



# 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**

### **To be Held Virtually on December 16, 2020**

Pursuant to Governor Baker's March 12, 2020 Order  
Suspending Certain Provisions of the Open Meeting Law

### **WebEx Meeting Link for Attendees**

<https://mwra.webex.com/mwra/onstage/g.php?MTID=ef9694f998232d48d208ff5aa756b352d>

Meeting number (access code): 179 311 4873

Meeting Password: 1216

### **Time:**

1:00 p.m.

## **AGENDA**

- I. **APPROVAL OF MINUTES**
- II. **REPORT OF THE CHAIR**
- III. **REPORT OF THE EXECUTIVE DIRECTOR**
- IV. **WATER POLICY & OVERSIGHT**
  - A. **Information**
    1. Metropolitan Tunnel Redundancy Program Update
  - B. **Approvals**
    1. Admission of Town of Ashland to MWRA Water System
    2. Admission of Town of Burlington to MWRA Water System
- V. **PERSONNEL & COMPENSATION**
  - A. **Approvals**
    1. Appointment of Program Manager, Energy, Deer Island
  - B. **Contract Amendments/Change Orders**
    1. Extension of Employment Contract Copy and Supply Clerk, Administration Division

**VI. ADMINISTRATION, FINANCE & AUDIT**

**A. Information**

1. Delegated Authority Report – November 2020
2. FY21 Financial Update and Summary as of November 2020

**B. Approvals**

1. Transmittal of the Draft FY22 Capital Improvement Program to the MWRA Advisory Board

**C. Contract Awards**

1. Insurance Consultant Services: Kevin F. Donoghue Insurance Advisors Inc. (d/b/a KFDA)
2. Enterprise Content Management System Purchase and Implementation: Cadence Solutions Inc., Contract 7438

**D. Contract Amendments/Change Orders**

1. Transfer of Agreements, Deer Island Demand Response Services: Centrica Business Solutions, Optimize, LLC, Contract S594 and Contract S590

**VII. WASTEWATER POLICY & OVERSIGHT**

**A. Contract Awards**

1. Wastewater Monitoring for COVID-19: Biobot Analytics, Inc., Contract OP-420
2. Ward Street and Columbus Park Upgrades, Design and ESDC Services: CDM Smith Inc., Contract 7429
3. Instrumentation Services – Metropolitan Boston: Safety, Inc., Contract OP-418

**B. Contract Amendments/Change Orders**

1. Agency-Wide Technical Assistance Consulting Services: Kleinfelder Northeast, Inc., Contract 7604, Amendment 2

**VIII. CORRESPONDENCE TO THE BOARD**

**IX. OTHER BUSINESS**

**X. EXECUTIVE SESSION**

- i. Approval of October 14, 2020 Executive Session Minutes

**X. EXECUTIVE SESSION (Continued)**

A. Litigation

1. Cross Harbor Cable - DPU Tariff Proceeding/Litigation

B. Real Estate

1. Wachusett Reservoir Railroad
2. MWRA Office Space Needs

**XI. ADJOURNMENT**

**MASSACHUSETTS WATER RESOURCES AUTHORITY**  
Meeting of the Board of Directors  
November 18, 2020

Pursuant to Governor Baker's March 12, 2020 Order Suspending Certain Provisions of the Open Meeting Law the November 18, 2020 meeting of the Board of Directors of the Massachusetts Water Resources Authority was conducted by remote participation. Vice Chair Carroll presided. Present remotely from the Board, in addition to Vice Chair Carroll, were Ms. Wolowicz and Messrs. Cook, Cotter, Flanagan, Foti, Pappastergion, Peña, Vitale and Walsh. Secretary Theoharides was absent. MWRA staff participants included Frederick Laskey, Executive Director, Carolyn Francisco Murphy, General Counsel, David Coppes, Chief Operating Officer, Carolyn Fiore, Deputy Chief Operating Officer, Thomas Durkin, Director of Finance, Michele Gillen, Director of Administration, Steven Rhode, Director of Laboratory Services, Valarie Moran, Director of Waterworks, Stephen Estes-Smargiassi, Director of Planning and Sustainability, Ethan Wenger, Deputy Director, Deer Island Treatment Plant, Robert Huang, Program Manager, Energy, John Colbert, Chief Engineer, David Duest, Deer Island Treatment Plant Director, Andrea Murphy, Director of Human Resources, and Assistant Secretaries Ria Convery and Kristin MacDougall. Senator Stephen Brewer, Vandana Rao, EOEEA, and Joseph Favaloro, MWRA Advisory Board, also participated. The meeting was called to order at 1:00 p.m. All motions were individually made and presented for discussion and deliberation. After any discussion and deliberation, motions for which there were no objections were then consolidated for one omnibus roll call vote.

APPROVAL OF OCTOBER 14, 2020 MINUTES

A motion was duly made and seconded to approve the minutes of the Board of Directors' meeting of October 14, 2020.

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

REPORT OF THE EXECUTIVE DIRECTOR

Staff presented an update to Board members on Biobot's Covid-19 wastewater tracking data and MWRA's ongoing efforts to promote staff safety during the pandemic. Staff also presented an update on Section 19 water main repairs. Mr. Laskey thanked the Town of Brookline for their cooperation and commended MWRA staff for their work to repair the break.

Finally, Mr. Laskey updated Board members on the Section 111 Redundancy Pipeline Project and correspondence received regarding public access on Thompson Island under a Conservation Restriction.

(Messrs. Cook and Flanagan joined the meeting during the report.)

WATER POLICY AND OVERSIGHT  
INFORMATION

Update on the Status of Water Supply Protection Efforts

A motion was duly made and seconded to move the informational update on the Status of Water Supply Protection Efforts to the first item of business on the agenda.

Staff provided a verbal summary. Senator Stephen Brewer and Mr. Favaloro also provided information. There was discussion and questions and answers. (ref. V A.2)

WASTEWATER POLICY AND OVERSIGHT  
CONTRACT AWARDS

Power Purchase Agreement and Site License for a Photovoltaic System and Battery Storage at the Deer Island Treatment Plant: Distributed Solar Projects, LLC, Contract S591

A motion was duly made and seconded to approve the award of Contract S591, Power Purchase Agreement and Site License for a Photovoltaic System and Battery Storage at Deer Island Treatment Plant, to Distributed Solar Projects, LLC, and to authorize the Executive Director, on behalf of the Authority, to execute Contract S591 with Distributed Solar Projects, LLC's special purpose entity, 190 Tafts Avenue Solar Project 2020, LLC, to include a not-to-exceed price of \$0.0798 per kilowatt-hour for the purchase of electricity generated and a contract term from the Notice to Proceed until the twentieth anniversary of the system Commercial Operation Date.

Staff made a presentation. There was discussion and questions and answers. Messrs. Cook and Pappastergion commended MWRA staff for promoting environmental stewardship and cost-savings for the ratepayers.

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

CONTRACT AMENDMENTS/CHANGE ORDERS

Agency-Wide Technical Assistance Consulting Services: Kleinfelder Northeast, Inc., Contract 7604 Amendment 2

A motion was duly made and seconded to postpone this agenda item.

Vice Chair Carroll referred the motion to an omnibus roll call vote. (ref. IV B.1)

Chelsea Creek Headworks Upgrade: BHD/BEC JV 2015, A Joint Venture, Contract 7161, Change Order 43

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Change Order 43 to Contract 7161, Chelsea Creek Headworks Upgrade, with BHD/BEC 2015, A Joint Venture, for an amount not to exceed \$1,000,000, increasing the contract amount from \$83,280,801.06 to

\$84,280,801.06, and extending the contract term by 120 calendar days from December 5, 2020 to April 4, 2021;

Further, a motion was duly made and seconded 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.

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

Prison Point CSO Facility Improvements – Design, CA and RE Services: Arcadis, US, Contract 7359, Amendment 4

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Amendment 4 to Contract 7359, Prison Point CSO Facility Improvements Design, Construction Administration and Resident Engineering Services with Arcadis U.S., Inc. to increase the contract amount by \$1,159,259, from \$3,390,100 to \$4,549,359, and extend the contract term by 854 calendar days, from November 11, 2021 to March 14, 2024.

There were questions and answers. Staff provided a verbal summary.

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

Piping Relocation at the Pelletizing Plant: Walsh Construction Company II, LLC Contract 7173, Change Order 2

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Change Order 2 to Contract 7173, Piping Relocation at the Pelletizing Plant, with Walsh Construction Company II, LLC, for a lump sum amount of \$227,168.63, increasing the contract amount from \$4,304,460.90 to \$4,531,629.53, with no increase in contract term;

Further, a motion was duly made and seconded to authorize the Executive Director to approve additional change orders as may be needed to Contract 7173, in an amount not to exceed the aggregate of \$100,000, in accordance with the Management Policies and Procedures of the Board of Directors.

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

Vice Chair Carroll called for any further discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. IV B.4)

WATER POLICY AND OVERSIGHT INFORMATION

Update on Lead and Copper Rule Compliance – Fall 2020

Staff made a presentation. There was discussion and questions and answers. (ref. V A.1)

(Mr. Pappastergion briefly left and returned to the meeting.)

### CONTRACT AWARDS

#### Quabbin Maintenance Building Design, Construction Administration and Resident Engineering Services: The Robinson Green Beretta Corporation, Contract 7677

A motion was duly made and seconded to postpone this agenda item.

Vice Chair Carroll referred the motion to an omnibus roll call vote. (ref. V B.1)

#### Steel Water Storage Tank Painting and Improvements – Design and Engineering Services During Construction: Hazen and Sawyer, Contract 6832

A motion was duly made and seconded to approve the recommendation of the Consultant Selection Committee to award Contract 6832, Steel Water Storage Tank Painting and Improvements - Design and Engineering Services During Construction, to Hazen and Sawyer, P.C. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed \$2,779,122.28 for a contract term of 57 months from the Notice to Proceed.

Staff made a presentation.

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

### CONTRACT AMENDMENTS/CHANGE ORDERS

#### Supply and Delivery of Carbon Dioxide the John J. Carroll Water Treatment Plant: Messer, LLC, Bid WRA-4818, Amendment 2

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to purchase order contract WRA-4818 for the supply and delivery of carbon dioxide with Messer, LLC, increasing the contract amount by \$216,389, from an amount not to exceed of \$417,470 to \$633,859, and extending the contract term by an additional four months.

Staff provided a verbal summary.

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

### PERSONNEL AND COMPENSATION

#### APPROVALS

#### PCR Amendments – November 2020

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

Staff provided a verbal summary. There was discussion and questions and answers.

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

Appointment of Senior Staff Counsel (Labor/Employment), Law Division

A motion was duly made and seconded to approve the appointment of Ms. Hilary K. Detmold as Senior Staff Counsel Labor/Employment (Confidential 6 Grade 13) in the Law Division at an annual salary of \$124,984.08, commencing on a date to be determined by the Executive Director.

There were questions and answers.

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

Appointment of Manager, Western Maintenance

A motion was duly made and seconded to approve the appointment of Mr. Steven Schmitt to the position of Manager, Western Maintenance, Operations Division, (Non-Union, Grade 14), at an annual salary of \$136,000, commencing on a date to be determined by the Executive Director.

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

Appointment of Program Manager, Operations Engineering

A motion was duly made and seconded to approve the appointment of Mr. Nathan Little to the position of Program Manager, Operations Engineering (Unit 9, Grade 29), in the Operations Engineering Department, at an annual salary of \$101,288.42, commencing on a date to be determined by the Executive Director.

Vice Chair Carroll called for any discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. VI A.4)

Appointment of Deputy Director, Design and Construction, Tunnel Redundancy Department

A motion was duly made and seconded to approve the appointment of Mr. Paul V. Savard to the position of Deputy Director of Design and Construction, Tunnel Redundancy Department (Non-Union, Grade 15) at an annual salary of \$147,000, commencing on a date to be determined by the Executive Director.

Staff provided a verbal summary.

Vice Chair Carroll called for any discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. VI A.5)

Appointment of Senior Program Manager, Geology, Tunnel Redundancy Department

A motion was duly made and seconded to approve the appointment of Mr. Bradford Miller to the position of Senior Program Manager, Geology, Tunnel Redundancy Department (Unit 9, Grade 30) at an annual salary of \$134,318.08, commencing on a date to be determined by the Executive Director.

Staff provided a verbal summary. There was brief discussion.



Vice Chair Carroll called for any discussion or objections. Hearing none, the Vice Chair referred the motion to an omnibus roll call vote. (ref. VI A.6)

ADMINISTRATION, FINANCE AND AUDIT  
INFORMATION

FY16-FY20 Strategic Business Plan Annual Update for FY20

Staff provided a verbal summary. There was discussion and questions and answers. Messrs. Vitale and Pappastergion commended the MWRA staff for preparing an informative and useful report. (ref. VII A.1)

FY2021 First Quarter Orange Notebook

Staff made a presentation.

Committee Chair Vitale called for any discussion or objections. Hearing none, Mr. Vitale proceeded to the next agenda item. (ref. VII A.2)

Delegated Authority Report – October 2020

Committee Chair Vitale called for any discussion or objections. Hearing none, Mr. Vitale proceeded to the next agenda item. (ref. VII A.3)

FY2021 Financial Update and Summary as of October 2020

Staff provided a verbal summary. There were questions and answers.

Vice Chair Carroll called for any discussion or objections. Hearing none, the Vice Chair proceeded to the next agenda item. (ref. VII A.4)

(Ms. Wolowicz left the meeting.)

CONTRACT AMENDMENTS/CHANGE ORDERS

Automated Vehicle Locator Tracking System: Newtworkfleet, Inc., Contract A606,  
Amendment 2

A motion was duly made and seconded to authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract A606, Automated Vehicle Locator Tracking System with Verizon Connect NWF, Inc., in the amount of \$93,708, exercising the second option to renew and increasing the contract amount from \$521,188 to an amount not to exceed \$614,906, and increasing the contract term by 12 months from December 28, 2020 to December 28, 2021.

Staff provided a verbal summary. There was brief discussion.

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

OMNIBUS ROLL CALL VOTE

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

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

<u>Yes</u>	<u>No</u>	<u>Abstain</u>
Carroll		
Cook		
Cotter		
Flanagan		
Pappastergion		
Peña		
Vitale		
Walsh		

Voted: to approve the minutes of the Board of Directors' meeting of October 14, 2020 (ref. I);

Further, voted: to approve the award of Contract S591, Power Purchase Agreement and Site License for a Photovoltaic System and Battery Storage at Deer Island Treatment Plant to Distributed Solar Projects, LLC, and to authorize the Executive Director, on behalf of the Authority, to execute Contract S591 with Distributed Solar Projects, LLC's special purpose entity, 190 Tafts Avenue Solar Project 2020, LLC, to include a not-to-exceed price of \$0.0798 per kilowatt-hour for the purchase of electricity generated and a contract term from the Notice to Proceed until the twentieth anniversary of the system Commercial Operation Date (ref. IV A.1);

Further, voted: to postpone agenda item IV.B.1 (ref. IV B.1);

Further, voted: to authorize the Executive Director, on behalf of the Authority, to approve Change Order 43 to Contract 7161, Chelsea Creek Headworks Upgrade, with BHD/BEC 2015, A Joint Venture, for an amount not to exceed \$1,000,000, increasing the contract amount from \$83,280,801.06 to \$84,280,801.06, and extending the contract term by 120 calendar days from December 5, 2020 to April 4, 2021; further voted: 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 (ref. IV B.2);

Further, voted: to authorize the Executive Director, on behalf of the Authority, to approve Amendment 4 to Contract 7359, Prison Point CSO Facility Improvements Design, Construction Administration and Resident Engineering Services with Arcadis U.S., Inc. to increase the contract amount by \$1,159,259, from \$3,390,100 to \$4,549,359, and extend the contract term by 854 calendar days, from November 11, 2021 to March 14, 2024 (ref. IV B.3);

Further, voted: to authorize the Executive Director, on behalf of the Authority, to approve Change Order 2 to Contract 7173, Piping Relocation at the Pelletizing Plant, with Walsh Construction Company II, LLC, for a lump sum amount of \$227,168.63,

increasing the contract amount from \$4,304,460.90 to \$4,531,629.53, with no increase in contract term; further, voted: to authorize the Executive Director to approve additional change orders as may be needed to Contract 7173, in an amount not to exceed the aggregate of \$100,000, in accordance with the Management Policies and Procedures of the Board of Directors (ref. IV B.4);

Further, voted: to postpone agenda item V.B.1 (ref. V B.1);

Further, voted: to approve the recommendation of the Consultant Selection Committee to award Contract 6832, Steel Water Storage Tank Painting and Improvements - Design and Engineering Services During Construction, to Hazen and Sawyer, P.C. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed \$2,779,122.28 for a contract term of 57 months from the Notice to Proceed (ref. V B.2);

Further, voted: to authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to purchase order contract WRA-4818 for the supply and delivery of carbon dioxide with Messer, LLC, increasing the contract amount by \$216,389, from an amount not to exceed of \$417,470 to \$633,859, and extending the contract term by an additional four months (ref. V C.1);

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

Further, voted: to approve the appointment of Ms. Hilary K. Detmold as Senior Staff Counsel Labor/Employment (Confidential 6 Grade 13) in the Law Division at an annual salary of \$124,984.08, commencing on a date to be determined by the Executive Director (ref. VI A.2);

Further, voted: to approve the appointment of Mr. Steven Schmitt to the position of Manager, Western Maintenance, Operations Division, (Non-Union, Grade 14), at an annual salary of \$136,000, commencing on a date to be determined by the Executive Director (ref. VI A.3);

Further, voted: to approve the appointment of Mr. Nathan Little to the position of Program Manager, Operations Engineering (Unit 9, Grade 29), in the Operations Engineering Department, at an annual salary of \$101,288.42, commencing on a date to be determined by the Executive Director (ref. VI A.4);

Further, voted: to approve the appointment of Mr. Paul V. Savard to the position of Deputy Director of Design and Construction, Tunnel Redundancy Department (Non-Union, Grade 15) at an annual salary of \$147,000, commencing on a date to be determined by the Executive Director (ref. VI A.5);

Further, voted: to approve the appointment of Mr. Bradford Miller to the position of Senior Program Manager, Geology, Tunnel Redundancy Department (Unit 9, Grade 30) at an annual salary of \$134,318.08, commencing on a date to be determined by the Executive Director (ref. VI A.6); and,

Further, voted: to authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract A606, Automated Vehicle Locator Tracking System

with Verizon Connect NWF, Inc., in the amount of \$93,708, exercising the second option to renew and increasing the contract amount from \$521,188 to an amount not to exceed \$614,906, and increasing the contract term by 12 months from December 28, 2020 to December 28, 2021 (ref. VII B.1).

ADJOURNMENT

The meeting returned to open session and adjourned at 2:59 p.m.


Approved: December 16, 2020

Attest:

\_\_\_\_\_  
Andrew M. Pappastergion, Secretary

DRAFT

## STAFF SUMMARY


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Metropolitan Tunnel Redundancy Program Update

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**COMMITTEE:** Water Policy and Oversight

X  INFORMATION  
  VOTE

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

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

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### RECOMMENDATION:

For information only.

### DISCUSSION:

This staff summary provides an update on the following key ongoing activities to support the Metropolitan Tunnel Redundancy Program:

- Program Staffing
- Preliminary Design, Geotechnical Investigations and Environmental Impact Report
- Community and Stakeholder Outreach
- Expert Review Panel
- Other Ongoing Program-Wide Activities

Staff will provide future updates to the Board at key milestones during the Preliminary Design phase of the Program, such as: recommendation of the proposed tunnel alignment and shaft sites; completion of the Draft Environmental Impact Report; and completion of the Preliminary Design Report and Program cost estimate and schedule.

### Program Staffing

The Tunnel Redundancy Department was created in April 2018 with the appointment of the Director, Tunnel Redundancy. The department currently includes seven fulltime positions and two new positions that will be filled effective January 2021. There are four vacant positions. These 13 positions were created to manage and oversee the Program as it progresses. Both the Tunnel Program Expert Review Panel and other large programs, including past MWRA programs, have demonstrated the importance to build staff sufficiently throughout the Program to maintain adequate oversight and control. Staff anticipate requesting Board approval to fill the four vacant positions later in FY21. Tunnel Department staff are also available and do provide assistance to other departments on non-tunnel projects where their expertise is needed. Table 1 includes a description of each position and its primary responsibilities. The Tunnel Department Organization Chart is included as Attachment A.

**Table 1. Tunnel Redundancy Department Position Descriptions**

<b>Position</b>	<b>Status</b>	<b>Description</b>
Director, Tunnel Redundancy	Filled	Reports to the Executive Director and oversees all aspects of the Metropolitan Tunnel Redundancy Program. The position is responsible for directing the overall progress of the Program and meeting schedules, budget, environmental compliance, safety and technical objectives.
Director, Design and Construction	Filled	Reports to the Director, Tunnel Redundancy and oversees the planning, design, construction, procurement, budget, schedule, and quality management aspects of the Program. The position serves as the chief engineer for the Program. Currently this position manages the \$10.2 million Program Support Services contract for the Program and provides technical oversight of the preliminary design.
Deputy Director, Design and Construction	Filled (Start Date: Jan 2021)	Reports to the Director, Design and Construction and directs the administration of the Tunnel Redundancy Department and oversees constructability and value engineering reviews of design submittals. This work includes overseeing program quality management, schedule and budget controls, risk management, and constructability/value engineering reviews for the Program.
Manager, Design	Filled	Reports to the Director, Design and Construction and manages engineering and design projects for the Program. Currently this position manages the \$15.7 million Preliminary Design, Geotechnical Investigations and Environmental Impact Report contract for the Program. This work includes coordinating the Program with communities and stakeholders as well as internal MWRA departments.
Manager, Geotechnical and Tunneling	Filled	Reports to the Director, Tunnel Redundancy and serves as the geotechnical design manager for the Program. This position manages activities relative to subsurface investigations, and geotechnical and tunnel engineering. Additionally, this position manages engineering and design projects related to the Program and provides geotechnical support to other MWRA projects.
Senior Program Manager, Geology	Filled (Start Date: Jan 2021)	Reports to the Manager, Geotechnical and Tunneling and oversees major geotechnical and geological field investigation programs, and database and mapping activities for the Program. This position will also serve as the Program Geologist during the planning, design and construction of the Program. Initially, this position will oversee the \$4 million preliminary design geotechnical program.
Program Manager, Design	Vacant	Will report to the Manager, Design and will provide engineering support for the Program. This work includes managing the planning and design phases including feasibility and environmental impact reports, detailed plans and specifications, permitting, project schedules, technical assistance, progress review and evaluation.
Project Controls Specialist	Vacant	Will report to the Deputy Director, Design and Construction and will ensure compliance with project control procedures and processes regarding cost, schedule and change management for Program. This position will oversee the program-wide schedule and will evaluate and develop key performance indicators for the Program to track expenditures and progress.
Senior Geotechnical Engineer	Filled	Reports to the Manager, Geotechnical and Tunneling and assists in the planning, geotechnical engineering, design, and construction of projects related to the Program. This work includes performing geotechnical evaluations, managing geotechnical data, preparing geotechnical reports and reviewing work products by others.
Project Manager, Geotechnical	Vacant	Will report to the Manager, Geotechnical and Tunneling and will manage geotechnical engineering, design, and construction projects and tasks related to the Program. This work will include managing geotechnical, geological, and hydrogeological investigation programs and related worked by consultants and contractors.
Project Engineer	Filled	Reports to the Manager, Design and provides engineering support for the Program. This work includes assisting in the development and management of the Program from planning through construction award, performing engineering and hydraulic analyses, and preparing engineering documents and program reports.
Staff Engineer	Vacant	Will report to the Manager, Design and will provide engineering support for the Program.
Administrative Systems Coordinator	Filled	Reports to the Director, Tunnel Redundancy and provides administrative support for the Program.

## **Preliminary Design, Geotechnical Investigations and Environmental Impact Report**

In May 2020, the Board of Directors approved the award of the Preliminary Design, Geotechnical Investigations and Environmental Impact Report (Preliminary Design Engineering) contract to CDM Smith. The Notice to Proceed for this contract was issued on July 6, 2020.

The Preliminary Design Engineering contract includes the preliminary geotechnical investigation (deep rock borings), evaluation of preliminary tunnel alignment and shaft site alternatives, preliminary design, preliminary contract packaging, preparation of the required MEPA filings and development of a comprehensive list of the environmental permits needed.

At the completion of the Preliminary Design Engineering contract, the goal is to have selected the alignment of the proposed tunnels and the location of shaft sites for construction and interconnections with the existing water system, pending land acquisition and final permits.

The Preliminary Design Engineering contract will result in several significant project deliverables including:

- MEPA Environmental Notification Form
- Preliminary Geotechnical Data and Design Reports
- Tunnel Alignment Alternatives Evaluation/Environmental Impact Report
- Preliminary Design Report

MEPA Environmental Notification Form. Staff plan to file an Environmental Notification Form to the MEPA Office for the proposed Tunnel Program in early 2021. The Environmental Notification Form will present the proposed two-tunnel concept and Study Area as shown in Figure 1. The Study Area includes the following ten communities: Belmont, Boston, Brookline, Dedham, Needham, Newton, Waltham, Watertown, Wellesley and Weston. The Environmental Notification Form will also include an Alternatives Screening Report that documents the comparison and selection of the preferred two-tunnel concept to other surface pipe and tunnel alternatives. It is Staff's expectation that the Secretary's Certificate on the Environmental Notification Form will require a Draft and Final Environmental Impact Report that will examine various construction shaft locations and associated alignments for the proposed two-tunnel concept.

Preliminary Geotechnical Data and Design Reports. Geotechnical subsurface investigation will be conducted in two phases during the Preliminary Design at key locations near the tunnel alignment. A work plan for first phase of the preliminary geotechnical investigations is currently being prepared with an anticipated start date of early spring 2021 for drilling of 10 deep rock borings and installation of piezometers. Each boring is anticipated to be about 450 feet deep and is estimated to take about four weeks to complete, including in-situ testing. A second phase of geotechnical investigation will be conducted as the tunnel alignment evaluation continues with additional borings and testing. In addition to the deep rock boring programs, other field work including geophysical survey programs will also be conducted.

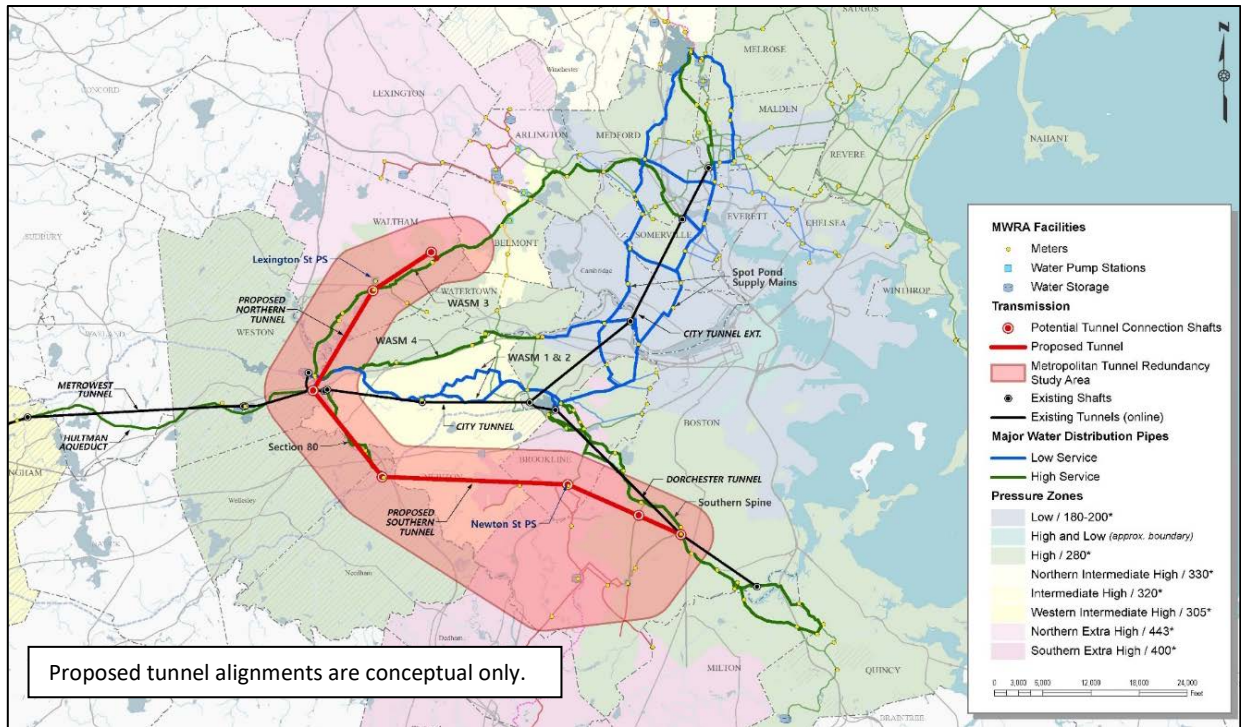


Figure 1. Proposed Two-Tunnel Concept and Study Area.

Tunnel Alignment Alternatives Evaluation/Environmental Impact Report. Staff have begun to identify potential locations for tunnel construction and connection shafts. Alternative tunnel alignments will be developed corresponding to the various shaft site locations. These alternatives will be evaluated based on geology, cost, engineering, operational, environmental and land availability criteria and a preferred alternative and up to two backup alternatives (in the event the preferred alternative is determined to no longer effectively meet the Program goals) will be recommended. The preferred and any backup alternatives will be presented and evaluated in the Draft and Final Environmental Impact Report.

Preliminary Design Report. A draft and final Preliminary Design Report will be prepared to support and provide the technical basis for the information included in the draft and final Environmental Impact Report. The Preliminary Design Report will include design criteria, construction considerations and operational requirements for the tunnels, shafts and near surface valve chambers and pipe connections. The Preliminary Design Report will include a detailed hydraulic analysis of the proposed tunnel using projected future water demands. In addition, the Preliminary Design Report will include preliminary design drawings, proposed construction packaging and schedule, and a preliminary cost estimate. Figure 2 presents the schedule for major preliminary design activities.

### Community, Stakeholder and Regulatory Outreach

While the Preliminary Design Engineering contract is underway, MWRA will simultaneously implement its communication plan to ensure that all communities and stakeholders are informed as to the importance of this effort and what can be expected in the years ahead. Staff initiated contact with all ten communities within the Program Study Area to inform them of the Tunnel Program, and have offered to meet with them to provide more information and answer any



questions. Staff proposed to form a working group with representatives of each of the ten communities within the Study Area who will participate in regular meetings with the Program Team, be kept informed on Program progress, and provide opportunity for input. The goals of the working group meetings are to provide a collaborative and transparent process for evaluating alternatives, and yield more informed comments during the MEPA process.

Task Name	2020	2021	2022	2023
Environmental Notification Form	[Blue bar spanning from start of 2020 to start of 2021]			
Evaluation of Alternatives	[Blue bar spanning from start of 2020 to end of 2021]			
Geotechnical Program	[Blue bar spanning from start of 2021 to end of 2022]			
Environmental Impact Report	[Blue bar spanning from start of 2022 to end of 2023]			
Preliminary Design	[Blue bar spanning from start of 2022 to end of 2023]			

Figure 2. Major Preliminary Design Activities Schedule

In addition to reaching out to communities, staff have also begun to meet with other stakeholders that may be approached for permits, easements and/or land acquisition to support the Program. The state agencies include Mass DOT, the Department of Conservation and Recreation (DCR) and the Division of Capital Asset Management and Maintenance (DCAMM).

The tasks included in the Preliminary Design Engineering contract require substantial amounts of coordination with environmental regulatory agencies in order to ensure the data and documentation generated result in a robust alternatives analysis in the MEPA process. Staff met with members of the Department of Environmental Protection and MEPA to present the proposed Tunnel Program, and discuss the regulatory process. This early interaction with regulators will give MWRA staff the opportunity to address comments and concerns raised by agencies in the earlier MEPA phases.

### Expert Review Panel

An Expert Review Panel has been formed to provide recommendations on key program elements such as risk mitigation, communication, program management and tunnel design and construction. The Expert Review Panel includes individuals with national expertise as well as individuals with expertise in local projects including MWRA’s Boston Harbor Project and the Integrated Water Supply Program. In October 2019, staff provided the Board with a summary of the purpose and members of the Expert Review Panel. The following is a list of the members of the Expert Review Panel:

- Richard Fox, Boston Harbor Cleanup Program – Perspective: Large Program; Past MWRA Experience
- Michael McBride, MetroWest Water Supply Tunnel Project – Perspective: Past MWRA Tunnel Program and Construction Manager
- Erika Moonin, Lake Mead Intake Tunnel Program – Perspective: Large Program; Public Agency Project Manager

- Gary Brierley, Rock Tunnel and Shaft Design – Perspective: Tunnel and Shaft Designer
- Gaylin Rippentrop, Rock Tunnel Construction – Perspective: Tunnel and Shaft Contractor

The Expert Review Panel has convened three times since November 2019. The panel will continue to convene on a regular basis throughout the design phase of the Program. Staff prepared a schedule of anticipated topics through Preliminary Design to be reviewed by the Expert Review Panel for its input and recommendations (see Table 2).

**Table 2. Schedule of Expert Review Panel with Topics**

<b>Approximate Date</b>	<b>Topic</b>	<b>Format</b>	<b>Status</b>
November 2019	Program Introduction/Overview	Workshop	Complete
September 2020	Program Risk Management Plan	Document Review	Complete
September 2020	Preliminary Design Schedule and Work Plan	Workshop	Complete
Winter 2021	Geotechnical Investigation Work Plan	Document Review	Future
Winter/Spring 2021	Tunnel Alignment Alternatives Development	Document Review	Future
Spring 2021	Program Budget and Schedule	Workshop	Future
Fall 2021	Geotechnical Data Review	Workshop	Future
Summer 2022	Draft Environmental Impact Report	Workshop	Future
Fall/Winter 2022	Draft Preliminary Design Report	Workshop	Future
Spring 2023	Value Engineering	Workshop	Future

### **Other Ongoing Program-Wide Activities**

MWRA’s Tunnel Department staff have been developing program-wide standards, procedures and guidelines to ensure that work performed by staff and consultants is efficient, consistent and of high quality. The following is a list of completed and ongoing activities to support the management of the Tunnel Redundancy Program:

#### *Completed Program-Wide Reports, Guidelines and Standards*

- Quality Management Plan
- Document Control Plan
- Program Risk Management Plan
- Program Delineation Report
- Existing Geotechnical Data Report
- Geotechnical Field Manual
- Geotechnical Data Management Plan and Geotechnical Databases
- Hydraulic Analysis Reports
- Program Management Plan
- Style Guide

### *Ongoing Program-Wide Activities*

In addition to preparing the above-described documents, staff are regularly working on the following major items:

Program Guide Specifications. Preparing a standardized set of guide specifications to ensure consistency and quality, and to communicate the MWRA's preferences to engineering consultants that will be preparing construction documents. MWRA staff from the Tunnel Department, Engineering and Construction Department, and Procurement Department are developing these guide specifications.

Program Schedule. Developing a detailed Program Schedule to track the progress of both consultant and internal staff activities. Tasks will be linked to identify the critical path; and reports will be generated to inform the team of any activities that need special attention to maintain the schedule.

Program Budget Analysis. Reviewing the Program budget and schedule to identify potential impacts of key variables, such as schedule, ground conditions and tunnel alignment.

Project Controls. Developing key performance indicators for the Program to track expenditures and progress. These metrics will evolve as the Program moves into final design and construction phases.

Contract Practices. The tunnel construction industry has evolved over the years to address issues that are unique to underground construction such as: differing site conditions; geotechnical reports; risk management; dispute resolution; and payment provisions. Staff convened an in-house working group with support from the Program Support Service consultant to review MWRA standard (non-tunnel) construction contract terms and conditions relative to current tunnel industry practices.

### **BUDGET/FISCAL IMPACTS:**

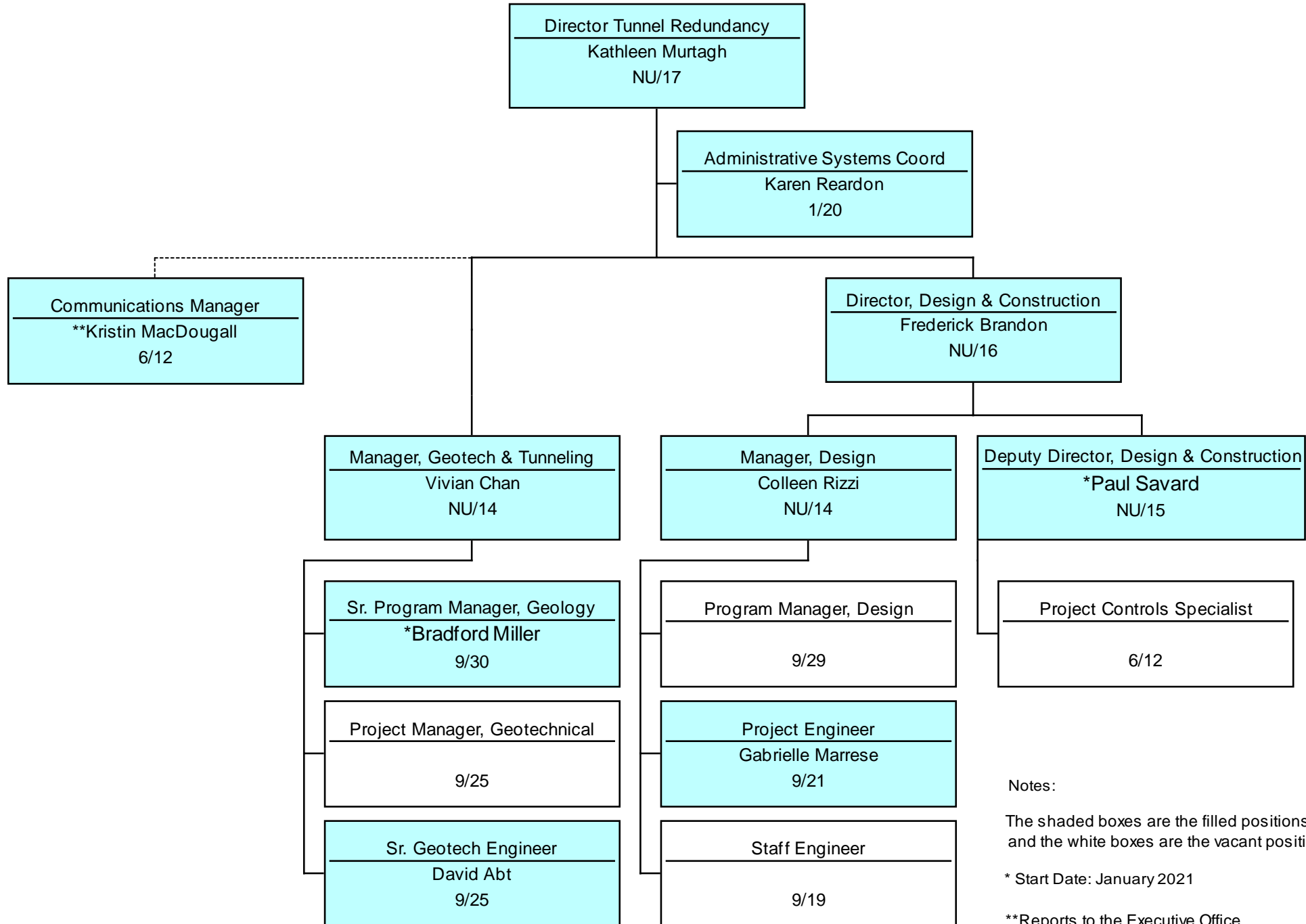
The FY21 CIP includes \$1.5 billion for the Metropolitan Tunnel Redundancy Program. This budget will be refined at the completion of Preliminary Design.

### **ATTACHMENTS:**

Attachment A: Tunnel Redundancy Department, Organization Chart

# Tunnel Redundancy

December, 2020




Notes:

The shaded boxes are the filled positions and the white boxes are the vacant positions.

\* Start Date: January 2021

\*\*Reports to the Executive Office

**STAFF SUMMARY**


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Approval for Admission of Town of Ashland to the MWRA Water System

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**COMMITTEE:** Water Policy & Oversight

         INFORMATION  
  X   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

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**RECOMMENDATION:**

To approve the Town of Ashland’s application to become a member of the MWRA waterworks system to purchase up to 32.8 million gallons annually via an interconnection with the Town of Southborough water system. Further, to authorize the Executive Director, on behalf of the Authority, to execute a water supply agreement with the Town of Ashland, in the form shown in Attachment E, stipulating the terms and conditions of service and assess a twenty-five-year payment schedule for Ashland’s Net Entrance Fee of \$388,336.34. Lastly, to authorize an allocation by the Authority of an additional \$519,400 in interest-free loans to the Town of Ashland under the Local Pipeline Assistance Program.

**DISCUSSION:**

On June 6, 2020, the Town of Ashland submitted an application for admission to the MWRA water system pursuant to MWRA Operating Policy 10, Admission of New Community to the Water Works System (OP.10). Ashland is seeking approval to withdraw up to 32.8 million gallons annually from MWRA via an interconnection to the Town of Southborough water system. Pursuant to OP.10, MWRA has found that the proposed connection and water withdrawal will not jeopardize the quantity or quality of service that MWRA is committed to provide to existing water service communities.

Ashland currently operates five wells, known as the Howe Street Wells, which also serve a portion of the Town of Hopkinton. Use of the wells is regulated by varying criteria, including the level of the nearby Hopkinton Reservoir. However, due to these restrictions at certain times of the year when groundwater is low, the Howe Street Wells cannot meet Ashland’s water demands. Water use and reservoir elevation data indicate that historic reservoir levels have fluctuated significantly, while demand has generally stayed constant. These supply issues have required Ashland to obtain emergency connections to MWRA under Operating Policy 5 (OP.05) in 2007, 2013, and most recently in August 2020, when water demand was average but reservoir levels were particularly low. During the approvals for the 2007 emergency connection, the Massachusetts Department of Environmental Protection (MassDEP) and MWRA required the town to develop a long-term plan to remedy supply deficiencies. Three alternatives were evaluated, including improvements to Ashland’s existing treatment plant, development of more wells and connection to the MWRA,

including both direct and indirect connections. Ultimately, an indirect connection to the MWRA water system was identified as the preferred alternative to remedy Ashland's supply issues from both a logistic and economic perspective.

Ashland has received approvals from regulatory agencies to withdraw up to 1.6 million gallons per day and up to 73 million gallons per year from MWRA via Southborough. However, Ashland intends to use the connection initially to supplement its existing water supply. Use of MWRA water will be governed locally by the town's MWRA Water Use By-law, which limits MWRA water use to periods of certain conditions within the Ashland system. Ashland expects to utilize the connection to MWRA between the months of October and January, when demand is constant but groundwater levels and the elevation of the Hopkinton Reservoir are typically low. For these reasons, Ashland is currently only applying to withdraw up to a total of 32.8 million gallons per year<sup>1</sup>, for an annual average daily usage of up to 90,000 gallons per day (gpd). Because Ashland's usage will not occur during MWRA's peak (between May and October), the entrance fee is based on the annual average daily usage of 90,000 gpd. Ashland acknowledges that if, at a later date, it seeks additional water supply from MWRA over 32.8 million gallons per year, approval from the MWRA Advisory Board and Board of Directors will be required, as well as payment of an additional entrance fee for any increased withdrawal will be required. Ashland estimates that its maximum daily usage during a supply disruption would be 648,000 gpd.

If approved, Ashland will connect directly to the Southborough water system near Oregon Road at the municipal boundary. Southborough has agreed to the arrangement and the two communities have executed an Intermunicipal Agreement (Attachment A) governing the connection and water supply. In addition to the connection, Southborough has committed to making various improvements within its own water system to facilitate the connection with Ashland. These include upsizing Southborough's Hosmer Booster Station, installing a redundant water main leaving the station, upgrading a water main on Edgewood Road and installing an altitude valve at Southborough's Overlook water storage tank.

### Community Support

On May 3, 2017, members of the Ashland Town Meeting voted to approve Ashland's admission to MWRA via an interconnection to the Southborough water system. This vote appropriated "funds sufficient to cover the cost of the entrance fee for and the cost of the construction related to" connecting to MWRA. On November 11, 2016, the Ashland Water and Sewer Commissioners adopted an MWRA Supplemental Connection Use By-Law, which limits use of MWRA water to periods when certain conditions related to low groundwater are met in the local water system. These conditions involve elevation of the Hopkinton Reservoir, local distribution system pressure, local tank elevation and required maintenance. Additionally, as noted above, an Intermunicipal Agreement has been executed between the Town of Ashland and the Town of Southborough (Attachment A) governing the connection and water supply arrangement.

### Regulatory Approvals

All regulatory approvals pursuant to MWRA OP.10 have been obtained prior to seeking Board approval.

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<sup>1</sup> Ashland's application incorrectly stated total withdrawal volume up to 32.4 million gallons per year. Based on average daily use usage of up to 90,000 gpd, the correct total withdrawal volume is up to 32.8 million gallons per year. The Entrance Fee approved by the Advisory Board was calculated based on 32.8 million gallons per year.

- On June 29, 2018, the Secretary of Energy and Environmental Affairs issued a certificate finding that the connection complies with the Massachusetts Environmental Policy Act (MEPA) and its implementing regulations. This approval authorizes Ashland to withdraw up to 1.6 mgd and up to 73 million gallons annually from MWRA (Attachment B).
- On January 11, 2019, the Massachusetts Department of Environmental Protection (MassDEP) Central Region approved the connection and on April 18, 2019, the MassDEP Northeast region approved modifications necessary to make the connection.
- On November 13, 2019, legislation was authorized in Chapter 112 of the Acts of 2019 adding Ashland to the MWRA Enabling Act (Attachment C).
- On October 11, 2019, the Water Resource Commission (WRC) approved Ashland's request for an Interbasin Transfer for admission to the MWRA Water Works System under the Interbasin Transfer Act (IBTA), M.G.L. Chapter 21 §§ 8B-8D. This approval authorizes Ashland to withdraw up to 1.6 mgd and up to 73 million gallons annually from MWRA (Attachment D).
- On November 19, 2020, the MWRA Advisory Board voted to approve Ashland for admission to the MWRA water system via a connection with the Town of Southborough. This approval limits withdrawals to up to 32.8 million gallons annually.

### Water Supply Agreement

Subject to approval, the relationship between MWRA and Ashland will be governed by a Water Supply Agreement (Attachment E). The proposed Water Supply Agreement incorporates the provisions of 360 CMR 11.00 Continuation of Contract Water Supply. The contract limits and entrance fee are based on up to 32.8 million gallons annually and annual average daily use of up to 0.090 mgd.

OP.10 specifies that initial agreements with a new community be for a period of five years in order to monitor the process and status of demand management efforts. Therefore, the term of the Ashland/MWRA Agreement will be five years.

### Entrance Fee Calculation

In accordance with OP.10 and the Advisory Board's approval, Ashland is assessed an entrance fee to cover the town's share of the value of the MWRA water system currently in place. The basic formula for calculation of the entrance fee for Ashland is as follows:

$$\frac{\text{New user's projected MWRA needs}}{\text{System Water Consumption}} \times \text{Net Asset Value of Total Waterworks System}$$

The FY2020 entrance fee for average water use of 90,000 gpd, is \$391,787.57. Through emergency use period four, Ashland has made \$3,451.23 in net asset value payments that will be applied to the entrance fee, resulting in a net entrance fee of \$388,336.34. Ashland will pay the entrance fee pursuant to a 25-year, interest-free payment plan with a payment grace period for the first three years. The first payment of \$17,651.66 will be due in December 2023. The Attachment F payment schedule details the annual payment amounts.

## Transition from Emergency Use Customer to MWRA Water Community

If approved for admission, any water provided to Ashland for the remainder of FY2021 and through FY2022 will be billed at MWRA's prevailing rate, currently \$4,320.63 per million gallons. Ashland will transition to a "rates based" community beginning in FY2023. Its FY2023 water assessment will be based on its share of MWRA system water use in CY2021.

## Level of Funding to Ashland under the Local Water System Assistance Program

Ashland is eligible to receive funds (ten-year interest-free loan) under MWRA's Local Water System Assistance Program (LWSAP). The level of funding available to Ashland through this program upon admission is \$519,400, based upon: 1) funding of \$500,000 for partially served communities; 2) funding of Ashland's percent share of unlined water main prorated to the percentage of MWRA water supplied to Ashland (43.6 miles of unlined water mains and 8.6% MWRA water supplied to Ashland); 3) funding based on Ashland's percent share of estimated MWRA water assessment (8.6% MWRA water supplied to Ashland); and 4) prorating available funds to the number of years remaining in the Phase 3 LWSAP program (seven years remaining as of FY21 of ten-year funding allocations FY18-FY27).

### **BUDGET/FISCAL IMPACTS:**

Ashland's Net Entrance Fee is \$388,336.34 for its share of the value of the waterworks system in place at the time of entrance. The net entrance fee reflects an entrance fee of \$391,787.57 minus the total net asset value contributions of \$3,451.23 previously paid pursuant to OP.05. Ashland will pay the entrance fee pursuant to a 25-year, interest-free payment plan with a payment grace period for the first three years. The first payment of \$17,651.65 will be due in December 2023. The attached payment schedule details the annual payment amounts.

### **ATTACHMENTS:**

Town of Ashland and Town of Southborough Intermunicipal Agreement (Attachment A)  
MEPA Certificate (Attachment B)  
Chapter 112 of the Acts of 2019 (Attachment C)  
WRC Approval (Attachment D)  
Draft MWRA Water Supply Agreement (Attachment E)  
Entrance Fee Payment Schedule (Attachment F)



INTERMUNICIPAL WATER SUPPLY AGREEMENT

THIS AGREEMENT ("the AGREEMENT") is entered into as of this by and between the Town of Southborough through its Board of Selectmen ("Southborough" or "the Southborough Board"), and the Town of Ashland through its Board of Selectmen ("Ashland" or "the Ashland Board") and referred to collectively as "the Parties".

**RECITALS**

**I. General**

- A. The Parties deem it to be most economical and in furtherance of a public purpose to enter into an agreement whereby Ashland will supplement its water supply through an MWRA indirect connection via Southborough water lines, in order to secure, treat and supply drinking water for Ashland;
- B. The Parties intend to have this Agreement remain in full force and effect for twenty-five(25) years, unless sooner terminated or extended as herein provided;
- C. Southborough intends to supply quantities of water to Ashland for the price and under the terms set forth herein.
- D. The Parties intend that the municipal corporations entering into this agreement are the sole and exclusive beneficiaries of the Agreement.

**II. Proposed Expansion of Public Water Supply System**

- A. Both Parties propose to construct additional pumps, and add equipment to current facilities in order to provide supplemental water supply to the Town of Ashland. The proposed "Project" will primarily affect existing infrastructure. Existing water lines between Southborough and Ashland are approximately 60 feet apart along Oregon Road in Ashland. The 'Connection' will be a ten foot wide by fifteen foot long buried meter vault along the side of Oregon Road. Other improvements include a new transformer and pad, new gate valve and pipe fittings, and pump improvements at Southborough's Hosmer pump station ('Primary Project Site'); an altitude valve and pipe fittings at Southborough's Overlook water storage tank; and approximately 1,550 linear feet of 12" water main installation from the Hosmer pump station. The details of this work is shown on the conceptual design plans.
- B. Southborough proposes to deliver to Ashland a minimum of 0 and a maximum of 1.6 million gallons per day (gpd) from the new connection;

**III. Cost for the MWRA water connection**

- A. The estimated construction cost of the Project is \$1.8 million dollars, per Exhibit 1, Opinion of Probable Construction Cost (75% Design Stage).
- B. The Town of Ashland will be responsible for all costs related to the Project.

**IV. Operation Costs**

- A. The Town of Southborough will charge for the water based on usage and based on the attached fee schedule per gallon at the time of usage. The fee schedule may be revised on an annual basis based on actual costs as further defined, and shall be provided to the Town of Ashland no less than 90 days prior to any feechanges.

## V. Legislative Authority

- A. The Parties are authorized pursuant to M,GL c. 40, §4A, M.GL. c, 40, §38 to enter into the Agreement.

**NOW, THEREFORE**, in consideration of the mutual agreements and provisions set forth herein, and the payments and obligations hereunder, and for other good and valuable consideration, the receipt and adequacy of which consideration is hereby acknowledged, the Parties hereby agree as follows:

### 1 Definitions

- 1.1 Southborough is the Town of Southborough, a municipal corporation of the Commonwealth of Massachusetts,. The Town of Southborough acts through its Board of Selectmen , in their capacity as the chief executive officer of the Town. The signatories to this Agreement shall have no personal liability and are acting solely in their capacity as members of the Board of Selectmen .
- 1.2 Ashland is the Town of Ashland, a municipal corporation of the Commonwealth of Massachusetts,. The Town of Ashland acts through its Board of Selectmen , in their capacity as the chief executive officer of the Town . The signatories to this Agreement shall have no personal liability and are acting solely in their capacity as members of the Board of Selectmen.
- 1.3 Net Project Cost shall mean the total cost for all of the construction and capital obligations for the upgraded Plant and associated system upgrades, together with necessary related accessories, including but not limited to, planning, design, engineering, construction, cost estimating, permitting, demolition or the removal of any building or structures on the site, the furnishings and equipment, insurance during construction, legal and administrative costs, and site and easement acquisitions, together with costs and such other expenses as may be necessary or incidental to any construction, extension, acquisition or improvement of such facilities and the placing of such facilities in operation, minus Grants received from United States Environmental Protection Agency (USEPA) or the Massachusetts Department of Environmental Protection (MADEP) and/or any other funding agency. It is understood that if and when Ashland receives a Federal or State grant it may not be entirely for water distribution, and that only the funds that are properly attributable to water distribution shall be deducted from the Net Project Cost. Net Project Costs shall also include the costs for construction design and necessary related accessories.
- 1.4 Project shall mean the proposed infrastructure improvements related to the interconnection of the Southborough and Ashland water systems. It includes upgrades to the Hosmer pump station, Overlook water tank, as well as the construction of a meter vault and associated piping at the Southborough/ Ashland town line.
- 1.5 Total Operations, Maintenance and Repair ("Total OM&R")
- 1.5.1 Total OM&R shall mean activities required to assure the dependable and economical functioning of the Project and the fair allocation of costs to the Parties including without

limitation the following:

- 1.5.1.1 Maintenance: Preservation of functional integrity and efficiency of pumps, facilities, pipes, conduits and equipment which make up the Project. This includes preventive maintenance and corrective maintenance.
- 1.5.1.2 Replacement Equipment Costs: Machinery required to supply treated water, Hosmer Pump water usage, Bandon Hosmer Meter, and Meter Vault meter Costs are pro-rata shared between 2 parties (Ashland and Southborough). Ashland Pit Maintenance – wherein MWRA bills are sent for the 12 months Prior is 100% paid for by Ashland.
- 1.5.1.3 Operation: Control and operation of the Project. This includes supervision, financial and personnel management, record keeping, safety and emergency planning, monitoring and sampling, measuring water flow, obtaining permits, performing inspections and audits, and administering this Agreement.
- 1.5.2 Repair: Fixing or replacing of deteriorated sections of the Project site. Repair does not include replacement or expansion of the water system for the purpose of expanding capacity referred to as Plant Expansion under Section 16. Repair does not cover increase in the pump station capacities referred to as Future Capital Upgrade under Section 14.

Prior to undertaking replacement under the foregoing the Parties shall consult with each other to ascertain the need for such replacement.

- 1.6 Grants -It is the policy and intention of the Parties to apply for, receive and utilize all appropriate financial and other aid which can be effectively used for the Project. To that end, the Parties will make joint or separate applications (as appropriate and after discussion between the Parties) as the circumstances and requirements of the grantor or grantors may require, and will provide and pledge to each faithful cooperation. Any aid received that is attributable to the Project will be administered and employed in accordance with the terms thereof. To the extent that it becomes available, aid shall be utilized to defray, reduce or reimburse costs of the joint undertaking pursuant to the Agreement.
  - ~~1.6.1 Both Parties agree to inform and consult with each other sufficiently in advance of the filing date of all grant applications in order for the Parties to review and discuss such applications. The Parties further agree to inform and consult with each other concerning all grant approvals received. The determination of the attribution of a portion of a grant to New Plant shall be by agreement of the Parties. It is understood that the New Plant is eligible for funding under the Massachusetts State Revolving Fund (SRF) loan program. The Net Costs of the New Plant shall reflect that such loan program provides no or low interest loans. However, non-eligible costs may require conventional borrowing for which the cost of borrowing will be apportioned according to section III.B herein.~~

## 2 Basic Obligations of the Parties

## 2.1 Construction

- 2.1.1 Southborough shall construct the Connection Project site in accordance with the plans and specifications entitled "75% Design for the Ashland and Southborough Interconnection" prepared by PARE Corporation and dated February 2017. The Project shall be designed and equipped to meet all requirements of Federal and State law and to qualify for financial assistance from USEPA and MADEP.
- 2.1.2 Southborough shall provide Ashland and MWRA with monthly reports concerning the progress of the construction and any changes the cost estimate for the completion thereof. If at any time the cost estimate for the completion of the construction as provided by more than five (5) percent, Ashland shall meet with Southborough to review the construction progress to insure that both parties agree with the methods of construction and decisions made in order that the final cost be maintained to a minimum.

## 2.2 Permits

- 2.2.1 Ashland shall notify MassDEP of the proposed construction of the Project, satisfy requirements under the Massachusetts Environmental Policy Act ("MEPA") as well as any other statutes, acts, rules and regulations relative thereto, and obtain all required MassADEP, and local permits and/or approvals for such construction.

## 2.3 Supply

- 2.3.1 Southborough agrees to furnish and Ashland agrees to purchase MWRA's supply of water in accordance with the terms of the Agreement.

## 2.4 Method of Supply

- 2.4.1 The means and methods of supplying water shall be as determined and approved by the Southborough Board and the Ashland Board.

## 2.5 Assignment of Capacity

- 2.5.1 Southborough shall allocate 1.6 Million gpd maximum capacity for use by Ashland after the completion of the Project.

## 2.6 Transport

- 2.6.1 Southborough shall provide water to Ashland at a point at the Ashland/Southborough town line adjacent to the Connection (referred to hereafter as the "Turnover Point"). Ashland shall be solely responsible for water from the Turnover Point and throughout its own distribution system including all measurement, testing, pumping, and the addition of chemicals, including the cost of such chemicals. Ashland shall also be solely responsible for the OM&R costs of the equipment necessary to measure and pump the water into its distribution system and for the addition of chemicals, including the cost of said chemicals, it may uniquely add to its water based on tests.

## 2.7 Compliance with Regulations by Southborough

2.7.1 Southborough shall comply with all applicable laws and regulations, permits, and orders or decrees of USEPA and MassMADEP or other government authorities having jurisdiction over the production, treatment and transmission of water.

## 2.8 OM&R

2.8.1 Southborough shall perform all of the work necessary and appropriate for Total OM&R of the Project in the town of Southborough.

## 2.9 Minimum Purchase

2.9.1 There is no minimum purchase requirement for Ashland.

## 2.10 Compliance with Regulations by Ashland

Ashland shall operate its respective local system in accordance with all applicable laws, regulations, permits, and orders and decrees of USEPA and MassDEPMADEP or other governmental authorities having jurisdiction over the treatment and transport of water.

## 2.11 Monitoring and Sampling

Pursuant to 310 CMR 22.05 through 310 CMR 22.09, Southborough shall perform all required water testing, monitoring and sampling from the water supply facilities to the "Turnover Point" for all potential contaminants including, without limitation, total coliform, inorganic chemicals, sodium, trihalomethane, synthetic organic chemicals, volatile organic compounds, organic and inorganic chemicals, and maximum turbidity.

## 2.12 Construction of Upgrades and Expansion

Southborough shall construct all upgrades and expansions of the Project sites located in Southborough following those terms pertaining to the construction of the Project as may be reasonably applicable to such future construction.

## 2.13 Amendments. Laws and Regulations Adopted Subsequent to Date of Agreement

All provisions within this Agreement that reference any laws or regulations shall include any amendments thereto and any other applicable laws or regulations that may be passed or adopted from time to time.

## 3 Construction

### 3.1 Construction Schedule

Subject to approval by Ashland Town Meeting, Environmental Impact report (EIR) submission and approvals and various state agency regulatory permit approvals, construction is estimated to be completed by Fall of 2018.

## 4 OM&R Capital Contribution, and Connection Fees or Rates

#### 4.1 Connection Fees

4.1.1 Ashland shall pay for all fees related to the use of additional MWRA water.

#### 4.2 Construction Costs

4.2.1. Ashland shall pay for all costs related to system upgrades for the Project as called out in the Project's design plans.

#### 4.3 Annual OM&R Charges Paid by Ashland

4.3.1. Ashland shall pay part of the Total OM&R in the proportion that Ashland's actual water flow, as determined from records at the respective metering stations described in Section 8.0, bears to the total of all flows delivered through and from the Project (referred to as "Ashland's OM&R Cost"). The remainder of the Total OM&R Cost shall be referred to as "Southborough's OM&R Cost."

