Lease for Charlestown Navy Yard Headquarters

VIII. ADJOURNMENT

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Board of Directors

February 19, 2020

A meeting of the Board of Directors of the Massachusetts Water Resources Authority was held on February 19, 2020 at the Authority headquarters in Charlestown. Chair Theoharides presided. Present from the Board were Messrs. Carroll, Cotter, Foti, Pappastergion, Peña, Vitale and Walsh. Ms. Wolowicz and Messrs. Cook and Flanagan were absent. Among those present from the Authority staff were Frederick Laskey, Executive Director, Carolyn Francisco Murphy, General Counsel, David Coppes, Chief Operating Officer, Carolyn Fiore, Deputy Chief Operating Officer, Thomas Durkin, Director of Finance, Michele Gillen, Director of Administration, Emily Dallman, Benefits Manager, Human Resources, MWRA labor representatives Barbie Aylward, Ed Considine, Paul Hynes, Steve Coffey, Pat Russell and Cara Seaman, Betsy Reilly, Director of Environmental Quality, Mandu Inyang, Program Manager, Chemistry, and Assistant Secretaries Ria Convery and Kristin MacDougall. The meeting was called to order at 1:24 p.m.

REPORT OF THE EXECUTIVE DIRECTOR

On behalf of the MWRA Employee Recognition Committee, Mr. Laskey presented Employee Recognition Awards to Lisa Bina, Valerie Moran, Paul Burrige, Walter McLaughlin and Todd DeCost. Mr. Laskey then updated Board members on the Southern Extra High Project and the Tunnel Redundancy Program. He noted that MWRA is prepared to comply with the new Massachusetts Hands Free Driving Law. Next, he advised Board members on planned contract negotiations with NEFCo. Finally, he noted that MWRA was included in a Merritt Research Services "Honor Roll" for municipal bond issuers.

APPROVAL OF JANUARY 15, 2020 MINUTES

Upon a motion duly made and seconded, it was

Voted: to approve the minutes of the Board of Directors' meeting of January 15, 2020 as presented and filed with the records of the meeting.

Annual Meeting: Election and Appointment of MWRA Officers and Committee

Assignments

Upon a motion duly made and seconded, it was

Voted: (1) to designate this February 19, 2020 meeting as the Annual Meeting which, as provided in the Authority's by-laws, will be deemed a special meeting of the Board for the purpose of election of officers; (2) to elect John Carroll as Vice Chairman of the Board; (3) to appoint Andrew Pappastergion as Secretary of the Board and Rose Marie Convery and Kristin MacDougall as Assistant Secretaries; Matthew Horan as Treasurer and Robert Belkin and Michael Cole as Assistant Treasurers; and (4) to ratify the appointments of Board members to standing Committees, as presented and filed with the records of the meeting.

APPROVALS

Approval of the 2020 Affirmative Action Plan

Upon a motion duly made and seconded, it was

Voted: to approve the Massachusetts Water Resources Authority's Affirmative Action Plan effective for a one-year period from January 1, 2020 through December 31, 2020. (ref. P&C A.1)

PCR Amendments – February 2020

Upon a motion duly made and seconded, it was

Voted: to approve amendments to the Position Control Register (PCR) as presented, effective on a date determined by the Executive Director. (ref. P&C A.2)

Appointment of Work Coordination Center Manager, Operations

Upon a motion duly made and seconded, it was

Voted: to approve the appointment of Mr. Martin Anaya to the position of Work Coordination Center Manager, (Unit 6, Grade 12), at an annual salary of \$101,651.85, commencing on a date to be determined by the Executive Director. (ref. P&C A.3)

Transmittal of the FY2021 Proposed Current Expense Budget to the MWRA Advisory Board

Upon a motion duly made and seconded, it was

Voted: to approve transmittal of the FY21 Proposed Current Expense Budget to the MWRA Advisory Board for its 60-day review and comment period. (ref. AF&A B.1)

Appointment of Proxy for Fore River Railroad Corporation

Upon a motion duly made and seconded, it was

Voted: that the MWRA Board of Directors, as holder of all voting rights of all the issued and outstanding shares of stock of the Fore River Railroad Corporation, vote to appoint Bethany A. Card, with the power of substitution, to vote as proxy at the next annual meeting and any special meeting of the stockholders for the Fore River Railroad Corporation in accordance with the form of proxy attached hereto and filed with the records of this meeting. In addition, the MWRA Board of Directors directs the proxy to elect board members as presented and filed with the records of the meeting. (ref. AF&A B.2)

CONTRACT AWARDS

Actuarial Services Related to Compliance with GASB No. 74 and 75: The Segal Company, Inc., Contract F254

Upon a motion duly made and seconded, it was

Voted: to approve the recommendation of the Consultant Selection Committee to award Contract F254 for Actuarial Services Related to Compliance with GASB No. 74 and 75 to The Segal Company (Eastern States), Inc., d/b/a Segal and to authorize the

Executive Director, on behalf of the Authority, to execute a contract in an amount not to exceed \$69,000 for a term of four years from the Notice to Proceed. (ref. AF&A C.1)

Fuel Storage and Day Tank Systems Replacement at the Gillis and Lexington Street Pumping Stations and Hayes Pump Station: NRC East Environmental Services, Inc., Contract 7554

Upon a motion duly made and seconded, it was

Voted: to approve the award of Contract 7554, Fuel Storage and Day Tank System Replacement at the Gillis and Lexington Street Pumping Stations and Hayes Pump Station, to the lowest responsible and eligible bidder, NRC East Environmental Services, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$1,432,799 for a contract term of 561 calendar days from the Notice to Proceed. (ref. AF&A C.2)

Security Equipment Maintenance and Repair Services: Viscom Systems, Inc., Contract EXE-043

Upon a motion duly made and seconded, it was

Voted: to approve the award of Contract EXE-043, Security Equipment Maintenance and Repair Services, to the lowest responsible and eligible bidder, Viscom Systems, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the amount of \$2,198,681, for a contract term of 1,095 calendar days from the Notice to Proceed. (ref. AF&A C.3)

Oxygen Generation Facility Services, Deer Island Treatment Plant: Solutionwerks, Inc., Contract S587

Upon a motion duly made and seconded, it was

Voted: to approve the award of Contract S587, Oxygen Generation Facility Services, Deer Island Treatment Plant, to the lowest responsive and eligible bidder, Solutionwerks, Inc., and to authorize the Executive Director, on behalf of the Authority,

to execute said contract in the amount of \$2,220,450, for a contract term of 1,095 calendar days from the Notice to Proceed. (ref. WW B.1)

Siphon and Junction Structure Rehabilitation, Design and Engineering Services During Construction: Kleinfelder Northeast, Inc., Contract 6224

Upon a motion duly made and seconded, it was

Voted: to approve the recommendation of the Consultant Selection Committee to award Contract 6224, Siphon and Junction Structure Rehabilitation, Design and Engineering Services During Construction, to Kleinfelder Northeast, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount Not to Exceed \$2,854,552.34, for a contract term of 54 months from the Notice to Proceed. (ref. WW B.2)

OTHER BUSINESS

Chloride Trends in MWRA Reservoirs: Best Management Practices to Reduce Water Quality Impacts

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

The meeting adjourned at 2:00 p.m.

Approved: March 18, 2020

Attest:

Andrew M. Pappastergion, Secretary