4.3.2. If increased flows from the Project require (a) greater monitoring or sampling pursuant to 310 CMR 22.05 through 310 CMR 22.09 or (b) additional or more highly trained operators for the Project pursuant to 310 CMR 22.11B, the costs thereof shall be included in the Total OM&R Cost.

4.3.3. If increases in the population served by the Project trigger new requirements under 310 CMR 22.00 or any applicable federal regulation, the additional costs of compliance with these requirements shall be included in the Total OM&R Cost.

#### 4.4 Ashland's Rate for OM&R

4.4.1 Ashland shall include in its rates billed to local residents and businesses amounts sufficient to cover Ashland's OM&R cost.

#### 4.5 Southborough's Rate for OM&R

4.5.1 Southborough shall include in its rates billed to local residents and businesses amounts sufficient to cover Southborough's OM&R cost.

### 5 Leak Correction

#### 5.1 Leak Identification

5.1.1 Southborough and Ashland shall each maintain and fund a continuous leak identification program for the portion of the system within the respective towns on an annual basis in accordance with applicable MassDEP regulations and guidelines and approved by MassDEP prior to the initiation of work.

### 6 Water Use Regulations

6.1.1 Town of Ashland shall meet or exceed MWRA water conservation measures during the

times of water withdrawals from Southborough.

## 7 Permitting and Other Regulations

### 7.1 Permitting

7.1.1 Ashland shall provide Southborough with all information required for all federal, state, and other required permitting.

### 7.2 Distribution

7.1.2 Southborough and Ashland shall each maintain all service connections in their respective towns so that the service connections have a minimum residual water pressure at street level of at least 20 pounds per square inch under all design conditions of flow as required under 310 CMR 22.19.

## 8 Flow Measurement

### 8.1 Responsibilities

8.1.1 Southborough shall operate and maintain at the Southborough treatment plant devices for measuring in water flowing to Ashland.

8.1.2 Southborough shall ensure that all measuring devices are calibrated annually

8.1.3 Southborough and Ashland will regularly inspect the meters measuring the supply of water furnished and Southborough will repair or replace any meter or part of a meter which has registered a larger total volume than prescribed by standard American Water Works Association (AWWA) practice or which has been in service than established AWWA practice or which is known or suspected to be registering incorrectly, The cost of maintaining and repairing all water meters shall be deemed part of the Total OM&R Cost to be shared by Parties under the terms of the Agreement.

8.1.4 Ashland shall have the right to test any of such meters or measuring devices at any and all reasonable times upon reasonable notice to Southborough. If such meters or measuring devices are found to be providing inaccurate data, they shall be immediately repaired or replaced.

8.1.5 If either party believes that a water meter has registered incorrectly, the Southborough Board of Selectmen in the case of Southborough distribution system or the Ashland Board of Selectmen in the case of Ashland's water distribution system shall prepare an estimate of the amount of water furnished through the faulty meter. The estimate shall be based upon the average of three (3) preceding readings of the meter, exclusive of incorrect readings. If less than three (3) correct readings are available, fewer readings, including some obtained after the period of incorrect registration, may be used. The Parties shall forthwith adjust the charges which have been made to Ashland for OM&R cost to accurately reflect the appropriate charge.

8.1.6 Southborough shall provide quarterly and annual water flow summaries to Ashland. Such summaries shall contain the amount of all water delivered from the Hosmer Pump Station to

Ashland and Southborough in such manner as the parties agree and deem appropriate.

## 9 Payments, Record Keeping, Billings and Payments of OM&R, Connection, and Membership Fees

### 9.1 Reports/Records/Rate Schedules

9.1.1 Southborough shall be responsible for delivering water to Ashland and for implementation of the terms of this Agreement unless Southborough notifies Ashland of appointment of a successor. In such case, Southborough shall continue to be responsible to fulfill all of the terms and conditions of this Agreement. Each party shall, at the request of the other, promptly provide any records, reports, documents or information reasonably related to the rights and obligations of the Parties under the Agreement and to the performance of the terms of the Agreement. Southborough shall notify Ashland in writing, and keep Ashland informed, of the name and title of its official or officials responsible for water supply in Ashland and for implementation of the terms of the Agreement. Southborough shall also provide Ashland with the telephone numbers which can be used at any time to reach personnel of the Hosmer pump station in the event of a condition requiring immediate attention.

### 9.2 Record Keeping

- 9.2.1 Southborough shall maintain records for documenting the Total OM&R Cost in a manner consistent with that shown in Exhibit 2; and Southborough shall make available for viewing and copying such records to Ashland upon reasonable notice.
- 9.2.2 Southborough shall maintain all records regarding the operation and structural aspects of the water supply system as required pursuant to 310 CMR 22.17.
- 9.2.3 Upon reasonable notice, Southborough shall make available to Ashland for viewing and copying all records kept pursuant to 310 CMR 22.17. To the extent Ashland has information regarding water supply from Southborough that is required to be kept by Southborough and upon written request from Southborough to Ashland, Ashland shall provide to Southborough all such records or information.
- 9.2.4 All records maintained by Southborough hereunder shall be prepared and maintained in accordance with sound and appropriate business practices which shall be subject to reasonable review by Ashland.

### 9.3 Financial Statements

9.3.1 All financial statements, records, bills, statements, and reports of any type relating to this Agreement shall be prepared and maintained in accordance with generally accepted accounting practices (GAAP) and procedures consistently applied for the operation of municipal water systems. Ashland shall have the right to review and examine such accounting systems and records by agents and representatives of its choice. Ashland shall have the right to request review of any financial information and statements based upon its review and examination thereof.

### 9.4 Inspections

9.4.1 Ashland has the right to inspect and test any equipment which Southborough is required to



install and/or maintain under this Agreement such as, but not limited to, the Master Meter and back flow device located at the Hosmer Pump Station. Inspection does not include Southborough's Water Distribution System. Southborough shall repair and replace any such equipment that the Ashland Board finds is not to be operating properly.

## 9.5 Audits by Ashland

9.5.1 Ashland at its sole expense may have the records and statements referenced in Sections 9.2. and 9.3 audited by an independent Certified Public Accounting firm of recognized cumulative discrepancies determined by the auditor employed by Ashland measured over a two (2) year period exceed five percent (5%) of the Total OM&R Cost, Southborough shall pay for the reasonable cost of the audit and, in any event, shall reimburse Ashland any amount overpaid by it to Southborough.

## 9.6 Payment Schedules

9.6.1 The schedule for payment by Ashland to Southborough shall be quarterly. Payments for capital improvements under this Agreement shall be included in the quarterly assessments or bills.

## 9.7 Payment Obligations

9.7.1 Ashland shall make payment of all charges described in the Agreement within sixty (60) days of receipt of the invoice relating to such charges. If Ashland fails to make payment within sixty (60) days, Ashland will pay interest at the rate of 1.5% per month on all overdue amounts. If Ashland detects any error or inaccuracy in any invoice received by it, it shall promptly notify Southborough in writing of the same. Any sum affected by such notice shall be paid by Ashland pending resolution of such discrepancy. If Southborough finds that an error or inaccuracy did occur, Southborough shall promptly rebate the amount overcharged. In the case of a dispute over a payment, interest shall not accrue following notice by Ashland of the disputed payment.

## 10 Capacity Limits

### 10.1 Plant Output

10.1.1 Southborough's obligation to supply water is dependent upon the Pump Station output sufficient to meet the needs of both communities. If there is a deficiency in the Pump Station output such that these levels cannot be maintained, then the deficiency shall be borne by both communities in the same proportion as the obligated capacities established under this Agreement.

### 10.2 Notification

10.2.1 Southborough has no responsibility to notify Ashland customers of any decision to ration or curtail service under the provisions of the Agreement. If Southborough decides to ration or curtail service it will only notify the Department of Public works, Water department, and not

Ashland customers. Such notice shall be given to the Department of Public works, Water department as soon as practicable after the decision is made to ration or curtail service. If Southborough determines to ration or curtail service as above provided, it shall concurrently ration or curtail service to its own customers in the same manner and to the same extent. Ashland notifies Southborough Water department about when the water withdrawal will start. This is also monitored using the SCADA system installed at the connection vault. Ashland shall be responsible for notifying Ashland customers of any change in flow that will impact Ashland customers.

10.2.2 Ashland shall notify Southborough at any time the flow of water is started or when the connection with Southborough is turned off or terminated.

### 10.3 Curtailment

10.3.1 Southborough shall only ration or curtail service in the event the Hosmer pump station output is not at the level anticipated hereunder, or as a result of the order of a public authority or agency having jurisdiction over the Pump Station, or as the result of an emergency condition, at the Pump Station, a specific result of which rationing or curtailment of service is required. Southborough shall take such measures as are necessary or appropriate to restore full water service as promptly as possible.

## 11 Funding and Appropriation

Ashland and Southborough both agree to appropriate annually sufficient money to pay for its obligations under this Agreement for both the OM&R costs of the Project and their proportionate share of capital. Prior to the first of February preceding the beginning of each Fiscal Year hereunder, Southborough shall prepare and deliver to Ashland a copy of an estimated operating budget for OM&R costs. The operating budgets as well as the previous year's water consumption shall be used in the forecasting of Southborough's and Ashland's anticipated costs in any given fiscal year. Prior to the close of each fiscal year, Southborough and Ashland shall encumber sufficient funds or if sufficient funds are not available, shall appropriate at the next town meeting such funds in order to properly credit either Southborough and/or Ashland with its prorata share of the OM&R costs. It is understood that Southborough may prepare consolidated budgets and forecasts, and it is agreed that they will be in such form as to permit complete and concise identification of those portions of the total budget and forecast that relate to the Project, and sufficient for Ashland to encumber those funds as are properly related thereto.

## 12 Rates and Billing

Attached hereto and incorporated herein as part of Exhibit 2 is a spreadsheet setting forth the direct and indirect OM&R costs of the Project. It should be noted that certain line items in Exhibit D are actual, specified amounts while other portions thereof are variable amounts. The actual, specified amounts relate to: (i) operations, administrative, and support personnel, and (ii) other listed items; and Ashland's share thereof shall be the percentage of the line items set forth on the schedule.

## 13 Limited Rights

Ashland's right to buy and use Southborough's treated water under this Agreement does not include or

vest any to continue to buy or use Southborough's water subsequent to the termination of this Agreement. Upon termination of this Agreement, by expiration of the term without subsequent extension, or after adjudication and expiration of all appeal periods of a dispute, Ashland and its customers shall have no right under this Agreement to purchase or use water from Southborough; however, nothing herein shall be deemed to foreclose Ashland from having and exercising such water rights as derive from other agreements between the parties and under acts of the Legislature.

## 14 Future Capital Upgrades

### 14.1 Pump Station

- 14.1.1 For future pump station upgrades and for construction of additional processes which increase the level of treatment (but not for increases in the hydraulic capacity which are covered in Section 16.0, which are required by federal or state regulations or statutes, Ashland shall pay its pro rata share based upon its maximum allocated capacity compared to the total capacity of the pump station.
- 14.1.2 Any upgrades or additional processes which either Party shall request to be installed and which are not required by federal or state regulations or statutes shall be paid solely by the Party requesting the same, unless the Parties otherwise agree.
- 14.1.3 In the event of any proposed future pump station upgrades or additional processes by Southborough, the Parties agree to confer with each other concerning such proposed modification at the earliest possible time and to provide each other with all information and documentation pertaining thereto with the intent that all such Pump station modifications shall be by and with the agreement of the Parties.

## 15 OM&R Costs

### 15.1 Apportionment

- 15.1.1 The formula for apportionment of OM&R costs shall be set out in Exhibit 2 of this Agreement.

## 16 Pump Station Expansion

### 16.1 Maximum Allocated Capacity

- 16.1.1 Southborough has no obligation to increase it's Maximum Allocated Capacity.
- 16.1.2 In the event Ashland exceeds 80% of its Maximum Allocated Capacity for average daily flows over any three month period, Southborough may expand the Pump Station and/or the Vault Connection site (whichever applies). In such event, Ashland shall pay part of cost of such expansion proportional to its share of the increase maximum capacity.
- 16.1.3 In the event either Party requires an increase in capacity or if an increase is required by state or federal laws and/or regulations, the cost of such expansion shall be prorated based on the amount of additional capacity each Party is to receive.

## 17 Renegotiation and Settlement of Disputes

It is contemplated that from time-to-time the Parties may desire to renegotiate certain terms of the Agreement in order, among other things, to connect to the Southborough system at new locations, alter or relocate one of their existing connections, change the water use regulations, change the user charge formula, or increase capacity over that set forth in the Agreement. The Parties intend that such renegotiations occur only if there has been a change of circumstances (including, without limitation, a change in federal or state law, regulations or other requirements, existence of a health emergency, or construction of new housing or commercial development) such that the requested change is appropriate or required, and each of the Parties agrees not to request renegotiation of this Agreement unless there has been such a change of circumstances.

It is further contemplated that from time-to-time either or both of the Parties may desire to settle disputes arising from alleged breaches of the terms of the Agreement, or from a failure to arrive at a mutually agreed interpretation of any of the terms or conditions of this Agreement, or from a failure to arrive at a mutually agreed course of conduct for implementation of any of the provisions of this Agreement, or from the failure to provide or prepare any records, reports or other documentation referred to herein, on in the event the content of any such records, reports or other documentation required hereunder are not satisfactory to either of the Parties hereto, or in the event of any dispute between the Parties relating to any of the terms, conditions or provisions of this Agreement

In each of such instances, the party requesting an amendment or supplement to the Agreement or desiring to settle any dispute arising from an alleged breach of the terms of the Agreement or from a failure of agreement as to the interpretation of a term of the Agreement or the contents or means of preparation of any records, reports or statements required hereunder shall notify writing the other Party of such request or desire and identify the terms which such Party is to the reason for the requested change, and the specific change requested or which such Party is seeking to settle, and the Parties shall (a) meet within (30) days of such request to commence negotiations in response to the request, (b) exchange within twenty (20) days of such initial meeting all necessary information and documents (c) make all reasonable efforts to reach agreement. The Parties in such negotiations shall at all times act in the utmost of good faith and shall adhere to the applicable governmental laws and regulations and the general framework and principles set forth in the Agreement

## 18 Resolution of Disputes:

### 18.1 Exclusive Remedy

18.1.1 The exclusive remedy for disputes arising out of any aspect or interpretation of this Agreement shall be through the Commonwealth of Massachusetts judicial system. Prior to filing any such matter for adjudication in the court, the Parties agree that each shall participate in mediation. Said mediation shall be conducted under the auspices of a person jointly selected by the parties who is qualified by professional training and experience in the field of public works engineering. If a dispute arises out of a request to renegotiate any term of this Agreement, the Parties agree to engage a qualified mediator to assist them in resolving the dispute.

## 19 Default

The Parties shall at all times comply with the terms of the Agreement. Any Party in default and/or in breach of the Agreement, as determined under Sections 17.0, shall reimburse and repay to the non-breaching and/or non-defaulting Party for application to its appropriate fund all reasonable

expenses and other sums incurred by the non breaching Party and/or non-defaulting Party as a result of such default and/or breach after reasonable notice thereof has been given to the breaching or defaulting Party.

Neither Party hereunder shall, however, be obligated for any consequential, special or incidental damages. Default shall not be deemed to have occurred hereunder until the notice referred to in section 17.0 has been given and the alleged defaulting Party has not remedied such alleged default or undertaken the cure of such alleged default in good faith within such fourteen (14) day period and proceeded with such cure in good faith to completion.

## 20 Term and Renewal of Agreement

### 20.1 Term

20.1.1 The term of the Agreement is twenty-five (25) years from the effective date hereof, pursuant to the authority of M.G.L. c.40 §4A as amended.

### 20.2 21.2. Government Intervention:

20.2.1 If an administrative agency, board, Commission or division state or federal government or any court impairs, alters, restricts or limits, directly or indirectly to a material extent Southborough's rights, powers or authority to obtain, sell, contract for, or distribute water as described in this Agreement, or directly or indirectly materially increases the costs of doing so, Southborough in its sole discretion may request institution of the procedure for renegotiation and resolution of disputes set forth in section 17.0 hereof in order that this agreement be revised or amended to most fully effectuate the intention and purposes of the Parties,

### 20.3 Public Safety

20.3.1 Either party has the right to suspend its obligations under this Agreement by sixty (60) days written notice to the other in order to protect the public health and safety of its inhabitants pursuant to a written declaration of a health or safety emergency by either Party's Board of Health. Both Parties shall forthwith thereafter jointly address any issues raised by the Board(s) of Health so as to promptly remedy same and effectuate the intention and purposes of the Parties hereunder,

### 20.4 Renewal

20.4.1 Commencing on or before four (4) years from the end of the term of the Agreement, the Parties shall meet to negotiate a renewal of the Agreement. The Parties shall continue negotiations in the utmost of good faith with the objective of reaching agreement and entering into an amendment to the Agreement or a new agreement. If the parties do not accomplish the foregoing on or before one (1) year prior to the end of the term of the Agreement, the parties agree to utilize the following procedure:

20.4.1.1 If the Parties do not reach agreement on or before eight (8) months prior to the end of

the term of the Agreement, the Parties agree to submit the matter of renewal to MassDEP DEP (or any government authority that has succeeded to the powers of the DEP) and MassDEPDEP (or such government authority) shall issue orders relating to all terms of renewal and such orders shall be enforceable under applicable laws and regulations, If at the end of the term of the Agreement the Parties have neither reached agreement (to enter into an amendment to the Agreement or a new agreement) nor received such orders from the MassDEPDEP (or such government authority), the terms of the Agreement shall remain in full force and effect until such time as the agreement is reached or the enforceable orders issued.

## 20.5 Termination of Agreement

Either municipality by a vote of its authorizing board may withdraw from and terminate this Agreement at the end of any fiscal year with a provision of at least six (6) months prior written notice to the other party to the agreement.

In the event of termination by the Town of Southborough prior to June 30, 2032, the Town of Ashland shall be entitled to recover a pro rata share of capital costs incurred under this Agreement, according to the following schedule:

- Termination on or before June 30, 2022 – Ashland shall recover 75% of capital costs
- Termination after June 30, 2022 but on or before June 30, 2027 – Ashland shall recover 50% of capital costs.
- Termination after June 30, 2027 but on or before June 30, 2032 – Ashland shall recover 25% of capital costs.
- Termination after June 30, 2032 – Ashland shall not recover any portion of capital costs.

No such termination shall affect any obligation of indemnification that may have arisen hereunder prior to such termination on all outstanding payments, fees, charges and outstanding financial obligations shall be paid.

## 21 Rights and Duties

### 21.1 Indemnity by Southborough

21.1.1 Southborough shall defend, indemnify, and hold harmless Ashland, including Ashland's Board of Selectmen its agents, servants, employees, and/or elected officials from and against all liability, damage, loss, costs, claim, demands, and actions of any nature whatsoever for any personal injury, death, or physical damage which arises out of or are connected with, or are claimed to arise out of or be connected with, Southborough's violation of its water use regulations or DEP regulations.

### 21.2 Indemnity by Ashland

21.2.1 Ashland shall defend, indemnify, and hold harmless Southborough, including Southborough's Board of Selectmen, its agents, servants, employees, and/or elected officials from and against all liability, damage, loss, costs, claim, demands, and actions of any nature whatsoever for any personal injury, death, or physical damage which arises out of or are connected with, or are claimed to arise out of or be connected with, Ashland's violation of its water use regulations or DEP regulations.

## 22 General Provisions

### 22.1 Successors Bound

22.1.1 The Agreement shall inure to the benefit of and shall be binding upon the parties and their successors and assigns.

### 22.2 Force Majeure

22.2.1 In the event of floods or other natural disasters that cause water flows in the system to exceed capacity limits set forth in this Agreement, and/or that result in an unsafe condition, and/or that cause, or threaten to cause, harm to the public health, the time periods for holding meetings and making decisions under the Agreement shall no longer apply and the Parties shall cooperate fully in all reasonable ways to resolve such capacity, safety, and public health concerns in accordance with the broad objectives of the Agreement and applicable laws and regulations.

### 22.3 Emergencies

22.3.1 Each party shall immediately notify the other of any emergency condition in either Party's system of which it learns which may affect the quality or quantity of water supplied to Ashland by Southborough or quality or quantity of Southborough's treated and or raw water.

### 22.4 23.4. Control of Operations

22.4.1 The Pump Station shall be under the management and control of Southborough. Southborough shall have the option to privatize or operate through a separate governmental authority all or some of the Plant operations or upgrades but shall retain oversight management and control of the Pump Station and shall remain primarily obligated under and responsible for the terms of the Agreement. The Pump Station operations shall be under the direction of a person possessing all licenses and experience necessary in order to operate or upgrade the Pump Station irrespective of the appointment of any successor in interest to Southborough.

### 22.5 Covenant of Good Faith and Fair Dealing:

22.5.1 Each Party shall use its best efforts and take and employ all necessary actions to ensure that the rights secured by the other Party through this Agreement can be enjoyed and neither party shall take any action that will deprive the other Party of the enjoyment of the rights secured through this Agreement.

### 22.6 Employees

22.6.1 Southborough employees, servants, and agents shall not be deemed to be Ashland's employees, and Ashland's employees, servants and agents shall not be deemed to be Southborough's employees for any including, but not limited to, either Workers' Compensation or unemployment purposes.

22.7 Attorney's Fees

22.7.1 In the event any litigation or mediation between the Parties regarding an alleged breach of this Agreement, neither Party shall be entitled to any award of attorneys' fees as such fees shall be the sole responsibility of each respective party.

22.8 Governed by Massachusetts Law

22.8.1 The Agreement shall be governed by, and construed in accordance with, the laws of the Commonwealth of Massachusetts.

22.9 No Reliance by Third Parties

22.9.1 Nothing contained in the Agreement shall create a contractual relationship with, or a cause of action in favor of, a third party against any or all of the Parties.

22.10 Service of Notice

22.10.1 All notices or Communications permitted or required by the Agreement must be in writing and shall:

As to Southborough, be delivered or mailed by certified mail, return receipt requested, to the

Board of Selectmen

Town of Southborough

17 Common Street

Southborough, MA-01772.

As to Ashland, be delivered or mailed by certified mail, return receipt requested, to the

Board of Selectmen

Town of Ashland

101 Main Street

Ashland, MA, 01721



or for any Party such other person or address delivered in writing to the other Party.

22.11 Entire Agreement

22.11.1 The Agreement and the exhibits hereto represent the entire agreement among the Parties pertaining to the subjects covered therein and expressly supersede all prior negotiations, representations and formal or informal agreements leading up to the final approval and execution of the Agreement respecting such subjects.

22.12 Amendments in Writing

22.12.1 The Agreement may be amended only by written instrument signed by all the Parties,

22.13 Effect of Invalidity of One Part of the Agreement

22.13.1 The invalidity or unenforceability of any one or more phrases, sentences, clauses or sections herein contained by a Court of competent jurisdiction shall not affect the validity or enforceability of the remaining portions the Agreement.

22.14 Exhibits.

22.14.1 All exhibits attached hereto are incorporated by reference into the Agreement.

22.15 Effective Date

22.15.1 The effective date of the Agreement shall be \_\_\_\_\_, 2017

22.16 23.16. Original Agreements

22.16.1 This Agreement may be executed in any number of counterpart copies, all of which constitute one and the same agreement and each shall constitute an original.

IN WITNESS WHEREOF, each party has executed the Agreement as an instrument under seal as of the date first written above.

Authorized by Vote of the

Authorized Vote of the

TOWN OF ASHLAND  
By its Board of Selectmen

TOWN OF SOUTHBOROUGH  
By its Board of Selectmen



Chairperson

Chairperson

ASSENTED TO

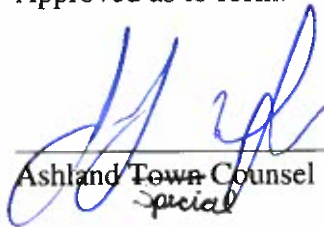
MASSACHUSETTS DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

By: \_\_\_\_\_  
Commissioner

By: \_\_\_\_\_  
Director

Approved as to form:

Approved as to form:

  
\_\_\_\_\_  
Ashland Town Counsel  
*Special*  
\_\_\_\_\_  
Southborough Town Counsel

## EXHIBIT A GLOSSARY

- 1 EPA -U.S. Environmental Protection Agency
- 2 DEP -Massachusetts Department of Environmental Protection
- 3 OM&R -Operation, Maintenance, and Repair
- 4 GPD -Gallons Per Day
- 5 MGD -Million gallons per day

## LIST OF EXHIBITS

- A. Glossary
- B. Description of the Pump Station
- C. Map of the Areas in Town of Ashland and Southborough to receive water from the Pump Station.
- D. Ashland OM&R Enterprise Budget
- E. Southborough's and Ashland's Water Use Regulations
- F. Southborough's Record Keeping
- G. Southborough's Cost Accounting Records and Annual Financial Statement.



*The Commonwealth of Massachusetts*  
*Executive Office of Energy and Environmental Affairs*  
*100 Cambridge Street, Suite 900*  
*Boston, MA 02114*

Charles D. Baker  
GOVERNOR

Karyn E. Polito  
LIEUTENANT GOVERNOR

Matthew A. Beaton  
SECRETARY

Tel: (617) 626-1000  
Fax: (617) 626-1081  
<http://www.mass.gov/eea>

June 29, 2018

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS  
ON THE  
FINAL ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : Supplemental Water Supply  
PROJECT MUNICIPALITY : Ashland  
PROJECT WATERSHED : Concord River  
EEA NUMBER : 15388  
PROJECT PROPONENT : Town of Ashland  
DATE NOTICED IN MONITOR : May 23, 2018

Pursuant to the Massachusetts Environmental Policy Act (MEPA) (M.G. L. c. 30, ss. 61-62I) and Section 11.07 of the MEPA regulations (301 CMR 11.00), I have reviewed the Final Environmental Impact Report (FEIR) and hereby determine that it **adequately and properly complies** with MEPA and its implementing regulations

Project Description

The Town of Ashland intends to purchase up to 1.6 million gallons per day (mgd) and up to 73 million gallons per year (mgy) from the Massachusetts Water Resources Authority (MWRA). The purchase of water is intended to supplement the Town's existing water supply. The Town currently pumps water from five groundwater wells at the Howe Street Water Treatment Plant. A portion of the water supply is provided to the Town of Hopkinton. The average daily withdrawal authorized by the Massachusetts Department of Environmental Protection (MassDEP) from the five wells is 2.18 mgd, including 1.23 mgd authorized by Water Management Act (WMA) registrations and 0.95 mgd by WMA permits. The permitted volume includes 0.5 mgd for Hopkinton's use. In 2017, the Town withdrew 1.55 mgd from the wells, of which 1.17 mgd was used by Ashland and 0.38 mgd was used by Hopkinton.

The Howe Street wells are located adjacent to the Hopkinton Reservoir, a recreational waterbody owned by the Department of Conservation and Recreation (DCR). The Town's average daily water withdrawal has remained fairly constant over the last 10 years, ranging from

1.53 mgd to 1.81 mgd. However, in recent years the water level of the Hopkinton Reservoir has dropped precipitously under some conditions, indicating low groundwater conditions under the reservoir. The Town is concerned about the impact of this on the yield of the Ashland water supply wells. In addition, the Hopkinton Reservoir is a recreational resource that is adversely affected by lower water levels. The WMA permit for the groundwater withdrawals include a requirement that two of the wells be shut off if the level of Hopkinton Reservoir reaches elevation 295.35 National Geodetic Vertical Datum of 1929 (NGVD 29), which generally corresponds to a water level in the reservoir that would significantly impact its recreational use. Data prepared for the Commonwealth's Sustainable Water Management Initiative (SWMI) indicate that most of Ashland, including the Town's wells, is located in an area where the groundwater is severely depleted.

The Town obtained approval from MassDEP and MWRA for emergency connections to the MWRA water system in 2007, 2013 and 2016. Approximately 5.6 million gallons of water were purchased from the MWRA in December 2007 and January 2008; in 2013, the connection was made but not used. The Town purchased a total of approximately 3 million gallons of water in September and October of 2017. As a condition of its approval of the 2007 emergency connection, MassDEP required the Town to develop a plan to address its long-term water supply needs. As described below, the Town determined that purchasing water from the MWRA would address its current and future water needs. The Preferred Alternative described in the FEIR consists of a connection to the water system of the adjoining town of Southborough, which already receives its water from the MWRA. Physical components of the project include:

- A connection to the Southborough water system through a buried meter vault (seven-foot (ft) by 15-ft) on Oregon Road in Ashland;
- New pumps, a new transformer and pad, and a new gate valve and fittings at Southborough's Hosmer Pump Station to support pumping of up to 2.8 mgd, of which 1.0 mgd would be intended for Ashland;
- Construction of a building (12-ft nine-inch by seven-ft five-inch) at Southborough's Overlook water storage tank to house a new altitude valve and pipe fittings; and
- A water main (12-inch and 1,550-ft long) running south from the Hosmer pump station which will be installed under an existing access road adjacent to the Sudbury Reservoir for most of its length.

### Jurisdiction and Permitting

The project is subject to a mandatory EIR pursuant to 301 CMR 11.03(4)(a)(2) of the MEPA regulations because it requires State Agency Actions and involves a New interbasin transfer of water of 1,000,000 or more gpd or any amount determined to be significant by the Water Resources Commission (WRC). It requires an Admission of New Community to Water System Permit and an 8(m) Construction Permit from the MWRA. It also requires Approval of Distribution System Modifications for more than 3,300 People and a Renewal of its Water Management Act (WMA) Permit from MassDEP. The project will also require approval in accordance with the Interbasin Transfer Act (ITA) (M.G.L. c.21 ss. 8B-D; 313 CMR 4.00) from the WRC. The project is subject to the MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol. The project will also require an Order of Conditions from the Southborough

Conservation Commission, or in the case of an appeal, Superseding Order(s) of Conditions from MassDEP.

Because the Town is not seeking Financial Assistance from the Commonwealth for the project, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required or potentially required State Agency Actions and that may cause Damage to the Environment as defined in the MEPA regulations. In this case, MEPA jurisdiction extends to land alteration, water supply, wetlands, water quality and GHG emissions.

### Environmental Impacts and Mitigation

The project involves an interbasin transfer of water from the MWRA Quabbin and Wachusett Reservoirs in the Chicopee and Nashua River watersheds, respectively, to the Sudbury/Assabet/Concord (SUASCO) watersheds in which the Town of Ashland is located. Environmental impacts are primarily associated with the construction period and land alteration associated with construction of the new building and installation of the pipeline. Mitigation measures include sedimentation and erosion control measures to prevent wetland impacts, a Traffic Management Plan, and use of mufflers and other measures to reduce construction noise.

The transfer of water from the MWRA's system will allow the Town to maintain a safe and reliable drinking water supply and reduce potential impacts to Hopkinton Reservoir and the aquifer from additional water withdrawals from the Town. The MWRA's reservoirs have sufficient capacity to provide water to Ashland while still providing mandatory releases to the Swift and Nashua Rivers and maintaining recreational, ecological, and other water-dependent uses.

### Review of the FEIR

The FEIR was generally responsive to the limited Scope issued in the Certificate on the DEIR. During the review period, the Town provided supplemental information that clarified that the annual use of MWRA water will not exceed 73 mgd, which is a reduction of the 120 mgd reported in the DEIR, and provided additional analysis to support selection of the Preferred Alternative.<sup>1</sup> It included additional analysis of the potential effects on water levels in Hopkinton Reservoir, including information in support of the Town's proposal to intermittently purchase water from the MWRA and its contention that purchasing water to maintain higher water levels in Hopkinton reservoir during the summer months is infeasible. It reviewed the Town's activities to promote water conservation and water savings; these activities, including the replacement of old water meters, have reduced the Town's Unaccounted for Water (UAW) from 15.6 percent in 2015 to 8.7 percent in 2016. The FEIR provided an updated GHG emissions analysis, a response to comments received on the DEIR and draft Section 61 Findings.

### *Water Use*

In their comments on the FEIR (and previous MEPA submittals), the WRC and DCR have noted that a supplemental water supply source for Ashland to address its water supply

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<sup>1</sup> This information was submitted on June 27, 2018 by email from Rajitha Purimetla, Town of Ashland, to Alex Strysky of the MEPA Office.

needs could have the added benefit of maintaining higher water levels in the Hopkinton Reservoir for recreational uses during the summer if it were to be managed to achieve both goals. As directed in the DEIR Certificate, the Town provided an analysis of potential benefits and constraints associated with the use of MWRA water during the spring and summer months.

The use of MWRA water in in the spring and summer would maintain water levels in Hopkinton Reservoir throughout the summer and achieve groundwater levels later in the year that would support Ashland's use of its wells during that time period. DCR estimates that the use of 1.0 mgd of MWRA water from May to August would support maintenance of an additional two feet to the water level of the Hopkinton Reservoir. This water level may also allow Town residents to continue unrestricted water use during the summer; the Town's Water Conservation By-law restricts outdoor water use once the level of Hopkinton Reservoir drops below 295.85 feet NGVD 29. According to the Town, purchasing MWRA water in the spring and summer, which may not be required later in the year, would represent an unnecessary expenditure by the Town and its ratepayers. In addition, interbasin transfers would not be minimized because water from the MWRA basins would be used annually, even when not needed by the Town.

The Town's MWRA Supplemental Connection Use By-law would prohibit the purchase of MWRA water to maintain Hopkinton Reservoir water levels. The By-law authorizes the purchase of MWRA water under the following circumstances:

- The Hopkinton Reservoir water level is at or below 293 ft NGVD 29, which corresponds to the minimum level of groundwater at which the Town's wells may be operated;
- The Distribution system is damaged;
- Water Pressure in the system drops below a safe level for fire protection; or
- Routine maintenance of the connection between Ashland and Southborough is required.

I encourage the Town to closely monitor its use of MWRA water to understand the timing and volume of its supplemental water needs and opportunities for minimizing environmental impacts on the reservoir. According to the FEIR, Ashland's projected water use will continue to climb in excess of its permitted well capacity. In the future, the purchase of MWRA water may become a more predictable and necessary component of the Town's water supply. During permitting, the Town will be required to provide MassDEP with a plan for minimizing the impacts of its groundwater withdrawals to the greatest extent feasible while maintaining a safe water supply.

According to MassDEP, the town's groundwater supply and MWRA's water differ in orthophosphate content, pH and fluoride levels. In its WMA permit application, the Town must evaluate measures for avoiding impacts to drinking water quality associated with these differences. The Town has agreed to add orthophosphate to MWRA water entering its system to prevent an increase in lead levels. MassDEP has identified additional information that will be required as part of its review, including clarification of ownership and maintenance responsibilities among Ashland, Southborough and the MWRA; documentation to support the conditions specified in the By-law under which water will be purchased; and clarification the nominal flow rates and periods of supplemental water use. In response to MassDEP's requests in



its comments on the DEIR, the Town has updated its Emergency Response Plan and will complete a Drought Management Plan by the end of 2018.

### *GHG Emissions*

The FEIR provided a supplemental analysis of GHG emissions associated with operation of new pumps. The analysis used the updated emissions factor of 710 pounds of carbon dioxide (CO<sub>2</sub>) per megawatt-hour (MWh) provided in the 2016 *Electric Generator Air Emissions Report* prepared by the Independent System Operator-New England (ISO-NE). The project includes the replacement of two small pumps (40 horsepower (hp) and 60 hp) at the Hosmer Pump Station with two 125-hp pumps. The new pumps will be larger than the existing pumps and will use more electricity. The Town compared GHG emissions of standard-efficiency motors and high-efficiency motors with variable frequency drives (VFD). The selected high-efficiency pumps will use electricity at a rate of 740,000 kilowatt-hours per year (kWh/yr) which will generate 262.7 tons per year (tpy) of GHG emissions, a reduction of 10.65 tpy (4 percent).

I note that the Town has implemented energy-efficiency measures for its water treatment and distribution systems as a result of an energy audit completed in 2009, including installing VFD on well pumps and High Service Water Pumps, operational controls on pumps to increase efficiency, and minimizing electric heat in well houses. In addition, solar photovoltaic (PV) systems supply approximately 70 percent of the electricity used at Ashland's Water Department offices and meets 20 percent of the electricity needs of the Howe Street Water Treatment Plant.

### Mitigation/Draft Section 61 Findings

The FEIR contained updated draft Section 61 Findings. In order to ensure that all GHG emissions reduction measures adopted by the Town as the Preferred Alternative are actually constructed or performed by the Town, the Town shall provide a self-certification to the MEPA Office indicating that all of the required mitigation measures, or their equivalent, have been completed.

### *Water Quality and Conservation*

- Add orthophosphate to MWRA water entering the system to address chemical differences between water sources;
- Prepare a Drought Management Plan that includes a seasonal demand management strategy;
- Prepare an updated Emergency Response Plan;
- Continue its leak detection and system repair program;
- Continue its program to install, replace, repair and maintain water meters;
- Continue its public educational programs and participation in programs that provide low-flow plumbing fixtures and rain barrels to residents; and
- Enforce outdoor water use bans during low-groundwater conditions.

*GHG*

- Install two new pumps with an efficiency of 94 percent at the Hosmer Pump Station;
- Use LED lighting;
- Use Variable Flow Drives (VFD) on well pumps and High Service Water Pumps;
- Change control settings on raw water pumps;
- Operate only one High Service pump at full speed;
- Minimize electric heat in well houses;
- Operate treatment plant during off-peak hours to the extent practicable;
- Install an energy-efficient ozone generator; and,
- Evaluate the use of skylights and dimming controls in the treatment plant.


*Construction*

- Implement erosion and sedimentation controls within 100 feet of any wetland resource areas;
- Revegetate disturbed areas;
- Require contractors to refuel vehicles off-site and maintain spill control and cleanup materials at the work site;
- Require contractors to stockpile materials as far away from wetland resource areas as possible;
- Regular street cleaning to minimize dust and sediment;
- Manage any contaminated material excavated during the course of the project in accordance with the Massachusetts Contingency Plan (MCP);
- Use electronic message board to alert the public about construction activities and potential traffic delays;
- Require contractors to develop Traffic Management Plans;
- Require contractors to use Ultra Low Sulfur Diesel fuel (ULSD) in motorized equipment; and
- Require contractors to comply with the anti-idling provisions of 310 CMR 7.11.

Conclusion

Based on a review of the FEIR, comments letters, and consultation with State Agencies, I find that the FEIR adequately and properly complies with MEPA and its implementing regulations. Outstanding issues can be addressed during State and local permitting and review. No further MEPA review is required and the project may proceed to permitting. State Agencies should forward copies of the final Section 61 Findings to the MEPA Office for publication in accordance with 301 CMR 11.12.

June 29, 2018  
Date

  
Matthew A. Beaton

Comments received:

- 06/18/2018 Water Resources Commission (WRC)
- 06/21/2018 Massachusetts Department of Environmental Protection (MassDEP) - Northeast Regional Office (NERO)
- 06/22/2018 Department of Conservation and Recreation (DCR)
- 06/22/2018 Massachusetts Water Resources Authority (MWRA)

MAB/AJS/ajs

## Attachment C

**Acts (2019)****Chapter 112****AN ACT AUTHORIZING THE MASSACHUSETTS WATER  
RESOURCES AUTHORITY TO SUPPLY WATER TO THE TOWN  
OF ASHLAND**

*Whereas*, The deferred operation of this act would tend to defeat its purpose, which is to authorize the Massachusetts Water Resources Authority to supply water to the town of Ashland, therefore it is hereby declared to be an emergency law, necessary for the immediate preservation of the public health.\_

*Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:*

SECTION 1. Paragraph (d) of section 8 of chapter 372 of the acts of 1984, as most recently amended by section 1 of chapter 350 of the acts of 2018, is hereby further amended by inserting after the word “Arlington”, in line 3, the following word:- , Ashland.

SECTION 2. Notwithstanding section 1, the provision of water services by the Massachusetts Water Resources Authority to the town of Ashland shall commence only after the board of directors of the authority has voted approval having first made the findings as required by clauses (1) to (6), inclusive, of paragraph (d) of section 8 of chapter

372 of the acts of 1984 and having made other such determinations in accordance with applicable policies of the authority and after all required approvals have been received including, as applicable, other regulatory bodies where required and the advisory board of the authority, but section 71 of said chapter 372 shall not apply.

*Approved, November 13, 2019.*



THE COMMONWEALTH OF MASSACHUSETTS  
WATER RESOURCES COMMISSION  
100 CAMBRIDGE STREET, BOSTON MA 02114

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**REPORT OF THE FINDINGS, JUSTIFICATIONS AND DECISION  
OF THE WATER RESOURCES COMMISSION  
Relating to the Approval of the  
Town of Ashland's Request for an Interbasin Transfer  
Pursuant to M.G.L. Chapter 21 § 8C**

DECISION

On October 11, 2018, by a unanimous roll call vote of the ten (10) voting members present at a public meeting, the Water Resources Commission (WRC) approved the Town of Ashland's request for an Interbasin Transfer for admission to the MWRA Water Works System. This vote was taken after review of the facts provided by the applicant, analysis of the associated data, and consideration of comments received concerning this proposal.

INTRODUCTION

On October 8, 2015, the Massachusetts Water Resources Commission (WRC) received a request from the Town of Ashland for approval of an action to increase the present rate of interbasin transfer under the Interbasin Transfer Act (ITA) (M.G.L. Chapter 21 §§ 8B-8D) as part of a Draft Environmental Impact Report (DEIR) submitted to the Massachusetts Environmental Policy Act (MEPA) office. Additional information was requested and received in the Final EIR, submitted in May 2018. The WRC accepted Ashland's application as complete at its July 12, 2018 meeting.

Ashland is proposing to purchase a maximum of 1.6 million gallons per day (mgd) of water from the Massachusetts Water Resources Authority (MWRA) to supplement its existing water supply sources the Howe Street Groundwater Wells (Figure 1). This represents a maximum day demand. Ashland's average day demand (ADD), based on the years 2013 to 2017, has ranged from 1.25 mgd to 1.49 mgd.

The Town has five existing water supply sources, all adjacent to the Hopkinton Reservoir which is managed by the Department of Conservation and Recreation (DCR) for recreation and flood control purposes. Two of these sources have shut-off thresholds to be implemented when the reservoir reaches an elevation of 295.85 feet National Geodetic Vertical Datum (NGVD).

FACTS PERTAINING TO THE APPLICATION ARE:

1. Ashland has land area in the Concord River basin.
2. The Town is applying for admission to the MWRA Waterworks System, which has sources in the Chicopee River basin and the Nashua River basin.

3. Ashland is proposing to purchase water from the MWRA to supplement its existing water supply sources and will use MWRA water when the level in the Hopkinton Reservoir is at or below 293 feet NGVD29<sup>1</sup>.
4. An environmental review, pursuant to Section 61 & 62H, inclusive, of Chapter 30, was required for this proposed action. The ITA application was submitted as part of the DEIR for this project (EOEEA #15388). Additional information for ITA review was requested through the MEPA process and provided in the FEIR.
5. The Secretary's Certificate on the Final EIR was issued on June 29, 2018, stating that no further MEPA review was needed.
6. Two required public hearings were held to take comment on this application, one in Belchertown, in the donor basin on August 21, 2018 and one in Ashland, in the receiving basin on August 23, 2018. Public comments were accepted until August 30, 2018.
7. A Staff Recommendation to approve the Request was presented to the WRC on September 13, 2018.
8. A public hearing on the Staff Recommendation was held in Boston on September 20, 2018. Written public comments were accepted until September 27, 2018.
9. Responses to comments received through the public comment periods are available in a separate report from the WRC.

**EVALUATION OF THE PROPOSED INTERBASIN TRANSFER**

This Interbasin Transfer application was reviewed on its own merits and is applicable solely to Ashland's use of MWRA water. The Decision is made on facts relevant to the Interbasin Transfer Act and its regulations. The application was evaluated against the seven criteria outlined in the regulations (313 CMR 4.09), as well as the Interbasin Transfer Act Performance Standards and with consideration of comments received at WRC meetings and through the public comment process.

**SYNOPSIS OF THE EVALUATION CRITERIA (313 CMR 4.09)**

<b>Criteria</b>	<b>Application Meets?</b>
<b>Criterion #1:</b> MEPA Compliance	Yes
<b>Criterion #2:</b> Viable In-Basin Sources	Yes
<b>Criterion #3:</b> Water Conservation	Yes
<b>Criterion #4:</b> Forestry Management	Not Applicable
<b>Criterion #5:</b> Reasonable Instream Flow	Yes
<b>Criterion #6:</b> Groundwater/Pumping Test	Not Applicable
<b>Criterion #7:</b> Cumulative Impacts	Yes

**BASIS FOR THE WRC DECISION**

This application was reviewed by WRC staff at the DCR Office of Water Resources, and by staff at Department of Environmental Protection (DEP), and Department of Fish and Game's (DFG) Divisions of Fisheries and Wildlife and, Environmental Restoration Program. This Decision was made after an extensive evaluation of the project and of Ashland's compliance with the five

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<sup>1</sup> NGVD of 1929

applicable criteria of the Interbasin Transfer Act regulations. The following section describes in detail, compliance with the criteria.

### **Criterion #1 MEPA Compliance**

An environmental review, pursuant to Section 61 through 62H, inclusive, of Chapter 30, and the MEPA regulations, 301 CMR 11.00 was required for this proposed action. The ITA application was submitted as part of the Draft Environmental Impact Report (DEIR) for this project (EOEEA #15388). The Secretary's Certificate on the DEIR was issued on November 13, 2015 and required that a Final EIR (FEIR) be developed. The FEIR Certificate was issued on June 29, 2018 and stated that no further MEPA review was necessary.

### **Criterion #2 Viable In-Basin Sources**

To meet this criterion, Ashland had to demonstrate that it had made all reasonable efforts to identify and develop all viable sources in the receiving area. Ashland compiled a "Potential Water Supply Study" in 2012. The Town reviewed several areas in town and conducted in-depth investigations on three potential in-basin sources, prior to deciding to apply for ITA approval (See Figure 1). These were:

- An additional well at the site of its existing sources (Howe Street): This site has limited yield and is limited by the capacity of the treatment plant. Ashland's existing sources currently impact and are impacted by DCR's prior rights to manage the adjacent Hopkinton Reservoir. Two of Ashland's existing wells must shut down when the Hopkinton Reservoir reaches a level of 295.35 NGVD29. Any additional source developed here would likely only provide redundancy and would be subject to shut-off triggers during the times of year when Ashland would most need supplemental water. In addition, the wells are relatively shallow. In 2007 and 2013 groundwater levels were so low the wells were not useable and an emergency connection to Southborough was needed. DEP has indicated that the subbasin where the Howe Street wells are located (#12029) is identified as Biologic Category (BC) 5 and Groundwater Withdrawal Category (GWC) 5<sup>2</sup>, and has a significant estimated seasonal net August groundwater depletion of 236%. Increasing withdrawals from these wells would likely exacerbate impacts to recreational uses and Hopkinton Reservoir levels and require additional permit conditions. In addition, DEP's revised Water Management Act regulations (310 CMR 36.22(5)(a)) will require that Ashland evaluate alternatives to pumping at this location in order to minimize impacts.
- Spring Street site: A source here will need Article 97 legislative approval to secure proposed access through DCR property and a portion of the Zone I, which would extend into DCR's Ashland State Park. Recreational use of the park, including DCR's management of water levels at the Ashland Reservoir, cannot be impacted by use of the well. Therefore it will likely be subject to shut-off thresholds during the times of year when Ashland will need the water. There are also water quality issues associated with the site. In addition, any source developed here will need Interbasin Transfer Act approval, because Ashland discharges its wastewater out of basin, and would likely have restrictions imposed to prevent impacts to Cold Spring Brook.
- Shore Road site: Any source developed here will need Interbasin Transfer Act approval, because Ashland discharges its wastewater out of basin. It is unclear if it would meet the criteria for approval due to wetlands and other environmental concerns. If it could be

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<sup>2</sup> These are the most impacted of the Sustainable Water Management Initiative Framework categories.



approved, the well would likely be subject to shut-off triggers during the times of year when Ashland would most need supplemental water. There are also water quality issues associated with this site.

**Figure 1**  
**Ashland Investigated In-Basin Sources**



In its comments on this ITA request, DEP indicated that the Spring Street and Shore Road sites are both located in subbasins currently categorized as GWC 2. Very small increases in withdrawals from either subbasin would result in a change of the GWC of that subbasin. The revised Water Management Act regulations require that permittees changing a subbasin’s GWC category demonstrate that there is no feasible alternative source that is less environmentally harmful before being granted approval to increase withdrawals (310 CMR 36.22(7)(a)). Hence, there would be significant permitting issues associated with their development and use as viable long-term options for new or increased withdrawals.

At the request of a Commission member, the following additional sites were reviewed and Ashland was consulted on the possibility of developing wells there:

- A parcel near the Hopkinton border, near Legacy Farms: A review of the stratified glacial drift deposits in this area as shown on the Hydrologic Investigation Atlas mapped by the United States Geological Survey (USGS) in cooperation with the Water Resources

Commission, indicates that the area of stratified drift virtually ends at the Hopkinton border. The parcel in Ashland consists of mostly till, and according to the USGS map, is not good aquifer material.

- The former Girl Scout Camp, adjacent to Ashland State Park: Although a portion of the property is shown on MassGIS as having glacial stratified deposits, MassGIS does not show the property as having a potential medium or high-yield aquifer. This site is in close proximity to the Ashland Reservoir. It would have the same challenges faced by the Spring Street site under DEP's Water Management Act, described above. It could also be affected by shut off thresholds needed to protect levels in the Reservoir. In addition, this site was purchased expressly to provide additional wastewater capacity for the Town of Ashland (currently sewered to the MWRA), through a groundwater discharge system. Given this use, it is unlikely that a water supply located at this site could meet Zone I requirements.
- The former Warren Conference Center site, now owned by Framingham State College: Ashland does not own this site and would need Article 97 legislative approval to develop a well here. In addition, a review of the stratified drift deposits in this area indicates that this area is till, and not good aquifer material.

The Town also reviewed other sites, but dismissed them due to contamination issues, lack of suitable aquifer material, and/or groundwater and biological category issues identified through the Sustainable Water Management Initiative Framework.

### **Criterion #3 Water Conservation**

Ashland has an existing water conservation program which meets most of the ITA Performance Standards for Criterion #3 and the Massachusetts Water Conservation Standards (<https://www.mass.gov/files/documents/2018/09/11/ma-water-conservation-standards-2018.pdf>). Ashland's application was received before the approval of the updated 2018 Massachusetts Water Conservation Standards, however, its water conservation program conforms with the updated standards.

Ashland has been working steadily to meet the Performance Standard for unaccounted-for water. Ashland's unaccounted-for water has averaged 10.85% over the past 5 years. Ashland has identified the cause of high unaccounted-for water to be older, inefficient meters and so has implemented a meter replacement program. As a condition of this approval, Ashland must provide annual reports of the progress with this program to WRC Staff.

Based on this, the WRC has determined that Ashland is in the process of addressing the ITA Performance Standard for unaccounted-for water, and finds that Ashland meets this Criterion.

Table 1 lists Ashland's water conservation accomplishments with respect to all of the water conservation standards.

**Table 1**  
**Ashland's Water Conservation Status**

<b>CONSERVATION MEASURE</b>	<b>IBT PERFORMANCE STANDARD</b>	<b>ACCOMPLISHMENTS</b>	<b>MEETS STANDARDS?</b>
1) Leak Detection and Repair	Full Leak Detection survey within the previous two years of the application	Leak Detection yearly; last in 2016	Yes
	Documentation of survey and of leaks identified and repaired	All identified leaks repaired by January 2017. Documentation of the survey was provided.	Yes
	Completed by methods at least as comprehensive as the MWRA's regulations for leak detection	Yes	Yes
2) Metering	100% Metering	100% Metered	Yes
	Regular maintenance, calibration, testing and repair program; description of program included in application	Ongoing program – especially since they have identified meter age as major factor in UAW	Yes
	All public buildings should be metered	Yes	Yes
	Master meters calibrated annually; documentation of annual master meter calibration	Yes; documentation of calibration provided	Yes
	Quarterly billing, based on actual meter readings; bills should be easily understood by customer	Residential customers billed quarterly; large users billed monthly	Yes
3) Unaccounted-for water	Unaccounted-for water should be at 10% or less	UAW = 10.85% (2013 to 2017 average), but Town has implemented an aggressive meter replacement program to reduce; UAW was 8.2% in 2017	Yes
4) Pricing	Documentation of full cost pricing	Dedicated water/sewer enterprise fund. Water rates are based on the cost of water and include the costs of operation and maintenance of the wells and distribution system.	Yes
	Rate structure must encourage water conservation	Rates encourage conservation through an increasing block rate, with the highest tier more than twice that of the lowest tier, and separate, highest tier rates for irrigation meters.	Yes
	Decreasing block rates prohibited	Does not have decreasing block rates.	Yes

CONSERVATION MEASURE	IBT PERFORMANCE STANDARD	ACCOMPLISHMENTS	MEETS STANDARDS?
5) Drought/emergency contingency plan	Written Drought/emergency contingency plan, to include:	Ashland has an extensive emergency contingency plan that is available to all town departments. The Town has a permanent water restriction by-law (updated in September 2015) which restricts outdoor water uses year-round. The Town's website provides information concerning water use restrictions and Hopkinton Reservoir levels.	Yes
	- seasonal use guidelines		
	- measures for voluntary and mandatory water use restrictions and describe how these will be implemented		
	- tie water use restrictions to streamflow and/or surface water levels in the affected basin(s) where this information is available		
6) Public sector water use	All public buildings should be metered	All public buildings are metered	Yes
	Retrofit all public buildings with low-flow devices	Yes	Yes
	Proponents should provide records of water audits conducted on public facilities. The most recent audit should have occurred within two years prior to the application for Interbasin Transfer approval.	An audit on public buildings was conducted in September 2015.	Yes
7) Residential water use	If the community's residential gallons per capita/day is greater than 65, the proponent should be implementing a comprehensive residential conservation program that seeks to reduce residential water use through a retrofit, rebate or other similarly effective program for encouraging installation of household water saving devices, including faucet aerators, showerheads and toilets and through efforts to reduce excessive outdoor water use.	RGPCD = 55 (average 2013 to 2017)	Yes
		Water Efficient Plumbing Fixtures Provided	Yes
		Comprehensive residential water conservation program implemented	Yes
		Outdoor water use restrictions in place	Yes

CONSERVATION MEASURE	IBT PERFORMANCE STANDARD	ACCOMPLISHMENTS	MEETS STANDARDS?
8) Public Education	A broad-based public education program which attempts to reach every user at least two times per year- - refer to the WRC's 2018 "Massachusetts Water Conservation Standards" and the Massachusetts Water Works Association for recommended public education measures	Water use restrictions, posted on an electronic message board at the center of town and signage at major primary roads notify the public about the restrictions on water usage. Notices are also published in the local newspaper. Information to promote water conservation and the use of water conserving devices published in the local newspaper	Yes
	Targeting largest users	Ashland is primarily a residential town with few industrial properties that might be considered target large water users.	Yes
9) Outdoor water use		Ashland has a water use restriction by-law which mandates outdoor water use restrictions year-round. The Town's website provides information concerning water use restrictions and Hopkinton Reservoir levels.	Yes
10) Other	A program of land use controls to protect existing water supply sources of the receiving area that meet the requirements of the Department of Environmental Protection.	In place	Yes
	A long-term water conservation program which complies with the 2018 <u>Massachusetts Water Conservation Standards</u> should be in place.	Yes	Yes

#### **Criterion #4 Forestry Management**

This criterion is not applicable to this proposal. Ashland's sources are ground water sources.

#### **Criterion #5 Reasonable Instream Flow and Criterion #7 Cumulative Impacts**

Ashland is proposing to purchase up to 120 million gallons of water from the MWRA per year. System hydraulics and the maximum interbasin transfer amount requested will result in a maximum transfer of 1.6 mgd.

The ITA regulations (313 CMR 4.09(e)) direct the WRC to consider that "reasonable instream flow in the river from which the water is transferred is maintained" in making its decision to approve or deny an Interbasin Transfer request. In this case, the WRC, through its Staff, evaluated the impacts of transferring 1.6 mgd on the operations of the MWRA Water Works System, which include impacts to reservoir levels, drought levels, low flows, intermediate flows, high flows, and the MWRA's mandated downstream releases. In addition, the cumulative impacts of the Ashland transfer, other recently approved transfers and other potential new communities which may be added in the near future were evaluated on a monthly basis. These transfers could result in an additional combined annual average of 10 mgd of system demand. In its analysis of these criteria, the WRC relied on data provided in the Ashland DEIR, FEIR, information regarding the MWRA system in a document titled, "MWRA Water System Supply and Demand" (May, 2002), and previous WRC Decisions. Streamflow data and reservoir release data for the analysis were obtained from the US Geological Survey and previous WRC ITA reviews.

#### MWRA Water Works System Operations

The MWRA Water Works System obtains water from the Quabbin Reservoir, the Wachusett Reservoir, and the Ware River intake (Figures 2-4). The Quabbin Reservoir has a watershed area of 186 square miles, and maximum storage capacity of 412 billion gallons, equivalent to about five years worth of supply. In addition to the water flowing into the Quabbin directly, Quabbin Reservoir can receive water from the Ware River (also in the Chicopee River basin) via the Ware River intake. The Ware River at its intake has a watershed area of 96.8 square miles. The Quabbin Reservoir is connected by pipeline (the Quabbin Aqueduct) to the Wachusett Reservoir in the Nashua River basin. Wachusett Reservoir has a capacity of 65 billion gallons and a watershed area of 107 square miles. The Quabbin Reservoir came on-line in 1940's to supplement the existing reservoir system (including the Wachusett Reservoir) that had been serving the Boston metropolitan area.

The Quabbin and Wachusett reservoir system is operated with the primary objective of ensuring an adequate, high quality water supply. Secondary operational objectives include maintaining an adequate flood protection buffer particularly during the spring melt and hurricane seasons and maintaining required minimum releases to both the Swift and Nashua Rivers. The Wachusett Reservoir elevation is controlled through transfers from Quabbin Reservoir. The objective is to operate Wachusett Reservoir over a narrow operating range (between elevation 390 and 391.5 feet BCB<sup>3</sup>) while allowing Quabbin Reservoir to freely fluctuate. The Quabbin Reservoir elevation at the primary spillway is 530 feet BCB. There is also a smaller, low-level spillway at elevation 528 feet BCB.

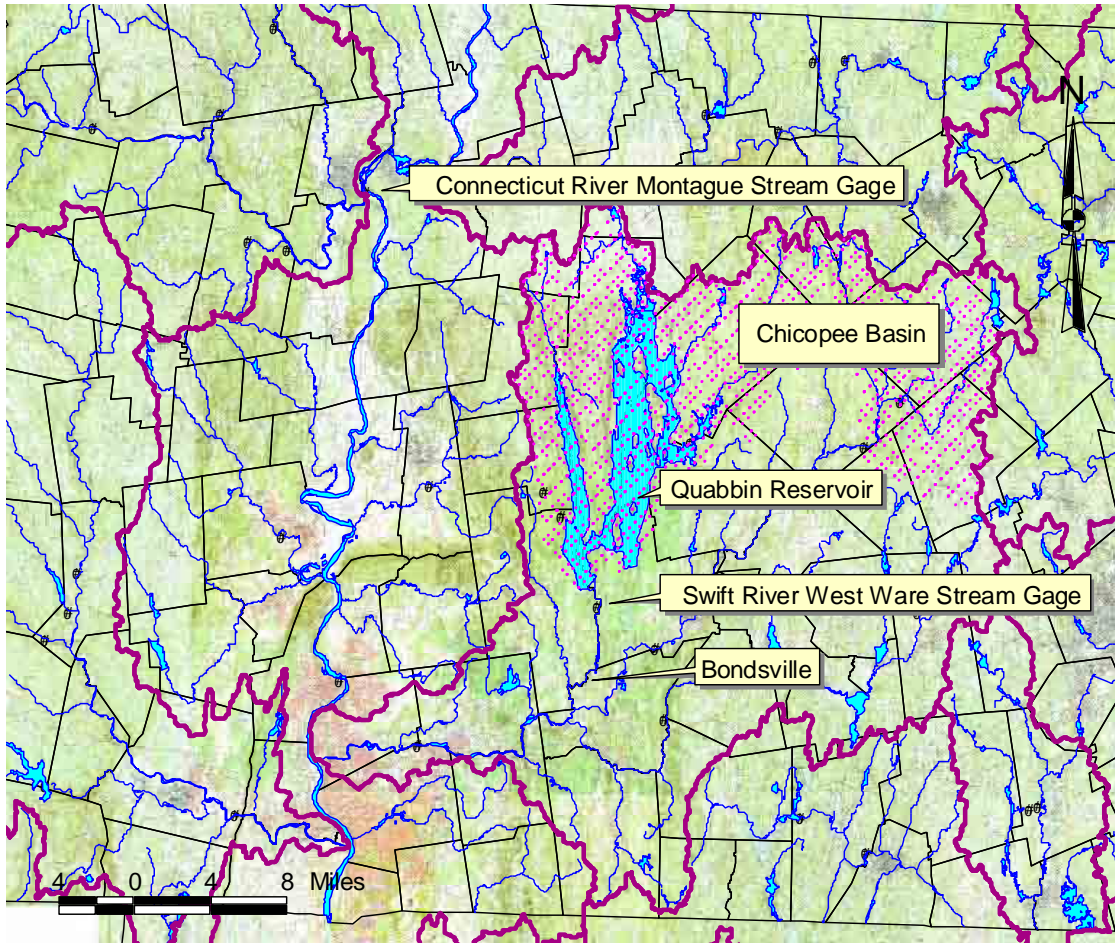
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<sup>3</sup> Boston City Base

Figure 2. Schematic of MWRA Water System



Figure 3. Quabbin Reservoir Donor Basin

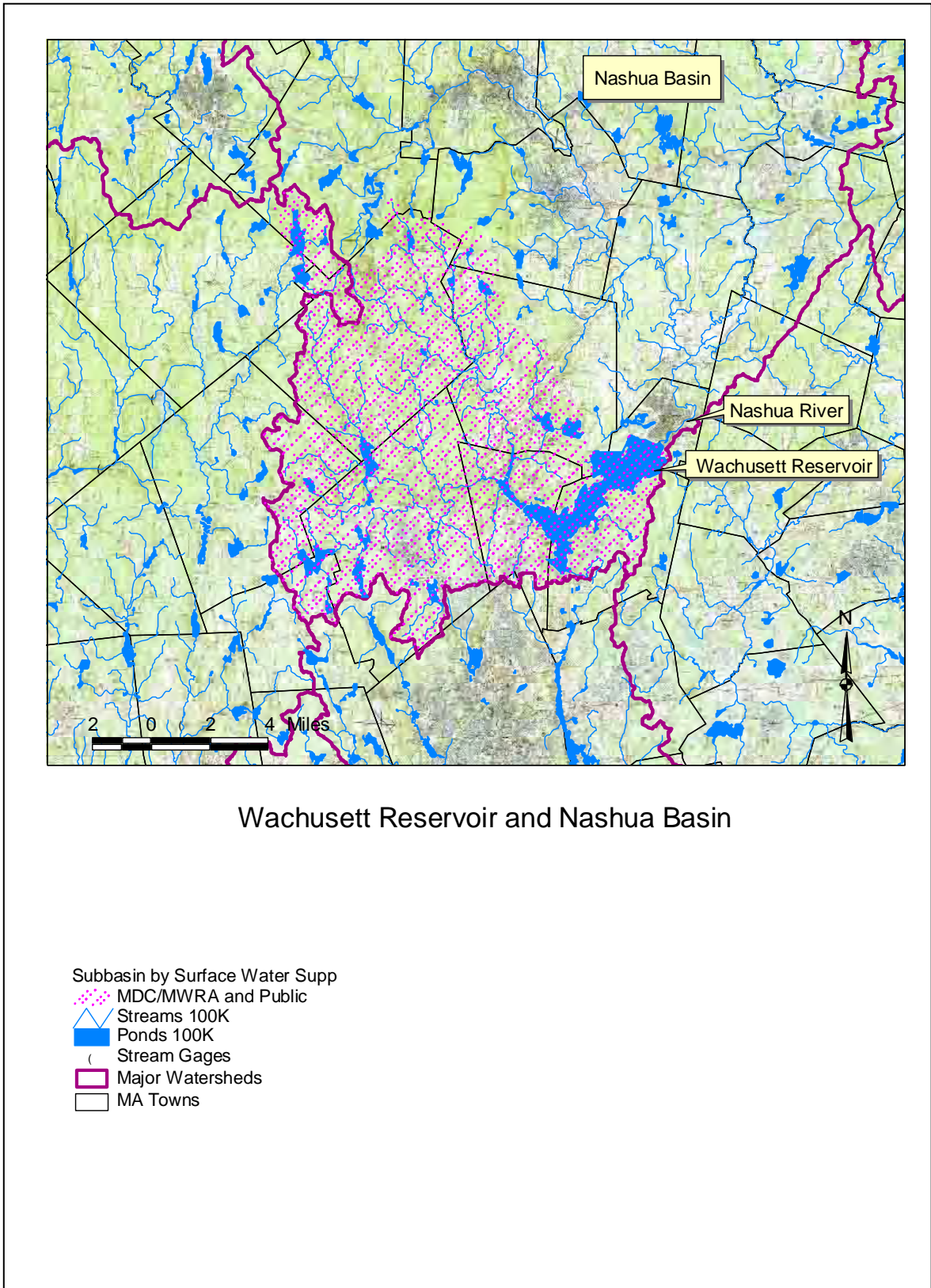


Quabbin Reservoir, Chicopee Basin, and Stream Gaging Locations of Interest

- Subbasin by Surface Water Supp
- MDC/MWRA
- Major Watersheds
- Maj Streams
- Maj Ponds
- Stream Gages
- MA Towns



**Figure 4. Wachusett Reservoir Donor Basin**



The operation of Quabbin Reservoir includes maintenance of a minimum flow in the Swift River at Bondsville (five miles downstream of Winsor Dam) of 20 mgd, or 30 cubic feet per second (cfs). This threshold was mandated in Chapter 321 in the 1927 Acts of Massachusetts. A 1929 War Department permit (now overseen by the Army Corps of Engineers) also requires seasonal releases from the Winsor Dam to maintain flow for navigability on the Connecticut River between June 1 and November 30. The seasonal releases are 70 cfs (45 mgd) if the flow in the Connecticut River, as measured at the Montague stream gage, falls below 4,900 cfs, and 110 cfs (70 mgd) if the flow in the Connecticut River falls below 4,650 cfs.

During its normal operation, the Quabbin Reservoir maintains the required streamflow thresholds stated above through controlled releases through a combination of a turbine bypass (formerly used for hydropower production) plus a Ross valve. The reservoir has been historically controlled to maximize safe yield and assure water quality, while at the same time satisfying the regulatory required releases. Uncontrolled releases, or unintended spills, can occur occasionally over the spillway. If the reservoir is close to full and a storm event occurs, excess water may be spilled over the spillway down the Swift River. There have also been extended multi-year periods when no spillway discharges have occurred.

Transfers from the Ware River to Quabbin Reservoir are only allowed at Ware River flows above 85 mgd (131 cfs), and must be limited to the period from October 15 to June 15. In addition, permission must be obtained from the Army Corps of Engineers to transfer water during the periods of June 1 through June 15 and October 15 through November 30. Under the “limited Ware” operating approach currently implemented by the MWRA, transfers from the Ware River are made only on a limited basis for flood control or to help fill the Quabbin when Quabbin Reservoir levels are beneath their seasonal normal values.

Minimum releases are also statutorily mandated for the operation of the Wachusett Reservoir on the South Branch of the Nashua River. Chapter 488 of the 1895 Acts of Massachusetts requires a release of 12 mg per week or 1.71 mgd (equivalent on average to approximately 2.6 cfs).

### Hydrologic Analysis—Overview

Several types of data are available to evaluate the potential impact of the Ashland transfer, as well as any planned or proposed transfers, on the Quabbin Reservoir. Streamflow data, or a hydrograph showing the impact of the proposed transfer on the donor river basin, is usually evaluated as part of an interbasin transfer review. However, several factors make the use of downstream flow data difficult in this case. First, the Quabbin Reservoir has a huge storage capacity, which is used to maintain a constant minimum flow. Second, the current MWRA system demand is significantly lower than its historic demand; therefore superimposing the transfer on a historic downstream hydrograph would not be realistic. For these reasons, other types of data, including releases and reservoir levels, are being used to evaluate these criteria. To account for the change in system demand, some of the analyses have used a shortened period of record on which to superimpose the transfer. Due to the presence of large water supply dams and their associated reservoirs, Aquatic Base Flow (ABF) criteria were not applied to

downstream releases, since the outflows from the dams would not reflect the size of the watersheds above the dams on a cubic feet per second per square mile (cfs/m) basis.

The Ashland application indicates that in general, given the relatively small size of the Ashland transfer in comparison to the capacity of the reservoir and the magnitude of discharges over the spillway, and the discharges governed by regulatory requirements, the effects from Ashland's withdrawals on hydraulic characteristics will be imperceptible. Intended downstream releases at Quabbin, Ware, and Wachusett will not change. There would only be a slight reduction in unintended spillway flows at Quabbin.

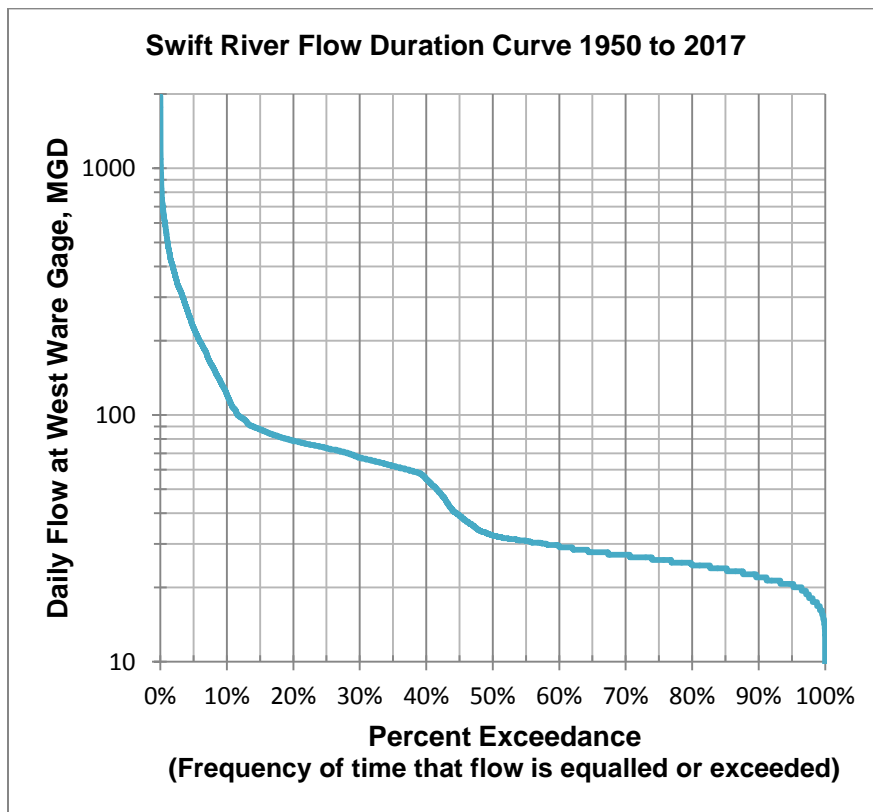
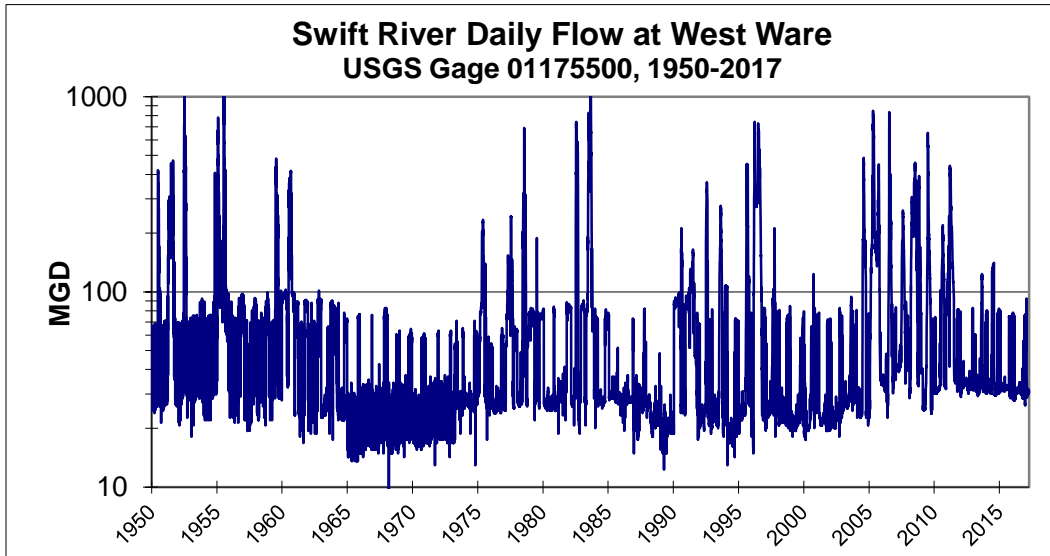
#### *Quabbin Reservoir and Swift River*

Both time series flow graphs and flow duration curves are used to describe river flow conditions. Figure 5 shows both the time series and flow duration curve for the Swift River at the West Ware gage for the time period of 1950 to 2017. The Swift River West Ware gage is located 1.4 miles downstream from Winsor Dam and has a period of record from 1913 to present. The West Ware gage is located approximately 3.6 miles upstream of the compliance point at Bondsville. The intervening drainage area between the two points is reported to contribute 4 mgd of base flow (MWRA Water System Supply and Demand, 2002); therefore, releases of at least 16 mgd are made from the Quabbin Reservoir to maintain the minimum 20 mgd flow required at Bondsville. MWRA has commented that releases are more typically about 20-25 mgd. In addition, 6 mgd is supplied to the McLaughlin Fish Hatchery and ultimately returns to the Swift River. Significant flow variation is evident in the time series graph, and the flow duration curve depicts the very high frequency of flows that exceed the minimum release requirement from the Quabbin Reservoir.

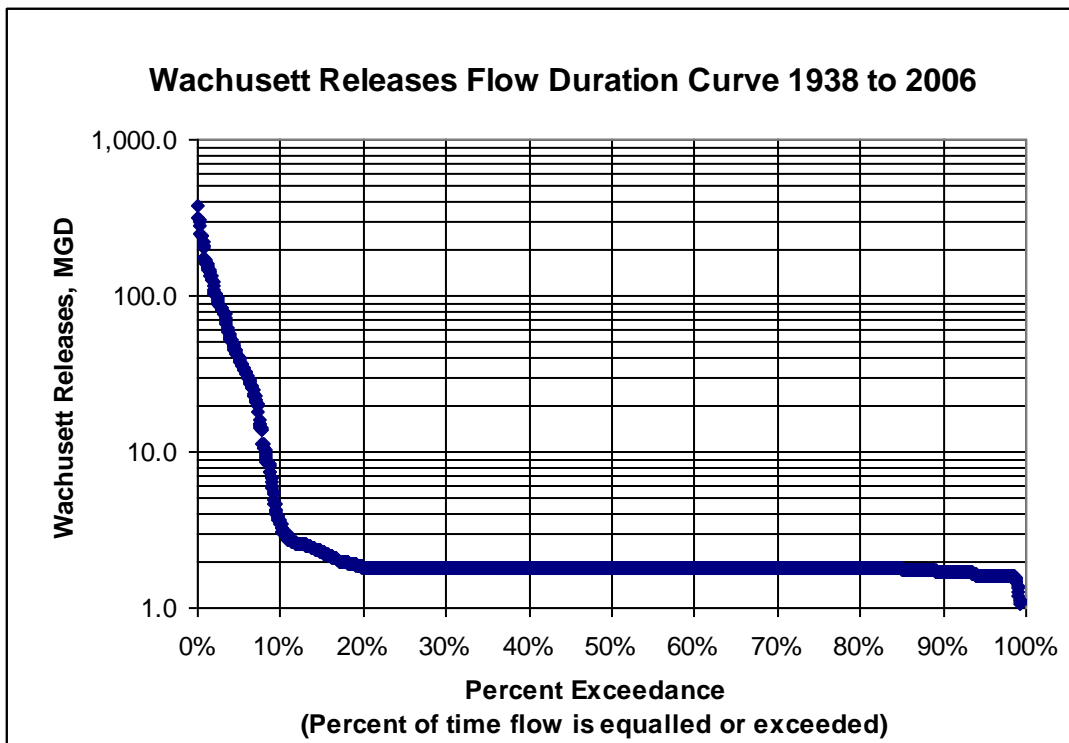
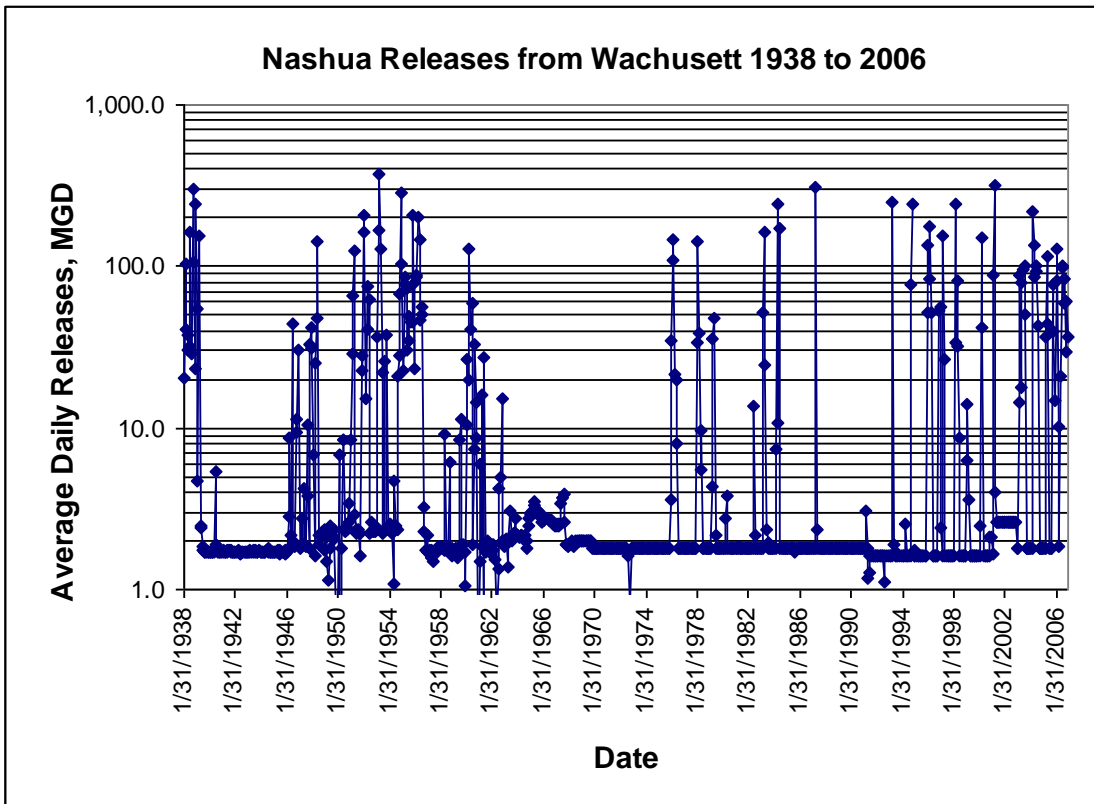
#### *Wachusett Reservoir and Nashua River*

Statutory releases from Wachusett Reservoir typically occur through a fountain on the downstream side of the dam at the headwaters of the Nashua River. MWRA staff also estimates that an additional 0.9 mgd of seepage occurs from the Wachusett Reservoir dams and dikes. A pressure-reducing sleeve valve installed in 2003 has provided better operational control and allows additional discharges up to 100 mgd. Flows between 1.8 and 100 mgd may be released through the sleeve valve to control the reservoir level or when Wachusett Reservoir is being supplemented with Quabbin water for water quality purposes. Flows above 100 mgd occur when the Wachusett Reservoir spillway crest gate is activated for larger releases and spilling. Previous analysis for the time period of 1938 to 2006 showed that the minimum of 1.71 mgd release or greater occurred 92.5 percent of the time; however, between since 2002 the minimum release was achieved greater than 99 percent of the time. Figure 6 shows a previous analysis of releases to the Nashua River times series and flow duration curve from 1938 to 2006. Figure 7 shows a times series of Nashua River daily releases from 2003-2015 taken from the FEIR. Figure 8 shows a times series of Nashua River flow from the relatively new USGS Gage 01095503 from July 2011 (when the period of record starts) through 2017.

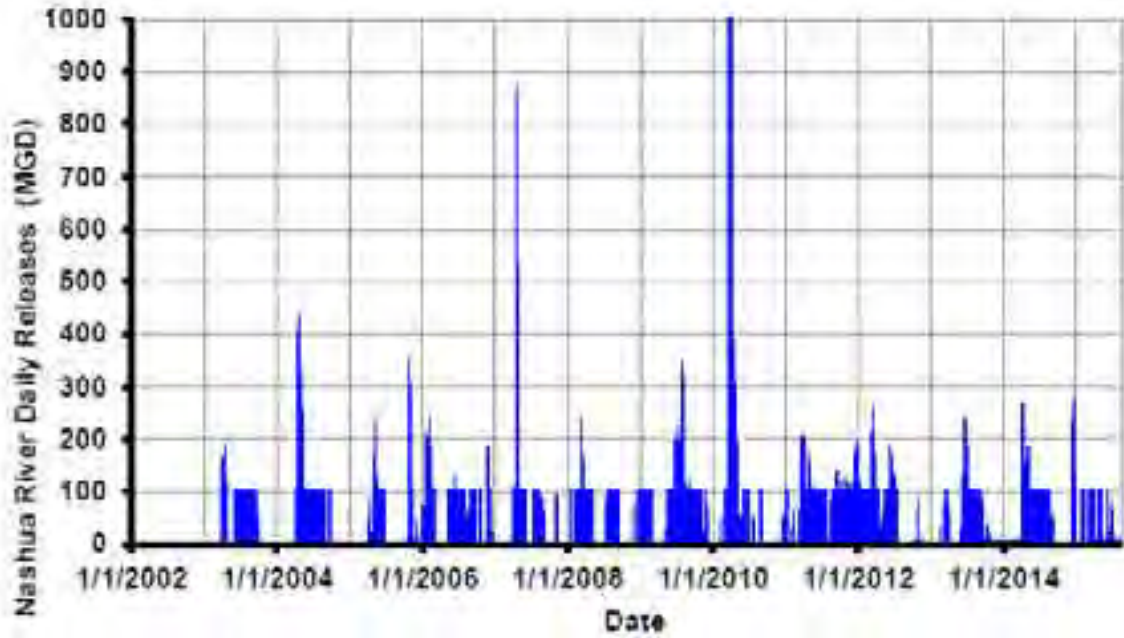
**Figure 5. Swift River Time Series and Flow Duration Curve 1950 to 2017**



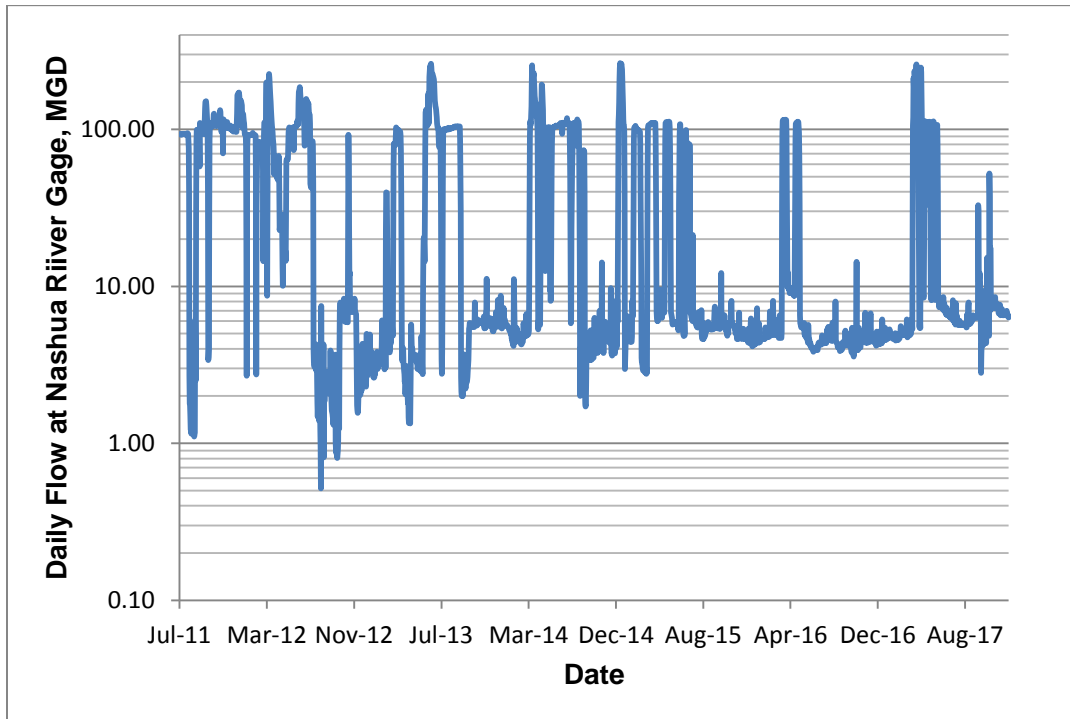
**Figure 6. Releases from Wachusett Reservoir to Nashua River, 1938 to 2006  
Time Series and Flow Duration Curve**



**Figure 7 Nashua Daily Releases 2004-2015  
From FEIR**



**Figure 8 Nashua River Flow, MGD  
USGS Gage 01095503**



### *Ware River*

According to MWRA, the Ware intake at Barre was designed to pass the first 85 mgd before flow can be siphoned into the intake. Flow is measured by MWRA using its own meter at the intake. However, since the diversions are only allowed at flows exceeding 85 MGD (and the operating practice is to not divert below 89 mgd), there are no impacts to low flows caused by the diversions. It is noted that diversions from the Ware River to the Quabbin Reservoir are typically only made when the reservoir level is below normal or the Army Corps of Engineers requests it for flood control. Figure 9 shows the time series and flow duration curve from a previous analysis for the Ware River for the time period 2002 to 2006. The USGS gage 01173000 data time series has superimposed on it the reduced flow as a result of diversions to the Quabbin Reservoir during that time

### *Low Flows*

USGS data indicates that the minimum Quabbin release to the Swift River (16 mgd) as measured at the West Ware gage was maintained over 99 percent of the time between 1950 and 2017. Because the mandated flow requirements have been maintained, even during periods when demands were nearly 100 mgd over the current level, and through the drought of record, it is assumed that those releases will continue to be met and permit conditions will be satisfied under the proposed transfer demand scenarios, which are significantly less than the historic use. Additional demands from Ashland and other proposed users are not expected to affect Swift River releases from the Quabbin Reservoir, which represent the majority of low flows.

Previous analysis for the period of 1938 to 2006 indicate that releases from Wachusett Reservoir to the Nashua River have met the 1.71 mgd requirement more than 92.5 percent of the time and 99 percent of the time since 2002. Again, additional demands of Ashland and other proposed users are not expected to affect Nashua River releases from the Wachusett reservoir.

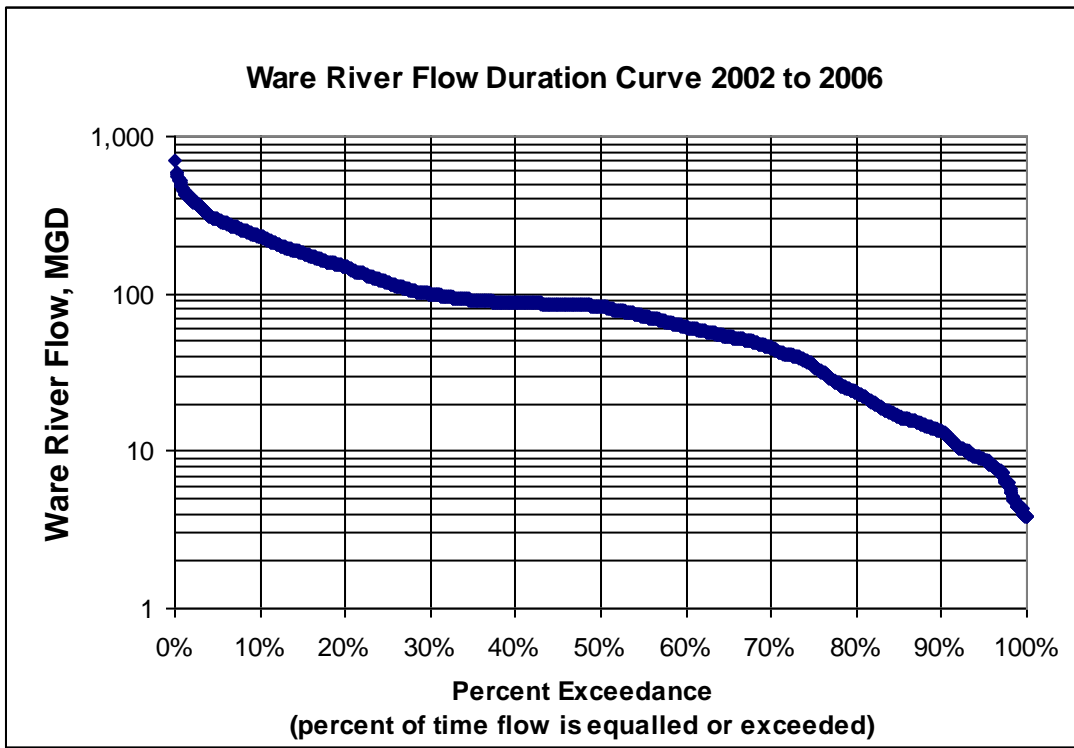
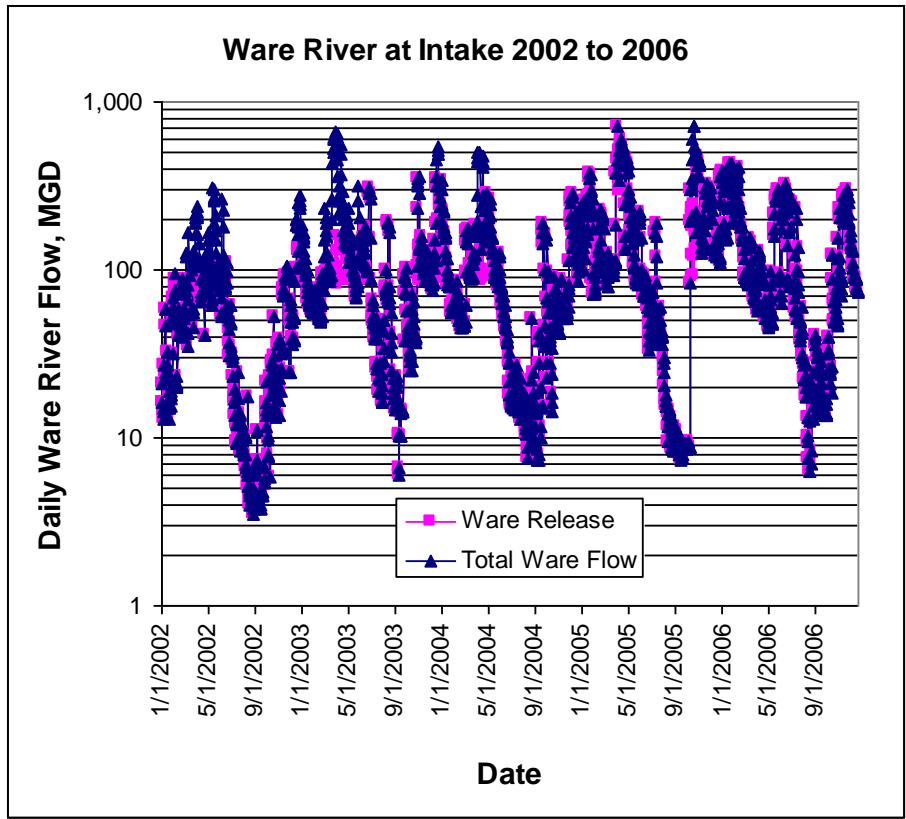
Low-flow impacts on Ware River diversions as a result of the additional demands posed by Ashland are not expected. Ware River diversions are limited to non-low-flow months (November through May), and to periods when flow exceeds 85 mgd.

### *Intermediate Flows*

While only “minimum” release requirements apply to the Quabbin and Wachusett Reservoirs, data from USGS gages indicate that intermediate flows occur as a result of releases above the minimum requirements for both the Swift and Nashua Rivers. There will only be a slight reduction in unintended spillway flows at Quabbin. The additional demand of Ashland will not in itself cause any change in how the Wachusett Reservoir is operated, nor in releases to the Nashua River.

Previous analysis showed that intermediate flows at the Ware River intake (classified herein between 50 to 100 mgd) occurred 38 percent of the time between 2002 and 2006. During this period, at times when the diversion was activated, up to 85% of Ware River flow was diverted, while maintaining at least the minimum 85 MGD downstream release. For the period analyzed (2002 to 2006), the Ware diversion was operated 184 days, or about 27 percent of the time

**Figure 9. Ware River Flows and Flow Duration Curve, 2002 to 2006**





during the intermediate flows. It is acknowledged that Ware diversions are limited based on MWRA's operating principles. Even with the diversions, however, the frequency and magnitude of intermediate flows in the Ware River appear nearly normal.

### *High Flows*

Increasing demands can impact the amount of water that is spilled from Quabbin. Ashland's ITA application stated that there is no correlation between flows in the Swift River and system demand; rather, variations in flow are related to operational practices as well as climatic conditions. Increasing transfers from the Quabbin Reservoir to meet water quality objectives and to meet increased summer demands decrease the likelihood of spills. Spills from Quabbin are undesirable because of their adverse impacts downstream including warm water releases and flooding issues.

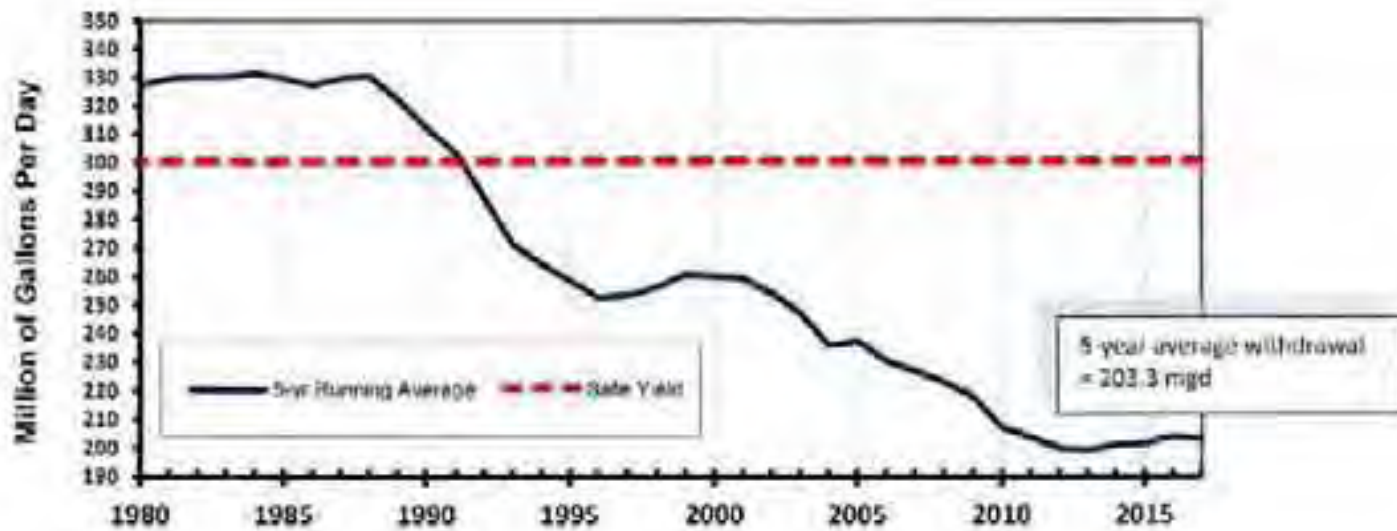
Since high flows from the Wachusett Reservoir are generally uncontrolled spills, and the reservoir level is intended to be managed to a narrow range of levels, the proposed Ashland interbasin transfer is not considered to have an impact on high flows in the Nashua River.

High flows on the Ware River are impacted by diversions to the Quabbin Reservoir. Previous analysis showed that high flows (above 100 mgd) at the Ware River intake occurred 30 percent of the time between 2002 and 2006. During this period, at times when the diversion was activated, up to 84% of Ware River flow was diverted, while maintaining at least the minimum 85 MGD downstream release. For the period analyzed (2002 to 2006), the Ware diversion was operated only 34 days, or about 6 percent of the time during high flows. As noted previously, Ware diversions are limited based on MWRA's operating principles. Even with the diversions, however, the frequency and magnitude of high flows in the Ware River appears nearly normal. The addition of Ashland will not likely have an impact on the use of Ware River diversions or high flows in the Ware River.

### Quabbin Levels/Drought Analysis

The safe yield of the Quabbin and Wachusett reservoir system is approximately 300 mgd (MWRA, 2002). MWRA system demand has decreased dramatically since the 1980's (see Figure 10), as a result of aggressive water conservation efforts, water efficiency initiatives, response to price and rate increases, and regional economic conditions. In the FEIR, the baseline demand given was 200 mgd (5-year average 2009-2014). According to the MWRA, the most recent five-year average reservoir withdrawal (2013 to 2017) was 203.3 mgd, and the 2017 reservoir withdrawal was 195.64 mgd. Using population projections provided in the FEIR from the Metropolitan Area Planning Council and University of Massachusetts Donahue Institute, future demands for the existing system of an additional 18.5 to 22 mgd through 2035 were conservatively estimated. The FEIR drought analysis used a future demand of 232.6 MGD, which leaves a margin of safety for any communities that may approach MWRA in the near future.

Figure 10 Total Reservoir Withdrawals Five Year Running Average 1980-2017



Quabbin Reservoir levels fluctuate by design, but minimum percent full values have been established and are the basis for drought designations. The applicant evaluated maximum pool level reductions at various demands from 190 to 300 and hydrologic conditions simulated from 1948 through 2000. A withdrawal of 240 MGD was used in the EIR for evaluation of reservoir performance. This represents the base withdrawal, plus Ashland and future community demands (232.6 MGD total plus 6 MGD to the McLaughlin Fish Hatchery) in 2035. At a demand of 240 mgd, there would be one month spent in drought stage 1. In addition, at demands below 250 mgd, Quabbin's maximum descent would still be above 500 feet, well above the level at which reservoir performance could be affected.

#### Impacts to Flow Characteristics

Interbasin Transfer Act criteria require evaluating impacts of the transfer on specific flow statistics. No impact to the Swift River 95% flow duration (20.0 mgd) is expected, compared to existing conditions. The 95% flow duration is equivalent to the state-mandated release requirement of 20 mgd at Bondsville. Data from the Swift River gage indicate that the mandated release has been achieved at virtually all times and it is expected that it will be maintained into the future and will not be affected by the proposed transfer or those of future communities included in this analysis.

Likewise, the 95% flow duration at the Wachusett Reservoir is not likely to be affected by the proposed additional transfers requested by Ashland. Data previously provided by the DCR Office of Watershed Management and USGS gage data indicate that the mandated release has been achieved at virtually all times since 2002 and it is expected that it will be maintained into the future and not be affected by the proposed transfer. Thus, the 95% flow duration flow is expected to increase slightly with future operations to at least the 1.71 mgd threshold.

The 95% flow duration at the Ware River should not be impacted by the proposed increase in interbasin transfer since Ware River diversions are not allowed during low flow periods.

#### Impacts to Other Uses

##### *Fisheries*

According to the Massachusetts Division of Fisheries and Wildlife, the Swift River below Winsor Dam, down to the confluence with the Ware River, contains significant fisheries habitat. In addition, the river is one of only two rivers in Massachusetts which receive a cold-water release that significantly benefits habitat, such as the catch and release trout fishery directly below the dam. The current required flow releases are beneficial to the fishery, as they provide a continuous source of fresh cold water.

An instream flow incremental method (IFIM) study of the Swift River in 1997 by Normandeau Associates for MWRA indicated that the current flow releases were adequate to protect the Swift River trout fishery. The study found substantial, large, deep pools in the Swift River that serve as habitat refuge for adult trout. The efficacy of pools as low flow refuges is enhanced by an abundance of overhanging and downed trees that contribute substantial amounts of woody debris.

As a result of discussions and negotiations initiated during previous ITA reviews for admission to the MWRA, DFW, MWRA and DCR Office of Watershed Management considered habitat improvements that could be made within the limitations of existing permits. The MWRA and the DFW have entered into a Memorandum of Agreement (MOA) to tap raw water from the MWRA's Chicopee Valley Aqueduct (CVA) and convey six million gallons a day to DFW's McLaughlin Fish Hatchery, except during periods of drought. This work was completed in 2017. The pipeline to the Hatchery is used in the Hatchery's fish rearing facilities, and replaced the water that the Hatchery withdrew from Swift River. Ultimately, the water supplied for use in the Hatchery's operations is discharged after treatment to the Swift River (the Hatchery borders the Swift River) to supplement existing flows in the Swift River.

In addition, MWRA and DCR Office of Watershed Management have taken a number of steps to address fisheries issues in the Swift River, including:

1. Continuous 24-hour discharges from Quabbin into Swift River all year round, instead of higher releases for 5-7 hour periods.
2. Revision of MWRA operations to more slowly ramp up the higher volume controlled discharges made in the summer months, in response to a request of the Division of Fisheries and Wildlife.
3. Continued coordination with the Fish Hatchery regarding warm water spills in reservoir operating procedures.

MWRA has continued to use the new facilities at the Wachusett Dam to make additional releases to the Nashua River, above the required minimum. According to the MWRA, from 2003 to present, on average, over 25 times the required minimum release to the Nashua River has been made.

#### *Hydropower*

A hydropower turbine was in use at the Winsor Dam until 1991, when it was damaged by a fire. The 1997 Normandeau study was commissioned to determine suitable flow levels for fisheries during drought periods, as this information would directly impact the feasibility of generating hydropower while maintaining a trout fishery. However, no action was taken to re-implement the hydropower production, and according to MWRA, there are no plans at this time to reactivate the hydropower station at the Winsor Dam. The addition of the proposed community to the MWRA system would not likely have any impact on hydropower at the Winsor Dam nor on any downstream hydropower facilities.

#### *Recreation*

Aside from the sport fishery addressed above, there is some boating recreation on the impoundments in Bondsville. Again, these uses will not be affected because operation of Quabbin and Wachusett reservoirs will not change with the Ashland transfer.

#### *Wetlands*

Other than the Quabbin Reservoir itself, the only significant wetland in the Chicopee River basin that could be affected by the transfer is in Ware, along the Swift River. The area is 70 acres of

open water impounded by a dam in Bondsville. Because this area is open water and is part of the river, current minimum flow requirements appear to be adequate to protect the wetland area.

#### Summary of Reasonable Instream Flow Analysis

The analyses of release data indicate there will be no change in the operation of the Quabbin and Wachusett Reservoirs in response to the proposed Ashland transfer or to other potential transfers up to the 10 mgd used in the analyses of the MWRA Water Works System. Downstream flows will continue to meet all applicable permit and regulatory requirements. Low flows will not change, and intermediate and high flows will only be slightly affected possibly on the Swift and Ware Rivers. Current resources will be unaffected by the transfer. The proposed action to increase the Present Rate of Interbasin Transfer will still maintain reasonable instream flow in the donor basins. The Commission recognizes that current conditions represent a highly engineered environment. Modifications to the timing and magnitude of releases to the Swift and Nashua Rivers, undertaken as a result of previous ITA approvals for admission to the MWRA, may be beneficial to the downstream aquatic habitat. This Decision attempts to address the balance between water supply needs and aquatic habitat needs of flow, water quality and water temperature in the Swift, Ware, and Nashua Rivers.

#### **Criterion #6 Groundwater/Pumping Test**

This criterion is not applicable to this proposal. MWRA's sources are surface water sources.

#### OTHER ISSUES CONSIDERED

##### *Timing of the MWRA Purchase*

Ashland proposes to use MWRA water when levels in the Hopkinton Reservoir are at or below 293 feet NGVD29. However, DCR's operations of the Reservoir are impacted by use of the town's Howe Street wells. DCR operates Hopkinton Reservoir elevations within a range of 296 to 298 feet NGVD29 in May through August for recreational uses. Below an elevation of 296 feet NGVD29, the popular beach and boat ramp on Hopkinton Reservoir are essentially unusable.

Public water supply demands are greatest in the summer months, coincident with maximum annual evapotranspiration caused by high temperatures and vegetation growth. Given the Howe Street well field's immediate proximity to the Hopkinton Reservoir, in a transmissive sand and gravel aquifer, there is direct hydraulic communication between the wells and the Reservoir. The well water withdrawals likely have a nearly immediate impact on reservoir levels. During each summer month, Ashland's historic groundwater withdrawals have caused at least a foot of drawdown in Hopkinton Reservoir. In order to partially alleviate this situation, MassDEP has required that Wells #7 and #8 be shut down when the reservoir water level drops below 295.85 feet NGVD29. Ashland has tied this elevation level to its outdoor water use restriction by-law.

Although beyond the Commission's jurisdiction to require under this transfer request, we strongly urge Ashland to reconsider the parameters it has set for use of MWRA water and to purchase more water during the summer months, when use of the Howe Street wells conflicts with DCR's reservoir management requirements and causes other impacts. In their comments on

this application, DFG noted the GWC and BC of the subbasin containing these wells (discussed under Criterion 2, above) and stated “Extending the period when MWRA water is used will help reduce some of the existing alteration and maintain higher groundwater and Reservoir levels as well as potentially improve downstream flow in Indian Brook. When the Reservoir is at a higher elevation, there is more opportunity for it to spill or for water to be released downstream. Additionally, keeping groundwater higher in the summer months by using supplemental MWRA water could help alleviate some of the groundwater depletion as well as provide more base flow to Indian Brook.” Ashland may purchase water during other times of year and at higher reservoir levels than proposed in the ITA. Since Ashland is limited to the 1.6 mgd amount proposed to be purchased from the MWRA, use of MWRA water during other times of year and at higher reservoir levels should not result in adverse impacts to the MWRA Water Supply System, and will not require additional ITA review.

#### *Impacts to Hopkinton/Ashland Intermunicipal Agreement*

There was some question of how Ashland’s purchase of MWRA water would impact its contractual obligation to sell water to Hopkinton. In 1999, the WRC approved a Determination of Insignificance under the Interbasin Transfer Act from the Town of Hopkinton to receive up to 0.056 mgd from Ashland, for transfer and subsequent discharge as wastewater into the Charles River basin and Blackstone River basin sections of Hopkinton. This is part of a larger water sale from Ashland to Hopkinton of up to 1 mgd (most of which remains in the Concord River basin). There is a dedicated water main from Ashland’s Howe Street Treatment Plant directly to the Town of Hopkinton, separate from that which goes to Ashland. Therefore the purchase of MWRA water by Ashland will not directly affect the water sale to Hopkinton. The 1999 Determination of Insignificance remains in effect and is not superseded by this Decision to allow Ashland to purchase water from the MWRA. As long as Ashland and Hopkinton are not exceeding the parameters of the 1999 decision, the existing water sale to Hopkinton is beyond the Commission’s jurisdiction under this transfer request. If Hopkinton amends its Intermunicipal Water Agreement with Ashland, allowing it to purchase more water from Ashland’s Howe Street wells, and this results in an increase in the amount of water being discharged to the Charles River and Blackstone River basins, the ITA would be triggered and additional WRC review and approval would be required. As stated above, this Decision is based solely on Ashland’s purchase and use of MWRA water.

#### EO 385

This Decision is consistent with Executive Order 385, which has the dual objective of resource protection and sustainable development. This Decision does not encourage growth in areas without adequate infrastructure nor does it cause a loss of environmental quality or resources.

#### CONDITIONS FOR APPROVAL

Based on the analyses of this project, the approval of Ashland’s application under the Interbasin Transfer Act for admission to the MWRA Waterworks System is subject to the following conditions. **Ashland must commit in writing within 30 days of the approval to abide by any conditions required by the approval of this transfer.**

1. Ashland must continue effective demand management programs that meet the Interbasin Transfer Performance Standards for Criterion #3, Water Conservation. The Town must

- not amend its outdoor watering bylaw to make it less restrictive while the Town continues to use its existing ground water sources during the summer recreational season.
2. According to the FEIR, Ashland is updating its Emergency Response Plan and developing a Drought Management Plan. These were to have been completed this year. Ashland must provide copies of these plans to WRC Staff for review upon completion. If these plans are not completed in 2018, Ashland must provide a schedule for completion to WRC Staff by January 2, 2019.
  3. WRC Staff will monitor Ashland's DEP Annual Statistical Reports for the first five (5) years after the town begins to receive MWRA water, to determine if the programs in place are successful in reducing unaccounted-for water at or below 10% and residential gallons per capita per day (gpcd) at 65 or less and to confirm that the interbasin transfer from MWRA to Ashland meets the annual limit of 120 million gallons. After the five year period, this may be done periodically.
  4. If per capita residential water use increases above 65 gpd, the Town must implement a comprehensive residential conservation program that seeks to reduce residential water use through a retrofit, rebate or other similarly effective program for encouraging installation of household water saving devices, including faucet aerators, showerheads and toilets and through efforts to reduce excessive outdoor water use, including the imposition of seasonal water use rates and other measures. If this occurs, the Town must provide a plan for this program to the WRC for approval.
  5. Ashland must provide annual reports to WRC Staff outlining progress with its meter replacement program. These reports will be due on March 1<sup>st</sup> of each year, until the program has been completed. At the completion of the meter replacement program, the final report should discuss future plans for meter replacement, as these newer meters reach the end of their useful life.
  6. Ashland cannot sell MWRA water to Hopkinton or other municipalities or entities outside of the Town of Ashland without prior approval from the WRC, as this would represent a change in the operating rules, thus triggering the ITA (313 CMR 4.04(5)).

Approval under the Interbasin Transfer Act is just one of the approvals required for admission to the MWRA Water Works System. Ashland must obtain all other required permits and approvals before joining the MWRA.



THE COMMONWEALTH OF MASSACHUSETTS  
WATER RESOURCES COMMISSION

**Massachusetts Water Resources Commission**

**Notice of Decision**  
**Approval of an Action to Increase the Present**  
**Rate of Interbasin Transfer**  
**Town of Ashland's Request to**  
**Join the MWRA Water Works System**  
**Under the Interbasin Transfer Act**  
**MGL Chapter 21 Section 8B-8D**

On October 11, 2018, by a unanimous roll call vote of the ten (10) voting members present at a public meeting, the Water Resources Commission (WRC) approved the Town of Ashland's request for an Interbasin Transfer for admission to the MWRA Water Works System. The Report of the Findings, Justifications and Decision for this proposal has been filed with the clerks of the House of Representatives and the Senate, and with the Secretary of State for publication in the Massachusetts Register, as required by 313 CMR 4.11(3).

This Report was published in the November 16, 2018 issue of the Massachusetts Register and is available on the Interbasin Transfer web page at <https://www.mass.gov/service-details/interbasin-transfer-decisions>.



WATER SUPPLY AGREEMENT  
BETWEEN  
MASSACHUSETTS WATER RESOURCES AUTHORITY  
AND  
THE TOWN OF ASHLAND

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This Water Supply Agreement (“Agreement”) by and between the Massachusetts Water Resources Authority (“MWRA”) and the Town of Ashland (“Town or Ashland”) (hereinafter jointly referred to as "the Parties"), documents the agreement and understanding of the Parties regarding the arrangement whereby MWRA will supply water to Ashland through the Southborough (“Southborough”) distribution system to Ashland’s local distribution system.

RECITALS

1. Whereas, MWRA was created by the Massachusetts legislature in December 1984 (chapter 372 of the Acts of 1984), to operate, regulate, finance, and modernize the waterworks and sewerage systems serving the greater metropolitan Boston area and currently provides water supply and distribution services, and wastewater collection and treatment services, to certain cities, towns and special services districts (“Communities”) within its service area.
2. Whereas, Section 8(d) of the Act permits the MWRA to extend its waterworks system to a new community and to provide the continued delivery of water to the new community under reasonable terms as determined by MWRA provided specific requirements are met.
3. Whereas, a regulation entitled “Continuation of Water Contract Supply”, promulgated by MWRA at 360 CMR 11.00 (“the Regulation”) defines more specifically the requirements of section 8(d) of the Act and governs the continued delivery of water by the MWRA to communities purchasing water from MWRA.
4. Whereas, on June 6, 2020 Burlington made a formal application to the MWRA to become a permanent member community of the MWRA water supply system in order to supplement its local sources due in ability to meet regular water system demand resulting from restrictions on the use of the Howe Street Well’s, Ashland’s only local water source. Ashland sought admission to MWRA to satisfy deficits created by restrictions on the use of the Howe Street Wells.
5. Whereas, Ashland’s goal in seeking admission to MWRA is to have the ability to reliably meet local water system demand;
6. Whereas, Ashland has fulfilled the requirements for membership found in the Act at section 8(d), as more fully described in 360 CMR §§11.07 and 11.08 of the regulations, and has submitted a Supply Analysis Report, a Demand Analysis Report, and a Water Management Plan that has been approved by the Water Resources Commission and has

further submitted a detailed description of a local user charge system and accounting system which meet the Regulation's requirement for conservation based rates.

7. Whereas, based on its review of the Town's submittals, MWRA finds that the requirements of sections 8(d) of the Act have been met as follows:
  - (1) The Safe Yield of the watershed system, on the advice of the Department of Conservation and Recreation (DCR), is sufficient to meet projected demand.
  - (2) No existing or potential water supply source for the local body has been abandoned unless the Department of Environmental Protection (DEP) has declared that the source is unfit for drinking and cannot be economically restored for drinking purposes.
  - (3) A Water Management Plan has been adopted after the approval by the Water Resources Commission.
  - (4) Effective demand management measures have been established including, but not limited to, establishment of leak detection and other appropriate water system rehabilitation programs.
  - (5) A local water supply source feasible for development has not been identified by either the local body or the DEP.
  - (6) A water use survey has been completed which identifies all users within the local body that consume more than twenty million gallons a year.
8. Whereas, the admission to MWRA's water system was approved by a majority vote of Ashland's Town Meeting on May 3, 2017.
9. Whereas, Ashland undertook the required series of actions related to regulatory review under the Massachusetts Environmental Policy Act and the Interbasin Transfer Act and received the approval of the Water Resources Commission in October 2019 to purchase from the MWRA up to 73 million gallons annually, or 1.6 mgd on an annualized average basis.
10. Whereas, Ashland now requests 32.8 million gallons of water annually, or .09 mgd from MWRA, but may in the future request an additional volume of 40.2 million gallons annually for a total of 73 million gallons annually, as permitted through regulatory reviews;
11. Whereas, Ashland, having received approval of the Legislature and of the Governor, the MWRA Advisory Board and the MWRA's Board of Directors, and having met the conditions of section 8(d) of the Act, and the conditions of MWRA OP #10 Admission of a New Community to the Waterworks System ("OP#10"), and having been duly admitted to the MWRA Waterworks System effective the date of the MWRA Board of Directors' approval, thereby acquiring certain rights and obligations conferred by that admission.

12. Whereas, Ashland, pursuant to MWRA’s Policies and Procedures for Emergency Water Supply Connections, Operating Policy #5 (“OP#5”) withdrew water from MWRA for two emergency periods prior to its application to MWRA for admission to the Waterworks System for a permanent water supply;
13. Whereas, OP#5 requires that beginning with the second emergency water withdrawal period, MWRA shall assess an asset value contribution charge, and accordingly Ashland made net asset value payments for emergency water withdrawal periods totaling \$3,451.23.
14. Whereas OP#5 provides that if an applicant has purchased MWRA water under an emergency supply agreement(s) and has paid charges which include an asset value contribution and subsequently is approved admission to the water system on a permanent basis, the asset value contributions paid will be treated as credits against the total entrance fee.
15. Whereas, MWRA and Ashland wish to formalize their rights and obligations regarding the supply of water to Ashland and therefore enter into this Agreement.

NOW, THEREFORE, in consideration of the mutual promises contained herein and for other good and valuable consideration, MWRA and Ashland agree to the following:

1. The term (“Term”) of this Agreement shall be five (5) years beginning on or around December 16, 2020 and ending at midnight on December 15, 2025. It is MWRA’s policy that the initial agreement be for a term of 5 years in order that the Authority may reevaluate and assess the status of a community’s demand management programs under the provisions of 360 CMR § 11.00. It is the practice of MWRA to enter into water supply continuation contracts upon substantial compliance by a community with the requirements of that regulation and after completion of negotiations for such renewal satisfactory to the community and to the MWRA.
2. MWRA shall during the Term of this Agreement provide Ashland with water on an annual volume basis stated in millions of gallons as follows:

<u>2020-2021</u>	<u>2021-2022</u>	<u>2022-2023</u>	<u>2023-2024</u>	<u>2024-2025</u>
32.8 mg	32.8 mg	32.8 mg	32.8 mg	32.8 mg

or 90,000 gallons per day on an average daily basis; up to 648,000 gallons per day on a typical maximum daily basis, subject to the hydraulic capabilities of MWRA’s distribution system. In the event that Ashland anticipates that its withdrawals from MWRA will exceed a flow rate of 90,000 gallons per day, Ashland shall notify MWRA Operations. Should Ashland’s withdrawals in excess of 90,000 gallons per day through Southborough coincide with peak withdrawals of other MWRA Communities in the

vicinity, MWRA reserves the right to restrict Ashland's withdrawal to a maximum of 90,000 gallons per day.

3. The parties understand that long-term water demand in Ashland is projected to increase and that Ashland was approved by the Water Resources Commission to purchase up to 73 million gallons annually from the MWRA. The parties agree that, with the exception of emergencies, any withdrawal in excess of 32.8 million gallons annually will require a written contract revision signed by each of the Parties hereto and a revision to the Entrance Fee.
4. The parties agree that in the event that Ashland determines that 32.8 million gallons per year to be supplied for the MWRA system are insufficient to meet the Town's non-emergency requirements, Ashland may petition the MWRA to amend this Agreement pursuant to pursuant to 360 CMR 11.11 and OP #10.
5. Notwithstanding the above, the Parties agree that in the event of an emergency, and in the absence of an Amended Agreement as described in paragraph 4 hereof, Ashland may request that MWRA supply in excess of 32.8 million gallons a year, and if approved, the supply of water in excess of 32.8 million gallons a year will be assessed pursuant to the charges provisions of OP#5.
6. Ashland agrees that during the Term it will operate its local water supply system in such a manner so as to make maximum feasible use of local water supply sources subject to the limits and conditions imposed by the Water Resources Commission.
7. Ashland agrees to pay MWRA a Net Entrance Fee of \$388,336.34 for its share of the value of the waterworks system in place at the time of its entrance. The Net Entrance Fee reflects an Entrance Fee of \$391,787.57 minus the Total Net Asset Value contributions of \$3,451.23 previously paid pursuant to OP#5. Unless modified as provided in Paragraph 4, above, the Net Entrance Fee will be paid to the MWRA in accordance with the schedule of payments attached hereto as Exhibit A and incorporated herein. In consideration of the payment of the Net Entrance Fee by Ashland, the MWRA agrees to continue to assure a continuation of water supply to Ashland from the MWRA's water supply system in accordance with the provisions of 360 CMR § 11.00.
8. The MWRA shall bill Ashland and Ashland shall pay to the MWRA charges for all water supplied under this Agreement at the MWRA's applicable prevailing rate. All billing and collection procedures, due dates, and interest charges for late payments shall be in accordance with the Act and MWRA's standard policies and procedures.
9. Ashland agrees that the MWRA shall not be liable to Ashland for any disruption of water supply delivery to Ashland attributable to the water distribution systems of either Ashland or of the MWRA.

10. Ashland agrees to pay the full cost of any required upgrades to connect to the MWRA via the Southborough distribution system. Any upgrades will be constructed by Ashland according to MWRA specifications and will be owned and maintained by Ashland.
11. Ashland agrees to continue in effect a full cost pricing system for water received from the MWRA water supply system.
12. Ashland agrees that during the Term it shall continue the implementation of its current and proposed local demand management programs, including the following: participation in MWRA conservation programs, distribution of MWRA-provided materials to all water users, compliance with the MWRA's regulations for town-wide leak detection and repair (360 CMR §12.00), maintaining metering in 100 percent of the Town's distribution system, including all municipal facilities, and maintenance of efficient water fixtures in all public buildings, together with promotion of their use in industrial, commercial and residential areas.
13. Ashland agrees that during the Term it shall not abandon any local source and substitute for it water from MWRA sources unless DEP has declared that the local source is to be or has been abandoned, is unfit for drinking, and cannot be economically restored for drinking purposes.
14. Ashland agrees to continue in full force and effect during the Term its Zoning Bylaw Aquifer Protection District to preserve and protect existing and potential sources of drinking water supplies.
15. Any rate disputes arising between MWRA and Ashland concerning the calculation of Ashland's assessment shall be resolved in accordance with MWRA's Rate Basis Data Review and Dispute Resolution Process. Any other dispute arising between MWRA and Ashland under the terms of this Agreement shall be resolved in accordance with the dispute resolution process set forth at 360 CMR § 11.14 and the administrative procedures set forth at 360 CMR § 1.00.
16. For the remainder of fiscal year 2021 (through June 30, 2021), Ashland will be assessed for water supplied at the current prevailing rate of \$4,320.63 per million gallons, and water provided in fiscal year 2022 will be at the approved prevailing rate. Beginning in fiscal year 2023 and for the remainder of the Term, Ashland will be assessed in accordance with MWRA's Community Charge Determination Policy. MWRA's Community Charge Determination Policy computes charges for water services on the basis of each community's metered water flows. The MWRA annual water rate revenue requirement is allocated according to each community's prior year's water use relative to the system as a whole. The annual rate revenue requirement is comprised of operation and maintenance (O&M) and capital (debt service) charges.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

MASSACHUSETTS WATER RESOURCES AUTHORITY

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Frederick A. Laskey  
Executive Director

TOWN OF ASHLAND

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Michael Herbert,  
Town Manager

DRAFT

**Massachusetts Water Resources Authority**

Town of Ashland

Water System Entrance Fee Payment Schedule


Entrance Fee: 

\$388,336.34
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Dec. 2023	\$17,651.66	Dec. 2034	\$17,651.65
Dec. 2024	\$17,651.66	Dec. 2035	\$17,651.65
Dec. 2025	\$17,651.66	Dec. 2036	\$17,651.65
Dec. 2026	\$17,651.66	Dec. 2037	\$17,651.65
Dec. 2027	\$17,651.65	Dec. 2038	\$17,651.65
Dec. 2028	\$17,651.65	Dec. 2039	\$17,651.65
Dec. 2029	\$17,651.65	Dec. 2040	\$17,651.65
Dec. 2030	\$17,651.65	Dec. 2041	\$17,651.65
Dec. 2031	\$17,651.65	Dec. 2042	\$17,651.65
Dec. 2032	\$17,651.65	Dec. 2043	\$17,651.65
Dec. 2033	\$17,651.65	Dec. 2044	\$17,651.65

TOTAL \$388,336.34

## STAFF SUMMARY


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Approval for Admission of Town of Burlington to the MWRA Water System

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**COMMITTEE:** Water Policy & Oversight

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

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### RECOMMENDATION:

To approve the Town of Burlington's application to become a member of the MWRA waterworks system to purchase up to 6.5 million gallons per day via a connection to the Town of Lexington water system, to be completed in two phases. Further, to authorize the Executive Director, on behalf of the Authority, to execute a water supply agreement with the Town of Burlington, in the form shown in Attachment E, stipulating the terms and conditions of service and assessing a twenty-five year payment schedule for Burlington's Phase 1 Net Entrance Fee of \$4,407,986. Further, to authorize an allocation by the Authority of an additional \$827,400 in interest-free loans to the Town of Burlington under the Local Pipeline Assistance Program.

### DISCUSSION:

On November 6, 2020, the Town of Burlington filed an application for admission to the MWRA water system pursuant to MWRA Operating Policy 10, Admission of New Community to the Waterworks System (OP.10). Burlington is seeking a connection to MWRA via the Town of Lexington in order to ultimately purchase up to 6.5 mgd. The connection is proposed to be constructed in a two-phased approach. Phase 1 would allow Burlington to purchase 0.886 mgd from MWRA while Phase 2 is under construction. Through this connection, Burlington is seeking to meet an average day demand of 3.5 mgd, which is the town's projected 2041 demand. These volumes are sought in the event that the town takes the Mill Pond Treatment plant offline for maintenance or in the future decides to obtain all of its water from MWRA. However, the Phase 2 connection will be sized for the town's 2041 projected maximum day demand of 6.5 mgd. Pursuant to OP.10, MWRA has found that the proposed connection and water withdrawal will not jeopardize the quantity or quality of service that MWRA is committed to provide to existing water service communities.

The Town of Burlington's existing water supply system includes two water sources and respective treatment facilities. The Vine Brook Treatment facility treats groundwater from the Vine Brook aquifer and wells. The facility has a full capacity of 3.2 mgd when all seven wells are active. The Mill Pond Treatment facility treats surface water pumped from the Shawsheen River in Billerica to the Mill Pond Reservoir in Burlington and has a full capacity of 4.5 mgd. Mill Pond Reservoir



does not replenish naturally and is filled with water from the Shawsheen River. Water is pumped by an eight mgd pumping station through a single four-mile long pipe year-round when the river is not limited by stream-flow capacity.

Recent events have reduced the capacity and redundancy of Burlington's water system. Three of the town's seven groundwater wells have been taken offline due to 1,4-Dioxane contamination, reducing the capacity of the Vine Brook Treatment Plant to a maximum capacity of 2 mgd. Additionally, the Mill Pond Treatment Plant lacks redundancy and periodically requires full shut down to remove sludge from the sedimentation basin. To minimize maintenance needs, the effective operating capacity of the Mill Pond Treatment Plant is about 2.5 mgd. As a result of these issues, Burlington has required emergency connections to MWRA under Operating Policy 5 (OP.05) when the Mill Pond Treatment Plant has been taken offline for maintenance. Additionally, other emerging contaminants have been identified as potential future concerns for Burlington's local water sources. Investigations have determined connection to MWRA to be the best alternative to protect public health and meet Burlington's water supply demands, both now and in the future.

Over the last decade, MWRA's total water system demand has averaged 202 mgd, almost 100 mgd less than the MWRA system safe yield of 300 mgd. As documented during the MEPA process in the donor basin analysis, MWRA has more than adequate capacity to serve Burlington up to the 6.5 mgd approval limit, as well as other communities that are seeking admission or may pursue admission to MWRA in the future. The additional withdrawal will not impact MWRA's ability to operate the water system to optimize water quality, or negatively affect the environment, and will allow MWRA to continue to provide customers a reliable and continuous water supply both now and in the future.

The proposed connection has been designed in a phased approach in an effort to address the town's short-term needs until full construction of the connection is completed. Specifically, Phase 1 involves installation of approximately 2,450 linear feet of new water main to enable Burlington to wheel water through Lexington and supply 0.886 mgd. Phase 2 involves construction of approximately 10,000 linear feet of new water main in the Lexington water system to be directly connected to the MWRA water system. This new community-constructed pipeline will be coordinated with MWRA's Northern Extra High Improvements Project, which will construct new pipe to reinforce that system and improve redundancy.

### Community Support

On October 30, 2018, Burlington executed an Intermunicipal Agreement with Lexington (Attachment A) for flows associated with Phase 1 and construction of Phase 2. The agreement will be updated with the increase in flows prior to utilization of the Phase 2 connection. On April 30, 2019, Burlington Town Meeting Members voted to approve pursuing admission to MWRA.

### Approvals

All approvals pursuant to MWRA OP.10 have been obtained prior to seeking Board approval.

- On January 1, 2019, legislation was authorized pursuant to Chapter 350 of the Acts of 2018 adding Burlington to MWRA's Enabling Act (Attachment B).

- On April 17, 2020, the Secretary of Energy and Environmental Affairs issued a certificate finding that the proposed connection adequately and properly complies with the Massachusetts Environmental Policy Act (MEPA) and its implementing regulations (Attachment C).
- On November 12, 2020, the Water Resource Commission (WRC) voted to approve Burlington's application under the Interbasin Transfer Act to purchase up to 6.5 mgd from MWRA with conditions (Attachment D).
- On November 19, 2020, the MWRA Advisory Board voted to approve the Town of Burlington to join the MWRA water system via a connection to the Town of Lexington.

### Water Supply Agreement

Upon approval by the Board and admission to the water system, the relationship between MWRA and Burlington will be governed by a Water Supply Agreement (Attachment E). The proposed Water Supply Agreement incorporates the provisions of 360 CMR 11.00 Continuation of Contract Water Supply. At this time, the contract limits and entrance fee are based on an average day demand of 0.886 mgd and peak use of 1.5 mgd associated with Phase 1. Prior to utilization of Phase 2, the contract will need to be updated based on the increase in flows and corresponding entrance fee.

Additionally, OP.10 specifies that initial agreements with a new community be for a period of five years in order to monitor the process and status of demand management efforts. Therefore, the term of the Burlington/MWRA Agreement is five years.

### Entrance Fee Calculation

In accordance with OP.10 and the Advisory Board's approval, Burlington is assessed an entrance fee to cover the town's share of the value of the MWRA water system currently in place. The basic formula for calculation of the entrance fee for Burlington is as follows:

$$\frac{\text{New user's projected MWRA needs}}{\text{System Water Consumption}} \times \text{Net Asset Value of Total Waterworks System}$$

The FY2021 entrance fee for average water use of 0.886 mgd and peak water use of 1.5 mgd is \$4,448,749.97. Through the eight emergency use period, Burlington has made \$40,763.51 in net asset value payments that will be applied to the entrance fee, resulting in a net entrance fee of \$4,407,986.46. Burlington will pay the entrance fee pursuant to a 25-year, interest-free payment plan with a payment grace period for the first three years. The first payment of \$200,363.03 will be due in December 2023. The Attachment F payment schedule details the annual payment amounts.

Subject to approval by the Board of Directors, any water provided to Burlington for the remainder of FY2021 and through FY2022 will be billed at MWRA's prevailing rate, currently \$4,320.63 per million gallons. Burlington will transition to a "rates based" community beginning in FY2023. Its FY2023 water assessment will be based on its share of MWRA system water use in CY2021.

## Level of Funding to Burlington under the Local Water System Assistance Program

Burlington is eligible to receive funds (ten-year interest-free loan) under MWRA's Local Water System Assistance Program (LWSAP). The level of funding available to Burlington through this program upon admission is \$827,400, based upon: 1) funding of \$500,000 for partially served communities; 2) funding of Burlington's percent share of unlined water main prorated to the percentage of MWRA water supplied to Burlington (2.7 miles of unlined water mains and 33.3% MWRA water supplied to Burlington); 3) funding based on Burlington's percent share of estimated MWRA water assessment (33.3% MWRA water supplied to Burlington); and 4) prorating available funds to the number of years remaining in the Phase 3 LWSAP program (seven years remaining as of FY21 of ten year funding allocations FY18-FY27).

### **BUDGET/FISCAL IMPACT:**

Burlington's Phase 1 net entrance fee for average daily water use of 0.886 mgd and peak water use of 1.5 mgd is \$4,407,986.46. This reflects an entrance fee of \$4,448,749.97 minus Burlington's net asset value contributions of \$40,763.51 previously paid for emergency water use. Burlington will pay the entrance fee pursuant to a 25-year, interest-free payment plan with a payment grace period for the first three years. The first payment of \$200,363 will be due in December 2023. The attached payment schedule details the annual payment amounts. The entrance fee for Burlington's Phase 2 connection will be calculated when the connection is completed.

### **ATTACHMENTS:**

Town of Burlington and Town of Lexington Intermunicipal Agreement (Attachment A)  
Chapter 350 of the Acts of 2018 (Attachment B)  
MEPA Certificate (Attachment C)  
WRC Decision (Attachment D)  
Draft MWRA Water Supply Agreement (Attachment E)  
Entrance Fee Payment Schedule (Attachment F)

WATER SUPPLY AGREEMENT  
BETWEEN  
TOWN OF BURLINGTON, MASSACHUSETTS  
AND  
THE TOWN OF LEXINGTON, MASSACHUSETTS

2018

THIS AGREEMENT entered into this 30 day of October, 2018 by and between the Town of Burlington, a municipal corporation within the County of Middlesex, Commonwealth of Massachusetts, acting through its Town Manager, and authorized by vote of the Board of Selectmen and the Town of Lexington, a municipal corporation within the County of Middlesex, Commonwealth of Massachusetts, acting through its Town Manager, and authorized by vote of the Board of Selectmen.

#### WITNESSETH

WHEREAS, the Town of Lexington has the authority to sell and supply potable water to the Town of Burlington (the two towns, the "Towns") under this inter-municipal agreement which provides the terms and conditions of sale, furnishing of water, and payment for sale;

WHEREAS, the Town of Burlington has the authority to purchase said water under the terms and conditions of this agreement;

WHEREAS, the Towns are authorized by Chapter 40, Section 4A of the General Laws of the Commonwealth of Massachusetts to enter into this Inter-municipal Agreement for the provision of water;

WHEREAS, the Towns deem it to be in the public interest for the Town of Lexington to supply and sell, and for the Town of Burlington to receive and pay for, potable water to supply its citizens, businesses, and industry; and

WHEREAS, both Towns have been authorized to enter into this agreement by vote of their respective Select Boards, as evidenced by certified copies of their respective votes, attached hereto;

NOW THEREFORE in consideration of the mutual promises and covenants herein set forth, and in order to secure the services described below, the parties hereto, each binding itself, its respective representatives, successors, and assigns, do mutually agree as follows:

### 1. DEFINITIONS AND INTERPRETATIONS

#### 1.1 Short Title

This Agreement may be referred to as the "Lexington/Burlington Inter-municipal Water Supply Agreement".

#### 1.2 Definitions

For all purposes of this Agreement, and any amendments or other changes thereto, the terms shall have the meanings set forth below.

A. "Burlington" means the Town of Burlington in Middlesex County, Massachusetts, or its duly authorized agent.

B. "*Force Majeure* Events" means a consequence of any acts of God, act of public enemy, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, drought, washouts, arrests and restraints of rulers and people, civil disturbances, labor strikes, power failures, explosions, breakage or accident to machinery or lines of pipe, failure of water supply, regulatory requirement, restriction or limitation, the binding order of any court or governmental authority which has been resisted in good faith by all reasonable legal means, and any other cause, whether of the kind herein enumerated or otherwise, not within the reasonable control of such party, and which act, omission or circumstance such party is unable to prevent or overcome by the exercise of due diligence.

C. "Lexington" means the Town of Lexington, in Middlesex County, Massachusetts, or its duly authorized agent.

- D. "MGD" means Million Gallons per Day.
- E. "MWRA" means the Massachusetts Water Resources Authority.
- F. "Person" means any individual, firm, company, association, society, corporation, political subdivision, fire district, or group.
- G. "Water Distribution System" means facilities for collection, storage, supply, distribution, treatment, pumping, metering, and transmission of water.

### 1.3 Meanings and Construction

This Agreement, except where the context clearly indicates otherwise, shall be construed as follows:

- A. Definitions include both singular and plural;
- B. Pronouns include both singular and plural and include both genders.

### 1.4 Resolution of Disputes

Any dispute arising under this Agreement shall be decided by civil action taken by either party through a court of proper jurisdiction. Prior to the initiation of any court action, the parties may attempt to resolve the dispute by any means which are mutually deemed acceptable, including direct consultation, mediation, or arbitration.

### 1.5 Governing Law

This Agreement shall be governed by the laws of the Commonwealth of Massachusetts.

## 2. **GENERAL PROVISIONS**

### 2.1 Obligations of the Parties

Both Lexington and Burlington understand and agree to the following obligations, limitations, and commitments, in consideration of Lexington's agreement to permit connection by Burlington to Lexington's water system to supply Burlington with drinking water in exchange for payment and other considerations as specified in this Agreement.

- A. Consumption Quantities. Lexington shall provide 1.0 to 1.5 MGD of water in every one-day period as required by the Town of Burlington. The Town of Burlington requests this quantity for up to 180 days per year. Lexington reserves the right with proper notification to Burlington to reduce the flow if delivery of water to Lexington residents is adversely affected by this agreement.
- B. Control of System Leaks and Wasteful Use. Burlington and Lexington shall operate and maintain their respective water distribution systems in accordance with customary practices and within the guidelines set forth below. Both Towns shall take all reasonable measures, including comprehensive leak detection and repair procedures, to minimize the wasteful use of water within their respective service areas.

- C. Conformance to Law. Both Lexington and Burlington shall abide by all applicable laws, rules, and regulations of the United States, the Commonwealth of Massachusetts, and the MWRA.

D. Water Quality. Lexington shall comply with all State and Federal drinking water regulations to ensure the safe delivery of potable water to every entry point to the Town of Burlington. In addition Lexington agrees that if the minimum total chlorine disinfectant level falls below a target range of 2.0 to 2.5 ppm at these points it will allow Burlington, at Burlington's cost, to establish and maintain improvements within Lexington to achieve this range. The Parties shall meet and confer on a periodic basis to share data and information on water quality and determine whether capital or operating improvements need to be made to the Water Distribution System to comply with all drinking water regulations. Any increased costs related thereto shall be shared proportionally by the Parties, and payments made by Burlington made under Section 3 of this Agreement shall be adjusted accordingly.

E. Contract Service Area. Lexington shall deliver water to Burlington, subject to the limitations in Section 2.1 of this Agreement, at the following metered points of delivery:

1. North Street (Lexington)/Muller Road (Burlington)
2. Adams Street (Lexington)/Adams Street (Burlington)

F. Measurements of Water Flows.

1. The measurement of water delivered to Burlington shall be determined by telemetry readings of metering devices at the metered points of delivery in Section 2.1.E above.
2. The metering devices shall be owned by Burlington, and subject to the approval of Lexington, such approval not to be unreasonably withheld.
3. All metering devices shall be inspected, tested and calibrated at least once each year by a third party technician hired by and at the expense of Burlington.
4. Upon completion of the inspection, testing and calibration, the technician shall submit calibration reports to the Lexington Department of Public Works (DPW) and the MWRA. All calibration reports shall include but not be limited to:
  - a. an assessment of the condition, accuracy and functioning of the meters and associated equipment.
  - b. method of calibration
  - c. calibration ranges
  - d. calibration settings
5. Telemetry measuring equipment installed by the MWRA shall record and transmit flow, pressure and any other digital data to the MWRA on a continuous basis. Burlington shall maintain the telemetry equipment in accordance with the MWRA's direction.
6. For the purpose of Lexington's preparation of invoices for payment by Burlington, the MWRA will record and provide to Lexington and Burlington telemetry readings from the previous month no later than the second business day of each succeeding month.

G. Construction of Connections. Any and all connections between the Lexington and Burlington water distribution systems necessary to effectuate this Agreement, shall be designed and constructed by Burlington, shall be of good design and constructed in a workmanlike manner. No such connection shall be constructed unless the design thereof has been approved in writing by Lexington, such approval not to be unreasonably withheld.

H. Ownership of Connection Facilities. Each Town shall own all parts of the water distribution facilities on its side of the Town Line between Lexington and Burlington.

I. Responsibility for System Operation and Maintenance. Neither Town assumes any responsibility for operation or maintenance of any portion of the water distribution system of the other. Lexington shall not be responsible or liable in any way for *Force Majeure* Events which may, in any way, cause an interruption or discontinuance of the water supply service provided for in this Agreement. However, under such circumstances, Lexington shall use all commercially reasonable efforts to restore service to Burlington.

## 2.2 Impairment of Supply

A. Responsibility. The furnishing of water to Burlington under this Agreement shall not be impaired except in the event of a *Force Majeure* Event, emergency construction, or other related water emergencies.

B. Force Majeure Events. Neither Lexington nor Burlington shall be liable in damages or otherwise for failure to perform any obligation under this Agreement which failure is caused by a *Force Majeure* Event. Such event affecting the performance of either Lexington or Burlington however, shall not relieve either party of liability in the event of its negligence, intentional acts, or in the event of such party's failure to use due diligence to remedy the Force Majeure Event with all reasonable dispatch.

C. Indemnification. Burlington shall indemnify and save harmless Lexington from all claims and demands which Burlington is legally bound to pay whether for injuries to persons or loss of life or damage to property occurring within or about any of the connections exclusively supplying water to Burlington excepting, however, such claims and demands, whether for injuries to persons or loss of life or damages to property, to the extent they shall be caused by any act or omission of Lexington or its agent. The phrase "claims and demands" includes court costs and expenses, legal fees and judgments.

## 2.3 Correspondence

Any notice required to be given to Lexington concerning any item in this Agreement shall be sent to:

Town Manager  
Town Office Building  
1625 Massachusetts Avenue  
Lexington, MA 02420

Any notice required to be given to Burlington concerning any item in this Agreement shall be sent to:

Town Administrator  
Town Hall  
29 Center Street Burlington,  
MA 01803

## 3. PAYMENTS FOR SERVICES

### 3.1 Burlington Water Rates

In consideration for the water supply services provided by Lexington, Burlington shall pay a Commodity Charge, Other Charges (if any) and an allocated share of Capital Costs (if any).

#### A. Base Charge

The Base Charge for each Fiscal Year of the Agreement shall be \$7,966.95. This charge shall be adjusted at the beginning of each fiscal year based on the previous year's changes in the Consumer Price Index for All Urban Consumers Boston, Brocton, and Nashua region (CPI-U).

#### B. Commodity Charge

The Commodity Charge shall consist of the then current MWRA wholesale water rate times the monthly metered Burlington water consumption times 1.01.



### C. Other Charges

In the event that there are additional MWRA charges not currently existing, these additional charges will be billed to Burlington free of any surcharge by Lexington.

In addition to any MWRA or other party charges or fees as described above, Burlington must also share in the costs for any capital or operating costs which may be required, now or in the future, to maintain or increase the supply, quality or volumes of water needed to meet Burlington's overall demand. Any repairs, modifications or additions to the system to meet demand will be mutually agreed to by Lexington and Burlington. The proportion of costs for each Town is 50% for Lexington and 50% for Burlington.

If as the result of supplying water to the Town of Burlington, the Town of Lexington incurs repair and/or replacement costs in its water system beyond those expected in the delivery of the stated consumptive quantities, the Town of Burlington shall be responsible for its proportionate share of the costs. An amount equal to 75% of the cumulative Base Charge paid by Burlington to date (as described in Section 3.1.A) will be applied to offset the Burlington cost.

### 3.2 Billing Cycle

Lexington shall bill Burlington for its share of the costs determined under this Article on a monthly basis. The monthly bill shall consist of one-twelfth (1/12) the annual Base charge, the Commodity Charge, Other Charges (if any) and Capital Costs (if any). Billings shall be rendered to Burlington and become due and payable at the Office of the Lexington Collector within thirty (30) days of being rendered.

## 4. **MISCELLANEOUS PROVISIONS**

### 4.1 Status of Former Agreements

This Agreement supersedes all former or currently existing contracts for water services between the signatories, and constitutes the entire contract between the parties.

### 4.2 Incurring of Debt

Nothing in this Agreement shall be construed so as to prevent either party hereto from incurring any debt deemed necessary to construct, maintain and operate their respective waterworks.

### 4.3 Severability

If any clause or provision of this Agreement or application hereof shall be held unlawful or invalid, no other clause or provision of this Agreement or its application shall be affected, and this Agreement shall be construed and enforced as if such unlawful or invalid clause or provision had not been contained herein.

### 4.4 Status of Legal Responsibilities

Each one of the benefits and burdens of this Agreement shall inure to, and be binding upon the respective legal representatives, successors, and assigns of the parties hereto.

### 4.5 Amendment

Any amendment to this Agreement shall be executed in writing.

#### 4.6 Waiver

Failure of either party hereto to exercise any right hereunder shall not be deemed a waiver by such party to exercise at some future time said right or rights or any other right it may have hereunder.

#### 4.7 Effective Date and Duration

This Agreement shall be effective as of the date first above written. This Agreement shall be in full force and effect and shall be binding on Burlington and Lexington for five years.

#### 4.8 Financial Safeguards

In connection with the water supplied to Burlington under this Agreement, the parties shall maintain accurate and comprehensive records of the volume of water supplied, services performed, costs incurred, and payments received; and each party shall make such records reasonably available to other upon request.

#### 4.9 Review

This agreement will be reviewed in January of each year by Lexington and Burlington. Any proposed changes to the Agreement that are agreed to by both parties will be addressed with a Memorandum of Understanding (MOU) which will be added to the Agreement.

#### 4.10 Termination

The parties may terminate this Agreement by mutual agreement except that in the event that the Town of Burlington obtains access to adequate water supplies by alternative means, through the MWRA or otherwise, it may terminate this Agreement by written notice to the Town of Lexington at least 180 days prior to June 30 of the Fiscal Year in which the termination will take place.

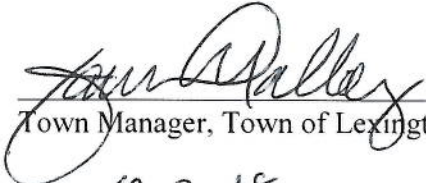
#### 4.11 Other Parties

With the exception of its current intercommunity connections, Burlington agrees that it will not distribute and sell water to entities and their successors within the boundaries of Burlington that are presently served directly by Lexington. Burlington further agrees not to distribute and sell water directly to any entity within Lexington boundaries that is not currently directly served.


Lexington in turn agrees not to distribute and sell water directly to any entity within Burlington boundaries that is not currently directly served.

If other parties request additional water Lexington and Burlington will work together to provide a source for them if feasible.

IN WITNESS WHEREOF, the Town of Lexington acting through its Town Manager, and the Town of Burlington, acting through its Town Manager, have executed this agreement on the day and year first above written.

  
\_\_\_\_\_  
Town Manager, Town of Lexington  
10-2-18

Date

  
\_\_\_\_\_  
Town Administrator, Town of Burlington  
10/2/18

Date

Attachment B

## Acts (2018)

### Chapter 350

#### AN ACT AUTHORIZING THE MASSACHUSETTS WATER RESOURCES AUTHORITY TO SUPPLY WATER TO THE TOWN OF BURLINGTON.

*Whereas*, The deferred operation of this act would tend to defeat its purpose, which is to authorize the Massachusetts Water Resources Authority to supply water to the town of Burlington, therefore it is hereby declared to be an emergency law, necessary for the immediate preservation of the public health.

*Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:*

SECTION 1. Paragraph (d) of section 8 of chapter 372 of the acts of 1984, as most recently amended by section 1 of chapter 383 of the acts of 2016, is hereby further amended by inserting after the word “Brookline”, in line 3, the following words:- , Burlington.

SECTION 2. Notwithstanding section 1, the provision of water services by the Massachusetts Water Resources Authority to the town of Burlington shall commence only after the board of directors of the authority has voted approval after having first made the findings as required by clauses (1) to (6), inclusive, of paragraph (d) of section 8

of chapter 372 of the acts of 1984 and having made such other determinations in accordance with applicable policies of the authority and after all required approvals have been received including, as applicable, other regulatory bodies where required and the advisory board of the authority, but section 71 of said chapter 372 shall not apply.

*Approved, January 1, 2019.*



*The Commonwealth of Massachusetts*  
*Executive Office of Energy and Environmental Affairs*  
*100 Cambridge Street, Suite 900*  
*Boston, MA 02114*

Charles D. Baker  
GOVERNOR

Karyn E. Polito  
LIEUTENANT GOVERNOR

Kathleen A. Theoharides  
SECRETARY

Tel: (617) 626-1000  
Fax: (617) 626-1181  
<http://www.mass.gov/eea>

April 17, 2020

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS  
ON THE  
FINAL ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : MWRA Water Connection  
PROJECT MUNICIPALITY : Burlington and Lexington  
PROJECT WATERSHED : Shawsheen River and Ipswich River  
EEA NUMBER : 15940  
PROJECT PROPONENT : Town of Burlington/Department of Public Works  
DATE NOTICED IN MONITOR : March 11, 2020

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62I) and Section 11.08 of the MEPA regulations (301 CMR 11.00), I have reviewed the Final Environmental Impact Report (FEIR) and hereby determine that it **adequately and properly complies** with MEPA and its implementing regulations.

Project Description

As described in the FEIR, the Burlington Department of Public Works (DPW) is seeking full-time membership as a water system customer of the Massachusetts Water Resources Authority (MWRA) to provide a reliable and safe long-term water supply. The purchase of water from the MWRA Water Works System is proposed to supplement existing sources and provide redundancy. The project will include upgrades to and replacement of water mains. All work will be located within existing paved roadways.

The project is proposed in two phases. Phase 1 will consist of purchase of approximately 1.0 million gallons per day (MGD) of water which would be distributed through a connection on Adams Street in Lexington. It will include the construction of approximately 2,450 linear feet (lf) of new water main and pumping and treatment equipment. Water from the MWRA will be

“wheeled” through the Lexington water distribution system. This phase is estimated to cost \$5.3 million (including a \$4.9 million MWRA connection fee). The maximum daily capacity of the water main for Phase 1 has not been identified.

Phase 2 includes the purchase of an additional 1.0 MGD (at a minimum) which will be “wheeled” through Lexington via one of two routes. Both routes (Route 1 and Route 2) include replacement of water main within Lowell Street from the Lexington/Arlington town line to Burlington. Route 1 includes 16,300 lf of water main and requires a crossing of the Butterfield Pond earthen dam on Lowell Street. Route 2 will include 19,800 lf of water main and will be routed around Butterfield Pond by extending from Lowell Street via Mueller Road to Wheeler Road in Burlington. Phase 2 water mains will be sized for a maximum daily demand of 6.45 MGD. Phase 2 will cost approximately \$21.5 million (including a \$4.9 million connection fee). Upon completion of Phase 2, the Phase 1 interconnection will be maintained for emergency purposes only.

### Project Site

The project is located within the Shawsheen River Basin and the Ipswich River Basin. The Shawsheen River Basin has been classified as Groundwater Withdrawal Category 5, which represents the most impact to groundwater based on the ratio of the groundwater withdrawal volume to the unimpacted median monthly flow. Parts of the project site are located within the Town of Burlington’s Zone II wellhead protection area which has been determined by hydro-geologic modeling and approved by the MassDEP’s Drinking Water Program (DWP). Wellhead protection areas are important for protecting the recharge area around public water supply sources. Part of Lowell Street is located within the Horn Pond Public Water Supply Watershed and associated wetlands and tributaries. Butterfield Pond, Vine Brook and surrounding wetlands are located near Adams Street.

The Town withdraws more than 6 MGD from its water sources which include surface waters (Mill Pond/Shawsheen River) and groundwater sources (7 wells). The water supply system includes two water treatment plants (WTP), three water storage tanks and 120 miles of water main. Surface water is treated by the Mill Pond WTP and groundwater is treated by the Vine Brook WTP. The Mill Pond WTP can produce up to 4.5 MGD on a short-term basis. On average, it produces 2.5 MGD. Because the production capacity of the Town’s wells have been reduced (Wells 3, 4 and 5 have been taken off-line to maintain compliance with MassDEP 1,4 dioxane guideline values), the Vine Brook WTP typically produces approximately 1.7 MGD. Anhydrous ammonia and sodium hypochlorite are added to the finished water at both treatment plants to create chloramines for disinfection in the water distribution system.

### Environmental Impacts and Mitigation

Potential environmental impacts associated with the project include an interbasin transfer, alteration of wetland resource areas, and construction period traffic impacts. Measures to avoid, minimize and mitigate Damage to the Environment include: reduction in water withdrawal from the Shawsheen River Basin, water conservation, stormwater best management practices,

implementation of a traffic management plan to minimize construction period traffic impacts, and recycling of construction and demolition materials.

### Permitting and Jurisdiction

The project is undergoing MEPA review and requires the preparation of a mandatory EIR pursuant to 301 CMR 11.03(4)(a)(2) because it requires an Agency Action and a New interbasin transfer of water of 1,000,000 or more gpd or any amount determined to be significant by the Water Resources Commission. It requires MWRA's approval called "*Admission of New Community to MWRA Water System*", a Section 8(m) Permit from the MWRA, a Vehicular Access Permit from the Massachusetts Department of Transportation (MassDOT), and an approval pursuant to the Interbasin Transfer Act (ITA) (M.G.L. c. 21 ss. 8B-D) from the Massachusetts Water Resources Commission (WRC). It requires two water supply Permits from the Massachusetts Department of Environmental Protection (MassDEP): 1.) Distribution Modification for Systems that supply more than 3,300 people (BRP WS 32); and, 2.) Chemical Addition Retrofit of Water Systems Serving More than 3,300 People (BRP WS 29). The project is subject to the MEPA Greenhouse Gas Emissions Policy and Protocol (GHG Policy).

The project requires an Order of Conditions from the Burlington Conservation Commission and the Lexington Conservation Commission, or in the case of an appeal, a Superseding Order of Conditions (SOC) from MassDEP.

Because the Town is not seeking Financial Assistance from the Commonwealth for the project, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required or potentially required State Agency Actions and that may cause Damage to the Environment as defined in the MEPA regulations.

### Review of the FEIR

The FEIR was generally responsive to the Scope which was limited to providing a detailed response to comments submitted on the DEIR and Proposed Draft Section 61 Findings. The FEIR also provided a discussion of the MEPA review history, existing conditions within the project area, project description and plans, and project-related impacts. As requested in WRC's comment letter, the FEIR included information to evaluate the project against the following eight criteria set forth in the Interbasin Transfer Regulations (313 CMR 4.09(3)) for approving interbasin transfers of water: Criterion 1-Compliance with MEPA; Criterion 2-Viable Sources; Criterion 3-Water Conservation; Criterion 4-Forestry Management Program; Criterion 5-Reasonable Instream Flow; Criterion 6-Impacts of Groundwater Withdrawals; and, Criterion 7-Cumulative Impacts. The FEIR provided additional detailed information on Criterion 3, 4 and 5. Specifically, the FEIR addressed:

- Criterion 3-Water Conservation: The FEIR provided information on water conservation, including what basis outdoor watering restrictions will be made once connected to MWRA. The FEIR also evaluated how the Town's proposed water rates meet the ITA performance standards and the 2018 Massachusetts Water Conservation Standards.



- Criterion 4-Forestry Management Program: This criterion requires that a comprehensive forestry management program has been implemented on any watershed lands with surface water sources currently serving the receiving area (Burlington) and under the control of Burlington. The FEIR provided a land use plan that meets MassDEP's requirements for surface water source protection because a forestry management plan for Burlington's Mill Pond Reservoir does not exist.
- Criterion 5-Reasonable Instream Flow: The FEIR described the MWRA supply system and anticipated increases in withdrawals as requested in the WRC's comment letter on the DEIR.

Comments from the WRC identify outstanding information needed to demonstrate that the Town's water rates meet the ITA performance standards and the 2018 Massachusetts Water Conservation Standards (Criterion 3). The FEIR described the cost categories that will be covered by rates and those that will be covered by a tax-based water fund. Comments from the WRC request clarification regarding the source of funds to cover the additional categories of source protection, debt service (if applicable), and water conservation efforts/programs and whether existing revenue sources are sufficient to fund both current and anticipated water supply costs. Comments from the WRC indicate that this information can be provided through a follow-up letter directly to the WRC Staff and do not request further review in the form of a supplemental EIR. Once this information is provided to the WRC, the Town's ITA application will be deemed complete and WRC Staff will schedule a public hearing in accordance with the ITA, Chapter 21 Section 8D.

The FEIR provided additional information and figures, which demonstrate that Burlington's additional demand on the MWRA water system will not impact water released or spilled from the Swift and Nashua Rivers. The FEIR included an evaluation of the potential for low chlorine residuals that may lead to detection of coliform bacteria, as has happened in some other MWRA community water systems. The evaluation determined that booster chlorination of the MWRA water may be necessary and should be considered in the design of the planned chemical feed station. The design of the new treatment infrastructure, including the addition of orthophosphate to the Mill Pond Water Treatment Plant, should be submitted to MassDEP for review and approval prior to construction. Comments from MWRA indicate that Burlington's withdrawal will not impact operations of the water system and will not negatively affect the environment nor MWRA's ability to provide customers with a reliable and continuous water supply now and in the future. Comments from MassDEP indicate that the FEIR adequately responds to the Agency's comments on the DEIR.

#### Mitigation and Draft Section 61 Findings

The FEIR provided a list of mitigation commitments and draft Section 61 Findings. The Proponent will provide a GHG self-certification document to the MEPA Office that is signed by an appropriate professional (e.g., engineer, architect, transportation planner, general contractor) and indicates that all of the required mitigation measures, or their equivalents, have been completed.

*Water Supply/ITA*

- Continue its Drought Management Plan that includes seasonal demand management strategies;
- Continue its leak detection and system repair program;
- Continue its program to install, replace, repair and maintain water meters;
- Continue its public educational programs and participation in programs that provide low-flow plumbing fixtures and rain barrels to residents; and
- Enforce outdoor water use bans.

*Wetlands*

- The Town will obtain Orders of Conditions from the Burlington and Lexington Conservation Commissions.

*GHG*

- Estimated reduction of approximately 34 percent of greenhouse gas (GHG) emissions per year compared to the Baseline;
- The incorporation of renewables and inclusion of LID measures in site design into the design of the new water mains, to improve the project's resiliency and reduce GHG emissions;
- Remove Vine Brook Water Treatment Plant from operation;
- Remove well pumps, pressure filtration system and ancillary equipment;
- Contractors will be held to a no-idle restriction; and,
- Proposed chemical feed facility will not be a manned facility, reducing vehicle trips.

*Construction*

- Implement erosion and sedimentation controls;
- Revegetate disturbed areas;
- Require contractors to refuel vehicles off-site and maintain spill control and cleanup materials at the work site;
- Require contractors to stockpile materials outside of resource areas;
- Regular street cleaning to minimize dust and sediment;
- Manage any contaminated material excavated during the course of the project in accordance with the Massachusetts Contingency Plan (MCP);
- Require contractors to develop Traffic Management Plans;
- Require contractors to use Ultra Low Sulfur Diesel fuel (ULSD) in motorized equipment; and,
- Require contractors to comply with the anti-idling provisions of 310 CMR 7.11.

Conclusion

Based on a review of the FEIR, comments letters, and consultation with State Agencies, I find that the FEIR adequately and properly complies with MEPA and its implementing regulations. Outstanding issues can be addressed during State and local permitting and review. The Town and State Agencies should forward copies of the final Section 61 Findings to the MEPA Office for publication in accordance with 301 CMR 11.12.

April 17, 2020  
Date

K. Theoharides  
Kathleen A. Theoharides

Comments Received:

4/10/2020 Massachusetts Water Resources Authority  
4/10/2020 Water Resources Commission (WRC)  
4/10/2020 Department of Environmental Protection (MassDEP)/Northeast Regional Office  
(NERO)

KAT/ACC/acc



THE COMMONWEALTH OF MASSACHUSETTS  
WATER RESOURCES COMMISSION  
100 CAMBRIDGE STREET, BOSTON MA 02114

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**DRAFT FOR WATER RESOURCES COMMISSION DISCUSSION  
WRC Staff Recommendation**

**Interbasin Transfer Application  
Proposed Connection to the MWRA Waterworks System  
Town of Burlington**

**November 12, 2020**

**BACKGROUND**

On November 26, 2019, the Massachusetts Water Resources Commission (WRC) received a request from the Town of Burlington for approval of an action to increase the present rate of interbasin transfer under the Interbasin Transfer Act (ITA) (M.G.L. Chapter 21 §§ 8B-8D) as part of a Draft Environmental Impact Report (DEIR) submitted to the Massachusetts Environmental Policy Act (MEPA) office. The DEIR proposed a water supply transfer through an interconnection to the Massachusetts Water Resources Authority (MWRA). Additional information was requested by the WRC and received in the Final EIR, submitted in February 2020. The Secretary's Certificate on the FEIR was issued on April 17, 2020. The WRC accepted Burlington's application as complete at its May 14, 2020 meeting.

Burlington is proposing to purchase a maximum of 6.5 million gallons per day (MGD) of water from MWRA to supplement its existing water supply source, the Mill Pond Reservoir (Figure 1). Burlington's average day demand (ADD), based on the years 2008 to 2018, has ranged from 2.80 MGD to 3.19 MGD, while the maximum day demand (MDD) for the same time period has ranged from 4.39 MGD to 6.54 MGD. The Burlington/MWRA water interconnection project will be completed in a multi-phased approach. Phase 1 will include the construction of a 24-inch water main connection to the Town of Lexington for temporary water purchase of 1.0 MGD, after which Phase 2 will consist of a second 24-inch water main constructed to connect with the MWRA system. This intermediate step is required prior to a direct connection to the MWRA system in order to address the immediate need for water. Burlington is an existing MWRA sewer community; the rate of wastewater interbasin transfer will not change as a result of this request.

A summary of the facts described in the application is as follows:

1. Burlington has land area in the Ipswich River, Shawsheen River, and Boston Harbor basins.
2. Burlington's existing sources consist of seven groundwater wells and two surface water sources.
3. Three of the wells are offline due to 1,4-dioxane contamination. The Mill Pond Water Treatment Plant, capable of producing 2.5-3 MGD, lacks redundancy.

4. The Town is applying for admission to the MWRA Waterworks System, which has sources in the Chicopee River basin and the Nashua River basin.
5. A MEPA environmental review, pursuant to M.G.L. c. 30, §§ 61-62I, was required for this proposed action. The ITA application was submitted as part of the DEIR for this project (EOEEA #15940). Additional information for ITA review was requested through the MEPA process and provided in the FEIR.
6. The Secretary's Certificate on the FEIR was issued on April 17, 2020, stating that no further MEPA review was needed.
7. Two required public hearings were held virtually via Zoom to take comment on this application, for the donor basin on July 10, 2020 and for the receiving basin on July 13, 2020. Written public comments were accepted until July 20, 2020.
8. A draft Staff Recommendation to approve the request was presented to the WRC on August 13, 2020.
9. A public hearing on the draft Staff Recommendation was held on August 18, 2020. Written public comments were accepted until August 25, 2020.
10. The review period and time for the WRC Decision was extended by mutual consent of the WRC and the Town of Burlington by no more than 60 days, until December 16, 2020.

**EVALUATION OF THE PROPOSED INTERBASIN TRANSFER**

This Interbasin Transfer application was reviewed on its own merits and is applicable solely to Burlington's purchase and use of MWRA water. This Staff Recommendation is made based on facts contained in Burlington's MEPA submissions and additional information submitted at WRC staff's request during the MEPA process. The application was evaluated against the seven Criteria outlined in the ITA regulations (313 CMR 4.09), as well as the ITA Performance Standards and with consideration of comments received from the agencies and through the public comment process.

**RECOMMENDATION**

Staff has determined that Burlington's request meets, with conditions, all applicable Criteria of the ITA and its regulations, and the ITA Performance Standards. Accordingly, **staff recommends that the WRC approve Burlington's request to purchase 6.5 MGD of water from MWRA under the ITA, with the conditions described in this document.**

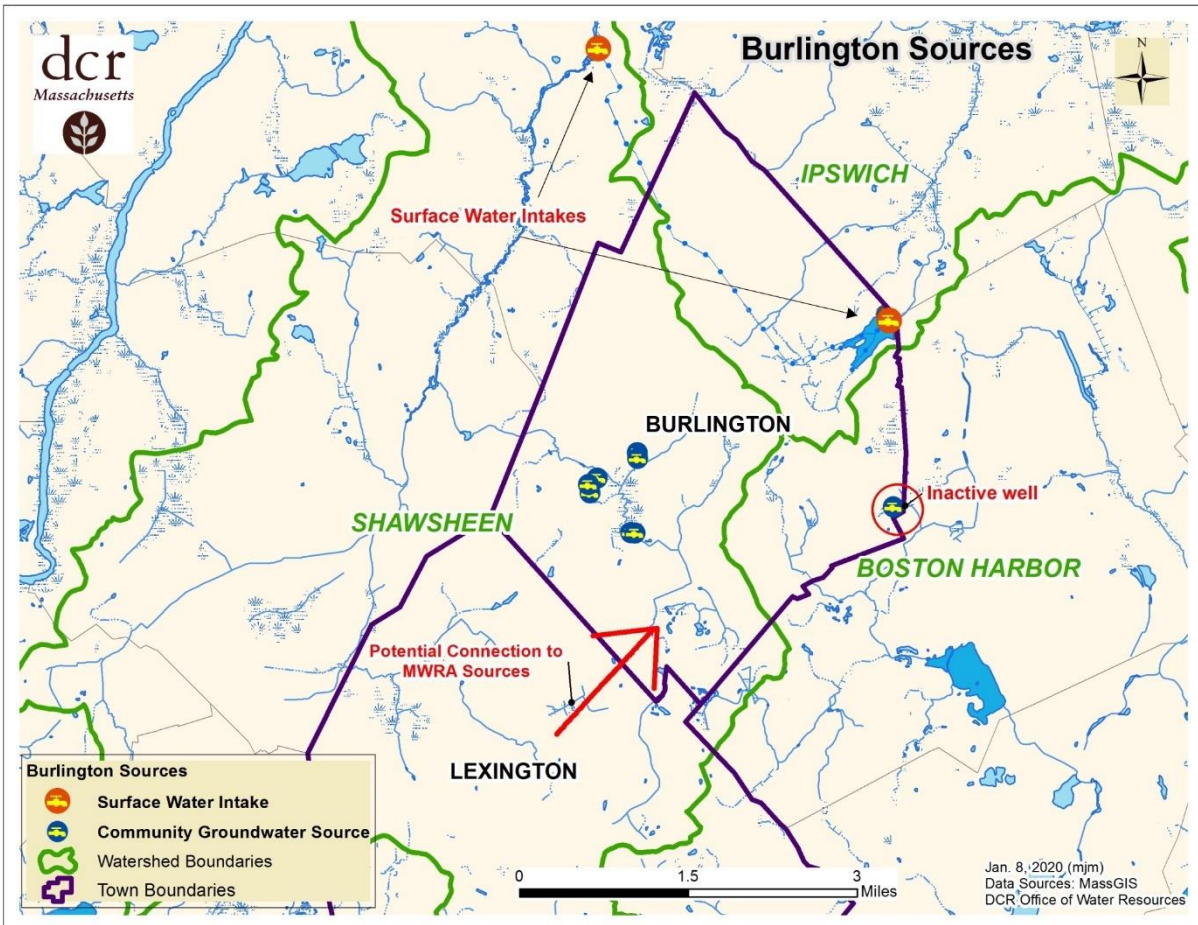
**SYNOPSIS OF THE EVALUATION CRITERIA (313 CMR 4.05)**

<b>Criteria</b>	<b>Application Meets?</b>
<b>Criterion #1:</b> MEPA Compliance	Yes
<b>Criterion #2:</b> Viable In-Basin Sources	Yes, with conditions
<b>Criterion #3:</b> Water Conservation	Yes, with conditions
<b>Criterion #4:</b> Forestry Management	Yes, with conditions
<b>Criterion #5:</b> Reasonable Instream Flow	Yes
<b>Criterion #6:</b> Impacts of Groundwater Withdrawals	Not Applicable
<b>Criterion #7:</b> Cumulative Impacts	Yes

## BASIS FOR THE STAFF RECOMMENDATION

This application was reviewed by Executive Office of Energy and Environmental Affairs (EEA), WRC staff at the Department of Conservation and Recreation's (DCR) Office of Water Resources, Department of Environmental Protection (MassDEP), and Department of Fish and Game's (DFG) Division of Fisheries and Wildlife and Division of Ecological Restoration. This Staff Recommendation is made after an evaluation of Burlington's application and compliance with the six applicable Criteria of the ITA regulations and the ITA Performance Standards. The following section describes in detail the basis for this Staff Recommendation.

**Figure 1: Burlington's Sources**



### **Criterion #1: Compliance with MEPA**

An environmental review, pursuant to MEPA (M.G.L. c. 30, §§ 61-62I) and the MEPA regulations, 301 CMR 11.00, was required for this proposed transfer. The ITA application was submitted as part of the DEIR for this project (EOEEA #15940). The FEIR was submitted in February 2020. The FEIR Certificate was issued on April 17, 2020 and stated that no further MEPA review was necessary. **Based on this information, staff recommends finding that Burlington has met this Criterion.**

## **Criterion #2: Viable In-Basin Sources**

Burlington must demonstrate that it has made all reasonable efforts to identify and develop all viable sources in the receiving area. Burlington evaluated several alternatives to replace the reduction in capacity as a result of contamination in the Vine Brook aquifer. These included expanding existing sources, reactivating abandoned water supply sources, and exploring undeveloped areas in the Town where new sources could potentially be developed. However, none of these alternatives was deemed an acceptable solution that would avoid future contamination. Following is a summary of all issues considered relating to viability.

### *Existing Sources*

The Burlington water system includes seven municipal wells, two surface water sources, two water treatment plants (WTPs), three water storage tanks and 120 miles of water mains. The seven wells are in three areas, all near Vine Brook, and are collectively treated at the Vine Brook WTP to remove naturally occurring iron and manganese, and to remove volatile organic contamination that originated at several nearby facilities. The Vine Brook WTP consists of three treatment trains, designated A, B, and C, detailed as follows:

- Train A treats Well Nos. 1 and 2 and has a design capacity of 0.8 MGD. Currently it can only produce a maximum of 0.76 MGD due to natural deterioration of the wells.
- Train B treats Well Nos. 3, 4, and 5 and has a design capacity of 0.9 MGD. This train is currently offline due to contamination.
- Train C treats Well Nos. 10 and 11 and has a design capacity of 1.4 MGD. Currently it can only produce a maximum of 1.19 MGD due to natural deterioration of the wells.

Due to the age, extensive use, and emergence of 1,4-dioxane in the wells, the production capacity of Trains A and C have been reduced. Train B was taken offline in 2013 to maintain compliance with the MassDEP 1,4-dioxane Office of Research and Standards Guideline (ORSG) because these three wells contained the highest concentration of 1,4-dioxane. Due to the reduced production capacity of the wells associated with Trains A and C and the need to take Train B offline, the capacity of the Vine Brook WTP has been reduced to approximately 1.95 MGD.

The Mill Pond WTP treats water from the Mill Pond Reservoir; the reservoir does not replenish naturally but is filled primarily with water from the Shawsheen River during periods when the withdrawal capacity is not limited by streamflow (details further below). Water is pumped from the Shawsheen River to Mill Pond by a pumping station with a capacity of up to 8 MGD through a single 4-mile-long pipe. Because it is a single main, there is no redundancy if there is a failure of this pipe. The Mill Pond WTP treats surface water from Mill Pond using conventional processes to remove naturally occurring particulate matter and produces an average of 2.5-3.0 MGD. The facility has the capability of producing up to 4.5 MGD on a very limited short-term basis depending on the elevation and raw water quality of Mill Pond. The Mill Pond WTP has several flow reducing vulnerabilities. First, the WTP was designed with a single sedimentation basin. The sedimentation basin is drained and cleaned 2-3 times per year which takes the entire facility offline. Second, should either of the two filtration trains be taken offline, the Mill Pond WTP production capacity would be reduced by half. The WTP has a single clearwell for disinfection. When the clearwell is drained, inspected and cleaned once a year, the WTP is

offline. And lastly, there is a single finished water main, a failure of which would prevent finished water from flowing to the distribution system.

Burlington's supply/withdrawal capacity is limited by restrictions on the Shawsheen River and seasonal pumping conditions. Between May 1<sup>st</sup> and June 30<sup>th</sup>, Burlington is not permitted to pump water from the Shawsheen River if river flow is less than 37 cubic feet per second (cfs) for three consecutive days in order to protect fish spawning. For the remainder of the year, withdrawals from the Shawsheen River are limited to the following:

- <12 cfs for three consecutive days – no pumping allowed
- 12-15 cfs – permitted to pump 2 MGD to Mill Pond
- 15-25 cfs – permitted to pump 4 MGD to Mill Pond
- >25 cfs – permitted to pump 8 MGD to Mill Pond

Currently, Burlington operates the Vine Brook WTP 24 hours a day, 365 days a year, and uses the Mill Pond WTP to make up the difference between Vine Brook WTP production and system demands. Because of the need for both WTPs to be in operation to meet demands, the Town is unable to perform routine maintenance on either WTP if maintenance requires the facility to be taken offline. In addition, it is recommended that pumping and treatment facilities operate a maximum of 16 hours per day to reduce wear on equipment, to allow time for routine maintenance, and to allow wells to recover. Burlington does not have this option under current operating conditions.

#### *Alternatives Analysis*

In 2016, Burlington hired Stantec Consulting Services, Inc., to complete a study entitled “Water Supply Evaluation – Future Water Demand Feasibility Study”. This study evaluated five strategies for maintaining or obtaining water supplies to meet demands over a 25-year planning period. Methods for maintaining water supplies included reviewing existing sources, developing new sources, and purchasing water from the MWRA and surrounding towns. Three of the five strategies included a connection of some capacity to the MWRA. Two of the strategies considered providing treatment for 1,4-dioxane. However, neither treatment strategy addressed future unidentified contaminants. There are currently 46 known contamination sites in the areas surrounding the Town's water supply wells. The study concluded that the Vine Brook WTP was “in good working order and only currently requires maintenance work to replace and maintain aging equipment”. However, the study notes that over the 25-year planning period, approximately \$5.2M would need to be invested into the facility to replace equipment to keep the facility operational and reliable.

Strategies that maintained the Town's sources were the most cost-effective; however, they were not selected because they did not provide the long-term redundancy and reliability that an MWRA connection provides. A strategy that included developing new sources was also lower cost as compared to other strategies but was not selected because new groundwater sources would not eliminate the risk of pollution from future unknown contaminants, because of the widespread contamination in the Town's groundwater. The strategy that combines retaining the Mill Pond WTP with purchasing water from MWRA was selected as the recommended approach because it best met the goals of protecting public health, meeting water demands, and providing



redundancy to the water system in both the short and long term. The water supply required is estimated to be 3.5 MGD (ADD), and up to 6.5 MGD to meet MDD with Mill Pond offline.

#### *Existing Interconnections*

The Town maintains emergency connections with Bedford, Billerica, Lexington, Wilmington, and Woburn. The connections with Bedford, Billerica, and Lexington are hard-piped interconnections. The Bedford and Billerica interconnections both require booster pumps for Burlington to receive water. The Lexington interconnection is used in periods where demands exceed Burlington's production capacity. This connection has been used in recent years (since 2011) to supplement the Town's water supply during emergencies. The remaining interconnections are for emergency purposes only and are made through hydrant to hydrant connections.

#### *Reactivation of Abandoned Water Supply Sources*

The Town of Burlington has five abandoned groundwater sources, four of which are in the Shawsheen basin. These sources include the Main Station tubular wells, Sandy Brook Gravel-packed Well No. 6, Lexington Gravel-packed Well No. 7, and Sandy Brook Well No. 9. The Town also operated a source known as the Wyman Tubular Wells No. 8 in the Boston Harbor basin.

The Main Station tubular wellfield, Sandy Brook Gravel-packed Well No. 6, and Sandy Brook Well No. 9 were all officially abandoned in 2001 and sealed with concrete. The Lexington Gravel-packed Well No. 7 was removed from service in 1988 due to trichloroethylene (TCE) contamination. It was formally abandoned by MassDEP in a 1997 letter which included approval for the construction of the Vine Brook WTP and permanent pumping facilities for Well Nos. 10 and 11. As part of that work, the pump station for Well No. 7 was repurposed to house the well controls for Well Nos. 10 and 11. The Wyman Tubular Well No. 8 was inactivated in 1995 due to excessive maintenance. The well is in "Inactive" status but the Town has not formally abandoned the source. To return this source to operational status, a complete rehabilitation and overhaul of the existing building, pumping and building systems and stand-by power system would be required. It would also require the design and construction of a minimum of approximately 13,500 feet of transmission main to the Mill Pond WTP or a minimum of approximately 20,000 feet of transmission main to the Vine Brook WTP. Because of the extensive costs and limited yield, this option was not deemed a viable solution.

#### *Development of New In-Town Water Supply Sources*

The Vine Brook Aquifer is the primary groundwater source for the Town wells. The aquifer provides a significant quantity of groundwater to the Town wells, and additional yield from a new source within this aquifer would be limited by the aquifer storage. Additionally, this aquifer is within a basin that is groundwater depleted and the WMA program would likely limit further withdrawals. In addition, the wells and aquifer have become contaminated from unauthorized discharges of volatile organic compounds (VOCs). A new source sited within this aquifer would result in the withdrawal of contaminated water requiring significant treatment.

Most of the Town is mapped as till or bedrock which are not likely water-bearing at the capacity necessary to support a community groundwater source. Furthermore, much of these areas are

built out and there are few to no suitable locations for the development of a groundwater source with adequate setbacks and protection from existing and potential contaminant threats.

A parcel map of the Town of Burlington was used to identify undeveloped areas in the Boston Harbor and Ipswich River basins. These basins were investigated because they are not net groundwater depleted within the Town and would provide a source that does not derive water from the Vine Brook Aquifer. A key part of identifying suitable parcels to locate a groundwater supply is that the Town of Burlington would need to own, or control through easements, a 400-foot radius around new sources. Structures, subsurface waste disposal systems, and a variety of other potential contamination sources cannot be located within the protective radius. Large parcels within the Boston Harbor and Ipswich River basins that would support the protective radius were identified and investigated. Data suggest that the development of a groundwater well source in the Town within these basins is not viable based on surficial geology, the distribution of potential contamination sites, and groundwater depletion. Further, there are already high levels of flow stress in the Ipswich River basin. Added stress to this basin from increased groundwater withdrawals would have significant environmental impacts and may impact neighboring communities' ability to withdraw water from the basin to serve their residents.

#### *Water Quality Issues*

When considering developing new water supply sources, water quality is also of concern. If the new sources would be located in existing wellfields, the reliability of these sources cannot be guaranteed. The Town reports that it has recently seen a slight increase in 1,4-dioxane levels in the remaining active wells. It is suspected that this is a result of plume migration from the previously active Well Nos. 3, 4, and 5 which are now out of service. Because of the widespread contamination in the Town's groundwater, Burlington is also concerned that new unknown contaminants that will also require treatment could be identified under the Environmental Protection Agency (EPA) Unregulated Contaminant Monitoring Rule (UCMR).

The risk of new contaminants has recently also become a real concern for Burlington. It was recommended that both Mill Pond and Vine Brook conduct testing for per- and polyfluoroalkyl substances (PFAS) which, if found in excess of the ORSG of 20 parts per trillion (ppt), has the potential to impact Burlington's remaining water supply. The Town will sample its sources in accordance with MassDEP's schedule. As of December 2019, MWRA has performed testing for 18 PFAS compounds resulting in negligible amounts well below all federal and state guidelines.

#### *Future Plan for Use of Sources*

The Town expects to maintain the Mill Pond WTP in service for at least another 20 years. The treatment plant is of modern design and well suited to treat the water from Mill Pond. When Burlington takes the Mill Pond WTP offline, it may consider abandonment and relinquishment of its WMA permit.

Following the connection to MWRA, Burlington intends to take the Vine Brook WTP out of service. However, it will be maintained in a "ready" state for emergencies for 5-10 years and/or until the Town is confident in the new MWRA supply and Mill Pond WTP configuration and operation. During the period of "ready state", the Town will routinely exercise pumps and

valves associated with the wells. Well Nos. 1, 2, 10, and 11 will be maintained in an “inactive” ready status and will be pumped through the Vine Brook WTP monthly. These wells will only be used with an Emergency Declaration issued by MassDEP under M.G.L. c21G, §§ 15 and 16, 310 CMR 36.40 through 36.42 or otherwise authorized by law. The Town intends to retain its WMA registration for each well source. When the decision is made to completely remove the Vine Brook WTP and wells from service, the WTP will be decommissioned and demolished and the wells associated with the facility will be abandoned. The Town intends to retain ownership of the upland areas of the property for future municipal needs. It may however consider converting the wetland areas to conservation land.

In conclusion, the basic requirements of the ITA is that local water supply sources are used to the maximum extent possible prior to obtaining permission to transfer water from out of basin. Given the above described conditions, **Staff recommends that the WRC determine that all reasonable efforts have been made to identify and develop all viable sources in the receiving area of the proposed interbasin transfer and find that Burlington has met this Criterion with conditions.**

### **Criterion #3: Water Conservation**

Burlington must demonstrate that all practical measures to conserve water have been taken. The WRC water conservation performance standards are numbered below, followed by a bulleted narrative of Burlington’s actions and whether the standard is met.

1) A full leak detection survey should have been completed within the previous two years of the application. The proponent should provide documentation regarding repair of leaks identified during the survey.

- Leak detection is conducted at least every two years.
- Surveys were completed in 2015 and 2017 and documentation was submitted that leaks were repaired.
- Another survey was completed from January to February 2019 and documentation was submitted that leaks were repaired.
- According to the Water Conservation Survey submitted as part of the February 2020 FEIR, another survey was ongoing in 2020.
- **Staff recommends finding that this standard is met.**

2) The water supply system should be 100% metered, including public facilities served by the proponent. A program of meter repair and/or replacement must be in place. Documentation of annual calibration of master meters and a description of the calibration program should be included in the application.

- Burlington’s system is 100% metered, including public facilities.
- A program of meter repair and replacement is in place and is funded through an annual appropriation.
- Master meters are calibrated annually.
- Burlington owns all customer meters, including large meters. A description of the large meter calibration program was included in the Water Conservation Questionnaire submitted in the FEIR.
- **Staff recommends finding that this standard is met.**

3) Unaccounted-for Water (UAW) should be 10% or less. The proponent should provide documentation of UAW, in both gallons and percentage of the total finished water entering the distribution system, for each of the past five years. The definition of accounted-for and UAW for use in Interbasin Transfer applications is given in Appendix C of the Performance Standards.

- For more than the past five years, UAW has been 10% or below.
- **Staff recommends finding that this standard is met.**

4) The proponent should provide documentation to show that there are sufficient sources of funding to maintain the system, including covering the costs of operation, proper maintenance, proposed capital improvements, and water conservation. The rate structure must encourage water conservation.

a) Sufficiency of Funds

- Water system operation costs are funded through customer bills with a combination of fixed service charges and volumetric usage charges. Water system capital costs are primarily funded through property taxes. The specific capital funds needed for the proposed project to join the MWRA, however, are being raised through an annual seven percent rate increase over ten years. The reliance on the property tax to fund the majority of capital needs for the water system means Burlington does not utilize full-cost pricing. Full-cost pricing is preferable for sending a strong conservation signal, equitably allocating costs, and raising customer awareness of the true cost of the water system. For these reasons, staff recommends a transition to full-cost pricing. However, staff acknowledges that Burlington prefers to keep the subsidy in place, in part because it shifts a larger percentage of the cost burden to the commercial sector, which is preferable to the community. Staff further recognizes that, accounting for the subsidy, the two sources of funding combined have historically been sufficient to cover all water system costs, including operation, maintenance, capital costs, conservation, source protection, and debt service. The Department of Public Works uses a 10- to 20-year planning horizon, which helps ensure long-term capital needs are adequately accounted for in budgeting.
- All revenues raised through customer bills are sent to Burlington's general fund. Water system costs are then paid for out of the general fund. Water bill revenues are closely tracked, and the general fund allocation to the Department of Public Works for the water system is set to equal the funds raised by customer bills plus the additional funds raised through the town's property tax. While this structure helps establish a cost basis for the water system, staff strongly recommends utilizing an enterprise fund or similar structure for the revenues raised through customer bills. Even if the enterprise fund continued to be subsidized by property taxes, it would clarify expense categories, make the level of subsidy from property taxes more apparent, provide protected structures for retained earnings, such as the stabilization fund currently being used to build up reserves for joining the MWRA, and reduce the need to rely on allocations from the general fund to utilize revenues from customer bills. It would also create a smoother transition to full-cost pricing when Burlington is able to pursue that in the future, which would increase customer incentives for water conservation.
- **The above recommendations notwithstanding, staff recommends finding that this standard is met.**

#### b) Strength of Water Rate Conservation Signal

- Burlington has three separate rate structures: one for primary residential accounts, one for secondary/irrigation residential accounts, and one for commercial accounts. Each of these has a tiered structure, a base service charge, and a base allocation for which customers do not pay any volumetric charges.
- The primary residential rate includes a base allocation of 20,000 gallons per six-month billing cycle, which is roughly equivalent to 40 gallons per capita per day (gpcd) for the average Burlington household of 2.72 residents (US Census Bureau). The Massachusetts Water and Wastewater Rates Dashboard developed by the UNC Environmental Science Center places Burlington's water rates extremely low on a relative scale within Massachusetts, over a wide range of usage volumes, and shows the rate's "conservation signal" (price per gallon over 10,000 gallons of monthly use) to be similarly low. After incorporating Burlington's projected 10 years of 7%-per-year increases, the average household's volumetric charges at 65 gpcd (the state year-round residential standard) will still be in the bottom 12% among Massachusetts water rates. While staff strongly recommends this price signal be strengthened by eliminating the base allocation and moving to full-cost pricing, staff acknowledges that Burlington's residential sector demonstrates efficient water use patterns on the whole. The town-wide rgpcd is 50. Additionally, 70% of the customer base uses 30,000 gallons or less per billing cycle. This is equivalent to 61 gpcd for the average household.
- The secondary/irrigation rate includes a base allocation of 5,000 gallons per annual billing cycle. **As outdoor irrigation is a nonessential use, staff recommends a condition of approval be that Burlington eliminates the base allocation within the secondary residential rate.** Additionally, the first pricing tier applies to 5,000 – 50,000 gallons of annual use. Assuming an irrigation season of six months, this represents a range for the average household that spans from 10 gpcd to 100 gpcd of exclusively outdoor use. The state standard for indoor and outdoor use combined is 65, so 100 gpcd of only outdoor use far exceeds the state efficiency standard. **Staff recommends a condition of approval be that Burlington creates new tier volumes for the secondary residential rate that more effectively distinguish between efficient and inefficient outdoor usage and send stronger price signals for less efficient use.** Staff are available to work with Burlington to assess compliance with this condition.
- Approximately 50% of Burlington's water use is from the commercial sector. The commercial rate includes a base allocation of 10,000 gallons per quarterly billing cycle. 40% of Burlington's commercial customers do not exceed the base allocation and, therefore, pay no per-gallon charge for their water, which does not effectively encourage water conservation. **Staff recommends a condition of approval be that Burlington substantially reduces or eliminates the base allocation for commercial customers.**
- **In summary, staff recommends finding that this standard is met, with conditions.**

5) The proponent should bill its customers at least quarterly based on actual meter readings. Bills should be easily understandable to the customer (e.g., providing water use in gallons and including comparison of the previous year's use for the same period).

- Burlington bills its commercial customers quarterly, its primary residential customers biannually, and its secondary customers annually.
- Large users are billed quarterly.

- Bills are based on actual use and are billed in gallons.
- Customer meters are read daily and reviewed monthly. The water department reaches out to customers with spikes in use that may reflect a leak.
- Bills provide customers with their water use history, including comparisons to the previous year's use for the same period.
- Although staff acknowledges that Burlington achieves some of the benefit of quarterly or more frequent billing by monitoring meters monthly, to meet this performance standard **staff recommends that a condition of approval be that Burlington moves to at least quarterly billing for its primary residential accounts and incorporates one additional billing cycle, mid-irrigation season, to achieve the equivalent of quarterly billing for its secondary residential accounts.**
- **In summary, staff recommends finding that this standard is met, with conditions.**

6) A drought/emergency contingency plan, as described in 313 CMR 4.02, should be in place. This plan should include seasonal use guidelines and measures for voluntary and mandatory water use restrictions and describe how these will be implemented. There should be a mechanism in place to tie water use restrictions to streamflow and/or surface water levels in the affected basin(s) where this information is available.

- Burlington has a local drought plan with seasonal use guidelines for water use restrictions based on the levels in Mill Pond and the flows in the Shawsheen River.
- In addition, since 2017, the Town has implemented year-round watering restrictions.
- With membership to the MWRA, the Town will need to update its drought plan to reflect the changes in water supply sources for both the MWRA sources and the remaining local source(s).
- Additionally, when updating its drought plan Burlington should review the 2019 (or most recent) Massachusetts Drought Management Plan and incorporate applicable recommended elements from the state plan into its local plan. It should also incorporate conditions that tie the local plan to drought declaration and any recommended actions by the Secretary of EEA for the Northeast Drought Region, and to Burlington's private well regulations.
- **Staff recommends finding that this standard is met, with conditions.**

7) All government and other public buildings under the control of the proponent should have been retrofitted with water saving devices.

- The Town has a lot of newer buildings constructed in mid to late 1990's which have water saving fixtures installed.
- As public buildings in Town are renovated, they are retrofitted with water saving devices meeting the State Plumbing Code.
- Burlington should ensure that its buildings, facilities, and landscapes are using water efficiently both indoors and outdoors. Burlington should use its smart water metering system to analyze existing water-use data to spot trends, patterns, and unexplained increases that could indicate leaks or inefficient use of water, including monitoring its facilities for leaks and ensuring compliance with water bans at public facilities. Public buildings and facilities that use large amounts of water should be investigated for potential retrofits of fixtures if they are not low flow. Where feasible, use the best

available technologies for water conservation for both retrofitted facilities and new construction.

- **Staff recommends finding that this standard is met, with conditions.**

8) If the community's residential gallons per capita per day (rgpcd) is greater than 65, the proponent should be implementing a comprehensive residential conservation program that seeks to reduce residential water use.

- Burlington's rgpcd has been below 65 for more than the past five years. The five-year average is 50 rgpcd.
- **Staff recommends finding that this standard is met.**

9) A broad-based public education program, which attempts to reach every user at least two times per year, through such means as mailings, billboards, newspaper articles, cable television announcements or programs, or the use of other media, should be in place.

- The Town website links to the MWRA water conservation website in addition to the May 2002 WRC document "Guide to Lawn and Landscape Water Conservation". Pamphlets and handouts available at the Town Hall in the Engineering Department outline effective methods to conserve water during the summer months and indoor water conservation. Staff recommends that Burlington also link to the state water conservation website and use those resources for more targeted water conservation tips, tools and messaging.
- Social media is used to post water conservation information, including information about lawn watering.
- There is targeted outreach for large users. Bill stuffers are mailed as needed.
- Low-flow showerheads and faucet aerators are available to the public upon request.
- **Staff recommends finding that this standard is met.**

10) A program which identifies and ranks all industrial, commercial and institutional (ICI) customers according to amount of use and requires regular contact with the largest users to promote water conservation, should be in place. Materials on water reuse and recirculation techniques should be provided, where appropriate.

- Burlington has a metering system that can identify large users and provide ICI customers with daily and hourly usage for the ICI customers' water conservation efforts.
- The Town ranks its top users and monitors their water use with the Town's metering system. The Town has worked closely with its highest user, who hired a consultant 4-5 years ago to assist with reducing its utilities including water, and the Town has since observed a downward trend in use. The other top users are hotels and restaurants. The Town has reached out to these users to help them lower their water use without any positive impact. However, one large office user, who is not within the top 10 water users but progressive in water conservation, has worked with the Town.
- The Town ensures compliance with the plumbing code and provides information upon request.
- The Town should continue to monitor water use on its metering system for high usage and suspected leaks and notify the users as needed. The Town should more proactively reach out to the top 10 users to direct them to EPA's WaterSense website that has information regarding conservation strategies applicable to the top 10 users (such as hotels, restaurants, etc.) to help emphasize the importance of water conservation.

- **Staff recommends finding that this standard is met, with conditions.**

11) A program of land use controls to protect existing water supply sources of the receiving area that meets the requirements of MassDEP should be in place.

- Records provided by MassDEP confirm that the Town of Burlington has adopted the following protection controls:
  - Burlington Aquifer and Water Resource Districts Bylaw, 1996 as amended
  - Burlington Aquifer and Water Resource Districts Map, 1996 as amended
  - Burlington Board of Health Floor Drain Regulations, 2018
- As a result of adopting these controls, Burlington Water Department is in full compliance with the wellhead protection requirements for its public water supply wells.
- Additional controls to protect surface water supply sources (i.e., Mill Pond) may be needed. **Burlington should submit any water supply protection bylaws that it has for active/inactive reservoirs to MassDEP for review for compliance with 310 CMR 22.20C.**
- **Staff recommends finding that this standard is met, with the conditions related to Mill Pond provided here and under Criterion 4.**

12) There should be a long-term water conservation program, which conforms with the 2018 Water Conservation Standards for the Commonwealth of Massachusetts and is informed by analysis of Burlington’s water use data. The program should include but not be limited to an indoor and outdoor component, a water loss control program, and the development of water rates that provide incentives for water efficiency. The program should also include a public outreach and education component. The program should be documented in written form and updated regularly or at a minimum after each significant drought event.

- Burlington should continue its water loss control program and review and revise it in accordance with standard industry best management practices.
- Review of the DEIR, FEIR, and Burlington’s Water Conservation Questionnaire, in addition to the information evaluated above in performance standards 1 through 10, indicates that this standard is largely met, except for an updated drought plan, a water loss control program, and billing, all of which are specified as conditions in this Staff Recommendation.
- Burlington’s rgpcd is below 65. The five-year average is 50 rgpcd. Burlington should continue its efforts to remain at that level or below.
- **Staff recommends finding that this standard is met, with conditions.**

Notwithstanding the above assessment, the WRC recognizes that in certain cases, local conditions may prevent a proponent from meeting or exceeding the “yardstick” that has been described in ITA guidance, even after a substantial effort has been made. In these cases, the proponent should explain why that standard cannot be met, demonstrate an alternate method of meeting the intent of the standard, and document any efforts that have been undertaken in order to comply with the standard. Therefore, the standards are presented as presumptions that can be rebutted in cases where local conditions or other extenuating circumstances must be taken into consideration.



### Summary of Water Conservation Criterion

**Based on the information evaluated in performance standards 1 through 12 above, staff recommends finding that the water conservation Criterion of the ITA will be met upon implementation of conditions.**

#### **Criterion #4: Forestry Management Program**

This Criterion requires that a comprehensive forestry management program has been implemented on any watershed lands with surface water sources serving the receiving area (Burlington) and under the control of the receiving area. Burlington's FEIR provided a list of allowable activities and practices on its watershed properties to ensure surface water protection.

- Burlington should develop a local Surface Water Supply Protection Plan for Mill Pond Reservoir. MassDEP's Drinking Water Program is available to provide GIS maps, guidance and technical assistance. The plan shall include a component on forestry for watershed protection, should Burlington have plans to conduct forestry operations on town-owned properties.
- **Staff recommends finding that this standard is met, with conditions.**

#### **Criterion #5: Reasonable Instream Flow and Criterion #7: Cumulative Impacts**

Burlington is proposing to purchase up to 6.5 MGD of water from MWRA.

Criterion #5 requires that "reasonable instream flow in the river from which the water is transferred is maintained." In addition, per Criterion #7 the WRC must consider the "cumulative impacts of all past, authorized or proposed transfers on streamflows, groundwater, lakes, ponds, reservoirs or other impoundments in the Donor Basin and relevant sub-basins".

The ITA regulations (313 CMR 4.09(e)) direct the WRC to consider that "reasonable instream flow in the river from which the water is transferred is maintained" in making its decision to approve or deny an Interbasin Transfer request. In this case, the WRC, through its staff, evaluated the impacts of transferring 6.5 MGD on the operations of the MWRA Water Works System, which include impacts to reservoir levels, drought levels, low flows, intermediate flows, high flows, and the MWRA's mandated downstream releases. In addition, the cumulative impacts of the Burlington transfer, other recently approved transfers, and other potential new transfers to communities which may be added in the near future were evaluated. These transfers could result in an additional combined annual average of 10 MGD of system demand and includes the recently approved Ashland ITA transfer of up to 1.6 MGD. In its analysis of these Criteria, staff relied on data provided in the Burlington DEIR, FEIR, information regarding the MWRA system in a document titled, "MWRA Water System Supply and Demand" (May 2002), and previous WRC Decisions. Streamflow data and reservoir release data for the analysis were obtained from the US Geological Survey and previous WRC ITA reviews.

#### Quabbin & Wachusett Reservoirs, Ware River and MWRA Water Works System

The principal components of the system consist of the Quabbin Reservoir, Wachusett Reservoir, and the Ware River intake, the deep rock tunnels which deliver water eastward, and approximately 285 miles of pipe that distribute water to MWRA communities (Figure 2). The capacity of the transfer system is based on detailed design analysis as well as empirical operating history.

**Figure 2 MWRA Water System Map**



The Quabbin Reservoir, Wachusett Reservoir, and Ware River system is operated with the primary objective of ensuring high quality adequate water supply. Secondary operational objectives include maintaining an adequate flood protection buffer particularly during the spring melt and hurricane seasons and maintaining required minimum releases to both the Swift and Nashua Rivers.

#### *Operating Schedule of the Proposed Interbasin Transfer*

Burlington proposes to ultimately withdraw approximately 3.5 MGD ADD and up to 6.5 MGD on a maximum daily basis (MDD). Given that MWRA's reservoirs are multi-year storage reservoirs with 477 billion gallons of storage, the variation in Burlington's demand from MWRA over a 24-hour period, or day-to-day or between winter and summer months is of no significance to reservoir operations.

#### *Quabbin Reservoir*

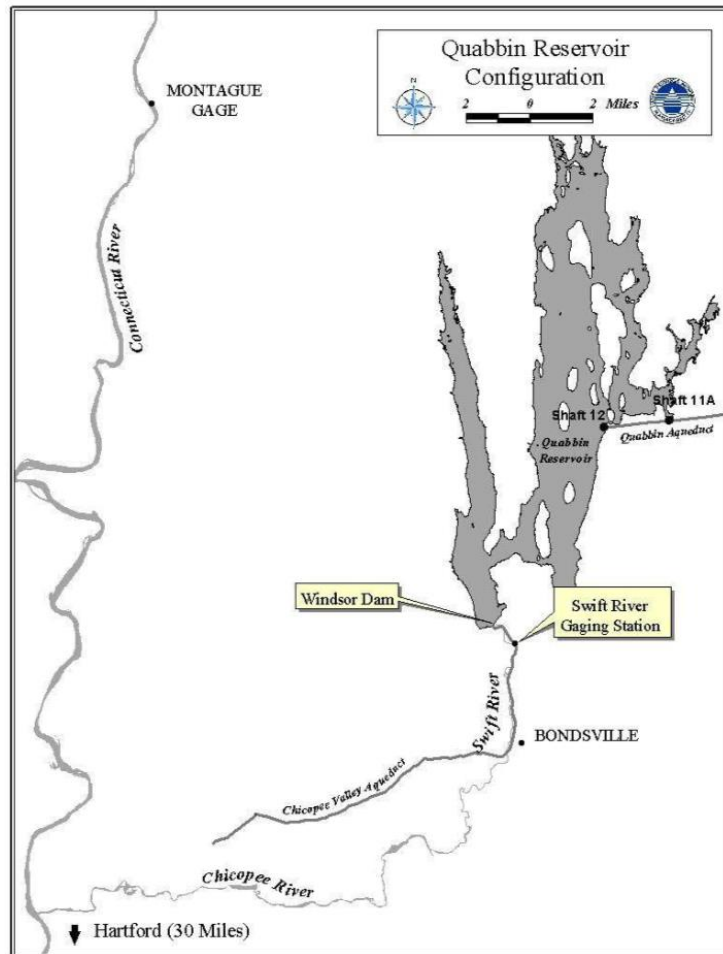
The Quabbin Reservoir, located in the Chicopee River Basin, has a well-protected watershed area of 186 square miles, and a maximum storage capacity of 412 billion gallons, equivalent to between five- and six-years' worth of supply. The Quabbin contributes about 53% towards the system safe yield of 300 MGD. In addition to the water flowing directly into it, the Quabbin Reservoir can also receive water from the Ware River (also in the Chicopee River basin) via the Ware River intake. The Quabbin Reservoir is connected by the Quabbin Aqueduct to the Wachusett Reservoir in the Nashua River basin. Transfers from the Quabbin Reservoir control the Wachusett Reservoir elevation, which is kept within a narrow operating range mostly for water quality purposes, while allowing the Quabbin Reservoir to freely fluctuate. Uncontrolled releases, or unintended spills, can occur occasionally over the Quabbin spillways. There have also been extended multi-year periods when no spillway discharges have occurred.

#### *Minimum Flow Requirements – Releases from the Quabbin Reservoir to the Swift River*

Chapter 321 of the 1927 Acts of Massachusetts and the 1929 War Department Requirement call for minimum discharges to the Swift River. Sufficient water must be discharged from the Quabbin Reservoir to provide at least 20 MGD (30 cfs) in the Swift River at the Village of Bondsville located five miles downstream of Winsor Dam (Figure 3). At least 18 MGD, and

more typically 20-25 MGD, is continually released from the Winsor Dam each day. This satisfies the 20 MGD requirement since the intervening watershed between Winsor Dam and Bondsville is estimated, on average, to contribute 4 MGD. Additionally, 6 MGD is supplied to the McLaughlin Fish Hatchery through a direct pipeline from the Quabbin, which is returned to the Swift River upstream of Bondsville.

**Figure 3 Quabbin Reservoir**



A 1929 War Department permit (now overseen by the Army Corps of Engineers) also requires seasonal releases from the Winsor Dam to maintain flow for navigability on the Connecticut River between June 1 and November 30. The seasonal releases are 70 cfs (45 MGD) if the flow in the Connecticut River, as measured at the Montague stream gage, falls below 4,900 cfs, and 110 cfs (70 MGD) if the Montague gage falls below 4,650 cfs.

#### *Wachusett Reservoir*

Wachusett Reservoir has a maximum capacity of 65 billion gallons and a 107 square mile watershed that is more developed than the Quabbin watershed. The Wachusett Reservoir contributes about 34% of the system safe yield of 300 MGD. Wachusett Reservoir is managed for continuous water availability, optimal water quality, minimum release requirements, and

flood control. The Reservoir's elevation is maintained within a narrow operating band. When Wachusett Reservoir watershed yields are sufficient to maintain Reservoir elevations within the normal operating range, and transfers from the Quabbin are made for water quality purposes, higher levels of releases from valves at the Wachusett Dam to the Nashua River may be required to maintain adequate freeboard to minimize flooding potential.

#### *Minimum Flow requirements- Releases from Wachusett Reservoir to the Nashua River*

The MWRA releases water to the Nashua River consistent with Chapter 488 of the Acts of 1895, which requires that not less than 12 million gallons per week be discharged into the South Branch of the Nashua River (or on average 1.71 MGD equivalent to 2.6 cfs). This release is made via a continuous release into the basin at the base of the Wachusett Dam and is typically higher than required.

#### *Ware River*

The Ware River, at its intake, has a watershed area of 96.8 square miles. The Ware River contributes approximately 13% of the total system safe yield of 300 MGD. Under the operating approach currently implemented by the MWRA, transfers from the Ware River are made only on a limited basis for flood control or to help fill the Quabbin Reservoir when its levels are beneath their seasonal normal values.

#### *Minimum Flow Requirements- Ware River*

Transfers from the Ware River to Quabbin Reservoir are only allowed at Ware River flows above 85 MGD (131 cfs), and must be limited to the period from October 15 to June 15. In addition, permission must be obtained from the Army Corps of Engineers to transfer water during the periods of June 1 through June 15 and October 15 through November 30.

#### Hydrologic Analysis

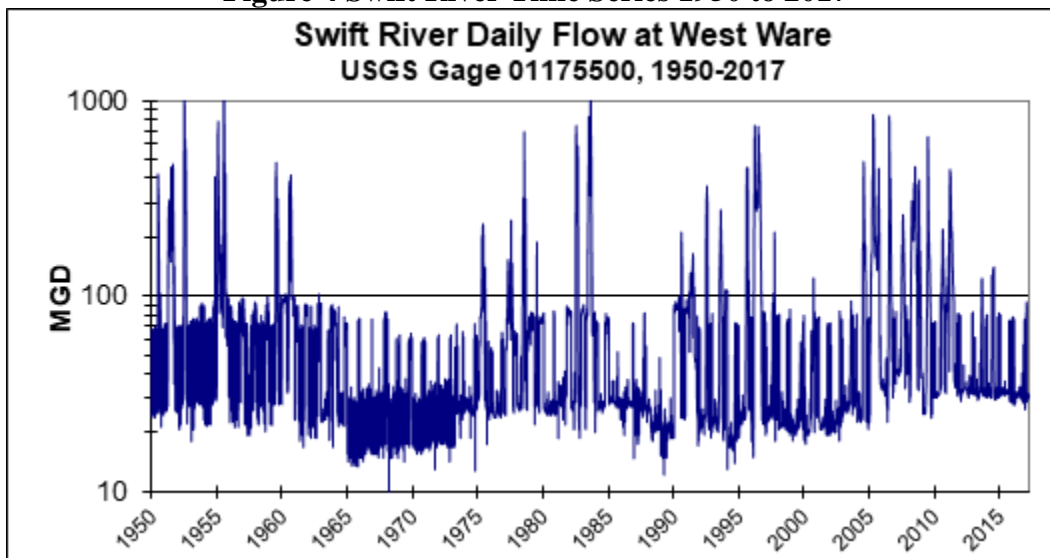
Several types of data are available to evaluate the potential impact of the Burlington transfer, as well as any planned or proposed transfers, on the Quabbin Reservoir. Streamflow data, or a hydrograph showing the impact of the proposed transfer on the donor river basin, is usually evaluated as part of an interbasin transfer review. However, several factors make the use of downstream flow data difficult in this case. First, the Quabbin Reservoir has a huge storage capacity, which is used to maintain a constant minimum flow. Second, the current MWRA system demand is significantly lower than its historic demand; therefore, superimposing the transfer on a historic downstream hydrograph would not be realistic. For these reasons, other types of data, including releases and reservoir levels, are being used to evaluate these Criteria. To account for the change in system demand, some of the analyses have used a shortened period of record on which to superimpose the transfer. Due to the presence of large water supply dams and their associated reservoirs, Aquatic Base Flow (ABF) criteria were not applied to downstream releases, since the outflows from the dams would not reflect the size of the watersheds above the dams on a cubic feet per second per square mile (cfs/m) basis. The Burlington application indicates that in general, given the relatively small size of the transfer in comparison to the capacity of the reservoir and the magnitude of discharges over the spillway, and the discharges governed by regulatory requirements, the effects from the proposed withdrawals on hydraulic characteristics will be imperceptible. Intended downstream releases at

Quabbin, Ware, and Wachusett will not change. There would only be a slight reduction in unintended spillway flows at Quabbin.

*Quabbin Reservoir and Swift River*

Both time series flow graphs and flow duration curves are used to describe river flow conditions. Figures 4 and 5 show both the time series and flow duration curve for the Swift River at the West Ware gage for the time period of 1950 to 2017. The Swift River West Ware gage is located 1.4 miles downstream from Winsor Dam and has a period of record from 1913 to present. The West Ware gage is located approximately 3.6 miles upstream of the compliance point at Bondsville. The intervening drainage area between the two points is reported to contribute 4 MGD of base flow (MWRA Water System Supply and Demand, 2002).

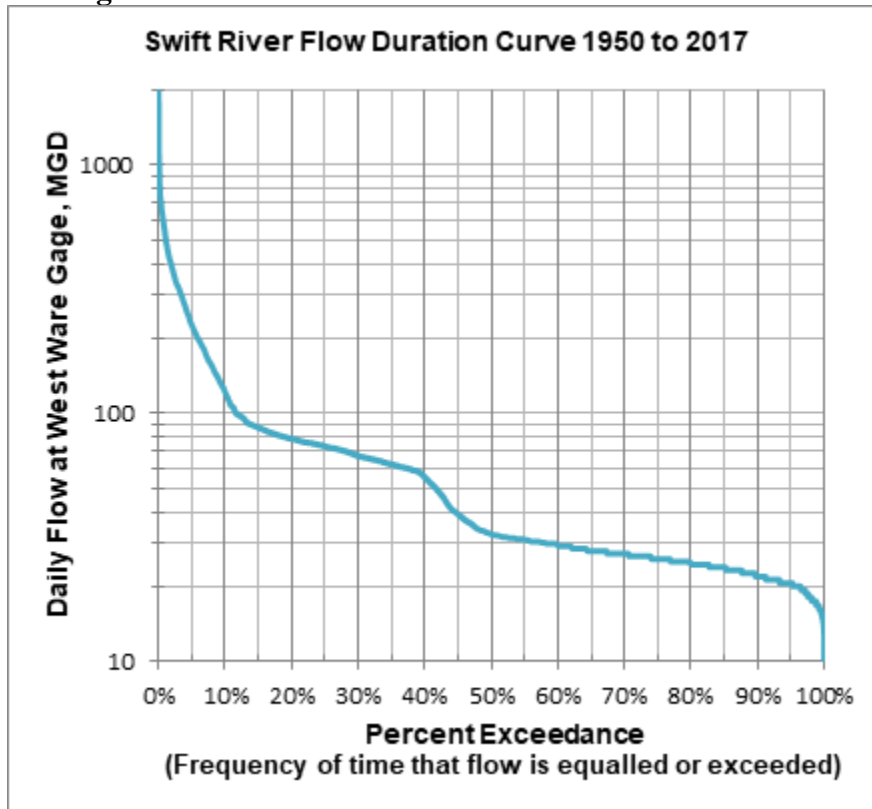
**Figure 4 Swift River Time Series 1950 to 2017**



Because the mandated flow requirements have been maintained, even during periods when demands were over the current level, and through the 1960's drought of record, it is assumed that those releases will continue to be met and permit conditions will be satisfied under the proposed transfer demand scenarios. Additional demands from Burlington are not expected to affect Swift River releases from the Quabbin Reservoir, which represent the majority of low flows.

Flow variation is evident in the time series graph, and the flow duration curve depicts the very high frequency of flows that exceed the minimum release requirement from the Quabbin Reservoir.

**Figure 5 Swift River Flow Duration Curve 1950 to 2017**



Controlled releases are significantly greater than the estimated natural 7Q10 flow as a result of the 20 MGD requirement at Bondsville. Rather than low August flows, the War Department permit frequently requires higher releases in the summer months in response to the Montague gage on the Connecticut River. When flows drop below trigger levels on the Connecticut, MWRA must release either 45 or 70 MGD.

While only minimum release requirements apply to the Quabbin Reservoir, data from USGS gages indicate that intermediate flows occur as a result of releases above the minimum requirements for the Swift River. There will only be a slight reduction in unintended spillway flows at Quabbin. The additional demand of Burlington will not in itself cause any change in how the Reservoir is operated.

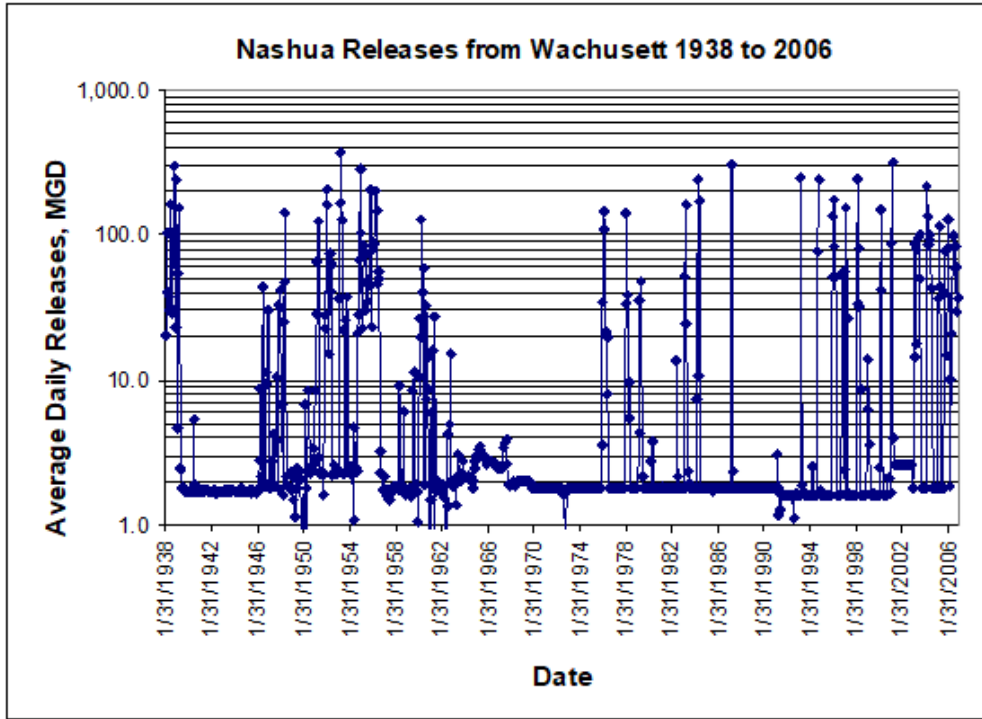
Variability in Swift River flows is attributed to operational practices in a given year, the varying War Department permit releases, the use of the spillway as the reservoir nears full, as well as climatic conditions, and this variability will remain with or without the supply to Burlington.

#### *Wachusett Reservoir and Nashua River*

Flows between 1.8 and 100 MGD may be released through a valve in the Wachusett Dam to control the reservoir level or when Wachusett Reservoir is being supplemented with Quabbin water for water quality purposes. Flows above 100 MGD occur when the Wachusett Reservoir spillway crest gate is activated for larger releases and spilling. Previous analysis for the time

period of 1938 to 2006 showed that a minimum of 1.71 MGD release or greater occurred most of the time (Figures 6 and 7).

**Figure 6 Time Series Releases from Wachusett Reservoir to Nashua River, 1938 to 2006**



**Figure 7 Wachusett Releases Flow Duration Curve 1938 to 2006**

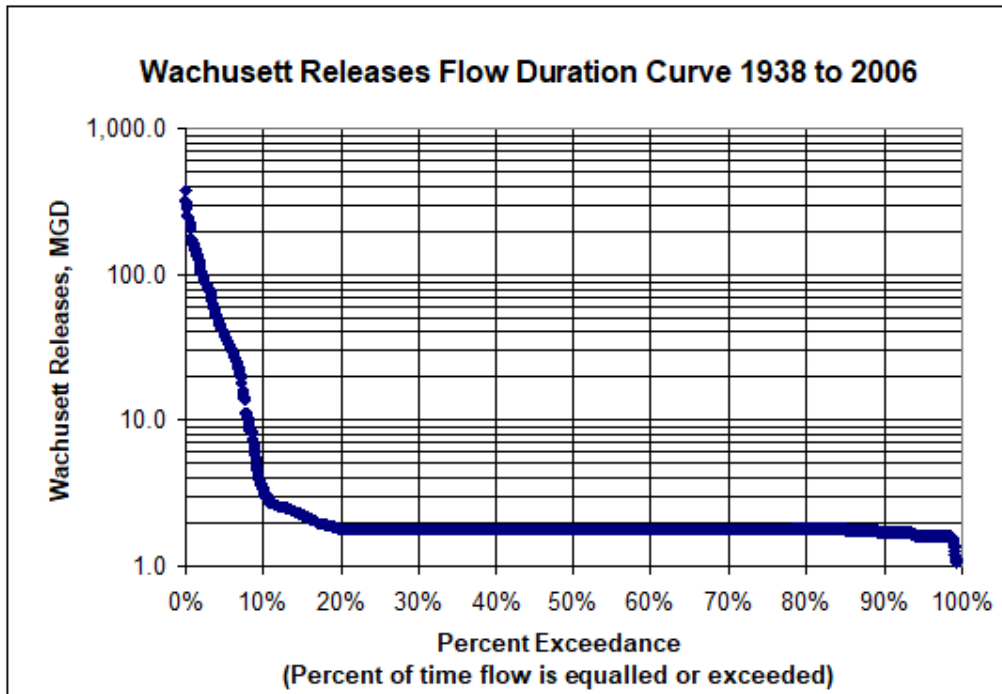


Figure 8 shows a times series of Nashua River daily releases from 2002-2018 taken from the DEIR.

**Figure 8 Time Series Releases from Wachusett Reservoir to Nashua, 2002 to 2018**

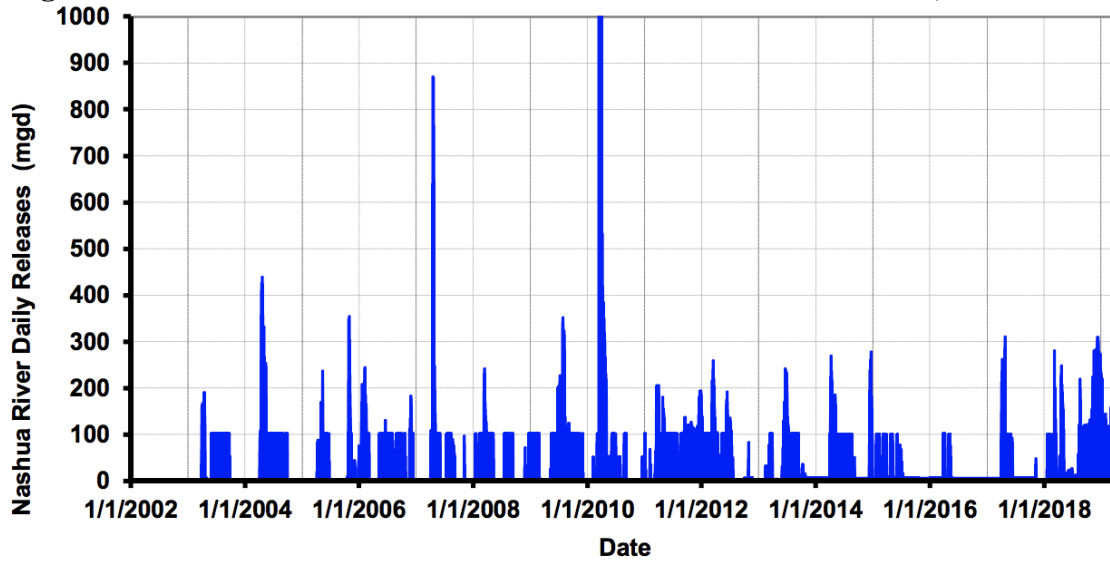
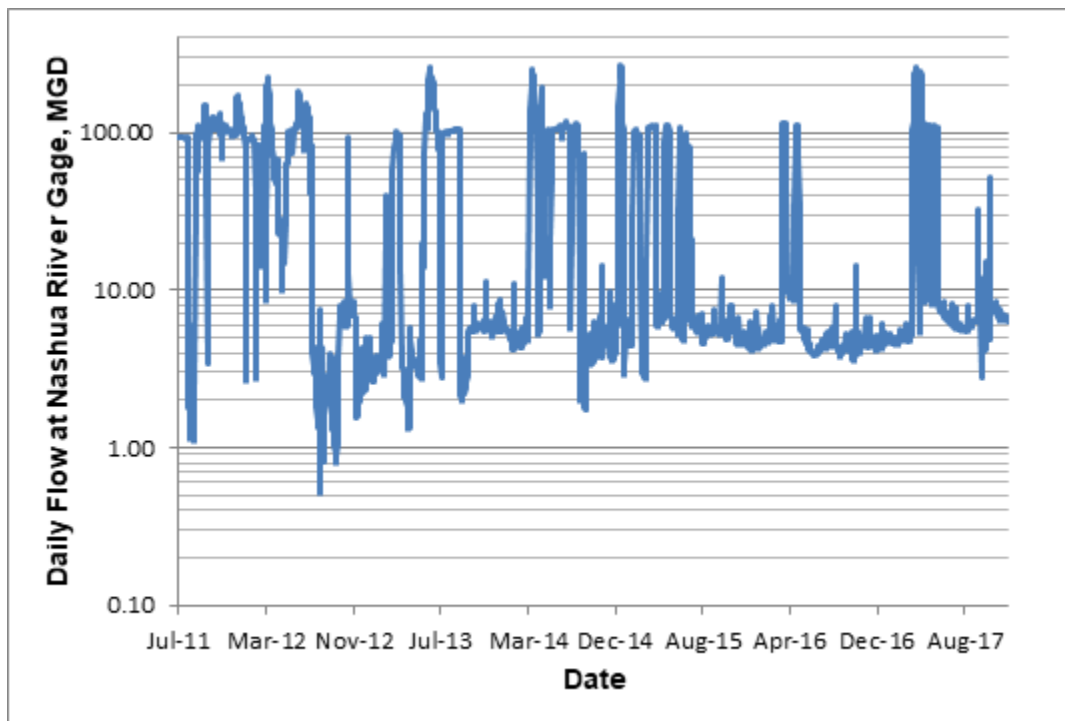


Figure 9 shows a times series of Nashua River flows from the newer USGS Gage 01095503 from July 2011 (when the period of record starts) through 2017. Additional demands from Burlington are not expected to affect Nashua River releases, which represent a majority of the low flows, from the Wachusett reservoir.

**Figure 9 Nashua River Flow, MGD, USGS Gage 01095503**





While only minimum release requirements apply to the Wachusett Reservoir, data from USGS gages indicate that intermediate flows can occur as a result of releases above the minimum requirement of 12 MGD per week. The additional demand of Burlington will not in itself cause any change in how the Wachusett Reservoir is operated, nor in releases to the Nashua River. Since high flows from the Wachusett Reservoir are generally uncontrolled spills, and the reservoir level is intended to be managed to a narrow range of levels, the proposed Burlington interbasin transfer is not considered to have an impact on high flows in the Nashua River.

#### *Ware River*

According to MWRA, the Ware intake at Barre was designed to pass the first 85 MGD before flow can be siphoned into the intake. Flow is measured by MWRA using its own meter at the intake. Low-flow impacts on Ware River diversions as a result of the additional demands posed by Burlington are not expected. Ware River diversions are limited to non-low-flow months (November through May), and to periods when flow exceeds 85 MGD. It is noted that diversions from the Ware River to the Quabbin Reservoir are typically only made when the reservoir level is below normal or the Army Corps of Engineers requests them for flood control.

Previous analysis showed that intermediate flows at the Ware River intake (classified herein between 50 to 100 MGD) occurred 38 percent of the time between 2002 and 2006 (See Figures 10 and 11). During this period, at times when the diversion was activated, up to 85% of Ware River flow was diverted, while maintaining at least the minimum 85 MGD downstream release. For the period analyzed (2002 to 2006), the Ware diversion was operated 184 days, or about 27 percent of the time during the intermediate flows. It is acknowledged that Ware diversions are limited based on MWRA's operating practices. Even with the diversions, however, the frequency and magnitude of intermediate flows in the Ware River appear nearly normal. High flows on the Ware River are impacted by diversions to the Quabbin Reservoir. Previous analysis showed that high flows (above 100 MGD) at the Ware River intake occurred 30 percent of the time between 2002 and 2006. During this period, at times when the diversion was activated, up to 84% of Ware River flow was diverted, while maintaining at least the minimum 85 MGD downstream release. For the period analyzed (2002 to 2006), the Ware diversion was operated only 34 days, or about 6 percent of the time during high flows. As noted previously, Ware diversions are limited based on MWRA's operating practices. Even with the diversions, however, the frequency and magnitude of high flows in the Ware River appears nearly normal. The addition of Burlington will not likely have an impact on the use of Ware River diversions or high flows in the Ware River.

Figure 10 Time Series Ware River Flows, 2002 to 2006

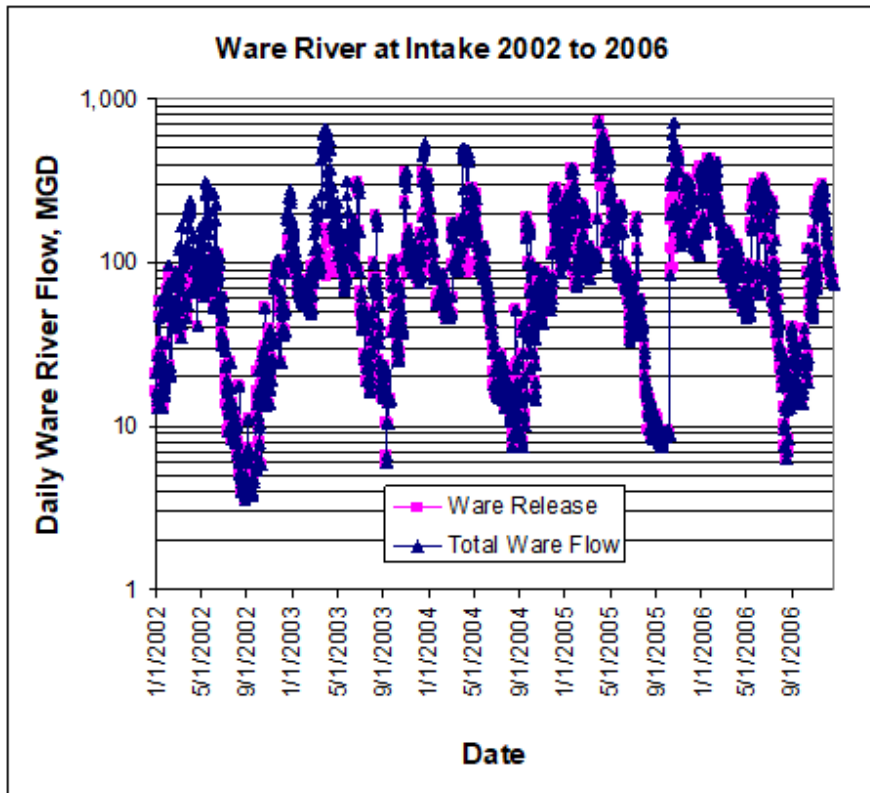
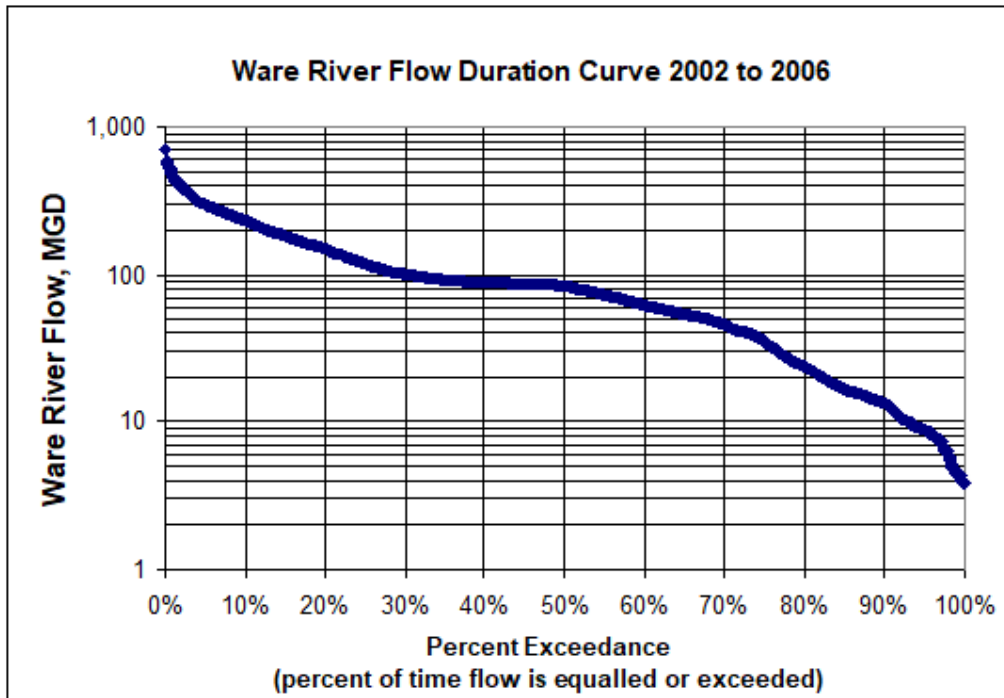


Figure 11 Ware River Flows and Flow Duration Curve, 2002 to 2006

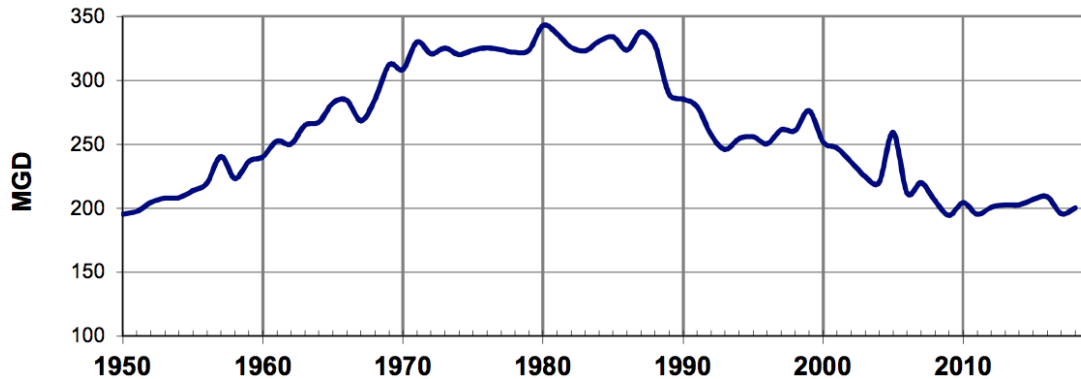


## Quabbin Reservoir - Levels & Drought Analysis

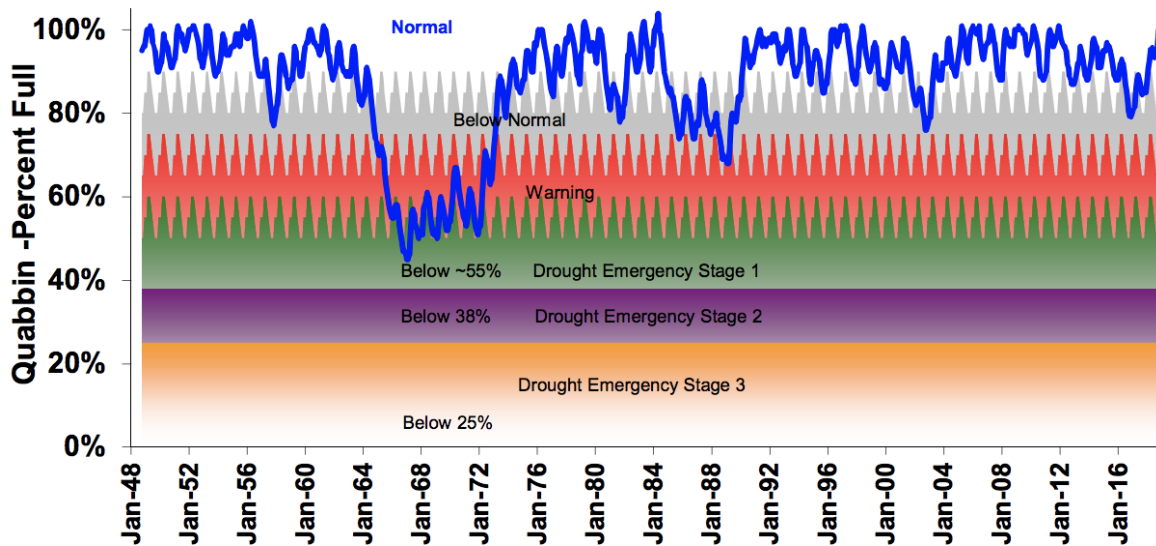
### Quabbin Reservoir Levels

Figures 12 and 13 show system demand and reservoir elevation levels for the period 1950 through 2018 and 1948 through 2018 respectively.

**Figure 12 MWRA Annual Average System Demand 1950- 2018**



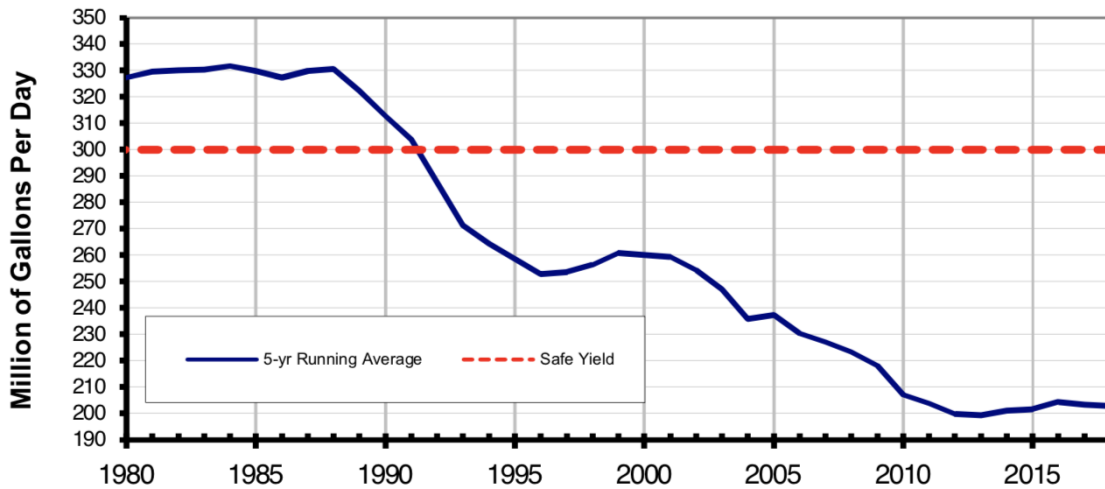
**Figure 13 Quabbin Reservoir Levels 1948 – 2018**



### Quabbin Reservoir Performance - Drought Analysis

The safe yield of the Quabbin /Wachusett/Ware system is approximately 300 MGD. MWRA system demand has decreased since the 1980's. In the DEIR, the baseline demand used for analysis was 203 MGD (5-year average 2013-2018) (See Figure 14).

**Figure 14 MWRA Demand Five Year Average 1980 to 2018**



*Projected 2040 Demand*

Residential demand between 2010 and 2040 for water communities typically served by MWRA (which does not include emergency-only communities of Worcester, Leominster, and Cambridge) is projected to increase by approximately 23.6 MGD. It is assumed that new population growth in MWRA’s communities, both partially and fully served, would be met by MWRA, not local sources. An additional 5.9 MGD is projected for non-residential demand, for a total of 29.5 MGD. Adding 29.5 MGD to the average annual demand of the MWRA water service area for the five preceding years results in a demand estimate of 233 MGD in 2040, if it is assumed that use of local sources remains roughly the same. To account for potential changes in local sources, an additional demand of 17 MGD was added. The conservative assumption of 17 MGD additional demand from partial and emergency users results in a total projected demand on the existing MWRA system of approximately 250 MGD.

The total projected demand in 2040 of the existing system as calculated above added to the demand from Burlington, Ashland, and other communities that may join MWRA system in the future for a total of up to 10 MGD results in a future demand of 260 MGD in 2040.

MWRA modeled the long-term impacts of demands ranging from 200 to 300 MGD on reservoir performance measures using the historical record 1948-2018, which includes the 1960’s drought of record. The performance measures were developed in the 1994 “Trigger Planning Study.” The results presented here assume use of MWRA’s current operating procedures for the Ware River. All analysis also assumes full compliance with all required releases to the Swift and Nashua Rivers, and a continuation of current system operating practices. The model incorporates “pop-up” demand from MWRA partially supplied and emergency communities including Cambridge and Worcester. The reservoir performance measures used not only assess the ability of the system to satisfy projected demands, but also measure the corresponding impacts on the condition and ecology of Quabbin Reservoir and on the consumers served by the system.

At a demand of 260 MGD, there would be five months spent in drought emergency stage 1 (in addition to 66 months below normal, and 57 months in drought warning (Table 1).

**Table 1 Number of Months in Each Stage of MWRA’s Drought Management Plan, October 1948 to September 2018 (Including Drought of Record)**

Demand (MGD)	Below Normal	Drought Warning	Drought Emergency Stage 1	Drought Emergency Stage 2	Drought Emergency Stage 3
190	22	0	0	0	0
200	33	1	0	0	0
210	44	4	0	0	0
220	50	6	0	0	0
230	59	12	0	0	0
240	62	24	0	0	0
250	74	35	1	0	0
260	66	57	5	0	0
270	68	64	15	0	0
280	80	54	35	0	0
290	120	30	66	0	0
300	161	28	70	9	0

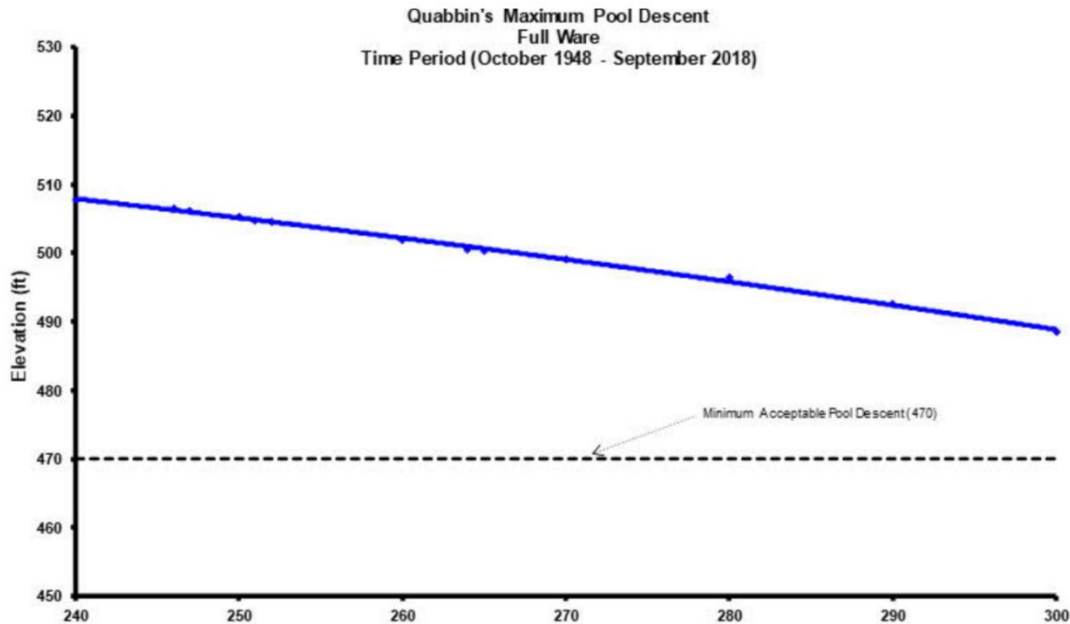
Drought Emergency Stage 1 is when the Quabbin levels are between 38% to 60% and there is a 10% target use reduction with mandatory restrictions (Table 2).

**Table 2 MWRA Drought Management Stages**

Stage	Trigger Range (Quabbin % Full) <sup>2</sup>	Target Water Use Reduction
Normal	10-100%	0
Below Normal	65-90%	Previous year’s use (voluntary)
Drought Warning	50-75%	5% (voluntary)
Drought Emergency Stage 1	38-60%	10% (mandatory restrictions)
Drought Emergency Stage 2	25-38%	15% (mandatory restrictions)
Drought Emergency State 3	Below 25%	30% (mandatory restrictions)

The Quabbin's maximum descent would still be above 500 feet, above the level that performance could be affected and there are water quality concerns (see Figure 15).

**Figure 15 Maximum Pool Descent**



Varying water demand at the levels associated with Burlington's demand has no impact on MWRA's ability to maintain required minimum stream flows. Whether MWRA system demand is 203 MGD (the baseline demand), 260 MGD (baseline water demand plus growth in the existing service area, potential increased demand of current partial communities, and 10 MGD for Burlington, Ashland and other potential new communities), or 300 MGD (the level of demand in the 1980s), minimum in-stream flows and discharges required by the 1927 Acts of Massachusetts and 1895 Acts of Massachusetts and 1929 War Department permit are met. MWRA's controlled discharges are primarily dictated by statutorily required minimum releases, other operational practices that have been put in place to optimize water supply and water quality, and other environmental initiatives of MWRA. All of the modeling summarized above assumes all mandated releases are made.

#### Impacts to Flow Characteristics

ITA criteria require evaluating impacts of the transfer on specific flow statistics. No impact to the Swift River 95% flow duration (20.0 MGD) is expected, compared to existing conditions. The 95% flow duration is equivalent to the state-mandated release requirement of 20 MGD at Bondsville. Data from the Swift River gage indicate that the mandated release has been achieved at virtually all times and it is expected that it will be maintained into the future and will not be affected by the proposed transfer or those of future communities included in this analysis.

The 95% flow duration at the Wachusett Reservoir is not likely to be affected by the proposed additional transfers requested by Burlington. Data previously provided by the DCR Office of

Watershed Management and USGS gage data indicate that the mandated release has been achieved at virtually all times since 2002 and it is expected that it will be maintained into the future and not be affected by the proposed transfer.

The 95% flow duration at the Ware River should not be impacted by the proposed increase in interbasin transfer since Ware River diversions are not allowed during low flow periods.

### Impacts to Other Uses

#### *Fisheries*

The proposed additional withdrawal will have no effect on anadromous fisheries, sea-run brook and brown trout, smelt and American shad. There are numerous downstream barriers to fish passage on the Swift and Chicopee Rivers, and the Swift River is not a component of the Connecticut River Anadromous Fish Restoration Program.

According to the Massachusetts Division of Fisheries and Wildlife, the Swift River below Winsor Dam, down to the confluence with the Ware River, contains significant fisheries habitat. An instream flow incremental method (IFIM) study of the Swift River in 1997 by Normandeau Associates for MWRA indicated that the current flow releases were adequate to protect the Swift River trout fishery. MWRA and DCR Office of Watershed Management have taken a number of steps to address fisheries issues in the Swift River.

#### *Hydropower*

There are no hydropower projects on the Swift River downstream of Winsor Dam. On the Chicopee River, downstream of the Swift River, there is the Red Bridge Dam, the Ludlow Dam, Indian Orchard Dam, Chicopee Falls Dam and Dwight Dam. These Chicopee River hydropower projects are affected by flows from a much greater drainage area than just the Swift above Winsor Dam. These projects would be unaffected by the proposed withdrawal from Burlington, Ashland and other potential new communities for a total of 10 MGD.

#### *Other Instream Uses*

There are no ACECs mapped downstream of Quabbin Reservoir or the Ware River. The Central Nashua River Valley ACEC is located downstream of the Wachusett Reservoir but will not be affected by this transfer as current operating procedures and required discharges to the river will not change. There are no designated wild and scenic rivers downstream of the water sources that supply the MWRA system.

Other than the Quabbin Reservoir itself, the only significant wetland in the Chicopee River basin that could be affected by the transfer is in Ware, along the Swift River. The area is 70 acres of open water impounded by a dam in Bondsville. Because this area is open water and is part of the river, current minimum flow requirements appear to be adequate to protect the wetland area.

The current values would not be altered as a result of supplying 10 MGD of water to Burlington, Ashland, and other potential new communities, and no effects on water quality, recreational uses, and aesthetic values are anticipated. The reservoir system will continue to be operated to maximize water quality and will continue to be governed by an operating policy developed and supported by detailed modeling.

### Summary of Reasonable Instream Flow Analysis and Cumulative Impacts

The analyses of release data indicate there will be no change in the operation of the Quabbin and Wachusett Reservoirs in response to the proposed Burlington transfer or to other potential transfers up to the 10 MGD used in the analyses of the MWRA Water Works System.

Downstream flows will continue to meet all applicable permit and regulatory requirements. Low flows will not change, and intermediate and high flows will possibly only be slightly affected on the Swift and Ware Rivers. Current resources will be unaffected by the transfer. The proposed action to increase the present rate of interbasin transfer will still maintain reasonable instream flow in the donor basins. The WRC recognizes that current conditions represent a highly engineered environment. Modifications to the timing and magnitude of releases to the Swift and Nashua Rivers, previously undertaken, may be beneficial to the downstream aquatic habitat. This recommendation attempts to address the balance between water supply needs and aquatic habitat needs of flow, water quality and water temperature in the Swift, Ware, and Nashua Rivers.

**Based on this information, staff recommends finding that Burlington has met these Criteria.**

### **Criterion #6: Impacts of Groundwater Withdrawals**

MWRA's sources are surface water sources. **This Criterion is not applicable to this proposal.**

### PUBLIC COMMENT

A public hearing to receive comments on the August 13, 2020 draft Staff Recommendation was held online via Zoom on August 18, 2020. Wright-Pierce, the Town of Burlington's consultant, asked clarifying questions on the due date for the Town's written agreement to the conditions in the Staff Recommendation, and the due date for written comments on the Staff Recommendation.

Written comments were accepted until August 25, 2020 and were received from MWRA, Massachusetts Water Works Association, Water Supply Citizens Advisory Committee, Wright-Pierce, and Patricia OBrien, Burlington resident and Town Meeting member. Copies of the written public comments are provided under separate cover. Some comments expressed that the proposed conditions on water rates and billing go too far, while other comments suggested that the conditions on water rates should go further and incorporate additional guidance provided. Comments also pertained to reducing/restricting nonessential outdoor water use. Concern was raised about the administrative burden on the applicant. Some edits were also proposed to several conditions for clarification purposes.

### EXECUTIVE ORDER 385

This Staff Recommendation is consistent with Executive Order 385, which has the dual objective of resource protection and sustainable development. This recommendation does not encourage growth in areas without adequate infrastructure nor does it cause a loss of environmental quality or resources.

### RECOMMENDED CONDITIONS FOR APPROVAL

Based on the analyses of this project, staff recommends that the approval of Burlington's application under the ITA to purchase water from MWRA be subject to the following conditions.



**Burlington must commit in writing within 45 days of the approval to abide by all conditions required by the approval of this transfer.**

1. By virtue of claiming that its local groundwater sources are currently not viable at any time for drinking water purposes, and therefore an interbasin transfer from the MWRA is needed to meet the Town's water supply needs, under the ITA Burlington will need to ultimately discontinue the use of its groundwater sources. During Phase 1 of the project, in which 1 MGD will be transferred from MWRA to Burlington through the Town of Lexington, Burlington will still need to rely on the currently active Vine Brook wells and WTP (Wells No. 1, 2, 10, and 11, which produce approximately 1.95 MGD) to meet water supply needs. When Phase 2 is complete, accepted for commissioning by MassDEP and the Town, and the connection to MWRA for the full 6.5 MGD is active, Wells No. 1, 2, 10 and 11 will then be maintained in an inactive ready status to be pumped through the Vine Brook WTP monthly. After the completion of Phase 2, the wells and the Vine Brook WTP will be used for water supply purposes only during a MassDEP-declared emergency.

If, at a future date, the Town decides to completely remove the wells from service and decommission and demolish the Vine Brook WTP, Burlington must notify the WRC of this change in operations. In addition, in the event that Burlington's local groundwater sources become viable in the future, Burlington must notify the WRC for consideration of the implications of in-basin water availability on this approval. Burlington must also notify the WRC of any system changes, including those in infrastructure or operation, which could provide the Town the ability to increase its rate of interbasin transfer.

2. Burlington must prioritize the use of its surface water source to the maximum extent possible and may only withdraw the full 6.5 MGD (MDD) from MWRA when the Mill Pond WTP is not available to supply water to the Town due to maintenance, repair needs, or other circumstances. In the future, if Burlington seeks to discontinue use of its Mill Pond WTP and rely solely on the MWRA for its full supply of water, Burlington must notify the WRC regarding the change in viability of its local surface water sources and request and obtain from the WRC appropriate amendments to the final WRC decision to reflect the changed circumstances that its local sources are no longer viable.
3. To attain compliance with Water Conservation Standard #4 - Pricing, Burlington must:
  - a. Eliminate the base allocation of 5,000 gallons per annual billing cycle within the secondary residential rate.
  - b. Create new tier volumes for the secondary residential rate that more effectively distinguish between efficient and inefficient outdoor usage and send stronger price signals for less efficient use.
  - c. Substantially reduce or eliminate the base allocation of 10,000 gallons per quarterly billing cycle for commercial customers.
4. Within the next four years and with updates on progress provided annually, Burlington must move to at least quarterly billing for its primary residential accounts and incorporate one additional billing cycle, mid-irrigation season, to achieve the equivalent of quarterly billing for its secondary residential accounts.

5. To attain compliance with Water Conservation Standard #6 - a drought/emergency contingency plan, the Town must update its drought plan to reflect the changes in water supply sources for both the MWRA sources and the remaining local source(s). Additionally, when updating its drought plan, Burlington should review the 2019 (or most recent) Massachusetts Drought Management Plan and incorporate applicable recommended elements from the state plan into its drought plan. It should also tie its drought plan to the Secretary of EEA's drought declaration as a secondary trigger and incorporate recommended actions by the Secretary of EEA for the Northeast Drought Region.
6. Burlington must continue to regulate nonessential outdoor water use from private wells based on local conditions and state-declared drought status and seek WRC approval prior to making any changes to its Water Supply Conservation bylaw or private well regulations regarding nonessential outdoor water use that would make them less environmentally protective than the current restrictions.
7. To complete compliance with Water Conservation Standard #7 - Municipal Use, Burlington should ensure that its buildings, facilities, and landscapes are using water efficiently both indoors and outdoors. Burlington should use its smart water metering system to analyze existing water-use data to spot trends, patterns, and unexplained increases that could indicate leaks or inefficient use of water, including monitoring its facilities for leaks and ensuring compliance with water bans at public facilities. Public buildings and facilities that use large amounts of water should be investigated for potential retrofits of fixtures if they are not low flow. Where feasible, use the best available technologies for water conservation for both retrofitted facilities and new construction.
8. To complete compliance with Water Conservation Standard #10 - Industrial, Commercial and Institutional (ICI) Use, Burlington should continue to monitor water use on its metering system for high usage and suspected leaks, and notify the users as needed. The Town should reach out annually to the top 10 users to direct them to EPA's WaterSense website that has information regarding conservation strategies applicable to the top 10 users (such as hotels, restaurants, etc.) to help emphasize the importance of water conservation.
9. To complete compliance with Water Conservation Standard #12 - A long-term water conservation program, Burlington must:
  - a. Continue to implement core elements of a Water Loss Control Program to remain at or below 10% UAW and review and revise its Program as needed in accordance with standard industry best management practices. Additional elements of a Water Loss Control Program can be found in the 2018 Water Conservation Standards and EPA guidance. Water Loss Control Strategies can be found in the American Water Works Association guidance on M36 Audits as well as EPA guidance.
  - b. Provide annual summaries of progress and make all documents available upon request to WRC staff for review.

10. Burlington must complete the updated WRC Water Conservation Questionnaire to serve as its written water conservation plan and outline how Burlington's program conforms with the 2018 Massachusetts Water Conservation Standards. This questionnaire, updated every five years by Burlington, will reflect its existing program and additional components outlined in conditions 3 and 4 (water rates and billing), condition 5 (drought plan), condition 7 (municipal use), condition 8 (ICI), and condition 9 (water loss control). Burlington must actively continue all water conservation efforts to maintain its rgpcd at or below 65 and its UAW at or below 10%.
11. Burlington must continue to maintain its public education program on water use and conservation through various media, online and other outlets.
12. Burlington must develop a local Surface Water Supply Protection Plan for Mill Pond Reservoir. MassDEP's Drinking Water Program is available to provide GIS maps, guidance and technical assistance. The plan shall include a component on forestry for watershed protection, in the event that Burlington has plans to conduct forestry operations on Town-owned properties. As part of this process, Burlington should work with MassDEP to ensure compliance with 310 CMR 22.20C.

WATER SUPPLY AGREEMENT  
BETWEEN  
MASSACHUSETTS WATER RESOURCES AUTHORITY  
AND  
THE TOWN OF BURLINGTON

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This Water Supply Agreement (“Agreement”) by and between the Massachusetts Water Resources Authority (“MWRA”) and the Town of Burlington (“Town or Burlington”) (hereinafter jointly referred to as "the Parties"), documents the agreement and understanding of the Parties regarding the arrangement whereby MWRA will supply water to Burlington through the Town of Lexington (“Lexington”)to Burlington’s local distribution system.

RECITALS

1. Whereas, MWRA was created by the Massachusetts legislature in December 1984 (chapter 372 of the Acts of 1984), to operate, regulate, finance, and modernize the waterworks and sewerage systems serving the greater metropolitan Boston area and currently provides water supply and distribution services, and wastewater collection and treatment services, to certain cities, towns and special services districts (“Communities”) within its service area.
2. Whereas, Section 8(d) of the Act permits the MWRA to extend its waterworks system to a new community and to provide the continued delivery of water to the new community under reasonable terms as determined by MWRA provided specific requirements are met.
3. Whereas, a regulation entitled “Continuation of Water Contract Supply”, promulgated by MWRA at 360 CMR 11.00 (“the Regulation”) defines more specifically the requirements of section 8(d) of the Act and governs the continued delivery of water by the MWRA to communities purchasing water from MWRA.
4. Whereas, on November 6, 2020 Burlington made a formal application to the MWRA to become a permanent member community of the MWRA water supply system in order to supplement its local sources due to the detection of 1, 4-Dioxiane in three of the Town’s water supply wells in the Vine Brook Aquifer and the Town’s subsequent suspension of use of these wells with the Department of Environmental Protection’s concurrence. Burlington sought admission to MWRA to satisfy deficits created by the reduced capacity of Vine Brook Treatment Plant and periodic necessary maintenance of the Town’s surface water treatment plant, Mill Brook Pond Treatment Plant.
5. Whereas, Burlington has fulfilled the requirements for membership found in the Act at section 8(d), as more fully described in 360 CMR §§11.07 and 11.08 of the regulations, and has submitted a Supply Analysis Report, a Demand Analysis Report, and a Water Management Plan that has been approved by the Water Resources Commission and has

further submitted a detailed description of a local user charge system and accounting system which meet the Regulation's requirement for conservation based rates.

6. Whereas, based on its review of the Town's submittals, MWRA finds that the requirements of sections 8(d) of the Act have been met as follows:
  - (1) The Safe Yield of the watershed system, on the advice of the Department of Conservation and Recreation (DCR), is sufficient to meet projected demand.
  - (2) No existing or potential water supply source for the local body has been abandoned unless the Department of Environmental Protection (DEP) has declared that the source is unfit for drinking and cannot be economically restored for drinking purposes.
  - (3) A Water Management Plan has been adopted after the approval by the Water Resources Commission.
  - (4) Effective demand management measures have been established including, but not limited to, establishment of leak detection and other appropriate water system rehabilitation programs.
  - (5) A local water supply source feasible for development has not been identified by either the local body or the DEP.
  - (6) A water use survey has been completed which identifies all users within the local body that consume more than twenty million gallons a year.
8. Whereas, the admission to MWRA's water system was approved by a majority vote of Burlington's Town Meeting on April 20, 2019.
9. Whereas, Wilmington undertook the required series of actions related to regulatory review under the Massachusetts Environmental Policy Act and the Interbasin Transfer Act and received the approval of the Water Resources Commission in June 2007 to purchase from the MWRA up to 6.5 million gallons per day (mgd).
10. Whereas, Burlington now requests .886 mgd from MWRA, but may in the future request an additional volume of 5.614 mgd for a total of 6.5 mgd, as permitted through regulatory reviews;
11. Whereas, Burlington, having received approval of the Legislature and of the Governor, the MWRA Advisory Board and the MWRA's Board of Directors, and having met the conditions of section 8(d) of the Act, and the conditions of MWRA OP #10 Admission of a New Community to the Waterworks System ("OP#10"), and having been duly admitted to the MWRA Waterworks System effective the date of the MWRA Board of Directors' approval, thereby acquiring certain rights and obligations conferred by that admission.

12. Whereas, Burlington, pursuant to MWRA's Policies and Procedures for Emergency Water Supply Connections, Operating Policy #5 ("OP#5") withdrew water from MWRA for eight emergency periods prior to its application to MWRA for admission to the Waterworks System for a permanent water supply;
13. Whereas, OP#5 requires that beginning with the second emergency water withdrawal period, MWRA shall assess an asset value contribution charge, and accordingly Wilmington made net asset value payments for emergency water withdrawal periods two through eight totaling \$40,763.51.
14. Whereas OP#5 provides that if an applicant has purchased MWRA water under an emergency supply agreement(s) and has paid charges which include an asset value contribution and subsequently is approved admission to the water system on a permanent basis, the asset value contributions paid will be treated as credits against the total entrance fee.
15. Whereas, MWRA and Burlington wish to formalize their rights and obligations regarding the supply of water to Burlington and therefore enter into this Agreement.

NOW, THEREFORE, in consideration of the mutual promises contained herein and for other good and valuable consideration, MWRA and Burlington agree to the following:

1. The term ("Term") of this Agreement shall be five (5) years beginning on or around December 16, 2020 and ending at midnight on December 15, 2025. It is MWRA's policy that the initial agreement be for a term of 5 years in order that the Authority may reevaluate and assess the status of a community's demand management programs under the provisions of 360 CMR § 11.00. It is the practice of MWRA to enter into water supply continuation contracts upon substantial compliance by a community with the requirements of that regulation and after completion of negotiations for such renewal satisfactory to the community and to the MWRA.
2. MWRA shall during the Term of this Agreement provide Burlington with water on an annual volume basis stated in millions of gallons as follows:

<u>2020-2021</u>	<u>2021-2022</u>	<u>2022-2023</u>	<u>2024-2025</u>	<u>2025-2026</u>
324 mg	324 mg	324 mg	324 mg	324 mg

or 0.886 mgd on an average daily basis; up to 1.5 millions of gallons per day ("mgd") peak annual use, subject to the hydraulic capabilities of MWRA's distribution system, any hydraulic limitation in the Lexington water distribution system and subject to any applicable terms of the Burlington/Lexington Inter-municipal Agreement on water supply. In the event that Burlington anticipates that its withdrawals from MWRA will exceed a flow rate of 1.5 mgd, Burlington shall notify MWRA Operations. Should Burlington's withdrawals in excess of 1.5 mgd through Lexington coincide with peak withdrawals of other MWRA Communities in the vicinity, MWRA reserves the right to

restrict Burlington's withdrawal to a maximum of 0.886 mgd. Burlington may also withdraw up to 1.5 mgd if unusual conditions arise, after notification to MWRA. MWRA reserves the right to restrict peak maximum day withdrawals should problems be encountered.

3. The parties understand that long-term water demand in Burlington is projected to increase and that Burlington was approved with conditions by the Water Resources Commission to purchase up to 6.5 mgd from the MWRA. The parties agree that, with the exception of emergencies, any withdrawal in excess of 1 million gallons per day will require a written contract revision signed by each of the Parties hereto and a revision to the Entrance Fee.
4. The parties agree that in the event that Burlington determines that 0.886 mgd to be supplied for the MWRA system are insufficient to meet the Town's non-emergency requirements, Burlington may petition the MWRA to amend this Agreement pursuant to pursuant to 360 CMR 11.11 and OP #10.
5. Notwithstanding the above, the Parties agree that in the event of an emergency, and in the absence of an Amended Agreement as described in paragraph 4 hereof, Burlington may request that MWRA supply in excess of 0.886 mgd, and if approved, the supply of water in excess of 0.886 mgd will be assessed pursuant to the charges provisions of OP#5.
6. Burlington agrees that during the Term it will operate its local water supply system in such a manner so as to make maximum feasible use of local water supply sources subject to the limits and conditions imposed by the Water Resources Commission.
7. Burlington agrees to pay MWRA a Net Entrance Fee of \$4,407,986.46 for its share of the value of the waterworks system in place at the time of its entrance. The Net Entrance Fee reflects an Entrance Fee of \$4,448,749.97 minus the Total Net Asset Value contributions of \$40,763.51 previously paid pursuant to OP#5. Unless modified as provided in Paragraph 4, above, the Net Entrance Fee will be paid to the MWRA in accordance with the schedule of payments attached hereto as Exhibit A and incorporated herein. In consideration of the payment of the Net Entrance Fee by Burlington, the MWRA agrees to continue to assure a continuation of water supply to Burlington from the MWRA's water supply system in accordance with the provisions of 360 CMR § 11.00.
8. The MWRA shall bill Burlington and Burlington shall pay to the MWRA charges for all water supplied under this Agreement at the MWRA's applicable prevailing rate. All billing and collection procedures, due dates, and interest charges for late payments shall be in accordance with the Act and MWRA's standard policies and procedures.
9. Burlington agrees that the MWRA shall not be liable to Burlington for any disruption of water supply delivery to Burlington attributable to the water distribution systems of either Burlington or of the MWRA.

10. Burlington agrees to pay the full cost of any required upgrades to connect to Lexington or the MWRA distribution system. Any upgrades will be constructed by Burlington according to MWRA specifications and will be owned and maintained by Burlington.
11. Burlington agrees to continue in effect a full cost pricing system for water received from the MWRA water supply system.
12. Burlington agrees that during the Term it shall continue the implementation of its current and proposed local demand management programs, including the following: participation in MWRA conservation programs, distribution of MWRA-provided materials to all water users, compliance with the MWRA's regulations for town-wide leak detection and repair (360 CMR §12.00), maintaining metering in 100 percent of the Town's distribution system, including all municipal facilities, and maintenance of efficient water fixtures in all public buildings, together with promotion of their use in industrial, commercial and residential areas.
13. Burlington agrees that during the Term it shall not abandon any local source and substitute for it water from MWRA sources unless DEP has declared that the local source is to be or has been abandoned, is unfit for drinking, and cannot be economically restored for drinking purposes.
14. Burlington agrees to continue in full force and effect during the Term its Zoning Bylaw Aquifer Protection District to preserve and protect existing and potential sources of drinking water supplies.
15. Any rate disputes arising between MWRA and Burlington concerning the calculation of Burlington's assessment shall be resolved in accordance with MWRA's Rate Basis Data Review and Dispute Resolution Process. Any other dispute arising between MWRA and Burlington under the terms of this Agreement shall be resolved in accordance with the dispute resolution process set forth at 360 CMR § 11.14 and the administrative procedures set forth at 360 CMR § 1.00.
16. For the remainder of fiscal year 2021 (through June 30, 2021), Burlington will be assessed for water supplied at the current prevailing rate of \$4,320.63 per million gallons and water provided in fiscal year 2022 will be at the approved prevailing rate. Beginning in fiscal year 2023 and for the remainder of the Term, Burlington will be assessed in accordance with MWRA's Community Charge Determination Policy. MWRA's Community Charge Determination Policy computes charges for water services on the basis of each community's metered water flows. The MWRA annual water rate revenue requirement is allocated according to each community's prior year's water use relative to the system as a whole. The annual rate revenue requirement is comprised of operation and maintenance (O&M) and capital (debt service) charges.
17. **IN WITNESS WHEREOF**, the Parties have caused this Agreement to be executed by their duly authorized representatives.



MASSACHUSETTS WATER RESOURCES AUTHORITY

By: \_\_\_\_\_ Date: \_\_\_\_\_

Frederick A. Laskey  
Executive Director

TOWN OF BURLINGTON

By: \_\_\_\_\_ Date: \_\_\_\_\_

Paul Sagarino  
Town Manager

DRAFT

Attachment F

**Massachusetts Water Resources Authority**

Town of Burlington

Water System Entrance Fee Payment Schedule

Net Entrance Fee: 

\$4,407,986.46
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Dec. 2023	\$200,363.03
Dec. 2024	\$200,363.03
Dec. 2025	\$200,363.02
Dec. 2026	\$200,363.02
Dec. 2027	\$200,363.02
Dec. 2028	\$200,363.02
Dec. 2029	\$200,363.02
Dec. 2030	\$200,363.02
Dec. 2031	\$200,363.02
Dec. 2032	\$200,363.02
Dec. 2033	\$200,363.02

Dec. 2034	\$200,363.02
Dec. 2035	\$200,363.02
Dec. 2036	\$200,363.02
Dec. 2037	\$200,363.02
Dec. 2038	\$200,363.02
Dec. 2039	\$200,363.02
Dec. 2040	\$200,363.02
Dec. 2041	\$200,363.02
Dec. 2042	\$200,363.02
Dec. 2043	\$200,363.02
Dec. 2044	\$200,363.02

TOTAL	\$4,407,986.46
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## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** December 16, 2020  
**SUBJECT:** Appointment of Program Manager, Energy  
Operations Division




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**COMMITTEE:** Personnel & Compensation

INFORMATION  
 VOTE

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

  
David W. Coppes P.E.  
Chief Operating Officer

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### RECOMMENDATION:

To approve the appointment of Mr. Nicholas Zechello to the position of Program Manager, Energy (Unit 9, Grade 29) at an annual salary of \$128,958.93, commencing on a date to be determined by the Executive Director.

### DISCUSSION:

At the November 2020 Board meeting, the PCR for the Program Manager, Energy position at Deer Island was amended from the Senior Program Manager, Energy to meet current staffing needs. That position became vacant upon the retirement of the incumbent. The Program Manager, Energy will be responsible for managing all technical and regulatory support for the Deer Island Thermal/Power Plant. This includes overseeing contract and maintenance work on the combustion turbine generators (CTGs), which provide emergency power to Deer Island, as well as work on the boilers, hydro turbines, and other generation equipment. This position will also monitor ISO-New England activity (real-time price and load) to recommend operation of the CTGs for demand response purposes. The position will be responsible for all thermal plant air emissions monitoring, reporting and compliance. Finally, the position will provide technical support to all areas of the thermal plant operation. This position reports to the Deputy Director, Deer Island Wastewater Treatment Plant.

### Selection Process

The position was posted internally. One candidate applied. The Deputy Director, Deer Island Wastewater Treatment, Manager, Process Control, and the Manager, Operations Support interviewed the candidate. Upon completion of the interview, Mr. Nicholas Zechello was determined to be highly qualified for the position based on his direct technical knowledge of CTGs, air emissions equipment and regulations, and boilers, and his 25 years of experience working at MWRA, mainly in the Thermal Plant.

Over Mr. Zechello's career at MWRA, he has held positions of increasing levels of responsibility. Mr. Zechello started at MWRA in 1992 as an Engineering Intern. From 1995 to 1999, he worked as a contract staff engineer in the Thermal Plant where he supported functional and compliance testing of the new plant equipment. In 1999, he was hired as the Technical Assistant at the Thermal Plant. In this position he learned every aspect of the Thermal Plant operation, and became the expert on all air emissions from the boiler and CTG. Mr. Zechello has led several significant projects, including the creation of a critical parts inventory to ensure CTG reliability. He also became adept at analyzing the CTG operation to recommend performance improvements. Mr. Zechello developed and oversaw the water treatment program for the Thermal Plant, which was critical to the longevity of the CTG and boiler. He was also a key part of the team that optimized the power plant operation as it was starting up, and was able to significantly reduce annual fuel oil usage. In 2015, Mr. Zechello was promoted to Project Engineer, Process Monitoring. In this position he had the opportunity to work more closely with the wastewater process while continuing his support of the Thermal Plant.

In 2017, Mr. Zechello was promoted to Project Manager, Process Monitoring in the Process Control Department. In this role, he has been a key contributor to supporting the Thermal Plant both in operation and reporting, as well as expanding his knowledge and technical expertise to the wastewater plant operation. He was instrumental in developing and supporting the plans for managing the upgrade to the Eversource HEEC cable that took place over the last several years, and his knowledge of the CTGs has been critical to the treatment plant's electrical resiliency. During the HEEC cable outages, he personally oversaw the switching of Deer Island's power from the grid to the CTGs. He has effectively managed the CTG service and maintenance contracts as well as specialized contracts for the air emissions control systems at the Thermal Plant. The combination of his experience, knowledge, and skills makes him well prepared for this position.

Mr. Zechello holds a Bachelor of Science Degree in Industrial Technology from Fitchburg State College and a Grade 6 Massachusetts Wastewater License.

**BUDGET/FISCAL IMPACT:**

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

**ATTACHMENTS:**

Resume of Nicholas Zechello  
Position Description  
Organization Chart

# Nicholas Zechello

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## PROFESSIONAL EXPERIENCE

Massachusetts Water Resources Authority

Project Manager, Operations, Process Control, Deer Island Treatment Plant, 2017 to Present

- Manages the operation and maintenance of the continuous emissions monitoring system for high-pressure boilers. Ensures validation of all emissions data for air permit compliance.
- Developed operating procedures to support onsite generation used during the Eversource Cross-Harbor Cable Project and for all periods when DITP is disconnected from the power grid.
- Developed and implemented test plans for upgrades programs for the Combustion Turbine Generators.
- Managed all maintenance activities for Combustion Turbine Generators including work scheduling, contractor coordination and notifications.
- Monitored the regional electrical grid pricing and operation of power generators during peak days, demand response and high electrical pricing to reduce energy costs.

Project Engineer, Operations, Process Control, Deer Island Treatment Plant, 2015 – Feb 2017

- Managed the services contracts for the continuous emissions monitoring systems for high-pressure boilers.
- Schedules and coordinates all regulatory compliance testing and reporting for all Thermal Power Plant equipment.
- Assists in Odor Control H2S sampling and testing program.
- Identified and implemented additional online monitoring equipment to improve Thermal Plant performance.

Technical Assistant, Operations, Deer Island Treatment Plant, 1999 – Feb 2015

- Assisted in the Thermal Power Plant optimization and energy efficiency initiatives including reducing annual boiler fuel oil consumption from 2,600,000 to less than 200,000 gallons and increasing steam turbine generator uptime from 60% to greater than 95%.
- Managed all phases of the water treatment program for high-pressure boilers.
- Identified critical generator components and maintained spare part inventory of all Thermal Power Plant generators.
- Assisted in management of the continuous emissions monitoring maintenance service contract.
- Monitored performance of combustion turbine and steam turbine generators. Performed performance evaluations to maximize equipment availability and reliability and recommended maintenance projects to improve performance.
- Assisted in the development and management of all Thermal Power Plant maintenance service contracts including the coordination and scheduling of maintenance outages.
- Assisted in the training of the Thermal Power Plant Operators on the combustion gas turbine generators for both normal and emergency operations and synchronization to the Deer Island electrical distribution system.
- Assisted in all combustion turbine generator-troubleshooting activities.
- Deer Island Safety Board member representing the Thermal Power Plant.
- Acted as a direct link to the Program Manager to operate and manage all combustion turbine generator activities when on vacation or out of the office.

Staff Engineer/Contract, Operations, Deer Island Treatment Plant, 1995 - 1999

- Assisted in the functional and compliance testing of all plant equipment associated with the Thermal Power Plant. Major equipment included high-pressure boilers, steam and combustion turbine generators.
- Developed and implemented a water treatment program for the power generation equipment. Program included training, sampling, monitoring and corrective action procedures.

Administrative Intern, Operations, Charlestown Navy Yard, 1993 – 1995

- Assisted the Director, Deputy Director and Employee Relations Director of the Sewerage Division in day-to-day activities.

Engineering Intern, Operations, Charlestown Navy Yard, 1992 -1993

- Performed site preparation for the I/I Management Program's system-wide wastewater-metering project.
- Assisted in the delineation of wetlands and construction easements for the New Neponset Valley Relief Sewer Project.

## **EDUCATION**

Fitchburg State College, Fitchburg, Massachusetts

Bachelor of Science, Industrial Technology, Electronic Engineering Technology

## **CERTIFICATION**

Massachusetts Wastewater Treatment Plant Operator License Grade 6, #8105

## **COMMUNITY ACTIVITIES**

Town of Pembroke Energy Committee, Chair, 2007 to Present

- Leads the committee in the development and implementation of a comprehensive energy program that includes energy conservation, energy commodity procurement, development and installation of a three (3) MW solar project at the town landfill and implementation of the Municipal Aggregation program.
- Achieved MA Department of Energy Resources Green Community designation for the town of Pembroke.

Cross Creek Homeowners Association, President

**MWRA  
POSITION DESCRIPTION**

**POSITION:** Program Manager, Energy - Deer Island

**DIVISION:** Operations

**DEPARTMENT:** Deer Island/Thermal Power Plant

**BASIC PURPOSE:**

Provides program management support to the operation of Deer Island's Thermal Plant and power generators. Manages and coordinates Combustion Turbine Generator (CTG) boiler, and hydroturbine contractor work with thermal plant operational staff. Manages all maintenance work activities of the Thermal plant and power generators including work scheduling, contractor coordination, and plant notifications. Monitors the electrical grid pricing and recommends operation of the power generators for peak days, demand response, or high electrical pricing to reduce energy costs. Manages all CTG and boiler regulatory compliance programs and contracts.

**SUPERVISION RECEIVED:**

Works under the general supervision of the Deer Island Deputy Director.

**SUPERVISION EXERCISED:**

Exercises close supervision of the Technical Assistant.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Coordinates all planned and/or scheduled Thermal Plant and power generator outages and associated on-island electrical power generation sources for routine maintenance and testing with treatment operations to ensure equipment availability during critical operational periods.
- Manages all maintenance work activities of the power generators including work scheduling, contractor coordination, and plant notifications. Reviews all Thermal Plant and power generator service bulletins and provide recommendations for implementation.
- Manages the operation of power generators to support plant needs, the ISO-NE demand response program, operation during high price days, ISO peak system demand days, and the forward capacity market.

- Develops and maintains an asset management program for all thermal plant systems and all Deer Island generating assets in cooperation with DITP's Assets Manager.
- Reviews all testing and calibration reports to ensure equipment reliability.
- Ensures boiler and CTG regulatory compliance through review of applicable environmental regulations.
- Participates in the review and approval of all revisions/additions to power generation equipment on Deer Island.
- Develops and implements contingency plans in response to situations that may jeopardize the Thermal Plant and treatment plant operations.
- Coordinates operational impacts for the Boiler, Eversource, Pratt and Whitney preferred services, and power generator maintenance contracts.
- Designs and manages training programs for Thermal Plant staff.
- Reviews and analyzes all trouble reports from generation assets to determine effects upon plant. Coordinates efforts with plant maintenance staff and engineering to resolve system problems and/or malfunctions.
- Monitors generation systems via the DCS to determine system status for orderly transfer of load to restore services to affected regions of the system.
- Provides technical support, process control, and administrative support to the Manager, Power Generation to aid in the safe and efficient operation of the Thermal Power Plant
- Coordinates with engineering and outside contractors for the periodic modification, repair, improvement, replacement and expansions of the steam boilers, power generators, steam turbines, hydro turbines, and wind turbines.

**SECONDARY DUTIES:**

- Performs other related duties as required.



## **MINIMUM QUALIFICATIONS:**

### Education and Experience:

- (A) Knowledge of the principles and practices of engineering and industrial systems as normally attained through a Bachelor's degree in electrical and/or mechanical engineering or a related field; and
- (B) Minimum of seven (7) to nine (9) years of experience working with steam boiler and/or generation equipment and managing technical contracts; and
- (C) At least three (3) years experience supervising staff, contractors, and/or large projects/contracts; or
- (D) Any equivalent combination of education or experience.

### Necessary Knowledge, Skills and Abilities:

- (A) Excellent organizational, analytical, interpersonal, oral and written organizational skills are required.
- (B) Demonstrated knowledge of steam boilers and power generation equipment.
- (C) Demonstrable knowledge of electrical distribution, fault tracking and troubleshooting desired. Must be able to evaluate electrical distribution issues that may be preventing distribution of electricity from generation equipment to operating equipment.
- (D) Strong supervisory and leadership skills.
- (E) Ability to organize data and generate concise, applicable reports.
- (F) Ability to read, understand and interpret electrical 1-line drawings, control/protective elementary schematics and wiring diagrams.

## **SPECIAL REQUIREMENTS:**

A valid Massachusetts Class D driver's license.

Will be on-call on nights, weekends, and holidays, and will respond to the plant as-needed on nights, weekends, and holidays in the event of an emergency requiring CTG operation or to address CTG equipment failures.

### **TOOLS AND EQUIPMENT USED:**

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

### **PHYSICAL DEMANDS:**

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

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

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

### **WORK ENVIRONMENT:**

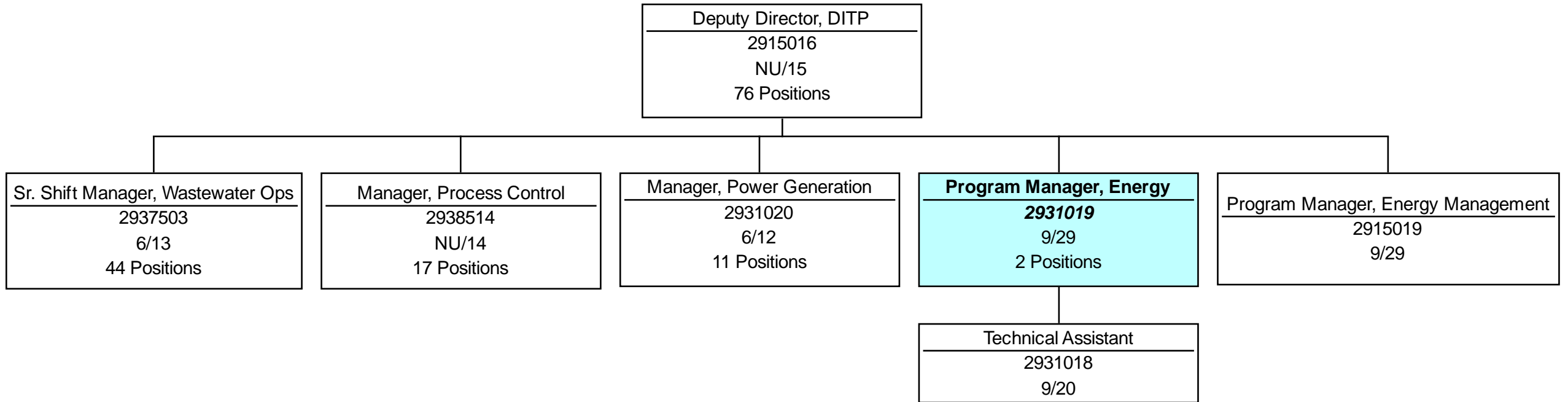
The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

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


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

October 2020

Operations-Wastewater Treatment  
Deer Island - Operations, Process Control and Power Generation  
December, 2020



## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Extension of Employment Contract  
Copy and Supply Clerk, Administration Division


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**COMMITTEE:** Personnel & Compensation

INFORMATION

VOTE

Andrea Murphy, Director, Human Resources  
Preparer/Title

  
Michele S. Gillen  
Director, Administration

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### RECOMMENDATION:

To approve the extension of an employment contract for Mr. Ward Merithew, Copy and Supply Clerk, Facilities Management Department, for a period of 12 months from January 1, 2021 to December 31, 2021, at the current hourly rate of \$15.76 per hour for an annual compensation not to exceed \$12,300.00.


### DISCUSSION:

MWRA's Facilities Management Department is responsible for management of the Charlestown facility, mail service, transportation services and security at the front desk. Mr. Ward Merithew has been working at MWRA since July 2, 2018 on a part-time contract basis. Mr. Merithew provides coverage when there are gaps in staffing and provides daily administrative support. Those duties include coverage for the mailroom and front desk, stocking paper for copies and printers, distributing mail, emptying recycling bins, as well as assisting with the preparations and copying of documents and manuals for staff in the Administration Division. Mr. Merithew's more recent duties include assisting in the large decluttering effort at the Charlestown facility.

### BUDGET/FISCAL IMPACT:

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

## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Delegated Authority Report – November 2020

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**COMMITTEE:** Administration, Finance & Audit

INFORMATION  
 VOTE



Michele S. Gillen  
Director, Administration

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

  
Douglas J. Rice  
Director of Procurement

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### RECOMMENDATION:

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

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 NOVEMBER 1 - 30, 2020


NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	11/03/20	<b>CHELSEA CREEK HEADWORKS UPGRADE</b> FURNISH AND INSTALL AN ADDITIONAL STRUCTURAL STEEL BEAM, REMOVE AND REPLACE THE EXISTING CONCRETE ENCASUREMENT ON THE STRUCTURAL STEEL ROOF FRAMING; FURNISH AND INSTALL ADDITIONAL STRUCTURAL STEEL FRAMING TO TIE THE OVERHEAD DOOR FRAME INTO THE EXISTING BUILDING STRUCTURE; FURNISH AND INSTALL ISOLATION VALVES AND STEEL BRAIDED FLEXIBLE HOSES ON THE FUEL OIL LINES TO THE GENERATOR WITH A STEEL RAMP; FURNISH AND INSTALL CONTROL RELAYS AND REVISE THE WIRING INSIDE THE THREE VARIABLE FREQUENCY DRIVE CABINETS.	7161	42	BHD/BEC 2015, A JOINT VENTURE	\$65,579.00
C-2.	11/03/20	<b>DEER ISLAND TREATMENT PLANT MAINTENANCE COATING</b> REPLACE THE STRUCTURAL STEEL SUPPORTING THE GRATING IN DIGESTER MODULE 3 OVERFLOW BOXES 1, 2 AND 3; INCREASE THE DRY FILM COATING THICKNESS AND INSTALL A PIT FILLER IN FOUR DIGESTER MODULE 3 OVERFLOW BOXES; PROVIDE ADDITIONAL REPAIR MORTAR PREPARATION (BRUSH BLASTING) IN ALL EIGHT SCUM WELLS.	S583	1	SOEP PAINTING CORP.	\$240,730.00
C-3.	11/18/20	<b>OXYGEN GENERATION FACILITY SERVICES DEER ISLAND TREATMENT PLANT</b> FINAL BALANCING CHANGE ORDER TO DECREASE THE FOLLOWING BID ITEMS TO REFLECT ACTUAL QUANTITIES USED: NON-EMERGENCY AND EMERGENCY ON-CALL SERVICES, REPLACEMENT PARTS AND CONSUMABLE MATERIAL, FACTORY AUTHORIZED SERVICE REPRESENTATIVES, ROUND TRIP AIRLINE TRANSPORTATION, PER DIEM, MISCELLANEOUS SPECIALIZED TOOLS, EQUIPMENT AND MATERIAL AND FIRE DEPARTMENT SERVICES.	S562	2	SOLUTIONWERKS, INC.	(\$303,329.87)
C-4.	11/18/20	<b>HYDRAULIC EQUIPMENT SERVICE</b> AWARD OF A CONTRACT TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE ANNUAL MAINTENANCE AND INSPECTION, NON-EMERGENCY AND EMERGENCY REPAIR SERVICES ON THE HYDRAULIC SYSTEMS WITH MWRA'S SERVICE AREA FOR A TERM OF 730 CALENDAR DAYS	OP-416	AWARD	R. ZOPPO CORP.	\$271,920.00
C-5.	11/20/20	<b>CHEMICAL TANK RELINING &amp; PIPE REPLACEMENT DEER ISLAND TREATMENT PLANT</b> FINISH AND APPLY STEEL-FILLED EPOXY PUTTY TO FILL MISCELLANEOUS PINHOLES AND VOIDS ON THE INTERIOR SURFACE OF SODIUM HYPOCHLORITE STORAGE TANK 1; REMOVE EXISTING 30-INCH DIAMETER SPOOL PIECE AND FURNISH AND INSTALL A NEW 30-INCH SPOOL PIECE ON THE GRAVITY THICKENER OVERFLOW PIPING SYSTEM.	7373	2	WALSH CONSTRUCTION COMPANY II, LLC	\$34,677.95

PURCHASING DELEGATED AUTHORITY ITEMS NOVEMBER 1 - 30, 2020

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	11/03/20	<b>SUPPLY AND DELIVERY OF 350,000 GALLONS OF ULTRA-LOW SULFUR #2 DIESEL FUEL</b> AWARD OF A PURCHASE ORDER UNDER STATE CONTRACT ENE47 TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF 350,000 GALLONS OF ULTRA-LOW SULFUR #2 DIESEL FUEL FOR THE DEER ISLAND TREATMENT PLANT.	WRA-4905		GLOBE MONTELLO GROUP CORPORATION	\$438,060.00
P-2	11/19/20	<b>PURCHASE OF ONE NEW BOBCAT TOOL CAT UTILITY MACHINE</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ONE NEW BOBCAT TOOL CAT UTILITY MACHINE.	WRA-4896		BOBCAT OF BOSTON, INC.	\$54,581.35
P-3	11/20/20	<b>PURCHASE FOR THE REPLACEMENT OF ONE SYNCROFLO WATER BOOSTER PUMP SKID</b> AWARD OF A SOLE SOURCE PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE REPLACEMENT OF ONE SYNCROFLO WATER BOOSTER PUMP SKID.			GUSTAVO PRESTON COMPANY, INC.	\$131,770.00
P-4	11/20/20	<b>SUPPLY AND DELIVERY OF GRAVEL BORROW</b> AWARD OF A ONE-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF GRAVEL BORROW FOR THE CLINTON WASTEWATER TREATMENT PLANT.	WRA-4900		RAMPCO CONSTRUCTION CO., INC.	\$187,000.00



## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** FY21 Financial Update and Summary Through November 2020

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**COMMITTEE:** Administration, Finance & Audit

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

INFORMATION  
 VOTE

  
Thomas J. Durkin  
Director, Finance

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### RECOMMENDATION:

For information only. This staff summary provides financial results and variance highlights for Fiscal Year 2021 through November 2020, comparing actual spending to the budget.

### DISCUSSION:

The total Year-to-Date variance for the FY21 CEB is \$7.9 million, due to lower direct expenses of \$5.1 million and debt service of \$4.3 million, partially offset by higher indirect expenses of \$1.6 million; and higher revenue of \$62,000.

### FY21 Current Expense Budget

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

- Lower Direct Expenses of \$5.1 million or 5.0% under budget. Spending was lower for Wages & Salaries, Other Services, Professional Services, Utilities, Worker's Compensation, Overtime, Fringe Benefits, Training and Meetings, and Chemicals. Spending was higher than budget for Maintenance and Other Materials.
- Higher Indirect Expenses of \$1.6 million or 6.6% over budget due primarily to the updated HEEC capacity and service charge, partially offset by lower Pension expense and Watershed reimbursements.
- Lower Debt spending of \$4.3 million or 2.3% under budget. This favorable variance is the result of lower than budgeted variable interest rates and the timing of the SRF transaction, partially offset by higher than anticipated Senior Debt.

**FY21 Budget and FY21 Actual Variance by Expenditure Category  
(in millions)**

	FY21 Budget YTD	FY21 Actual YTD	\$ Variance	% Variance
Direct Expenses	\$101.5	\$96.5	-\$5.1	-5.0%
Indirect Expenses	\$23.9	\$25.5	\$1.6	6.6%
Capital Financing	\$187.4	\$183.0	-\$4.3	-2.3%
<b>Total</b>	<b>\$312.8</b>	<b>\$305.0</b>	<b>-\$7.8</b>	<b>-2.5%</b>

*Totals may not add due to rounding*

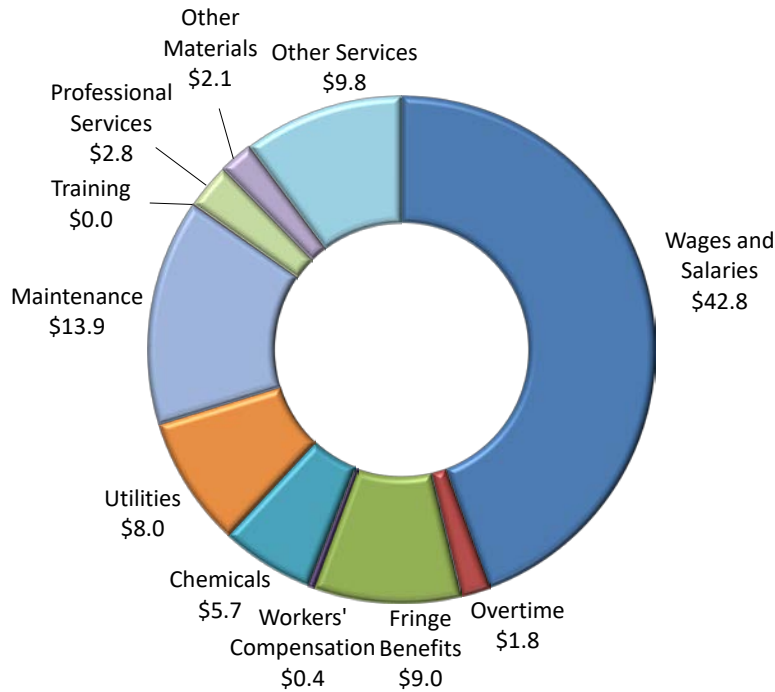
Total Revenues of \$336.2 million were \$62,000 or 0.02% higher than budget due to higher Other Revenue, partially offset by lower Investment Income.

*Please refer to Attachment 1 for a more detailed comparison by line item of the budget variances for FY21.*

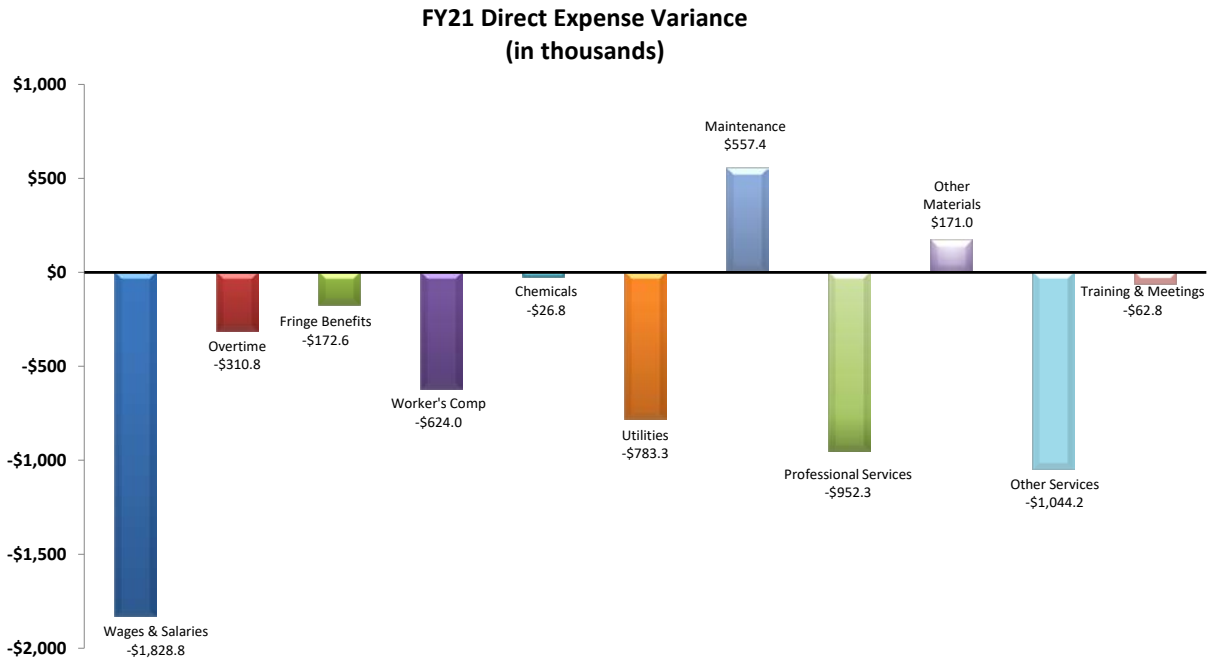
**Direct Expenses**

FY21 direct expenses through November totaled \$96.5 million, which was \$5.1 million or 5.0% less than budgeted.

**FY21 Direct Expenses  
(in millions)**

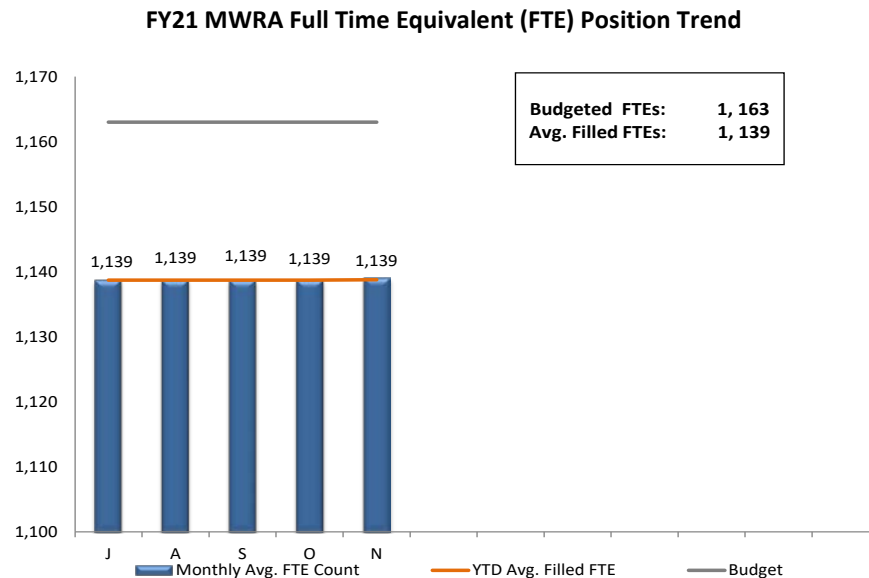


The budget variance is due to lower spending for Wages & Salaries, Other Services, Professional Services, Utilities, Worker’s Compensation, Overtime, Fringe Benefits, Training and Meetings, and Chemicals, offset by greater than budgeted spending in Maintenance and Other Materials.



### Wages and Salaries

Wages and Salaries are under budget by \$1.8 million or 4.1%. Through November, there were 24 fewer average FTEs (1,139 versus 1,163 budget) or 2.1% and lower average salaries for new hires versus retirees. The timing of backfilling vacant positions also contributed to Regular Pay being under budget.



## **Other Services**

Other Services were lower than budget by \$1.0 million or 9.6%. The budget variance is due to lower than budgeted spending for Sludge Pelletization of \$643,000 due to lower year-to-date quantities, Memberships/Dues/Subscriptions of \$432,000 primarily in Operations, Telecommunications of \$105,000 primarily in MIS, and Grit and Screening Removal of \$100,000 due to lower quantities. This is partially offset by greater than budgeted spending in Other Services of \$275,000 primarily in Water Operations due to the Brookline water pipeline break.

## **Professional Services**

Professional Services were lower than budget by \$1.0 million or 25.6%. The overall underspending is due to lower than budgeted spending in Computer Systems Consultant of \$635,000 in MIS, Engineering of \$292,000 primarily in Field Operations, Other Professional Services of \$154,000 in Administration and Law, and Legal Services of \$117,000 in Law and Administration. This is partially offset by Lab and Testing Analysis of \$314,000 in Operations due to the Biobot contract.

## **Utilities**

Utilities were less than budget by \$0.8 million or 8.9%. The budget variance is due to underspending in Electricity of \$711,000 primarily at DITP (\$418,000) driven primarily by power demand charges being less than budgeted based on flows, new pricing, and real time market prices for the non-block purchases under the Direct Energy contract, and Water Operations of \$200,000 due to lower rates and quantity. Diesel Fuel is underspent by \$54,000 primarily in Wastewater Operations driven by price.

## **Worker's Compensation**

Worker's Compensation expenses were lower than budget by \$0.6 million or 59.6%. The lower expenses were primarily due to favorable variances in compensation payments (\$440,000), medical payments (\$136,000), and administrative expenses (\$47,000). This reflects fewer accidents and reduced severity of those accidents. Due to the uncertainties of when spending will happen, the budget is spread evenly throughout the year.

## **Overtime**

Overtime expenses were lower than budget by \$0.3 million or 14.8% mainly in Metro Maintenance (\$175,000), Wastewater Operations (\$71,000), Engineering & Construction (\$60,000), Water Operations (\$39,000), partially offset by higher spending for Deer Island (\$122,000) due to shift coverage and unplanned maintenance.

## **Fringe Benefits**

Fringe Benefit spending was lower than budget by \$0.2 million or 1.9%. This is primarily driven by lower Health Insurance costs of \$191,000, 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 that are less expensive.

## **Training & Meetings**

Training & Meetings expenses were lower than budget by \$63,000 or 56.5% driven by the timing of spending as well as conferences that were postponed or cancelled.

## **Chemicals**

Chemicals were lower than budget by \$27,000 or 0.5%. Lower than budgeted spending on Sodium Hypochlorite of \$132,000 is driven by Deer Island due to lower flows and Water Operations due to lower flows and lower dosing; Sodium Bisulfite of \$69,000 is driven by Treatment and Wastewater Operations; Soda Ash of \$45,000 is driven by Water Operations and Clinton due to timing of deliveries. This is offset by higher than budgeted spending on Ferric Chloride of \$113,000 driven by DITP to keep the orthophosphate levels in the digesters at the desired target level; Hydrogen Peroxide of \$92,000 driven by DI due to higher H<sub>2</sub>S gas levels; and Carbon Dioxide of \$79,000 in Water Operations. Through November, DITP flows are 14.5% lower than the budget and CWTP flows are 0.7% lower than the budget. It is important to note that Chemical variances are also based on deliveries which in general reflect the usage patterns and timing.

## **Other Materials**

Other Materials were greater than budget by \$0.2 million or 8.9%, driven by greater than budgeted spending for Computer Hardware of \$317,000 in MIS and Healthy/Safety Materials of \$78,000, both driven by the Covid-19 pandemic. This is partially offset by lower spending of \$136,000 for Other Materials and \$103,000 for Vehicle Expenses primarily due to timing.

## **Maintenance**

Maintenance was greater than budget by \$0.6 million or 4.2%, largely driven by the timing of projects. Maintenance Services are over budget by \$547,000 or 6.1% driven by Plant and Machinery Services (\$497,000) and Computer Software Licenses (\$337,000), partially offset by Building & Grounds Services (\$312,000). Maintenance Materials are over budget by (\$10,000), driven by Electrical Materials (\$72,000), Pipe Materials (\$67,000), and Automotive Materials (\$59,000), partially offset by lower spending on HVAC Materials (\$166,000).

## **Indirect Expenses**

Indirect Expenses totaled \$25.5 million, which is \$1.6 million or 6.6% greater than budget. The variance is primarily driven by the cost for the new HEEC cable (\$3.1 million). Based on the latest information from HEEC, MWRA will owe HEEC additional costs related to FY20, and we expect to make that payment by June 2021. Because we are now aware of this liability, we accrued for it in November. This is partially offset by lower Pension expense (\$1.0 million). After approval of the FY21 Current Expense Budget, the retirement system received a new Public Employee Retirement Administration Commission approved required contribution. The required contribution was reduced from \$11.0 million to \$10.0 million.

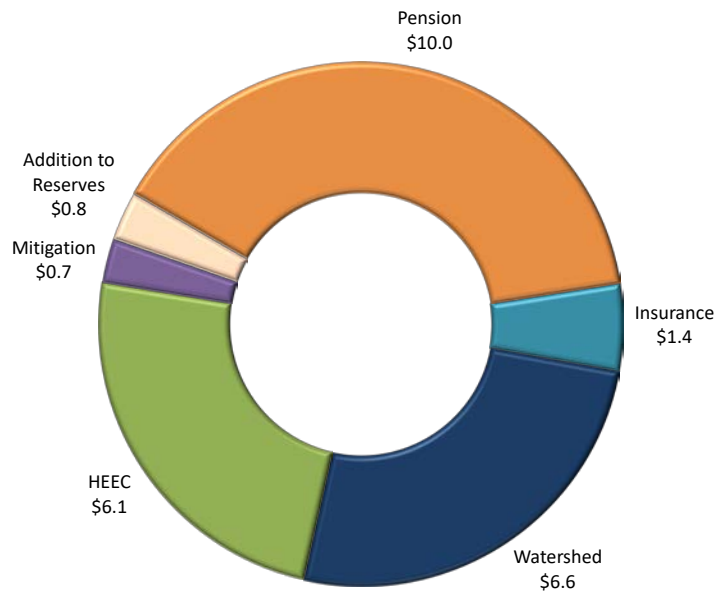
Lastly, Watershed costs are lower than budget by \$561,000 due to lower costs associated with Maintenance, Wages and Salaries, Equipment, Utilities, and fringe benefits. This is partially offset by a prior period adjustment.

**FY21 Watershed Protection Variance**

<b>\$ in millions</b>	<b>YTD Budget</b>	<b>YTD Actual</b>	<b>YTD \$ Variance</b>	<b>YTD % Variance</b>
Operating Expenses	7.6	6.0	-1.6	-20.5%
PILOT	0.0	0.0	0.0	0.0%
Subtotal	7.6	6.0	-1.6	-20.5%
Revenue offset	0.5	0.4	0.0	-7.0%
<b>Current Fiscal Year Net Total Budget</b>	<b>7.1</b>	<b>5.6</b>	<b>-1.5</b>	<b>-21.4%</b>
DCR Balance Forward (FY20 4th quarter accrual true-up)	0.0	1.0	1.0	
<b>Total Budget</b>	<b>7.1</b>	<b>6.6</b>	<b>-0.6</b>	<b>-7.9%</b>

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 November was 130 (and 132 on a year-to-date basis) vs. a budget of 150.

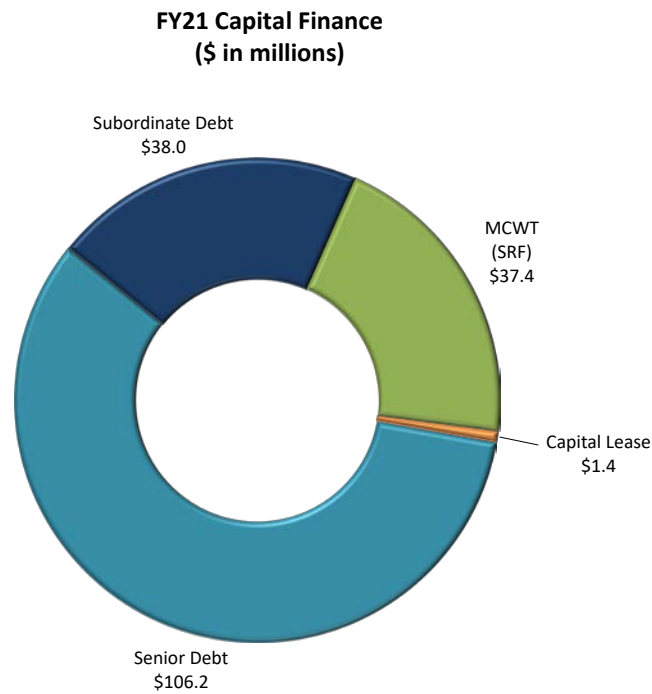
**FY21 Indirect Expenses  
(in millions)**



## Capital Financing

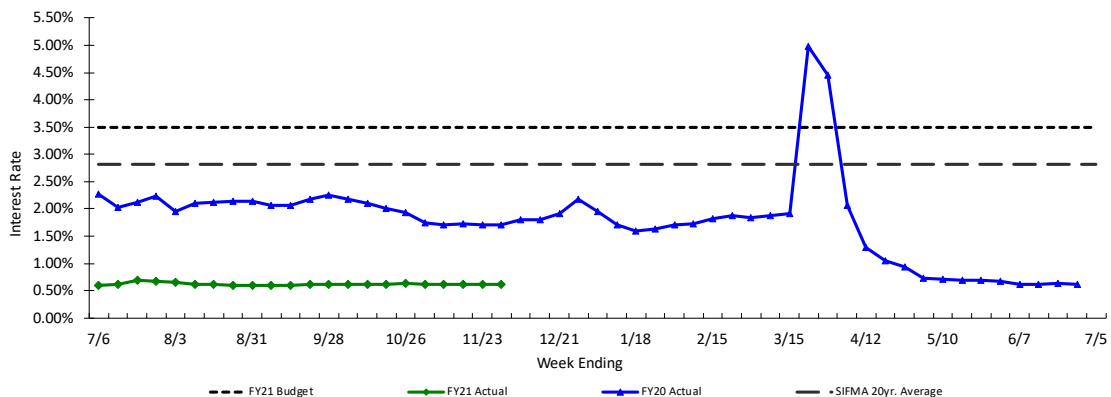
Capital Financing expenses include the principal and interest payments for fixed senior debt, the variable subordinate debt, the Massachusetts Clean Water Trust (SRF) obligation, the commercial paper program for the local water pipeline projects, current revenue for capital, Optional Debt Prepayment,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

Capital Financing expenses for FY21 through November totaled \$183.0 million, which is \$4.3 million or 2.3% less than budget. This favorable variance is the result of lower than budgeted variable interest rates, timing of the SRF transaction, partially offset by higher than anticipated Senior Debt.



The graph below reflects the FY21 actual variable rate trend by week against the FY21 Budget.

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



## **Revenue & Income**

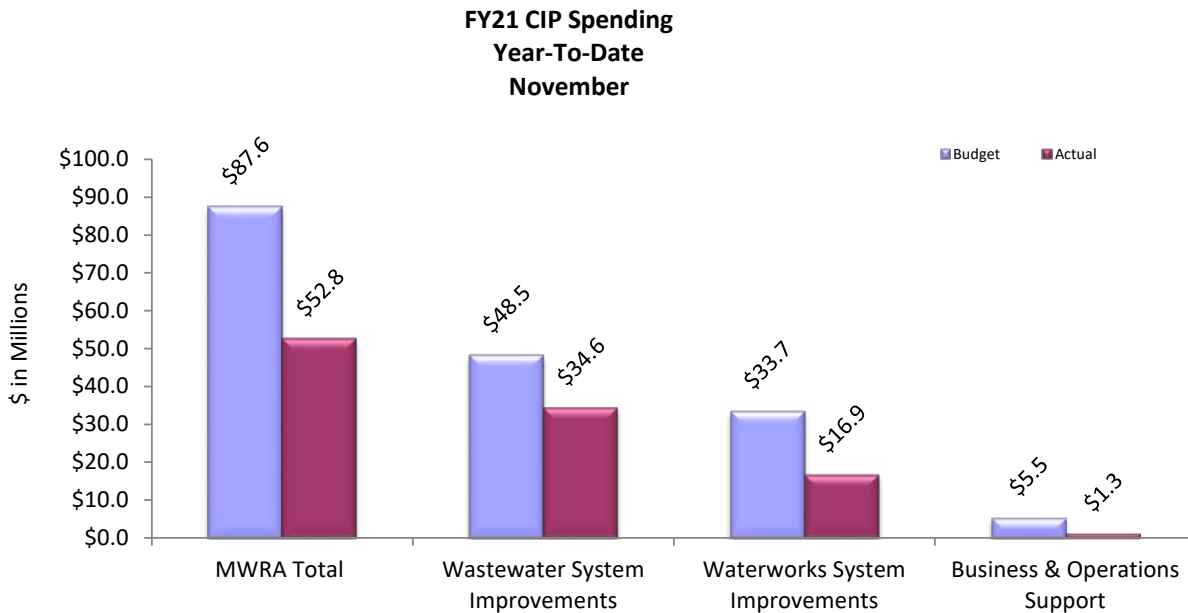
Revenues of \$336.2 million were \$62,000 or 0.2% over budget. Other Revenue was \$430,000 or 11.3% over budget due to Miscellaneous Revenue of (\$156,000) primarily associated with worker's compensation reimbursement for older claims; Disposal of surplus materials of \$132,000; Energy Revenue (\$113,000), and \$68,000 in grant money. In addition, Other User Charges were over the budgeted estimate by \$33,000 due to the entrance fee payment from the Rivers School in Weston. This was partially offset by lower Investment Income of \$400,000 or 19.1% due to lower than budgeted interest rates (0.49% vs. 0.73%) partially offset by higher than budgeted average balances.



## FY21 Capital Improvement Program

Capital expenditures in Fiscal Year 2021 through November total \$52.8 million, \$34.9 million or 39.8% under budget.

After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) grant/loan program, the Local Water System Assistance loan program, and the community managed Combined Sewer Overflow (CSOs) projects, capital spending totaled \$39.6 million, \$10.8 million or 21.5% under budget.



Overall, CIP spending reflects the underspending in Wastewater Improvements (\$14.0 million), Waterworks (\$16.8 million) and Business and Operations Support (\$4.1 million). Major variances in Wastewater are primarily due to Channel 4 work being behind schedule for the Chelsea Headworks Upgrades Construction pending a time extension, delay in equipment delivery for Nut Island Odor Control HVAC Improvements, updated schedule for the Dorchester Infiltration/Inflow Removal, timing of community repayments for the I/I Local Financial Assistance Program due to less than anticipated communities deferring their loan repayments, work anticipated in FY21 that was completed in FY20 for the Pellet Conveyance Piping project, and delay in NTP and bypass pumping system for the Dorchester Interceptor Sewer. This was partially offset by timing of work for Deer Island Chemical Tank and Digester Pipe and contractor progress for the Gas Protection System Replacement Phase 1.

Waterworks variances are primarily due to less than anticipated communities deferring their loan repayments for the Water Loan Program, delay in award of CP-1 Shafts 6, 8, and 9A, timing of consultant work for the Tunnel Preliminary Design and MEPA Review and Program Support Services contracts. This was partially offset by contractor progress on the Southern Extra High Section 111 Construction 2 and 3, Commonwealth Avenue Pumping Station Construction,

contractor initiating work sooner than anticipated on WASM 3 Rehabilitation, CP-1, and FY20 planned work completed in FY21 for the Cosgrove Intake Roof Replacement.

**FY21 Budget and FY21 Actual Variance by Program**  
(in millions)

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
<b>Wastewater System Improvements</b>				
Interception & Pumping	22.8	17.7	(5.1)	-22.2%
Treatment	7.2	7.5	0.3	4.7%
Residuals	2.4	1.3	(1.1)	-46.1%
CSO	1.6	0.6	(1.0)	-63.3%
Other	14.6	7.5	(7.1)	-48.9%
<b>Total Wastewater System Improvements</b>	<b>\$48.5</b>	<b>\$34.6</b>	<b>(\$14.0)</b>	<b>-28.8%</b>
<b>Waterworks System Improvements</b>				
Drinking Water Quality Improvements	0.5	0.3	(0.2)	-42.0%
Transmission	5.2	3.5	(1.7)	-32.2%
Distribution & Pumping	5.9	6.8	0.8	14.2%
Other	22.0	6.3	(15.7)	-71.4%
<b>Total Waterworks System Improvements</b>	<b>\$33.7</b>	<b>\$16.9</b>	<b>(\$16.8)</b>	<b>-49.8%</b>
<b>Business &amp; Operations Support</b>	<b>\$5.5</b>	<b>\$1.3</b>	<b>(\$4.1)</b>	<b>-75.9%</b>
<b>Total MWRA</b>	<b>\$87.6</b>	<b>\$52.8</b>	<b>(\$34.9)</b>	<b>-39.8%</b>

*Totals may not add due to rounding*

**FY21 Spending by Program:**

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

**Other Waterworks:** Net underspending of \$15.7 million

- \$15.8 million for Local Financial Assistance due to timing of community repayments due to less than anticipated communities deferring their loan repayments.
- \$0.4 million for Carroll Water Treatment Plant SCADA Design due to updated schedule for the SCADA Construction
- This underspending was partially offset by overspending of \$0.3 million for Cosgrove Intake Roof Replacement, \$0.2 million for Bellevue 2/Turkey Hill Tanks Painting, and \$0.1 million for Gillis Pumping Station/Cottage Farm CSO Roof Replacement due to FY20 planned work that was completed in FY21.

**Other Wastewater:** Net underspending of \$7.1 million

- \$7.1 million for Community I/I Financial Assistance due to timing of community repayments as a result of less than anticipated communities deferring their loan repayments.

**Interception & Pumping:** Net underspending of \$5.1 million

- \$2.8 million for Chelsea Creek Upgrade Construction and Resident Engineering Inspection due to Channel 4 work behind schedule (pending time extension).
- \$1.7 million for Nut Island Odor Control and HVAC Construction due to delays in equipment delivery.

- \$0.3 million for Dorchester Interceptor Sewer Construction due to delay in Notice to Proceed.
- \$0.3 million for Prison Point Design/CA/REI due to delay in construction award.
- \$0.3 million for Wastewater Metering Planning/Design due to pending time extension through construction installation and warranty period.
- This underspending was partially offset by overspending of \$0.2 million for Siphon Structure Rehabilitation Design due to consultant progress.

**Business & Operations Support:** Net underspending of \$4.1 million

- \$1.5 million for As-Needed Technical Assistance and Resident Engineering and Inspection Services due to lower than projected task order work, \$0.7 million for Enterprise Content Management, and \$0.7 million for Lawson Upgrade due to schedule changes, \$0.4 million for Vehicle Purchases due to timing, and \$0.4 million for Security Equipment & Installation due to timing of physical security initiatives.

**Waterworks Transmission:** Net underspending of \$1.7 million

- \$0.9 million for CP-1 Shafts 6, 8, and 9A due to delay in award of contract.
- \$0.6 million for Tunnel Preliminary Design & MEPA Review and \$0.1 million for Program Support Services due to timing of consultant work.
- \$0.5 million for Weston Aqueduct Sluice Gates Construction due to updated schedule.
- \$0.1 million for Weston Aqueduct Supply Mains/Spot Pond Supply Mains Design/CA due to delays in final design.
- This underspending was partially offset by overspending of \$0.6 million for Commonwealth Avenue Pumping Station Construction due to contractor progress, and WASM 3 Rehabilitation, CP-1 of \$0.4 million due to contractor initiating work sooner than anticipated.

**Residuals:** Net underspending of \$1.1 million

- \$0.7 million for Pellet Conveyance Piping Relocation and \$0.4 million for Residuals Mechanical/Electrical/Dryer Drum Replacements due to work anticipated in FY21 completed in FY20.

**Combined Sewer Overflow:** Net underspending of \$1.0 million

- \$1.1 million for Dorchester Inflow Removal Construction due to updated schedules partially offset by \$0.1 million for CSO Performance Assessment due to greater than anticipated consultant progress.

**Water Distribution and Pumping:** Net overspending of \$0.8 million

- \$1.6 million for Southern Extra High Section 111 Construction 2 and 3 due to contractor progress.
- \$0.1 million for NIH Section 89 & 29 Redundancy due to final work completed.
- Section 56 Replacement/Saugus River - Design/CA due to consultant progress.
- This overspending was partially offset by underspending of \$0.5 million for Sections 23, 24, 47 Rehabilitation due to schedule change, \$0.2 million for Sections 25, 75, 59, and 60 Design/CA due to delay in getting field testing started, \$0.1 million for Sections 50/57 Water due to contract scope reduction, and \$0.1 million for NIH Section 89 and 29

Design/CA/RI due to less than anticipated contract administration/resident inspection budgeted spending.

**Wastewater Treatment:** Net overspending of \$0.3 million

- \$0.9 million for Chemical Tank Relining and Digester Pipe Construction and \$0.3 million for Gas Protection System Replacement Phase 1 due to contractor progress.
- \$0.1 million for Radio Repeater System Upgrade Phase 1 due to work anticipated in FY20 that was completed in FY21.
- This overspending was partially offset by underspending of \$0.6 million for less than anticipated as-needed task order work, \$0.1 million for Gravity Thickener Rehabilitation and \$0.1 million for Winthrop Terminal Facility VFD and Motors Replacements due to contractor progress is behind schedule, and \$0.1 million for Eastern Seawall Design/ESDC due to updated notice-to-proceed.

**Drinking Water Quality Improvements:** Net underspending of \$0.2 million

- \$0.2 for Carroll Water Treatment Plant Technical Assistance due to less than anticipated as-needed technical assistance, and \$0.2 million for updated schedule for CP-7 Existing Facilities Modifications.

**Construction Fund Balance**

The construction fund balance was \$301.1 million as of the end of November. Commercial Paper/Revolving Loan available capacity was \$222 million.

**ATTACHMENTS:**

Attachment 1 – Variance Summary November 2020

Attachment 2 – Current Expense Variance Explanations

Attachment 3 – Capital Improvement Program Variance Explanations

ATTACHMENT 1  
FY21 Actuals vs. FY21 Budget

	Nov 2020 Year-to-Date				
	Period 5 YTD Budget	Period 5 YTD Actual	Period 5 YTD Variance	%	FY21 Approved
<b>EXPENSES</b>					
WAGES AND SALARIES	\$ 44,609,621	\$ 42,780,803	\$ (1,828,818)	-4.1%	\$ 112,919,298
OVERTIME	2,094,112	1,783,351	(310,761)	-14.8%	5,019,295
FRINGE BENEFITS	9,210,170	9,037,542	(172,628)	-1.9%	22,402,224
WORKERS' COMPENSATION	1,047,816	423,807	(624,009)	-59.6%	2,476,655
CHEMICALS	5,745,824	5,718,998	(26,826)	-0.5%	12,091,255
ENERGY AND UTILITIES	8,789,739	8,006,479	(783,260)	-8.9%	24,200,847
MAINTENANCE	13,379,279	13,936,640	557,361	4.2%	32,618,569
TRAINING AND MEETINGS	111,195	48,377	(62,818)	-56.5%	405,264
PROFESSIONAL SERVICES	3,725,829	2,773,531	(952,298)	-25.6%	8,377,283
OTHER MATERIALS	1,925,587	2,096,612	171,025	8.9%	6,706,916
OTHER SERVICES	10,891,849	9,847,600	(1,044,249)	-9.6%	24,983,777
<b>TOTAL DIRECT EXPENSES</b>	<b>\$ 101,531,021</b>	<b>\$ 96,453,740</b>	<b>\$ (5,077,280)</b>	<b>-5.0%</b>	<b>\$ 252,201,383</b>
INSURANCE	\$ 1,294,285	\$ 1,372,420	\$ 78,135	6.0%	\$ 3,059,218
WATERSHED/PILOT	7,111,627	6,550,727	(560,900)	-7.9%	26,422,138
HEEC PAYMENT	3,052,585	6,135,766	3,083,181	101.0%	7,215,200
MITIGATION	715,992	698,948	(17,044)	-2.4%	1,692,344
ADDITIONS TO RESERVES	767,917	767,917	-	0.0%	1,815,077
RETIREMENT FUND	11,000,000	10,000,000	(1,000,000)	-9.1%	11,000,000
POST EMPLOYEE BENEFITS	-	-	-	---	6,065,490
<b>TOTAL INDIRECT EXPENSES</b>	<b>\$ 23,942,406</b>	<b>\$ 25,525,778</b>	<b>\$ 1,583,372</b>	<b>6.6%</b>	<b>\$ 57,269,467</b>
STATE REVOLVING FUND	\$ 38,192,337	\$ 37,383,408	\$ (808,929)	-2.1%	\$ 97,811,162
SENIOR DEBT	106,072,388	106,225,929	153,541	0.1%	258,730,904
DEBT SERVICE ASSISTANCE	-	-	-	---	-
CURRENT REVENUE/CAPITAL	-	-	-	---	16,200,000
SUBORDINATE MWRA DEBT	41,738,826	41,738,826	-	0.0%	96,339,598
LOCAL WATER PIPELINE CP	-	-	-	---	5,686,864
CAPITAL LEASE	1,361,064	1,361,064	-	0.0%	3,217,060
VARIABLE DEBT	-	(3,689,580)	(3,689,580)	---	-
DEFEASANCE ACCOUNT	-	-	-	---	3,900,000
DEBT PREPAYMENT	-	-	-	---	-
<b>TOTAL DEBT SERVICE</b>	<b>\$ 187,364,615</b>	<b>\$ 183,019,647</b>	<b>\$ (4,344,968)</b>	<b>-2.3%</b>	<b>\$ 481,885,588</b>
<b>TOTAL EXPENSES</b>	<b>\$ 312,838,042</b>	<b>\$ 304,999,165</b>	<b>\$ (7,838,876)</b>	<b>-2.5%</b>	<b>\$ 791,356,438</b>
<b>REVENUE &amp; INCOME</b>					
RATE REVENUE	\$ 325,509,038	\$ 325,509,038	\$ -	0.0%	\$ 769,385,000
OTHER USER CHARGES	4,147,974	4,180,506	32,532	0.8%	9,208,367
OTHER REVENUE	3,803,636	4,233,555	429,919	11.3%	6,095,403
RATE STABILIZATION	634,615	634,615	-	0.0%	1,500,000
INVESTMENT INCOME	2,091,506	1,691,154	(400,352)	-19.1%	5,167,668
<b>TOTAL REVENUE &amp; INCOME</b>	<b>\$ 336,186,769</b>	<b>\$ 336,248,868</b>	<b>\$ 62,101</b>	<b>0.0%</b>	<b>\$ 791,356,438</b>

**ATTACHMENT 2**  
**Current Expense Variance Explanations**

Total MWRA	FY21 Budget YTD November	FY21 Actuals November	FY21 YTD Actual vs. FY21 Budget		Explanations
			\$	%	
<b>Direct Expenses</b>					
Wages & Salaries	44,609,621	42,780,803	(1,828,818)	-4.1%	Wages and Salaries are under budget by \$1.0 million. Year to date, there have been 24 fewer average FTEs (1,139 versus 1,163 budget), lower average new hire salaries versus retirees, the timing of backfilling vacant positions.
Overtime	2,094,112	1,783,351	(310,761)	-14.8%	Lower spending mainly in Metro Maintenance (\$175,000), Wastewater Operations (\$71,000), Engineering & Construction (\$60,000), Water Operations (\$39,000), Operations Support (\$38,000), offset by higher spending for Deer Island (\$122,000) for shift coverage and unplanned maintenance.
Fringe Benefits	9,210,170	9,037,542	(172,628)	-1.9%	Lower than budget in <b>Health Insurance</b> of \$191,000, 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, <b>Medicare</b> was under budget by \$28,000, partially offset by <b>Unemployment Insurance</b> which is over budget by \$53,000.
Worker's Compensation	1,047,816	423,807	(624,009)	-59.6%	The lower expenses were due to favorable variances in <b>Compensation Payments</b> of \$440,000, <b>Medical Payments</b> of \$136,000, and <b>Administrative Expenses</b> of \$47,000. These lower payments reflect fewer accidents to date. Due to uncertainties of when spending will happen, the budget is spread evenly throughout the year.
Chemicals	5,745,824	5,718,998	(26,826)	-0.5%	Lower than budget spending on <b>Sodium Hypochlorite</b> of \$132,000 driven by Deer Island of \$82,000 due to lower flows and Water Operations of \$37,000 due to lower flows and lower dosing; <b>Sodium Bisulfite</b> of \$69,000 driven by Treatment and Wastewater Operations; <b>Soda Ash</b> of \$45,000 driven by Water Operations and Clinton due to timing of deliveries; and <b>Polymer</b> of \$32,000 driven by DITP due to less usage for centrifuge operations. This is offset by higher than budget spending on <b>Ferric Chloride</b> of \$113,000 driven by DITP to keep the orthophosphate levels in the digesters at the desired target level and <b>Hydrogen Peroxide</b> of \$92,000 driven by DI due to higher H2S gas levels. DITP flows are 14.5% lower than the budget and CWTP flows are 0.7% less than the budget through November. 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	8,789,739	8,006,479	(783,260)	-8.9%	Underspending in <b>Electricity</b> of \$0.7 million primarily at DITP (\$0.4 million) driven primarily by power demand charges being less than budgeted based on flows, new pricing, and real time market prices for the non-block purchases under the Direct Energy contract. Also, Water Operations (\$0.2 million) is under budget primarily due to lower rates and quantity. <b>Diesel Fuel</b> is underspent by \$54,000 driven by Wastewater Operations of (\$48,000) primarily due to price.

**ATTACHMENT 2**  
**Current Expense Variance Explanations**

Total MWRA	FY21 Budget YTD November	FY21 Actuals November	FY21 YTD Actual vs. FY21 Budget		Explanations
			\$	%	
Maintenance	13,379,279	13,936,640	557,361	4.2%	Overspending in <b>Ongoing Maintenance</b> by \$0.6 million is largely driven by the timing of projects. <i>Maintenance Services</i> are over budget by \$0.5 million driven by <b>Plant and Machinery Services</b> (\$0.5 million), <b>Computer Software Licenses</b> (\$0.3 million) , partially offset by <b>Building &amp; Grounds Services</b> (\$0.3 million). Also, <i>Maintenance Materials</i> which are over budget by (\$10,000), driven by <b>Warehouse Inventory</b> (\$0.3 million), <b>Electrical Materials</b> (\$0.1 million), and <b>Pipe Materials</b> (\$0.1 million), partially offset by <b>HVAC Materials</b> (\$0.2 million) and <b>Special Equipment Materials</b> (\$0.1 million), <b>Plant and Machine Materials</b> (\$0.1 million) and <b>Building &amp; Grounds Materials</b> (\$0.1 million).
Training & Meetings	111,195	48,377	(62,818)	-56.5%	Lower than budget spending on <b>Training &amp; Meetings</b> by \$63,000 is driven by DI (\$17,000), MIS (14,000), Field Operations (9,000), and Engineering & Construction (\$9,000).
Professional Services	3,725,829	2,773,531	(952,298)	-25.6%	Lower than budget spending in <b>Computer Systems Consultant</b> of 635,000 in MIS; <b>Engineering</b> of \$292,000 primarily in Field Operations; <b>Other Professional Services</b> of \$154,000 in Administration and Law; <b>Legal Services</b> of \$117,000 in Law and Administration; partially offset by <b>Lab and Testing Analysis</b> of \$314,000 in Operations due to the Biobot contract.
Other Materials	1,925,587	2,096,612	171,025	8.9%	Driven by greater than budgeted spending <b>Computer Hardware</b> of \$317,000 in MIS primarily due to timing and necessary purchases due to Covid, partially offset by \$136,000 for <b>Other Materials</b> , and \$103,000 for <b>Vehicle Expense</b> primarily due to timing.
Other Services	10,891,849	9,847,600	(1,044,249)	-9.6%	Lower than budgeted spending for <b>Sludge Pelletization</b> of \$643,000 due to lower year-to-date quantities <b>Memberships/Dues/Subscriptions</b> of \$432,000 primarily in Operations, <b>Telecommunication Services</b> of \$105,000 primarily in MIS, <b>Grit &amp; Screening Removal</b> of \$100,000 due to lower quantities, partially offset by higher than budgeted spending for <b>Other Services</b> of \$275,000 primarily in Water Operations due to the Brookline water pipeline break.
<b>Total Direct Expenses</b>	<b>101,531,021</b>	<b>96,453,740</b>	<b>(5,077,281)</b>	<b>-5.0%</b>	

**ATTACHMENT 2**  
**Current Expense Variance Explanations**

Total MWRA	FY21 Budget YTD November	FY21 Actuals November	FY21 YTD Actual vs. FY21 Budget		Explanations
			\$	%	
<b>Indirect Expenses</b>					
Insurance	1,294,285	1,372,420	78,135	6.0%	Higher premiums received for property and excess general liability (\$158,000) offset by Lower Payments/Claims costs (\$80,000).
Watershed/PILOT	7,111,627	6,550,727	(560,900)	-7.9%	Watershed costs are lower than budget by \$561,000 due to lower costs associated with Maintenance, Wages and Salaries, Equipment, Utilities, and Fringe Benefits, and partially offset by a prior period adjustment.
HEEC Payment	3,052,585	6,135,766	3,083,181	101.0%	Increase is due to updated cost for HEEC capacity and service charge.
Mitigation	715,992	698,948	(17,044)	-2.4%	
Addition to Reserves	767,917	767,917	-	0.0%	
Pension Expense	11,000,000	10,000,000	(1,000,000)	-9.1%	After approval of the FY21 CEB, the retirement system received a new PERAC approved required contribution. The required deposit was reduced from \$11.0 million to \$10.0 million.
Post Employee Benefits	-	-	-		
<b>Total Indirect Expenses</b>	<b>23,942,406</b>	<b>25,525,778</b>	<b>1,583,372</b>	<b>6.6%</b>	
<b>Debt Service</b>					
Debt Service	187,364,615	183,019,647	(4,344,968)	-2.3%	Debt service is \$4.3 million under budget due to lower than budgeted variable interest rates.
Debt Service Assistance	-	-	-		
<b>Total Debt Service Expenses</b>	<b>187,364,615</b>	<b>183,019,647</b>	<b>(4,344,968)</b>	<b>-2.3%</b>	
<b>Total Expenses</b>					
<b>Total Expenses</b>	<b>312,838,042</b>	<b>304,999,165</b>	<b>(7,838,877)</b>	<b>-2.5%</b>	



**ATTACHMENT 2**  
**Current Expense Variance Explanations**

Total MWRA	FY21 Budget YTD November	FY21 Actuals November	FY21 YTD Actual vs. FY21 Budget		Explanations
			\$	%	
<b>Revenue &amp; Income</b>					
Rate Revenue	325,509,038	325,509,038	-	0.0%	
Other User Charges	4,147,974	4,180,506	32,532	0.8%	Rivers School in Weston entrance fee of \$42,000.
Other Revenue	3,803,636	4,233,555	429,919	11.3%	Miscellaneous Revenue of (\$156,000) primarily associated with worker's compensation reimbursement for older claims; Disposal of surplus materials of \$132,000; Energy Revenue (\$113,000), and \$68,000 in grant money.
Rate Stabilization	634,615	634,615	-	0.0%	HEEC Reserve.
Investment Income	2,091,506	1,691,154	(400,352)	-19.1%	Investment Income is under budget due to lower than budgeted interest rates (0.49% actual vs. 0.73% budget) partially offset by higher than budgeted average balances.
<b>Total Revenue</b>	<b>336,186,769</b>	<b>336,248,868</b>	<b>62,099</b>	<b>0.02%</b>	
<b>Net Revenue in Excess of Expenses</b>	<b>23,348,727</b>	<b>31,249,703</b>	<b>7,900,976</b>		

**ATTACHMENT 3  
FY21 CIP Year-to-Date Variance Report (\$000's)**

	FY21 Budget YTD November	FY21 Actuals YTD November	YTD Actuals vs. Budget		Explanations
			\$	%	
<b>Wastewater</b>					
Interception & Pumping (I&P)	\$22,766	\$17,706	(\$5,060)	-22.2%	<u>Underspending</u> Chelsea Creek Headworks Upgrades - Construction and REI: \$2.8M (delay in work on Channel 4, pending time extension) Nut Island Odor Control & HVAC Improvements Phase 2 - Construction: \$1.7M (delays in equipment delivery) Interceptor Renewal No. 3, Dorchester Interceptor Sewer - Construction: \$268k (delay in notice-to-proceed and bypass pumping system) Prison Point Rehabilitation - Design/CA/RI: \$338k (delay in construction award) Wastewater Meter System Planning/Study/Design: \$261k (pending time extension through construction installation and warranty period) <u>Offset Overspending</u> Siphon Structure Rehabilitation Design: \$169k (consultant progress)
Treatment	\$7,195	\$7,536	\$341	4.7%	<u>Overspending</u> Chemical Tank and Digester Pipe: \$922k (contractor progress) Gas Protection System Replacement - Phase 1: \$251k (contractor progress) Radio Repeater System Upgrade - Phase 1: \$138k (work anticipated in FY20 completed in FY21) <u>Offset Underspending</u> As-Needed Design: \$571k (less than anticipated task order work) Gravity Thickener Rehabilitation: \$119k (contractor behind schedule)
Residuals	\$2,366	\$1,275	(\$1,091)	-46.1%	<u>Underspending</u> Pellet Conveyance Relocation: \$680k, and Residuals Mechanical/Electrical/Dryer Drum Replacements: \$411k (work anticipated in FY21 completed in FY20)
CSO	\$1,606	\$589	(\$1,017)	-63.3%	<u>Underspending</u> Dorchester Inflow Removal Construction: \$1.1M (updated schedules)
Other Wastewater	\$14,577	\$7,454	(\$7,123)	-48.9%	<u>Underspending</u> I/I Local Financial Assistance: \$7.1M (timing of community repayments as a result of less than anticipated communities deferring loan repayments)
<b>Total Wastewater</b>	<b>\$48,510</b>	<b>\$34,559</b>	<b>(\$13,951)</b>	<b>-28.8%</b>	

**ATTACHMENT 3  
FY21 CIP Year-to-Date Variance Report (\$000's)**

	FY21 Budget YTD November	FY21 Actuals YTD November	YTD Actuals vs. Budget		Explanations
			\$	%	
<b>Waterworks</b>					
Drinking Water Quality Improvements	\$537	\$312	(\$226)	-42.0%	<u>Underspending</u> Carroll Water Treatment Plant Technical Assistance 9 & 10: \$153k (timing of task order work) CP-7 Existing Facilities Modifications: \$150k (updated schedule)
Transmission	\$5,176	\$3,511	(\$1,665)	-32.2%	<u>Underspending</u> CP-1 Shafts 6, 8, and 9A: \$879k (delay in award of contract) Metropolitan Tunnel Redundancy Preliminary Design & MEPA Review: \$636k, and Program Support Services: \$139k (timing of consultant work) Weston Aqueduct Sluice Gates - Construction: \$505k (updated schedule) Weston Aqueduct Supply Mains/Spot Pond Supply Mains - Design/CA: \$118k (delays in final design) <u>Offset Overspending</u> Commonwealth Ave Pump Station Improvements - Construction: \$580k, (contractor progress) WASM 3 Rehabilitation, CP-1: \$350k (contractor initiated work sooner than anticipated)
Distribution & Pumping	\$5,916	\$6,757	\$841	14.2%	<u>Overspending</u> SEH Redundancy Pipeline Section 111 - Construction Phase 2 & 3: \$1.6M (contractor progress) Section 56 Replacement/Saugus River - Design/CA: \$126K (consultant progress) Section 89/29 Redundancy Construction Phase 2: \$87k (final work completed) <u>Offset Underspending</u> CP3-Sections 23, 24, 47 Rehabilitation: \$474k (schedule change) Sections 25, 75, 59 & 60 Replacement - Design/CA: \$233k (delay in commencement of field testing) Sections 50 & 57 Water Rehabilitation - Design/ESDC; \$99k (contract scope reduction) Section 89/29 Redundancy -Design/CA/RI: \$73k (Construction Administration and Resident Inspection services less than anticipated budgeted spending)


**ATTACHMENT 3  
FY21 CIP Year-to-Date Variance Report (\$000's)**

	FY21 Budget YTD November	FY21 Actuals YTD November	YTD Actuals vs. Budget		Explanations
			\$	%	
Other Waterworks	\$22,041	\$6,314	(\$15,727)	-71.4%	<u>Underspending</u> Local Water Pipeline Financial Assistance Program: \$15.8M (timing of community repayments due to less than anticipated communities deferring their loan repayments) CWTP SCADA Upgrades - Design Programming RE: \$397k (updated schedule for SCADA Construction) <u>Offset Overspending</u> Cosgrove Intake Roof Replacement: \$266k, Bellevue 2/Turkey Hill Tanks Painting: \$177k, and Gillis Pump Station/Cottage Farm CSO Roof Replacements: \$141k (FY20 planned work completed in FY21)
<b>Total Waterworks</b>	<b>\$33,670</b>	<b>\$16,893</b>	<b>(\$16,776)</b>	<b>-49.8%</b>	

**ATTACHMENT 3  
FY21 CIP Year-to-Date Variance Report (\$000's)**

	FY21 Budget YTD November	FY21 Actuals YTD November	YTD Actuals vs. Budget		Explanations
			\$	%	
<b>Business &amp; Operations Support</b>					
<b>Total Business &amp; Operations Support</b>	<b>\$5,464</b>	<b>\$1,315</b>	<b>(\$4,149)</b>	<b>-75.9%</b>	<u>Underspending</u> As-Needed Technical Assistance and CS/REI Services: \$1.5M (lower than projected task order work) Enterprise Content Management: \$699k, and Lawson Upgrade: \$689k (schedule changes) FY19-23 Vehicle Purchases: \$363k (due to timing) Security Equipment & Installation: \$401k, (timing of physical security initiatives)
<b>Total MWRA</b>	<b>\$87,644</b>	<b>\$52,767</b>	<b>(\$34,877)</b>	<b>-39.8%</b>	


**STAFF SUMMARY**

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Transmittal of the FY22 Proposed Capital Improvement Program to the MWRA Advisory Board

**COMMITTEE:** Administration, Finance & Audit

     INFORMATION  
  X   VOTE

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

  
Thomas J. Durkin  
Director, Finance

**RECOMMENDATION:**

To approve the transmittal of the FY22 Proposed Capital Improvement Program to the Advisory Board for its 60-day review and comment period.

**DISCUSSION:**

The Fiscal Year 2022 Proposed Capital Improvement Program (CIP) represents an update to the program approved by the Board in June 2020 for Fiscal Year 2021. The Proposed CIP includes the latest cost estimates, revised schedules, and new projects.

The FY22 Proposed Capital Improvement Program projects \$260.5 million spending for FY22, of which \$145.2 million supports Wastewater System Improvements, \$95.0 million supports Waterworks System Improvements, and \$20.2 million is for Business and Operations Support. The projects with significant spending in FY22 include Nut Island Odor Control and HVAC Improvements (\$22.9 million), Deer Island Clarifier Rehabilitation Phase 2 Construction (\$21.8 million), and Prison Point Rehabilitation (\$21.2 million).

The CIP Program continues to address critical redundancy improvements for the Metropolitan Tunnel System. The FY22 CIP includes approximately \$1.5 billion in spending. The initial contract for Program Support Services began in April 2019 and Preliminary Design and MEPA Review was awarded in May 2020. Spending for Preliminary Design and MEPA Review began in early FY21.

The FY22 Proposed Capital Program reaffirms MWRA’s commitment to the community financing assistance programs on both the water and wastewater side.

Today, the Authority is better positioned to reinvest in rehabilitation and replacement of aging facilities as result of conservative fiscal management which includes judicious control of expenses, and the fact that MWRA has implemented the practice of utilizing available funds for defeasances

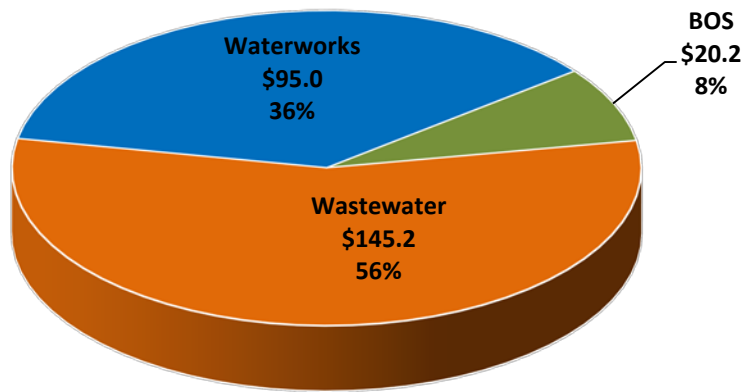
resulting in the reduction of debt service expense. MWRA projects an overall reduction in outstanding principal of debt during the FY19-23 cap period.

**FY22 Proposed CIP**

**Proposed Spending**

The FY22 Proposed Capital Improvement Program projects \$260.5 million spending for FY21, of which \$145.2 million supports Wastewater System Improvements, \$95.0 million supports Waterworks System Improvements, and \$20.2 million is for Business and Operations Support.

**FY22 Spending**



The FY22 Proposed CIP includes \$38.5 million for community assistance programs, which are a combination of loan and partial grant programs, with net expenditures of \$23.2 million for the local Infiltration/Inflow program and net expenditures of \$15.3 million for the local water pipeline program.

The \$260.5 million in projected spending is driven by 46 active wastewater and water projects. Project contracts with spending greater than \$5 million in FY22, excluding local community assistance programs, total \$95.1 million and account for 36.5% of the total annual spending. These projects are presented in the following table.

Project	Subphase	FY22 \$s in Millions	% of Total
Corrosion & Odor Control	NI Odor Ctrl HVAC Improvement Construction Phase 2	\$22.9	8.8%
Deer Island Treatment Plant Asset Protection	Clarifier Rehab Phase 2 - Construction	\$21.8	8.4%
Facility Asset Protection	Prison Point Rehab - Construction	\$21.2	8.2%
Deer Island Treatment Plant Asset Protection	Fire Alarm System Replacement - Construction	\$7.8	3.0%
NIH Redundancy & Storage	Section 89 & 29 Replacement - Construction	\$5.8	2.2%
Metro Tunnel Redundancy	Preliminary Des & MEPA Review	\$5.4	2.1%
Metro Redundancy Interim Improvement	WASM 3 CP-1	\$5.2	2.0%
Central Monitoring System	CWTP SCADA Upgrade Construction	\$5.0	1.9%
<b>Total Contracts &gt; \$5 million</b>		<b>\$95.1</b>	<b>36.5%</b>
<b>Other Project Spending</b>		<b>\$165.3</b>	<b>63.5%</b>
<b>Total FY22 Spending</b>		<b>\$260.5</b>	<b>100.0%</b>

**Nut Island Odor Control and HVAC Improvements - Construction Phase 2** - \$22.9 million (\$58.3 million total construction cost). Improvements to the Nut Island Headworks odor control, HVAC and energy management systems. These are the long-term improvement projects that arose following the January 2016 fire and the odor control, HVAC and energy management systems evaluation contract completed in February 2017.

**Prison Point Rehabilitation Construction** - \$21.2 million (\$42.5 million total construction cost). This rehabilitation will include upgrades to the facility including replacement of diesel pump engines, dry weather screens, wet weather screens, sluice gates, chemical tanks, updating of other facility equipment including electrical distribution and chemical disinfection systems, and repair/replacement of miscellaneous equipment. Improvement/installation of systems as appropriate for energy efficiencies, security, and fire alarm will also be included.

**Northern Intermediate High Redundancy Section 89 and 29 Replacement Construction** - \$5.8 million (\$28.9 million total construction cost). This is a redundancy project for MWRAs Southern Extra High service area. Section 89 will be replaced now that the redundant pipeline is completed.

**Tunnel Preliminary Design & MEPA Review** - \$5.4 million (\$15.7 million total cost) Preliminary design, geotechnical investigation, permitting and MEPA environmental review of the Northern and Southern Tunnels a part of the Metro Tunnel Redundancy project.

**WASM 3 CP-1** - \$5.2 million (\$19.5 million total construction cost) construction of the WASM 3 rehabilitation This first construction contract includes rehabilitation of approximately 13,800 feet of 56-inch and 60-inch diameter water main in Arlington, Somerville and Medford. Construction will include cleaning and cement mortar lining, some sliplining and some pipe replacement. This is a key element of the Metro Redundancy Interim Improvement project.

**Carroll Water Treatment SCADA Upgrade Construction** - \$5.0 million (\$13.0 million total construction cost). This project includes the replacement of PLC's nearing their end of life with an updated PLC platform. New PLC's will provide enhanced security capabilities, continued vendors support and future reliability. Project will also include standardizing PLC logic and HMI graphics, and upgrading aging field instrumentation.



## Deer Island Wastewater Treatment Plant Asset Protection and Residuals:

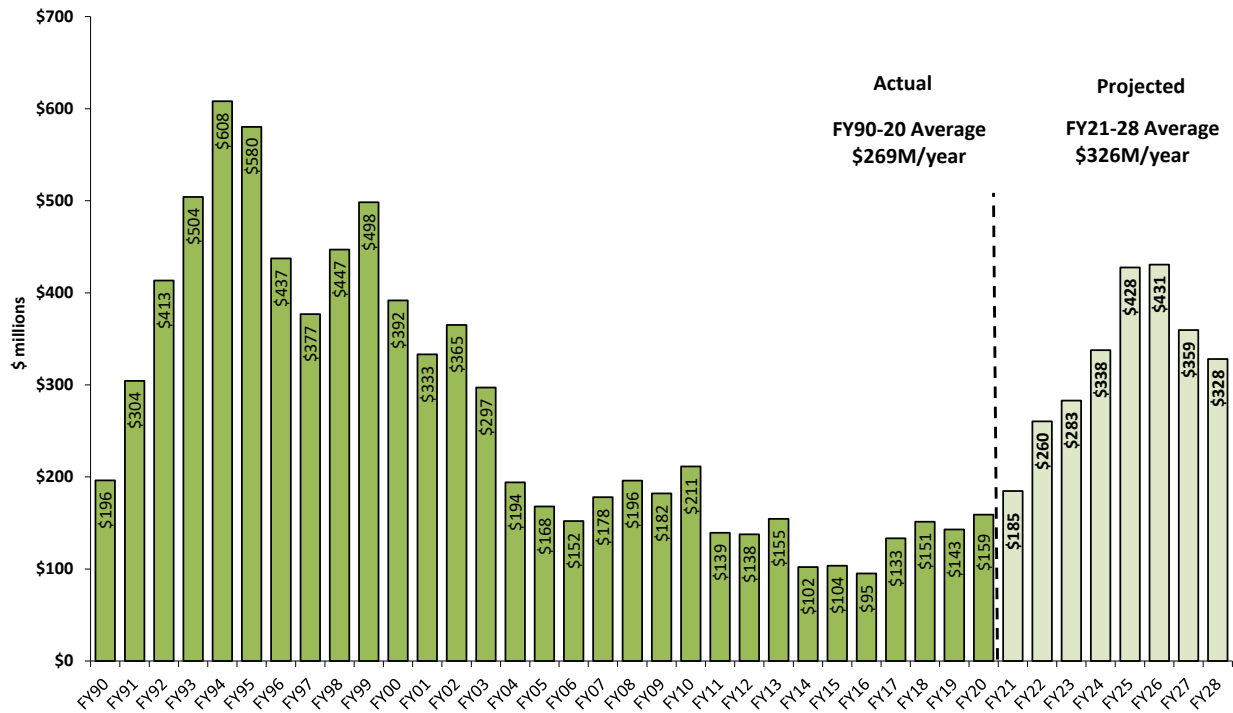
**Clarifier Rehabilitation Phase 2 Construction** - \$21.8 million (\$137.2 million total construction cost). This project will rehabilitate the sludge removal system in the primary tanks and the aeration/recirculation systems in the secondary tanks. The influent gates, effluent launders and aeration systems, and concrete corrosion in primary clarifiers will also be addressed and repaired.

**Fire Alarm System Replacement** - \$7.8 million (\$28.8 million total construction cost) Project will replace obsolete fire alarm monitoring & control systems. Design awarded October 2015; construction phase to commence in FY21 and approximately every 20 years thereafter.

## Historical Spending

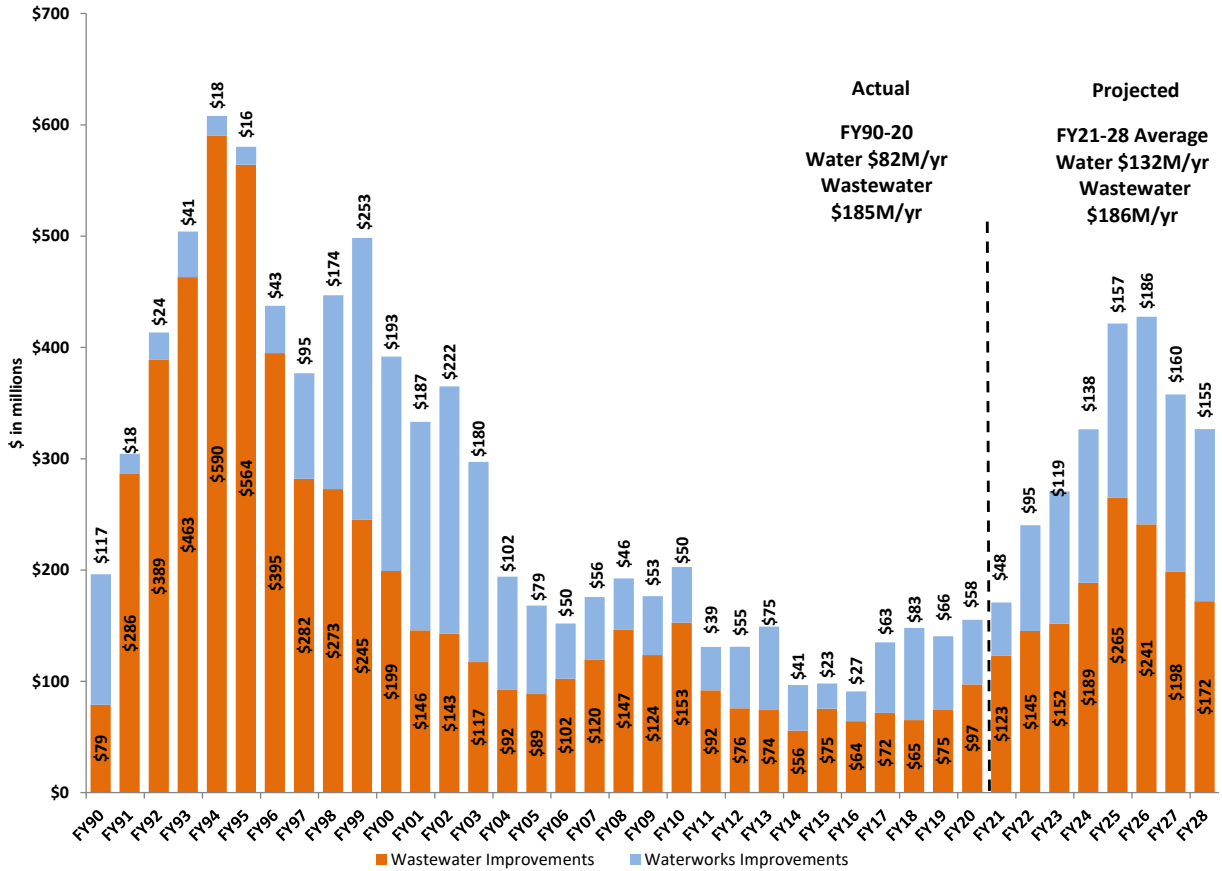
The chart below captures the historical CIP spending through FY20 and projects spending through FY23 based on the FY22 Proposed CIP. Average annual CIP spending through FY20 was \$269 million. Average annual CIP spending for the proposed FY21-28 period is projected to be \$326 million.

Annual CIP Spending



The following chart shows the historical CIP spending from FY90 through FY20 by utility with projections through FY28. Average annual CIP spending through FY20 was \$82 million for Waterworks and \$185 million for Wastewater. Average annual CIP spending for FY21-28 is projected to be \$132 million for Waterworks and \$186 million for Wastewater.

Annual CIP Spending by Utility



The spending projections set forth here include updates to the approved FY20 CIP with the latest cost estimates, revised schedules, and new projects.

### FY19-23 Spending and the Five-Year Spending Cap

Spending during the FY19-23 timeframe is planned to be \$1.0 billion, including local community spending of \$149.2 million for the I/I loan and grant program and \$42.6 million for the water pipeline loan program. Spending under the Wastewater and Waterwork programs is projected at \$592.3 million and \$385.3 million, respectively, followed by Business and Operations at \$52.6 million.

Yearly projected expenditures for the Proposed FY19-23 period by program are shown below in millions:

	Projected Spending Beyond FY20	FY19	FY20	FY21	FY22	FY23	Total FY19-23
<b>Wastewater System Improvements</b>	<b>\$1,649.2</b>	<b>\$74.8</b>	<b>\$97.2</b>	<b>\$123.2</b>	<b>\$145.2</b>	<b>\$151.8</b>	<b>\$592.3</b>
Interception & Pumping	582.0	23.1	33.1	50.7	65.9	47.8	220.6
Treatment	841.7	10.0	14.2	37.7	53.8	80.1	195.9
Residuals	90.3	0.8	13.4	1.5	0.1	0.8	16.5
CSO	7.7	1.2	1.3	5.2	2.3	0.1	10.0
Other Wastewater	127.7	39.6	35.2	28.1	23.2	23.0	149.2
<b>Waterworks System Improvements</b>	<b>\$2,263.5</b>	<b>\$65.6</b>	<b>\$58.1</b>	<b>\$47.8</b>	<b>\$95.0</b>	<b>\$118.8</b>	<b>\$385.3</b>
Drinking Water Quality Improvements	57.0	0.8	1.5	3.4	6.4	4.1	16.2
Transmission	1,721.2	9.9	12.8	20.1	39.7	52.7	135.2
Distribution & Pumping	525.1	36.6	26.6	15.3	24.6	53.6	156.7
Other Waterworks	-39.8	18.4	17.0	8.9	24.4	8.5	77.2
<b>Business &amp; Operations Support</b>	<b>70.0</b>	<b>2.4</b>	<b>3.7</b>	<b>13.9</b>	<b>20.2</b>	<b>12.4</b>	<b>52.6</b>
<b>Total MWRA</b>	<b>\$3,982.7</b>	<b>\$142.9</b>	<b>\$159.0</b>	<b>\$184.8</b>	<b>\$260.5</b>	<b>\$283.0</b>	<b>\$1,030.2</b>

Annual cash flows for the FY22 Proposed Cap period total \$888.1 million, below the established CAP of \$894.4 million set in FY19.

FY22 Proposed		FY19	FY20	FY21	FY22	FY23	Total FY19-23
	Projected Expenditures		\$142.9	\$159.0	\$184.8	\$260.5	\$283.0
I/I Program		(39.6)	(35.2)	(28.1)	(23.2)	(23.0)	(149.2)
Water Loan Program		(13.8)	(11.4)	(6.4)	(15.3)	4.4	(42.6)
<b>MWRA Spending</b>		<b>\$89.4</b>	<b>\$112.3</b>	<b>\$150.3</b>	<b>\$221.9</b>	<b>\$264.5</b>	<b>\$838.4</b>
Contingency		0.0	0.0	9.2	13.9	17.6	40.8
Inflation on Unawarded Construction		0.0	0.0	0.0	2.1	6.8	8.9
Chicopee Valley Aqueduct Projects		(0.0)	0.0	0.0	0.0	0.0	(0.0)
<b>FY21 Final FY19-23 Spending</b>		<b>\$89.4</b>	<b>\$112.3</b>	<b>\$159.5</b>	<b>\$237.9</b>	<b>\$288.9</b>	<b>\$888.1</b>

The format of the Cap table is adjusted to account separately for MWRA spending, which excludes the local I/I grant and loan program and the local water pipeline loan spending which are both outside of MWRA's control. As in past Caps, contingency for each fiscal year is incorporated into the CIP to fund the uncertainties inherent to construction. The contingency budget is calculated as a percentage of budgeted expenditure outlays. Specifically, contingency is 7% for non-tunnel projects and 15% for tunnel projects. Inflation is added for unawarded construction contracts. Finally, the Cap excludes Chicopee Valley Aqueduct system projects.

It is important to emphasize that the majority of spending within the Wastewater and Waterworks programs is concentrated in several larger projects with significant spending in the FY19-23 timeframe. Project contracts with expenditures greater than \$14 million for the FY19-23 period total \$643.3 million, which includes local community assistance programs, and accounts for over 62.4% of total spending. Large construction initiatives include the Clarifier Rehabilitation at Deer Island and Nut Island Odor Control at \$75.3 million (\$137.2 million total cost) and \$58.3 million (\$58.3 million total cost), respectively between FY19-23. Net of the community loan programs

and grants, the top construction related projects greater than \$14 million total \$331.9 million and account for over 32.2% of FY19-13 spending.

The table below highlights major project spending in the FY19-23 timeframe:

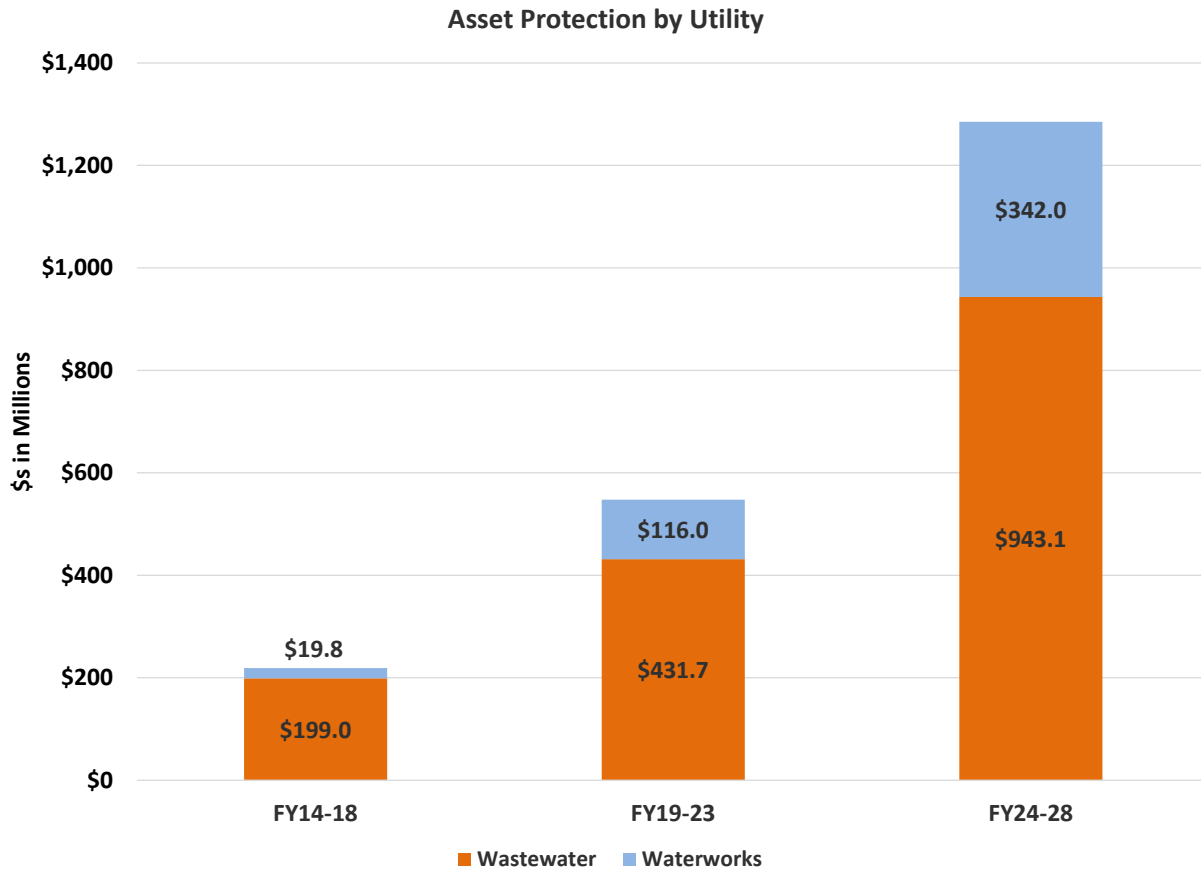
Project	Subphase	FY19-23 Spending \$s in Millions
Local Water Pipeline Improvement	LWSAP Phase 3 Distributions	\$85.6
Deer Island Treatment Plant Asset Protection	Clarifier Rehab Phase 2 - Construction	\$75.3
Local Water Pipeline Improvement	Local Water System Assistance Loans	\$59.9
Corrosion & Odor Control	NI Odor Ctrl HVAC Imp Construction Phase 2	\$58.3
Facility Asset Protection	Chelsea Creek Upgrades - Construction	\$51.9
I/I Local Financial Assistance	Phase XI Grants	\$44.6
Facility Asset Protection	Prison Point Rehab - Construction	\$42.5
I/I Local Financial Assistance	Phase X Grants	\$32.5
I/I Local Financial Assistance	Phase XII Grants	\$28.2
I/I Local Financial Assistance	Phase IX Grants	\$23.2
Local Water Pipeline Improvement	Lead Service Line Replace Loans	\$22.7
SEH Redundancy & Storage	Redundancy Pipeline Sect 111 - Construction 3	\$20.2
NIH Redundancy & Storage	Section 89 & 29 Redundancy Construction Phase 2	\$19.8
Deer Island Treatment Plant Asset Protection	Gravity Thickener Rehab	\$19.6
Deer Island Treatment Plant Asset Protection	Fire Alarm System Replacement - Construction	\$15.8
I/I Local Financial Assistance	Phase XI Loans	\$14.9
Metro Tunnel Redundancy	Prelm Des & MEPA Review	\$14.4
SEH Redundancy & Storage	Redundancy Pipeline Sect 111 - Construction 2	\$14.2
<b>Total Contracts &gt; \$14 million</b>		<b>\$643.3</b>
<b>% of 19-23 Spending</b>		<b>62.4%</b>
<b>Spending Excluding Community Loan Programs</b>		<b>\$331.9</b>
<b>% of 19-23 Spending</b>		<b>32.2%</b>
<b>Total Projected FY19-23 Spending</b>		<b>\$1,030.2</b>

Asset Protection accounts for the largest share of capital expenditures for the FY19-23 period. The FY22 Proposed CIP includes \$560.6 million for asset protection initiatives, representing 54.4% of total MWRA spending in this timeframe. Asset protection spending by program is as follows: Wastewater (\$431.6 million), Waterworks (\$116.0 million), and Business and Operations Support (\$13.0 million). Deer Island Treatment Plant Asset Protection accounts for over \$187.3 million in spending. Spending for water system redundancy projects totals \$203.3 million in the same FY19-23 period, accounting for 19.7% of total spending.

**Changing nature of the CIP by Category  
(\$s in millions)**

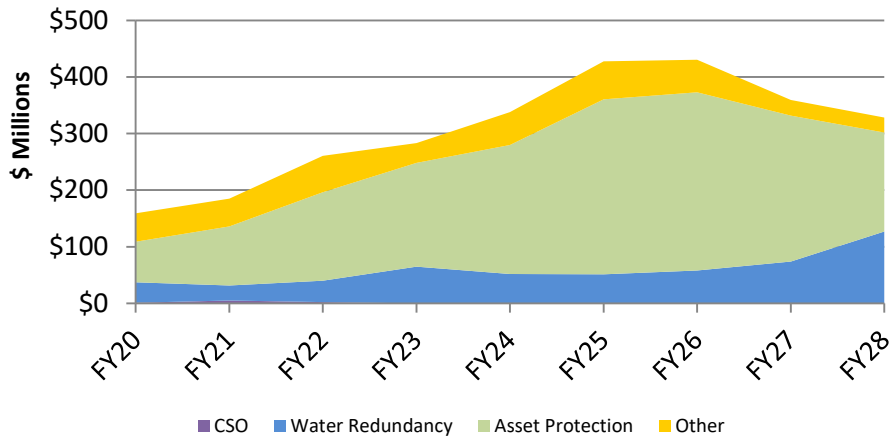
Project Category	FY14-18	FY19-23	FY24-28
Asset Protection	\$222.8	\$560.6	\$1,285.5
Water Redundancy	\$174.6	\$203.3	\$361.4
CSO	\$64.7	\$10.0	\$0.1
Other	\$123.5	\$256.2	\$236.6
<b>Total</b>	<b>\$585.6</b>	<b>\$1,030.2</b>	<b>\$1,883.5</b>
<b>Asset Protection</b>	<b>38.0%</b>	<b>54.4%</b>	<b>68.2%</b>
<b>Water Redundancy</b>	<b>29.8%</b>	<b>19.7%</b>	<b>19.2%</b>
CSO	11.0%	1.0%	0.0%
Other	21.1%	24.9%	12.6%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

In terms of utility spending, wastewater asset protection accounts for 77.0% of the FY19-23 projected asset projection spending at \$431.7 million of which \$187.3 million is designated for the Deer Island Wastewater Treatment Plant and \$244.4 million for headworks and pipelines. The \$116.0 million targeted for waterworks asset protection includes \$57.1 million for water pipeline projects.



As illustrated by the following graph, the next two waves of spending over the FY19-23 Cap period and the FY24-28 Cap period will be for asset protection and water redundancy. This reflects MWRA’s commitment to maintaining its physical plant and addressing the need for water system redundancy in some critical service areas. Total asset protection spending for FY19-23 is projected at \$560.6 million or 54.4% of projected spending. Similarly, water redundancy spending for FY19-23 is projected at \$203.3 million or 19.7% of projected FY19-23 spending. For the FY24-28 spending window, total asset protection is projected at \$1.3 billion or 68.2% of projected spending. Similarly, water redundancy spending for FY24-28 is projected at \$361.4 million or 19.2% of projected FY24-28 spending.

**FY22 Proposed  
Expenditure Forecast by Major Category**



**FY22 Proposed CIP Future Expenditures**

The FY22 Proposed CIP contains future spending estimated at \$4.0 billion, including \$1.6 billion for Wastewater (Asset Protection) and \$2.3 billion for Waterworks (Asset Protection and Redundancy projects).

The table below represents the projected spending by the major project categories:

	Future Spending Beyond FY20	Total FY19-23	Total FY24-28	Beyond 28
<b>Wastewater System Improvements</b>	<b>\$1,649.2</b>	<b>\$592.3</b>	<b>\$1,064.9</b>	<b>\$164.2</b>
Interception & Pumping	582.0	220.6	332.9	84.7
Treatment	841.7	195.9	596.5	73.6
Residuals	90.3	16.5	22.2	65.7
CSO	7.7	10.0	0.1	0.0
Other Wastewater	127.7	149.2	113.2	(59.8)
<b>Waterworks System Improvements</b>	<b>\$2,263.5</b>	<b>\$385.3</b>	<b>\$795.2</b>	<b>\$1,206.8</b>
Drinking Water Quality Improvements	57.0	16.2	14.8	28.3
Transmission	1,721.2	135.2	320.1	1,288.7
Distribution & Pumping	525.1	156.7	369.3	62.3
Other Waterworks	-39.8	77.2	91.0	(172.5)
<b>Business &amp; Operations Support</b>	<b>70.0</b>	<b>52.6</b>	<b>23.5</b>	<b>-</b>
<b>Total MWRA</b>	<b>\$3,982.7</b>	<b>\$1,030.2</b>	<b>\$1,883.5</b>	<b>\$1,370.9</b>

## Major Planned Contract Awards for FY22:

In Fiscal Year 2022, 56 contracts totaling \$149.0 million are projected to be awarded. The largest ten projected contract awards total \$82.7 million and account for nearly 56% of expected awards and are presented in the following table.

Project	Subphase	Notice to Proceed	Total Contract Amount \$s in Millions
Metro Redundancy Interim Improvements	Waltham Water Pipeline Const	Feb-22	\$13.8
Metro Redundancy Interim Improvements	CHEPS Impr Construction	Jul-21	\$13.5
NHS - Revere & Malden Pipelines	Section 56 Replacement- Construction	Feb-22	\$9.8
Cathodic Protection of Distribution Mains	Cath Prot Metro System Des/CA	Jul-21	\$9.2
Braintree-Weymouth Relief	B/W Improvements - Construction	Jul-21	\$8.0
Northern Low Service Rehab Sec 8	Sec 50 & 57 Water Rehab	Jul-21	\$8.0
DI Treatment Plant Asset Protection	CHP Des/ESDC/REI	Jun-22	\$5.6
New Connect Mains-Shaft 7	Replace of Sect 25 - Const CP-2	Apr-22	\$5.3
Info Security Program ISP	MSSP/SIEM	Nov-21	\$5.2
Northern Extra High Service New Pipelines	CP-1 NEH Improvements	Apr-22	\$4.4
	<b>Top 10 Contracts</b>		<b>\$82.7</b>
	<b>% of Total Planned Awards</b>		<b>55.5%</b>
	<b>56 Contract Awards Planned</b>		<b>\$149.0</b>

## CIP Review and Adoption Process

The Advisory Board will have no less than 60 days from the transmittal of the FY22 Proposed CIP to review the budget and prepare comments and recommendations. During the review period, Advisory Board and MWRA staff will continue to meet and discuss the changes to the capital budget. The Advisory Board will then transmit its comments and recommendations to MWRA in the spring after its review. Staff will prepare draft responses to the Advisory Board's recommendations for discussion at the budget hearing. During the spring, MWRA will update the CIP to incorporate the latest information into the Final budget. In June, staff will present the FY21 Final to the Board for adoption.

## ATTACHMENTS:

- A. FY22 Proposed Project Level Expenditure Forecast
- B. Overview of the FY22 Proposed CIP and Changes from the FY21 Final CIP



**ATTACHMENT A**  
**FY22 Proposed CIP**  
**Expenditure Forecast at Project Level in \$000s**

Program / Project Name	Total Program/Project Amount	Spending through FY20	Remaining Balance	FY21	FY22	FY23	FY19-FY23	FY24-FY28	Beyond FY28
<b>Total MWRA</b>	<b>8,558,420</b>	<b>4,575,688</b>	<b>3,982,732</b>	<b>184,809</b>	<b>260,455</b>	<b>283,008</b>	<b>1,030,198</b>	<b>1,883,520</b>	<b>1,370,940</b>
<b>Wastewater</b>	<b>3,882,639</b>	<b>2,233,401</b>	<b>1,649,238</b>	<b>123,186</b>	<b>145,222</b>	<b>151,790</b>	<b>592,282</b>	<b>1,064,860</b>	<b>164,179</b>
<b>Interception &amp; Pumping</b>	<b>1,240,647</b>	<b>658,651</b>	<b>581,996</b>	<b>50,666</b>	<b>65,883</b>	<b>47,823</b>	<b>220,623</b>	<b>332,938</b>	<b>84,685</b>
102 Quincy Pump Facilities	25,907	25,907	-	completed project					
104 Braintree-Weymouth Relief	241,526	228,390	13,135	277	692	717	2,372	11,449	
105 New Neponset Valley Relief	30,300	30,300	-	completed project					
106 Wellesley Ext Replacement	64,359	64,359	-	completed project					
107 Framingham Extension Relie	47,856	47,856	-	completed project					
127 Cummingsville Replacement	8,999	8,999	-	completed project					
130 Siphon Structure Rehabilit	14,668	1,015	13,653	1,198	1,160	1,087	3,520	10,208	
131 Upper Neponset Valley Sewe	54,174	54,174	-	completed project					
132 Corrosion & Odor Control	98,697	11,725	86,972	20,183	24,415	12,685	62,828	28,850	840
134 Ashland Extension Sewer	-	-	-						
135 System Master Plan Interce	-	-	-						
136 West Roxbury Tunnel	11,314	10,314	1,000					1,000	
137 Wastewater Central Monitor	27,482	19,913	7,569	130	447	447	1,154	6,546	
139 South System Relief Projec	4,939	3,439	1,500					1,500	
140 Neponset Valley Relief Sew	-	-	-						
141 Wastewater Process Optimiz	8,933	1,721	7,212	281	200		701	5,154	1,577
142 Wastewater Meter Sys-Equip	21,938	7,838	14,100	2,317	2,200	456	7,087		9,126
143 Regional I/I Management Pl	169	169	-	completed project					
145 Facility Asset Protection	573,689	142,532	431,157	26,279	36,769	32,170	142,699	262,796	73,142
146 D.I. Cross Harbor Tunnel	5,000	-	5,000					5,000	
147 Randolph Trunk Sewer Relie	698	-	698			262	262	436	
<b>Treatment</b>	<b>1,167,097</b>	<b>325,426</b>	<b>841,670</b>	<b>37,746</b>	<b>53,780</b>	<b>80,133</b>	<b>195,929</b>	<b>596,455</b>	<b>73,556</b>
182 DI Primary and Secondary T	(958)	(958)	-	completed project					
200 DI Plant Optimization	33,279	33,279	-	completed project					
206 DI Treatment Pl Asset Prot	1,100,570	274,838	825,732	36,366	50,710	77,757	187,311	587,343	73,556
210 Clinton Wastewatr Treat Pl	31,994	16,056	15,938	1,380	3,070	2,377	8,618	9,111	
211 Laboratory Services	2,212	2,212	-	completed project					
<b>Residuals</b>	<b>169,505</b>	<b>79,249</b>	<b>90,256</b>	<b>1,469</b>	<b>56</b>	<b>795</b>	<b>16,522</b>	<b>22,209</b>	<b>65,726</b>
261 Residuals	63,811	63,811	-	completed project					
271 Residuals Asset Protection	105,694	15,438	90,256	1,469	56	795	16,522	22,209	65,726

**ATTACHMENT A**  
**FY22 Proposed CIP**  
**Expenditure Forecast at Project Level in \$000s**

Program / Project Name	Total Program/Project Amount	Spending through FY20	Remaining Balance	FY21	FY22	FY23	FY19-FY23	FY24-FY28	Beyond FY28
<b>CSO</b>	<b>912,524</b>	<b>904,869</b>	<b>7,655</b>	<b>5,221</b>	<b>2,271</b>	<b>73</b>	<b>10,038</b>	<b>90</b>	
CSO MWRA Managed	433,534	433,534	-	completed project					
339 North Dorchester Bay	221,510	221,510	-	completed project					
347 East Boston Branch Sewer R	85,637	85,637	-	completed project					
348 BOS019 Storage Conduit	14,288	14,288	-	completed project					
349 Chelsea Trunk Sewer	29,779	29,779	-	completed project					
350 Union Park Detention Treat	49,583	49,583	-	completed project					
353 Upgrade Existing CSO Facil	22,385	22,385	-	completed project					
354 Hydraulic Relief Projects	2,295	2,295	-	completed project					
355 MWR003 Gate & Siphon	4,424	4,424	-	completed project					
357 Charles River CSO Controls	3,633	3,633	-	completed project					
CSO Community Managed	423,780	420,017	3,763	3,763			3,763		
340 Dorch Bay Sewer Sep (Fox)	55,029	55,029	-	completed project					
341 Dorch Bay Sew Separ (Comm	63,625	59,862	3,763	3,763			3,763		
342 Neponset River Sewer Separ	2,492	2,492	-	completed project					
343 Constitution Beach Sewer S	3,731	3,731	-	completed project					
344 Stony Brook Sewer Separati	44,319	44,319	-	completed project					
346 Cambridge Sewer Separation	104,552	104,552	-	completed project					
351 BWSC Floatables Controls	946	946	-	completed project					
352 Cambridge Floatables Contr	1,127	1,127	-	completed project					
356 Fort Point Channel Sewer S	11,507	11,507	-	completed project					
358 Morrissey Boulevard Drain	32,181	32,181	-	completed project					
359 Reserved Channel Sewer Sep	70,524	70,524	-	completed project					
360 Brookline Sewer Separation	24,715	24,715	-	completed project					
361 Bulfinch Triangle Sewer Se	9,032	9,032	-	completed project					
CSO Planning & Support	55,210	51,318	3,892	1,458	2,271	73	6,275	90	
<b>Other Wastewater</b>	<b>392,866</b>	<b>265,205</b>	<b>127,661</b>	<b>28,084</b>	<b>23,232</b>	<b>22,966</b>	<b>149,170</b>	<b>113,168</b>	<b>(59,789)</b>
128 I/I Local Financial Assist	392,585	264,924	127,661	28,084	23,232	22,966	149,170	113,168	(59,789)
138 Sewerage System Mapping Up	281	281	-	completed project					

**ATTACHMENT A**  
**FY22 Proposed CIP**  
**Expenditure Forecast at Project Level in \$000s**

Program / Project Name	Total Program/Project Amount	Spending through FY20	Remaining Balance	FY21	FY22	FY23	FY19-FY23	FY24-FY28	Beyond FY28
<b>Waterworks</b>	<b>4,498,649</b>	<b>2,235,116</b>	<b>2,263,533</b>	<b>47,754</b>	<b>95,022</b>	<b>118,831</b>	<b>385,308</b>	<b>795,165</b>	<b>1,206,761</b>
<b>Drinking Water Quality Improve</b>	<b>709,291</b>	<b>652,292</b>	<b>56,999</b>	<b>3,449</b>	<b>6,371</b>	<b>4,097</b>	<b>16,236</b>	<b>14,811</b>	<b>28,271</b>
542 Carroll Water Treatment Pl	439,307	424,567	14,740	2,530	2,400	560	6,941	9,250	
543 Quabbin Water Treatment Pl	19,973	19,973	-	completed project					
544 Norumbega Covered Storage	106,674	106,674	-	completed project					
545 Blue Hills Covered Storage	40,083	40,083	-	completed project					
550 Spot Pond Storage Facility	60,126	60,126	-	completed project					
555 CWTP Asset Protection	43,128	869	42,259	919	3,971	3,537	9,296	5,561	28,271
<b>Transmission</b>	<b>2,569,155</b>	<b>847,962</b>	<b>1,721,192</b>	<b>20,085</b>	<b>39,655</b>	<b>52,675</b>	<b>135,177</b>	<b>320,088</b>	<b>1,288,689</b>
597 Winsor Station Pipeline	53,081	5,938	47,144	183	917		1,304	45,391	653
601 Sluice Gate Rehabilitation	9,158	9,158	-	completed project					
604 MetroWest Tunnel	700,184	697,182	3,002					3,002	
615 Chicopee Valley Aqued. Red	8,666	8,666	-	completed project					
616 Quabbin Transmission Syst.	21,658	9,175	12,483	1,706	4,076	4,272	10,563	2,403	25
617 Sudbury/Weston Aqued. Rep	12,495	2,627	9,868	1,546	400		2,341	7,255	667
620 Wachusett Res Spillway Imp	9,287	9,287	-	completed project					
621 Watershed Land	29,000	26,029	2,971	971	1,000	1,000	6,154		
622 Cosgrove Tunnel Redundancy	58,628	58,619	9	9			6,610		
623 Dam Projects	7,223	3,259	3,964	323	1,076	1,990	3,532	575	
625 Metro Tunnel Redundancy	1,500,218	5,410	1,494,807	5,985	7,500	7,500	22,939	188,228	1,285,594
628 Metro Redu Interim Impr	135,356	12,611	122,745	8,677	20,347	34,824	73,621	57,147	1,750
630 Watershed Div Cap Impr	24,201	-	24,201	685	4,339	3,090	8,114	16,087	
<b>Distribution And Pumping</b>	<b>1,052,702</b>	<b>527,592</b>	<b>525,110</b>	<b>15,323</b>	<b>24,578</b>	<b>53,567</b>	<b>156,703</b>	<b>369,317</b>	<b>62,325</b>
618 Peabody Pipeline Project	1,448	1,448	-				389		
677 Valve Replacement	22,249	12,016	10,233					6,747	3,485
678 Boston Low Serv.-Pipe & Va	23,691	23,691	-	completed project					
683 Heath Hill Road Pipe Repl.	19,358	19,358	-	completed project					
689 James L. Gillis Pump Stn.	33,419	33,419	-	completed project					
692 NHS - Section 27 Improvmnt	1,665	124	1,541	1	14	13	28	1,514	
693 NHS - Revere & Malden Pipe	86,010	31,010	54,999	1,449	2,804	12,147	18,848	36,469	2,131
702 New Connect Mains-Shaft 7	60,694	13,982	46,712	1,521	2,391	15,452	20,421	27,349	
704 Rehab of Other Pump Stns	51,290	30,090	21,200			747	780	20,453	
706 NHS-Conn Mains Section 91	2,360	2,360	-	completed project					
708 Nor Ext High Serv New Pipe	43,839	3,632	40,207	234	1,805	3,800	5,840	34,000	367
712 Cathodic Pro Of Dis Mains	61,683	1,160	60,523		2,927	8,558	12,375	49,038	

**ATTACHMENT A**  
**FY22 Proposed CIP**  
**Expenditure Forecast at Project Level in \$000s**

Program / Project Name	Total Program/Project Amount	Spending through FY20	Remaining Balance	FY21	FY22	FY23	FY19-FY23	FY24-FY28	Beyond FY28
713 Spot Pond Supply Mains Reh	66,498	65,489	1,008	3	506	500	1,008		
714 South. Extra High Sects 41	3,657	3,657	-	completed project					
719 Chestnut Hill Connec Mains	38,886	18,287	20,599					20,590	9
720 Warren Cottage Line Rehab	1,205	1,205	-	completed project					
721 South Spine Distrib Mains	90,448	37,471	52,977	814	881	754	3,237	50,302	226
722 NIH Redundancy & Storage	137,170	73,739	63,431	3,050	6,717	6,714	41,325	46,940	10
723 Nor Low Service Rehab Sec8	60,834	5,350	55,484	1,277	5,625	3,896	13,194	44,571	115
725 Hydraulic Model Update	598	598	-	completed project					
727 SEH Redundancy & Storage	140,915	58,833	82,082	6,974	495	496	38,353	18,136	55,981
730 Weston Aqued. Supply Mains	80,457	80,403	54		54		54		
731 Lynnfield Pipeline	5,626	5,626	-	completed project					
732 Walnut St. & Fisher Hill P	2,717	2,717	-	completed project					
735 Section 80 Rehabilitation	15,985	1,925	14,060		360	491	851	13,209	
<b>Other Waterworks</b>	<b>167,502</b>	<b>207,270</b>	<b>(39,769)</b>	<b>8,897</b>	<b>24,418</b>	<b>8,491</b>	<b>77,191</b>	<b>90,949</b>	<b>(172,524)</b>
753 Central Monitoring System	42,020	22,250	19,770	1,022	6,415	6,025	15,007	6,309	
763 Distribut Systems Fac. Map	2,799	1,036	1,763	231	269	385	885	878	
764 Local Water Infrastr Rehab	7,488	7,488	-	completed project					
765 Local Water Pipeline Imp.	-	165,539	(165,539)	6,437	15,328	(4,443)	42,588	20,215	(203,076)
766 Waterworks Facility Asset	115,195	10,957	104,238	1,208	2,406	6,524	18,712	63,548	30,552
<b>Business &amp; Operations Support</b>	<b>177,133</b>	<b>107,171</b>	<b>69,962</b>	<b>13,869</b>	<b>20,211</b>	<b>12,387</b>	<b>52,608</b>	<b>23,496</b>	
881 Equipment Purchase	41,337	24,011	17,325	3,083	2,162	2,924	10,323	9,157	
925 Technical Assistance	1,150	-	1,150		383	383	766	384	
930 MWRA Facility - Chelsea	9,812	9,812	-	completed project					
931 Business Systems Plan	24,562	24,562	-	completed project					
932 Environmental Remediation	1,479	1,479	-	completed project					
933 Capital Maintenance Planni	26,385	17,238	9,147	4,259	3,559	1,328	12,184		
934 MWRA Facilities Management	3,071	371	2,700		208	867	1,075	1,625	
935 Alternative Energy Initiat	23,684	18,184	5,500				(234)	5,500	
940 Applicat Improv Program	20,849	3,191	17,658	3,382	6,034	3,257	12,971	4,985	
942 Info Security Program ISP	7,976	1,988	5,988	103	2,485	1,700	4,568	1,700	
944 Info Tech Mgmt Program	200	-	200	40	160		200		
946 IT Infrastructure Program	16,630	6,335	10,294	3,001	5,220	1,928	10,754	145	

**ATTACHMENT B**  
**Overview of the FY22 Proposed CIP and Changes from the Final FY21 CIP**

Program and Project	FY21 Final				FY22 Proposed				Change from Final FY20			
	Total Budget Amount	FY19-23	FY24-28	Beyond 28	Total Budget Amount	FY19-23	FY24-28	Beyond 28	Total Budget Amount	FY19-23	FY24-28	Beyond 28
<b>Total MWRA</b>	<b>8,537,295</b>	<b>1,055,235</b>	<b>1,859,106</b>	<b>1,349,195</b>	<b>8,558,426</b>	<b>1,030,197</b>	<b>1,883,525</b>	<b>1,370,942</b>	<b>21,129</b>	<b>(25,039)</b>	<b>24,420</b>	<b>21,744</b>
<b>Wastewater</b>	<b>3,834,479</b>	<b>601,117</b>	<b>1,044,733</b>	<b>127,310</b>	<b>3,882,640</b>	<b>592,281</b>	<b>1,064,859</b>	<b>164,179</b>	<b>48,161</b>	<b>(8,836)</b>	<b>20,126</b>	<b>36,869</b>
<b>Interception &amp; Pumping</b>	<b>1,238,479</b>	<b>221,249</b>	<b>356,386</b>	<b>58,444</b>	<b>1,240,648</b>	<b>220,623</b>	<b>332,939</b>	<b>84,685</b>	<b>2,169</b>	<b>(626)</b>	<b>(23,447)</b>	<b>26,241</b>
102 Quincy Pump Facilities	25,907	-	-	-	25,907	-	-	-	-	-	-	-
104 Braintree-Weymouth Relief Facilities	241,415	1,797	11,913	-	241,526	2,372	11,449	-	111	575	(464)	-
105 New Neponset Valley Relief Sewer	30,300	-	-	-	30,300	-	-	-	-	-	-	-
106 Wellesley Extension Replacement Sewer	64,359	-	-	-	64,359	-	-	-	-	-	-	-
107 Framingham Extension Relief Sewer	47,856	-	-	-	47,856	-	-	-	-	-	-	-
127 Cummingsville Replacement Sewer	8,999	-	-	-	8,999	-	-	-	-	-	-	-
130 Siphon Structure Rehabilitation	14,668	3,520	10,208	-	14,668	3,520	10,208	-	-	-	-	-
131 Upper Neponset Valley Sewer	54,174	-	-	-	54,174	-	-	-	-	-	-	-
132 Corrosion & Odor Control	97,949	62,051	28,878	840	98,697	62,828	28,850	840	748	777	(28)	-
136 West Roxbury Tunnel	11,314	-	1,000	-	11,314	-	1,000	-	-	-	-	-
137 Wastewater Central Monitoring	27,482	1,226	6,474	-	27,482	1,154	6,546	-	-	(72)	72	-
139 South System Relief Project	4,939	-	1,500	-	4,939	-	1,500	-	-	-	-	-
141 Wastewater Process Optimization	8,933	701	5,154	1,577	8,933	701	5,154	1,577	-	-	-	-
142 Wastewater Meter System-Equipment	21,938	7,391	-	8,823	21,938	7,087	-	9,126	-	(304)	-	303
143 Regional I/I Management Planning	169	-	-	-	169	-	-	-	-	-	-	-
145 Facility Asset Protection	572,379	144,301	285,823	47,204	573,689	142,699	262,796	73,142	1,310	(1,602)	(23,027)	25,938
146 D.I. Cross Harbor Tunnel Inspection	5,000	-	5,000	-	5,000	-	5,000	-	-	-	-	-
147 Randolph Trunk Sewer Relief	698	262	436	-	698	262	436	-	-	-	-	-
<b>Treatment</b>	<b>1,121,329</b>	<b>201,050</b>	<b>550,032</b>	<b>69,089</b>	<b>1,167,097</b>	<b>195,929</b>	<b>596,454</b>	<b>73,555</b>	<b>45,768</b>	<b>(5,121)</b>	<b>46,422</b>	<b>4,466</b>
182 DI Primary and Secondary	(958)	-	-	-	(958)	-	-	-	-	-	-	-
200 DI Plant Optimization	33,279	-	-	-	33,279	-	-	-	-	-	-	-
206 DI Treatment Plant Asset Protection	1,055,309	192,954	540,906	69,090	1,100,570	187,311	587,343	73,556	45,261	(5,643)	46,437	4,466
210 Clinton Wastewater Treat Plant	31,487	8,096	9,126	-	31,994	8,618	9,111	-	507	522	(15)	-
211 Laboratory Services	2,212	-	-	-	2,212	-	-	-	-	-	-	-
<b>Residuals</b>	<b>169,281</b>	<b>16,760</b>	<b>30,935</b>	<b>56,540</b>	<b>169,505</b>	<b>16,522</b>	<b>22,209</b>	<b>65,728</b>	<b>224</b>	<b>(238)</b>	<b>(8,726)</b>	<b>9,188</b>
261 Residuals	63,811	-	-	-	63,811	-	-	-	-	-	-	-
271 Residuals Asset Protection	105,470	16,760	30,935	56,540	105,694	16,522	22,209	65,728	224	(238)	(8,726)	9,188

**ATTACHMENT B**  
**Overview of the FY22 Proposed CIP and Changes from the Final FY21 CIP**

Program and Project	FY21 Final				FY22 Proposed				Change from Final FY20			
	Total Budget Amount	FY19-23	FY24-28	Beyond 28	Total Budget Amount	FY19-23	FY24-28	Beyond 28	Total Budget Amount	FY19-23	FY24-28	Beyond 28
<b>CSO</b>	<b>912,524</b>	<b>10,041</b>	<b>85</b>	<b>-</b>	<b>912,524</b>	<b>10,037</b>	<b>89</b>	<b>-</b>	<b>-</b>	<b>(4)</b>	<b>4</b>	<b>-</b>
340 Dorchester Bay Sewer Separation (Fox Point)	55,029	-	-	-	55,029	-	-	-	-	-	-	-
341 Dorchester Bay Sewer Separation (Commercial Point)	63,625	3,763	-	-	63,625	3,763	-	-	-	-	-	-
342 Neponset River Sewer Separation	2,492	-	-	-	2,492	-	-	-	-	-	-	-
343 Constitution Beach Sewer Separation	3,731	-	-	-	3,731	-	-	-	-	-	-	-
344 Stony Brook Sewer Separation	44,319	-	-	-	44,319	-	-	-	-	-	-	-
346 Cambridge Sewer Separation	104,552	-	-	-	104,552	-	-	-	-	-	-	-
351 BWSC Floatables Controls	946	-	-	-	946	-	-	-	-	-	-	-
352 Cambridge Floatables Control	1,127	-	-	-	1,127	-	-	-	-	-	-	-
356 Fort Point Channel Sewer Separation	11,507	-	-	-	11,507	-	-	-	-	-	-	-
358 Morrissey Boulevard Drain	32,181	-	-	-	32,181	-	-	-	-	-	-	-
359 Reserved Channel Sewer Separation	70,524	-	-	-	70,524	-	-	-	-	-	-	-
360 Brookline Sewer Separation	24,715	-	-	-	24,715	-	-	-	-	-	-	-
361 Bulfinch Triangle Sewer Separation	9,032	-	-	-	9,032	-	-	-	-	-	-	-
339 North Dorchester Bay	221,510	-	-	-	221,510	-	-	-	-	-	-	-
347 East Boston Branch Sewer Relief	85,637	-	-	-	85,637	-	-	-	-	-	-	-
348 BOS019 Storage Conduit	14,288	-	-	-	14,288	-	-	-	-	-	-	-
349 Chelsea Trunk Sewer	29,779	-	-	-	29,779	-	-	-	-	-	-	-
350 Union Park Detention Treatment Facility	49,583	-	-	-	49,583	-	-	-	-	-	-	-
353 Upgrade Existing CSO Facilities	22,385	-	-	-	22,385	-	-	-	-	-	-	-
354 Hydraulic Relief Projects	2,295	-	-	-	2,295	-	-	-	-	-	-	-
355 MWR003 Gate & Siphon	4,424	-	-	-	4,424	-	-	-	-	-	-	-
357 Charles River CSO Controls	3,633	-	-	-	3,633	-	-	-	-	-	-	-
324 CSO Support	55,210	6,279	86	-	55,210	6,275	90	-	-	(4)	4	-
<b>Other Wastewater</b>	<b>392,866</b>	<b>152,017</b>	<b>107,295</b>	<b>(56,763)</b>	<b>392,866</b>	<b>149,170</b>	<b>113,168</b>	<b>(59,789)</b>	<b>-</b>	<b>(2,847)</b>	<b>5,873</b>	<b>(3,026)</b>
128 I/I Local Financial Assistance	392,585	152,017	107,295	(56,763)	392,585	149,170	113,168	(59,789)	-	(2,847)	5,873	(3,026)
138 Sewerage System Mapping Upgrade	281	-	-	-	281	-	-	-	-	-	-	-
<b>Total Waterworks</b>	<b>4,529,816</b>	<b>404,762</b>	<b>791,760</b>	<b>1,221,888</b>	<b>4,498,651</b>	<b>385,310</b>	<b>795,170</b>	<b>1,206,763</b>	<b>(31,165)</b>	<b>(19,452)</b>	<b>3,410</b>	<b>(15,125)</b>
<b>Drinking Water Quality</b>	<b>708,071</b>	<b>16,377</b>	<b>13,450</b>	<b>28,271</b>	<b>709,291</b>	<b>16,237</b>	<b>14,811</b>	<b>28,271</b>	<b>1,220</b>	<b>(140)</b>	<b>1,361</b>	<b>-</b>
542 Carroll Water Treatment Plant	438,652	6,285	9,250	-	439,307	6,941	9,250	-	655	656	-	-
543 Quabbin Water Treatment Plant	19,973	-	-	-	19,973	-	-	-	-	-	-	-
544 Norumbega Covered Storage	106,674	-	-	-	106,674	-	-	-	-	-	-	-
545 Blue Hills Covered Storage	40,083	-	-	-	40,083	-	-	-	-	-	-	-
550 Spot Pond Storage Facility	60,126	-	-	-	60,126	-	-	-	-	-	-	-
555 CWTP Asset Protection	42,563	10,092	4,200	28,271	43,128	9,296	5,561	28,271	565	(796)	1,361	-

**ATTACHMENT B**  
**Overview of the FY22 Proposed CIP and Changes from the Final FY21 CIP**

Program and Project	FY21 Final				FY22 Proposed				Change from Final FY20			
	Total Budget Amount	FY19-23	FY24-28	Beyond 28	Total Budget Amount	FY19-23	FY24-28	Beyond 28	Total Budget Amount	FY19-23	FY24-28	Beyond 28
<b>Transmission</b>	<b>2,620,959</b>	<b>130,394</b>	<b>365,315</b>	<b>1,300,055</b>	<b>2,569,157</b>	<b>135,180</b>	<b>320,090</b>	<b>1,288,691</b>	<b>(51,802)</b>	<b>4,786</b>	<b>(45,225)</b>	<b>(11,364)</b>
597 Winsor Station Pipeline	53,203	1,304	45,513	653	53,081	1,304	45,391	653	(122)	-	(122)	-
601 Sluice Gate Rehabilitation	9,158	-	-	-	9,158	-	-	-	-	-	-	-
604 MetroWest Tunnel	700,184	-	3,002	-	700,184	-	3,002	-	-	-	-	-
615 Chicopee Valley Aqueduct Redundancy	8,666	-	-	-	8,666	-	-	-	-	-	-	-
616 Quabbin Transmission System	22,246	11,099	2,455	25	21,658	10,563	2,403	25	(588)	(536)	(52)	-
617 Sudbury/Weston Aqueduct Repairs	12,496	2,341	7,257	667	12,495	2,341	7,255	667	(1)	-	(2)	-
620 Wachusett Reservoir Spillway Improvement	9,287	-	-	-	9,287	-	-	-	-	-	-	-
621 Watershed Land	29,000	6,154	-	-	29,000	6,154	-	-	-	-	-	-
622 Cosgrove/Wachusett Redundancy	58,592	6,574	-	-	58,628	6,610	-	-	36	36	-	-
623 Dam Projects	7,023	3,861	46	-	7,223	3,532	575	-	200	(329)	529	-
625 Metro Tunnel Redundancy	1,506,963	23,945	197,424	1,282,137	1,500,218	22,939	188,228	1,285,594	(6,745)	(1,006)	(9,196)	3,457
628 Metro Redundancy Interim Improvement	180,056	65,860	94,787	16,571	135,356	73,621	57,147	1,750	(44,700)	7,761	(37,640)	(14,821)
630 Watershed Division Capital Improvement	24,083	9,254	14,829	-	24,201	8,114	16,087	-	118	(1,140)	1,258	-
<b>Distribution &amp; Pumping</b>	<b>1,039,778</b>	<b>163,412</b>	<b>349,731</b>	<b>62,281</b>	<b>1,052,701</b>	<b>156,702</b>	<b>369,319</b>	<b>62,324</b>	<b>12,923</b>	<b>(6,710)</b>	<b>19,588</b>	<b>43</b>
618 Peabody Pipeline	1,448	389	-	-	1,448	389	-	-	-	-	-	-
677 Valve Replacement	22,279	-	6,747	3,515	22,249	-	6,747	3,485	(30)	-	-	(30)
678 Boston Low Service-Pipe & Valve Rehabilitation	23,691	-	-	-	23,691	-	-	-	-	-	-	-
683 Heath Hill Road Pipe Replacement	19,358	-	-	-	19,358	-	-	-	-	-	-	-
689 James L. Gillis Pump Station Rehabilitation	33,419	-	-	-	33,419	-	-	-	-	-	-	-
692 NHS - Section 27 Improvements	1,668	28	1,517	-	1,665	28	1,514	-	(3)	-	(3)	-
693 NHS - Revere & Malden Pipeline Improvement	86,011	19,062	36,349	2,039	86,010	18,848	36,469	2,131	(1)	(214)	120	92
702 New Connect Mains-Shaft 7 to WASM 3	57,572	26,320	18,327	-	60,694	20,421	27,349	-	3,122	(5,899)	9,022	-
704 Rehabilitation of Other Pump Stations	51,290	780	20,453	-	51,290	780	20,453	-	-	-	-	-
706 NHS-Connecting Mains from Section 91	2,360	-	-	-	2,360	-	-	-	-	-	-	-
708 Northern Extra High Service New Pipelines	40,180	2,525	33,850	173	43,839	5,840	34,000	367	3,659	3,315	150	194
712 Cathodic Protection Of Distribution Mains	63,483	12,066	51,148	-	61,683	12,375	49,038	-	(1,800)	309	(2,110)	-
713 Spot Pond Supply Mains Rehabilitation	66,289	800	-	-	66,498	1,008	-	-	209	208	-	-
714 Southern Extra High Sections 41 & 42	3,657	-	-	-	3,657	-	-	-	-	-	-	-
719 Chestnut Hill Connecting Mains	38,945	-	20,648	11	38,886	-	20,590	9	(59)	-	(58)	(2)
720 Warren Cottage Line Rehabilitation	1,205	-	-	-	1,205	-	-	-	-	-	-	-
721 South Spine Distribution Mains	90,585	3,241	50,423	238	90,448	3,237	50,302	226	(137)	(4)	(121)	(12)
722 NIH Redundancy & Storage	128,729	45,574	34,250	10	137,170	41,325	46,940	10	8,441	(4,249)	12,690	-
723 Northern Low Service Rehabilitation Section 8	60,945	13,194	44,664	133	60,834	13,194	44,571	115	(111)	-	(93)	(18)
724 Northern High Service - Pipeline Rehabilitation	-	-	-	-	-	-	-	-	-	-	-	-
725 Hydraulic Model Update	598	-	-	-	598	-	-	-	-	-	-	-
727 Southern Extra High Redundancy & Storage	141,243	38,522	18,114	56,162	140,915	38,353	18,136	55,981	(328)	(169)	22	(181)
730 Weston Aqueduct Supply Mains	80,457	54	-	-	80,457	54	-	-	-	-	-	-
731 Lynnfield Pipeline	5,626	-	-	-	5,626	-	-	-	-	-	-	-
732 Walnut St. & Fisher Hill Pipeline Rehabilitation	2,717	-	-	-	2,717	-	-	-	-	-	-	-

**ATTACHMENT B**  
**Overview of the FY22 Proposed CIP and Changes from the Final FY21 CIP**

Program and Project	FY21 Final				FY22 Proposed				Change from Final FY20			
	Total Budget Amount	FY19-23	FY24-28	Beyond 28	Total Budget Amount	FY19-23	FY24-28	Beyond 28	Total Budget Amount	FY19-23	FY24-28	Beyond 28
733 NHS Pipeline Rehabilitation 13-18 & 48	-	-	-	-	-	-	-	-	-	-	-	-
734 Southern Extra High Pipelines-Sections 30, 39,40, & 44	-	-	-	-	-	-	-	-	-	-	-	-
735 Section 80 Rehabilitation	16,024	858	13,240	-	15,985	851	13,209	-	(39)	(7)	(31)	-
<b>Other</b>	<b>161,008</b>	<b>94,579</b>	<b>63,264</b>	<b>(168,721)</b>	<b>167,502</b>	<b>77,191</b>	<b>90,950</b>	<b>(172,525)</b>	<b>6,494</b>	<b>(17,388)</b>	<b>27,686</b>	<b>(3,804)</b>
753 Central Monitoring System	42,082	16,960	4,418	-	42,020	15,007	6,309	-	(62)	(1,953)	1,891	-
763 Distribution Systems Facilities Mapping	2,799	1,183	580	-	2,799	885	878	-	-	(298)	298	-
764 Local water infrastructure renovation Assistance	7,488	-	-	-	7,488	-	-	-	-	-	-	-
765 Local Water Pipeline Improvement Loan Program	-	54,163	4,819	(199,255)	-	42,588	20,215	(203,077)	-	(11,575)	15,396	(3,822)
766 Waterworks Facility Asset Protection	108,639	22,274	53,447	30,534	115,195	18,712	63,548	30,552	6,556	(3,562)	10,101	18
<b>Business &amp; Operations Support</b>	<b>173,000</b>	<b>49,356</b>	<b>22,613</b>	<b>-</b>	<b>177,135</b>	<b>52,606</b>	<b>23,496</b>	<b>-</b>	<b>4,133</b>	<b>3,249</b>	<b>884</b>	<b>-</b>
881 Equipment Purchase	42,711	9,914	10,940	-	41,337	10,323	9,157	-	(1,374)	409	(1,783)	-
925 Technical Assistance	1,125	1,125	-	-	1,150	766	384	-	25	(359)	384	-
930 MWRA Facility - Chelsea	9,812	-	-	-	9,812	-	-	-	-	-	-	-
931 Business Systems Plan	24,562	(1)	-	-	24,562	(1)	-	-	-	-	-	-
932 Environmental Remediation	1,479	-	-	-	1,479	-	-	-	-	-	-	-
933 Capital Maintenance Planning	26,385	12,184	-	-	26,385	12,184	-	-	-	-	-	-
934 MWRA Facilities Management	3,071	1,075	1,625	-	3,071	1,075	1,625	-	-	-	-	-
935 Alternative Energy Initiatives	23,700	(234)	5,516	-	23,684	(234)	5,500	-	(16)	-	(16)	-
940 Applicat Improv Program	18,249	10,971	4,385	-	20,849	12,971	4,985	-	2,600	2,000	600	-
942 Info Security Program ISP	5,506	3,798	-	-	7,976	4,568	1,700	-	2,470	770	1,700	-
944 Info Tech Mgmt Program	200	200	-	-	200	200	-	-	-	-	-	-
946 IT Infrastructure Program	16,202	10,325	146	-	16,630	10,754	145	-	428	429	(1)	-



**STAFF SUMMARY**

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director *Frederick A. Laskey*  
**DATE:** December 16, 2020  
**SUBJECT:** Insurance Consultant Services - Task Order Contract  
Kevin F. Donoghue Insurance Advisor (d/b/a KFDA)  
Contract F260

**COMMITTEE:** Administration, Finance & Audit

           INFORMATION  
  X   VOTE

*Michele S. Gillen*  
Michele S. Gillen  
Director, Administration

Paul F. Whelan/Risk Manager  
Preparer/Title

*Thomas J. Durkin*  
Thomas J. Durkin  
Director of Finance

**RECOMMENDATION:**

To approve the recommendation of the Consultant Selection Committee to award Contract F-260, Insurance Consultant Services, to Kevin F. Donoghue Insurance Advisor and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed \$200,000, for a contract term of three years from the Notice to Proceed.

**DISCUSSION:**

MWRA utilizes various types of insurance programs and strategies to protect against different types of financial exposures. These programs include self-insurance, high-retention insurance policies, reserve funds, risk transfer strategies and broker services. MWRA renews its insurance program on an annual basis by implementing a competitive bid process and is required to have its insurance reserve fund reviewed for adequacy on a tri-annual basis to satisfy the requirements of MWRA's General Bond Resolution.

This procurement involves the selection of a licensed Insurance Consultant to provide services relating to the various components of MWRA's insurance program on an as-needed task order basis. The Insurance Consultant will serve as an advisor to the MWRA during the annual marketing of the insurance program, provide detailed analysis of proposals received and assist with cost and coverage comparisons. The Insurance Consultant will also be tasked with conducting the tri-annual review and evaluation of MWRA's Insurance Reserve Fund as required by the General Bond Resolution, which is next scheduled to be performed in fiscal year 2023. The Insurance Consultant will also be available to the MWRA on an as-needed basis for general insurance matters, including requirements for construction contracts, policy renewals, surety bond issues and market conditions.

## Procurement Process

A Selection Committee was formed consisting of five voting members with representatives from Risk Management, Finance, Procurement and Law Division. A one-step request for qualifications/proposals (RFQ/P) was developed with a sample scope of services included. Services provided under the contract will only be performed as needed, on a task-by-task basis. The criteria established for selection were: Cost (40 points); Qualifications and Key Personnel (30 points); Experience and Past Performance (20 points); and Capacity, Organization, Management and Technical Approach (10 points).

The RFQ/P was advertised in the Boston Herald, Banner Publications, El Mundo, and Goods and Services Bulletin. Past responses to this RFQ/P have been historically low due to the specialized nature of the subject matter, the limited number of qualified vendors and the task order format of the contract. In addition, the selected consultant would be precluded from participation in other MWRA broker service contracts. In an effort to increase awareness and participation in this procurement, staff took additional steps in an attempt to increase the number of proposals. For instance, staff obtained a listing of licensed insurance consultants from the Massachusetts Division of Insurance, and directly notified ten firms performing independent insurance consulting services. Also, staff reached out to the Massachusetts Society of Licensed Insurance Advisors, a professional society for Insurance Consultants, and requested its membership be notified of this contract opportunity. As a result, four firms registered to receive the RFQ/P documents.

On November 20, 2020, one proposal was received from the incumbent firm, Kevin F. Donoghue Insurance Advisor, Inc. (KFDA). Staff reached out to the three additional firms that had requested a copy of the RFQ/P to learn why they decided not to submit proposals, and various responses were provided. One of the firms indicated the scope of services requested were outside its area of expertise. Further research revealed another firm was involved in the selling of insurance, and, as such, would not meet the “independent consultant services” provisions of the RFQ/P. The third firm did not respond to staff’s request for feedback.

The RFQ/P requested costs be proposed on an annual Singular Hourly Rate (SHR) basis for each Personnel Category for the three-year contract term. The rates proposed are shown below:

Firm	Personnel Category	Expiring Rates	Proposed SHR 1/1/2021 to 12/31/2021	Proposed SHR 1/1/2022 to 12/31/2022	Proposed SHR 1/1/2023 to 12/31/2023
KFDA	Project Manager/ Senior Consultant	\$225	\$275	\$275	\$275
	Consultant	\$175	\$185	\$185	\$185

The proposed rates by KFDA are fixed for the entire three-year term with no escalation from year to year. The rates proposed in each category reflect an increase from the expiring contract with a 22% increase in the Project Manager/Senior Consultant category and a 6% increase in the Consultant category. These rate increases are based on expiring rates that have been in place for the last three years. Based on past utilization data for this contract, approximately 65% of the work falls under the Consultant category resulting in a weighted average of the rates proposed of approximately 12%

from the expiring contract. Since the hourly rates are fixed, this 12% is a one-time increase over the three-year term of the new contract. Staff reviewed data from prior procurements and surveys of other Massachusetts public entities, and determined the rates proposed by KFDA are reasonable and fall within the lower range of the current market pricing.

The Selection Committee concluded KFDA had significant relevant experience and possesses the qualifications and capacity to provide the Authority's anticipated insurance advisory services. References provided were contacted and found to be satisfactory. Risk Management staff reported favorable past experience and performance with this vendor utilizing the same personnel proposed for this contract. Therefore, the Selection Committee recommends the contract be awarded to Kevin F. Donoghue Insurance Advisor d/b/a KFDA in an amount not to exceed \$200,000 for a term of three years from the notice to proceed date.


**BUDGET/FISCAL IMPACTS:**

Sufficient funds are included in the FY21 CEB to support this contract. Future CEB requests will include funding for this contract.

**MBE/WBE PARTICIPATION:**

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

## STAFF SUMMARY


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Enterprise Content Management System Purchase and Implementation  
Cadence Solutions Inc.  
Contract 7438


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**COMMITTEE:** Administration, Finance & Audit

     INFORMATION  
  X   VOTE

John Colbert, P.E. Chief Engineer  
Paula Weadick, MIS Director  
Joe Barrett, IS Custom Support Manger, MIS  
Preparer/Title

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

  
Michele S. Gillen  
Director of Administration

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### RECOMMENDATION:

To approve the recommendation of the Selection Committee to award Contract 7438, Enterprise Content Management System, to Cadence Solutions Inc. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the amount of \$2,148,635 for a contract term of 18 months from the Notice to Proceed.

### DISCUSSION:

On March 21, 2018, a staff summary was presented to the Board of Directors that outlined MWRA's intent to pursue the evaluation, procurement and implementation of a state-of-the-art Electronic Document Management System to manage electronic documents as well as to replace its 25-year old records management system, InfoStar. The terms "Electronic Document Management and Electronic Content Management" (ECM) are often used interchangeably in the IT industry. These systems each have the capability to create, track and store digitized documents, however, an ECM system can track and store additional types of digital content such as audio files and video.

Certain ECM solutions have specific functionality to support the engineering and construction industry. This functionality is sometimes referred to as Extended ECM for Engineering and consists of a bundle of configurations and integrated software components. These include:

- GIS and CAD integration
- Engineering and review approval processes
- Review markup, redlining and rendition
- Engineering reports and dashboards
- Automatic document numbering

In order to develop the scope for this procurement, staff identified, reviewed and documented MWRA's existing processes for 22 engineering, 14 construction, and 11 records management workflows as well as 31 associated data sources/databases. The resulting analysis captured each complete process (including sub-processes and associated paper forms), which will provide a starting point for the selected vendor to assist MWRA with the redesign of new, more efficient, and streamlined electronic processes. Developing this detailed documentation was a critical prerequisite for designing new and improved processes, helping to ensure all steps and conditions were identified and supporting process consolidation and standardization.

Additionally, staff reviewed all vendors identified in the Leaders quadrant of the Gartner Magic Quadrant research document of ECM solution providers. Gartner, Inc. is the world's leading research and advisory firm and provides technical whitepapers on a number of technology platforms. Among these is the Gartner Magic Quadrant, which compares the strengths, weaknesses, vision and performance of providers within a specific market technology space. The Leaders quadrant of this research document identifies vendors with the highest ability to execute and with completeness of vision. Staff also consulted with a Gartner Analyst for a high-level overview of the vendors listed and best practices when procuring and implementing an ECM solution.

The ultimate vision is for an authority-wide solution that can be used to manage all document types and workflows. The advantages of moving away from paper processes and implementing an electronic records management system has been highlighted by the recent COVID-19 impacts to MWRA's business. Teleworking requirements emphasize the value of paperless document workflows, approvals and electronic document management and access controls. Out of necessity, staff have developed a number of ad-hoc processes during the shift to teleworking such as the approval of various forms. While these ad-hoc processes have enabled the approval process to continue, it lacks consistency and document tracking. In addition to moving the engineering, construction, and records management processes outlined above to electronic processes, the ECM system will provide a foundation for establishing Authority-wide standards for electronic signature and form approvals with improved tracking and document control.

The initial phase of the ECM implementation will focus on streamlining the management processes for the collection, review, approval and distribution of various engineering and construction documents. Documents and workflows that were largely paper-based and time consuming were targeted for this phase. These selections were supported by MWRA's experience with a successful pilot program that utilized ECM software to manage the review and approval of construction documents on the Chelsea Creek Headworks project. This pilot showed significant improvements to the manageability, accountability and productivity of the processes associated with those documents.

The selected consultant will work with MWRA staff to make these processes more efficient, configure them in the new ECM system, migrate historical data as needed and, finally, train staff on how to use and maintain the new processes. Implementations will be prioritized and scheduled based on scope and availability of consultant and internal resources. Training of in-house staff on the ECM product will also be completed as part of this phase one implementation so that in-house staff can implement new processes into the ECM. Future phases to incorporate additional management workflows will be completed by the use of in-house staff and additional consultant services based on prioritized needs.

## Procurement Process

On November 5, 2019, MWRA advertised a one-step Request for Qualifications and Proposals (RFQ/P), which included a Statement of Work. On January 31, 2020, six proposals were received. The proposers and their recommended ECM system are listed below:

1. Cadence Solutions Inc. (OpenText)
2. Carahsoft Technology, Corp. (OpenText/SAP)
3. Datamatics Global Services (IBM)
4. Imagesoft, Inc. (Hyland/OnBase)
5. Spruce Technology, Inc. (OpenText)
6. Stellar Services, Inc. (OpenText)

All six proposals included an ECM Solution that was listed in the Leaders Quadrant of the Gartner Magic Quadrant.

All six proposals were initially evaluated to determine which proposers would be selected to provide the Selection Committee with demonstrations. The Selection Committee reviewed and scored the proposals based on the following criteria: Cost (25 points); Relevant Experience/Past Performance (15 points); Technical Approach (25 points); Capacity, Organization and Management Approach (15 Points); and Qualifications and Key Personnel (20 points). The Selection Committee evaluated the proposals and narrowed the number of demonstrations to the top three ranked proposers. The pre-demonstration rank and points for those proposals are summarized below:

<b>Rank</b>	<b>Proposer</b>	<b>Total Points</b>	<b>Cost Proposal</b>
1	Cadence Solutions Inc.	333	\$2,148,635 + \$183,885 (First Two Years Maintenance) = <b>\$2,332,520</b>
2	Stellar Services, Inc.	304	\$1,509,577 + \$184,023 (First Two Years Maintenance) = <b>\$1,693,600</b>
3	ImageSoft, Inc.	252	\$1,946,848 + \$800,000 (First Two Years Maintenance) = <b>\$2,746,848</b>

Of the three proposals that were not selected for a product demonstration, Spruce Technology proposed an OpenText solution, but its cost was more than triple the price of Cadence Solutions and Stellar Services. Further, Spruce Technology did not include the Prime Protection maintenance that Cadence and Stellar included. Datamatics's proposal was for an IBM solution that required IBM infrastructure and IT skillsets, which would have added significant in-house technology and staff support overhead. Carahsoft Technology proposed an OpenText solution that was designed for SAP, which would have also added additional MWRA infrastructure and support requirements. Carahsoft further proposed subcontracting the entire implementation of its solution to a third party vendor.

The top three proposers demonstrated their ECM Solutions between July 13, 2020 and September 9, 2020. The Selection Committee sought a preliminary demonstration from each of the proposers to MWRA subject matter experts prior to the Selection Committee demonstrations in order to ensure that the demonstrations were streamlined, and the proposers had a full understanding of MWRA's expectations. Thereafter, the Selection Committee demonstrations followed. The

proposers were each asked to demonstrate their product’s out-of-the-box functionality, a pre-developed workflow based on one of the identified use cases and an “on the fly” demonstration of building a workflow process within the product. After the completion of the demonstrations, the Selection Committee reconvened to review the proposals, and readjust preliminary scores based on the proposers’ demonstrations. The final results, including the proposed costs, are summarized below.

<b>Rank</b>	<b>Proposer</b>	<b>Total Points/ Rank</b>	<b>Cost Proposal</b>
1	Cadence Solutions Inc.	345	\$2,148,635 + \$183,885 (First Two Year Maintenance) = \$2,332,520
2	ImageSoft, Inc.	273	\$1,946,848 + \$737,744 (First Two Year Maintenance) = \$2,746,848
3	Stellar Services, Inc.	242	\$1,509,577 + \$184,023 (First Two Year Maintenance) = \$1,693,600

The Selection Committee scored Cadence Solutions the highest. Compared to the other two proposers, Cadence did the best job demonstrating MWRA work processes, showed a clear understanding of what was asked for and demonstrated an ability to convert requirements to expected results in a highly professional manner. Its demonstration of the redlining and markup tools capabilities was clear, concise and complete; indicating a thorough understanding of Records Management requirements, best practices and mastery of the OpenText records management software module. Finally, it described related work with other customers in the engineering and construction, utility and government sectors.

The second highest rating from the Selection Committee went to ImageSoft, Inc. The company provided an excellent demonstration of its proposed Hyland OnBase product’s core functionality and intuitive interface. Although the demonstrations of the MWRA use cases were good, such were not as good as the demonstrations from Cadence. Also, the Records Management component did not appear as robust as the OpenText product, and the demonstration was not as reassuring as the Cadence presentation. Most importantly, the ImageSoft proposal had an annual subscription fee that the OpenText proposals did not include, which added approximately \$400,000 per year to the overall cost. Consequently, the additional annual costs compounded over the life of the solution significantly affected the scoring.

Stellar Services demonstration seemed less prepared and its explanations were sometimes vague and unclear. Likewise, both of its preliminary and Selection Committee demonstrations were inferior to the demonstrations of the other proposers.


**BUDGET/FISCAL IMPACT:**

The FY21 Capital Improvement Program includes a \$3,000,000 budget for contract 7438.

**MBE/WBE PARTICIPATION:**


Cadence Solutions is not a certified Minority-owned or Women-owned business.

**STAFF SUMMARY**


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Assignment and Assumption of Contracts S590 and S594  
 Deer Island Demand Response Services from Direct Energy Business Marketing, LLC to Centrica Business Solutions, Optimize, LLC

**COMMITTEE:** Administration, Finance & Audit

       INFORMATION  
  X   VOTE

  
Michele S. Gillen  
Director of Administration

Ethan Wenger, Deputy 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 authorize the Executive Director, on behalf of the Authority, to approve the assignment and assumption of Contract S590 and Contract S594, Deer Island Demand Response Services, from Direct Energy Business Marketing, LLC to Centrica Business Solutions, Optimize, LLC, and to further authorize the Executive Director, on behalf of the Authority, to execute two separate Assignment and Assumption Agreements to effectuate those assignments.

**DISCUSSION:**

MWRA holds two contracts with Direct Energy Business Marketing, LLC, which is authorized pursuant to these contracts to act as MWRA’s Lead Market Participant in ISO New England’s (ISO-NE) Forward Capacity Market through its Demand Response Program. Under this program, MWRA is paid monthly ISO-NE settlement payments for being available to deploy backup generators and take facilities off the electric grid during peak demand periods. ISO-NE rules require that the assets used in the program are committed three years in advance and a result, MWRA sought bids through a public process for two separate time periods; Direct Energy was the successful bidder in both cases.

- Contract S590, Deer Island Demand Response Services, was awarded to Direct Energy at the January 2020 Board of Directors' meeting for the time period covering June 1, 2020 to May 31, 2024.
- Contract S594, Deer Island Demand Response Services, was awarded to Direct Energy at the March 2020 Board of Directors' meeting for the time period covering June 1, 2024 to May 31, 2027.



## **Assignment**

On July 24, 2020, NRG Energy, Inc. purchased Centrica US Holdings, Inc., including its named subsidiary Direct Energy Business Marketing, LLC. Certain business lines, including demand response within Direct Energy Business Marketing, LLC, were not included in the sale. The demand response line of business will become part of a newly formed entity, Centrica Business Solutions, Optimize, LLC.

As a result, Direct Energy Business Marketing, LLC desires to assign to Centrica Business Solutions, Optimize, LLC all its rights, title, benefits and interests in and to certain assets, including Contracts S590 and S594. Centrica Business Solutions, Optimize, LLC desires to assume all of Direct Energy Business Marketing, LLC's duties, liabilities and obligations attributable to such assets, including Contracts S590 and S594. Staff reviewed available financial documents and have determined that Centrica Business Solutions, Optimize, LLC appears financially sound, with sufficient assets to meet its obligations. Staff recommend approval of the assignment and execution to two separate Assignment and Assumption Agreements to effectuate such assignment.

## **BUDGET/FISCAL IMPACTS:**

Contract S590, Deer Island Demand Response Services (four-year term covering June 1, 2020 to May 31, 2024) has a projected total of ISO-NE settlement payments over the four-year term of the contract of \$2,725,955. Direct Energy's five percent share of settlement payments are expected to be \$136,298, resulting in \$2,589,657 payable to MWRA from the ISO-NE program over the four-year period.

Contract S594, Deer Island Demand Response Services (three-year term covering June 1, 2024 to May 31, 2027) has a projected total of ISO-NE settlement payments over the three-year term of the contract of \$1,622,074. Direct Energy's six percent share of settlement payments are expected to be \$97,324, resulting in \$1,524,750 payable to MWRA from the ISO-NE program over the three-year period.

## **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:** December 16, 2020  
**SUBJECT:** Wastewater Monitoring for COVID-19  
Biobot Analytics, Inc.  
Contract OP-420



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**COMMITTEE:** Wastewater Policy & Oversight

       INFORMATION  
  X   VOTE



Michele S. Gillen

Director of Administration

Steven F. Rhode, Director of Laboratory Services  
Carolyn M. Fiore, Deputy Chief Operating Officer  
Douglas J. Rice, Director of Procurement  
Preparer/Title



David W. Coppes, P.E.

Chief Operating Officer

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### RECOMMENDATION:

To approve the recommendation of the Selection Committee to award Contract OP-420, Wastewater Monitoring for COVID-19, to Biobot Analytics, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed \$206,200.00, for a contract term of one year from the Notice to Proceed.

### DISCUSSION:

This contract will continue the early warning monitoring system for future outbreaks of COVID-19 within the area served by the MWRA sewer system that was started as a pilot program. The current program consists of the analysis of wastewater samples of the north and south influents to the Deer Island Treatment Plant collected several times each week, analyzed and reported on in order to inform public health partners of increased signals for the virus that causes COVID-19.

Analysis of wastewater for the genetic signal (viral RNA) of the SARS-CoV-2 virus that causes COVID-19 is proving to be a cost effective approach to providing population-level screening for outbreaks of COVID-19. The first published report of this approach came from the Netherlands, where the analysis of wastewater was able to detect the genetic signal in advance of any known cases of COVID-19 in two cities. Biobot Analytics released the first demonstration of this approach in the United States using data from courtesy samples provided by MWRA in early March 2020<sup>1</sup>. Subsequent studies from numerous locations around the world have demonstrated the efficacy of wastewater analyses to provide an early warning of COVID-19 outbreaks by up to seven days in advance of confirmed cases showing up in the public health data. There are now dozens of cities performing this analysis on their wastewater to support the clinical data collected by public health officials.

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<sup>1</sup> "Coronavirus Traces Found in Massachusetts Wastewater at Levels Far Higher Than Expected." Newsweek; 4/9/2020. <https://www.newsweek.com/coronavirus-traces-massachusetts-wastewater-levels-higher-expected-1497141>

MWRA commenced a pilot program with Biobot Analytics for this monitoring in June 2020 under a sole source procurement process. A contract with Biobot was executed and is scheduled to end in January 2021. Under that contract, MWRA shares the data with the Commonwealth’s COVID-19 Command Center as it is received and the data are available on MWRA’s website. The media continues to pay close attention to this data, and the Boston Globe regularly cites the sewer signal as one of the key metrics that the public should watch.

To continue obtaining this information, MWRA staff initiated a competitive procurement process by issuing a Request for Qualifications and Proposals (RFQ/P). The goal of the procurement and contract is to obtain analysis of wastewater samples from MWRA service areas and provide trending information on the SARS-CoV-2 viral signal from those samples. Because there is no federal, state or approved industry standard for testing or reporting on this virus, a competitive process was deemed to be in the best interest of the public. Evaluation of technical approach, experience and cost was necessary in this innovative field.

**Procurement Process**

An RFQ/P was publically advertised in the Boston Herald, Banner Publications, El Mundo, and the Goods and Services Bulletin. RFQ/P documents were available on the MWRA Supplier Portal as Event 4463. Proposals were received on November 23, 2020 from nine firms.

<b>Firm</b>	<b>Proposal Price</b>
CDM Smith Inc.	\$427,800
Geosyntec Consultants	\$270,640
Pennoni Associates, Inc.	\$252,664
120Water	\$211,880
GoAigua Inc	\$211,160
Biobot Analytics, Inc.	\$206,200
LuminUltra Technologies, LTD	\$194,200
CosmosID Inc.	\$190,208
ALS Group USA, Corp.	\$83,560

The Selection Committee reviewed and scored the Proposals based on the following criteria: Cost (25 points); Technical Approach (25 points); Capacity, Organization and Management (20 points); Experience and Past Performance (20 points); and Qualifications and Key Personnel (10 points).

The six voting members scored and ranked the proposals as follows:

<b>Firm</b>	<b>Total Points</b>	<b>Order of Preference* Total Score</b>	<b>Final Ranking</b>
Biobot Analytics, Inc	523	6	1
LuminUltra Technologies, LTD	501	13	2
GoAigua Inc.	449	20	3
CosmosID, Inc.	440	25	4
Geosyntec Consultants	339.5	33	5
120Water	383.5	38	6
CDM Smith Inc.	367.5	42	7
Pennoni Associates, Inc	356	41	8
ALS Group USA, Corp.	294.5	49	9

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

The Selection Committee ranked Biobot first. It was the first company to enter this market, and its proposal shows that it is still the leader in this innovative industry and market. The ability to provide rapid turnaround times weighed strongly in the committee's ranking, and, as a local firm, Biobot had a strong advantage. Biobot is consistently providing one to two working-day turnaround. All of the other firms are proposing shipping the samples to out of state laboratories, so in many cases we will have the results from Biobot before the samples would arrive at the other firm's laboratories. Biobot was highly ranked in the areas of Technical Approach; Capacity, Organization and Management; Experience and Past Performance; and Qualifications and Key Personnel. Biobot also has the advantage of providing data that are already comparable to our existing dataset. Additionally, Biobot is also providing data to the Command Center and the Massachusetts Department of Public Health as well as Cambridge, Chelsea, Nantucket, Northampton, Gloucester, Newburyport, and South Hadley. This ensures that data from across the Commonwealth can easily be compared with the MWRA dataset.

LuminUltra Technologies, LTD was ranked second by the Selection Committee, largely because of the uncertainty in the comparability of data and shipping samples to Florida, which would add to the turnaround time.

The third ranked firm, GoAigua, while experienced and offering very interesting software for data presentation, did not appear to have US-based lab experience and shipping to Colorado would have increased turnaround time.

CosmosID, Inc. was ranked in the middle of the group by the Selection Committee. It has some high profile people as principals of the company, but its proposal was unclear about the qualifications of the staff who would actually be performing the work.

The review of the lowest cost proposal from ALS Group USA, Corp. revealed that the company appears to be just getting started with this type of work. Its key personnel lacked any experience working with water and wastewater, and it appeared unlikely that they would be able to sustain that proposed price for the duration of the contract, if they were able to perform at all.

Therefore, the Selection Committee recommend that the Board approve the award of this contract to Biobot Analytics, Inc.


**BUDGET/FISCAL IMPACT:**

Payments made through June 2021 will be absorbed in the FY21 Current Expense Budget. The remaining payments will be budgeted for appropriately in the FY22 Current Expense Budget.

**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:** December 16, 2020  
**SUBJECT:** Ward Street and Columbus Park Headworks Upgrade  
Design and Engineering Services During Construction  
CDM Smith Inc.  
Contract 7429

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**COMMITTEE:** Wastewater Policy & Oversight

INFORMATION  
 VOTE

Margery Johnson, Program Manager  
John Colbert, P.E., Chief Engineer  
Preparer/Title

  
Michele S. Gillen

Director of Administration

  
David W. Coppes, P.E.

Chief Operating Officer

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### RECOMMENDATION:

To approve the recommendation of the Consultant Selection Committee to award Contract 7429, Ward Street and Columbus Park Headworks Upgrade Design and Engineering Services During Construction, to CDM Smith Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in an amount not to exceed \$28,896,530, for a contract term of 3,287 calendar days from the Notice to Proceed.

### DISCUSSION:

Wastewater from MWRA's Northern Service Area flows through either the Winthrop Terminal Facility or one of three remote headworks facilities before reaching the Deer Island Treatment Plant. These facilities are the Chelsea Creek Headworks in Chelsea, the Columbus Park Headworks in South Boston, and the Ward Street Headworks in Roxbury (Figure 1). Flow at these headworks facilities is processed to remove screenings and grit before dropping into deep rock tunnels tributary to Deer Island Treatment Plant. Removal of grit and screenings is necessary to prevent debris buildup in the tunnel systems and to reduce equipment wear and maintenance issues at Deer Island.

The remote headworks facilities were placed into operation in the 1960s. In 1987, the headworks were upgraded with replacement of mechanical equipment, including screens and grit removal equipment, odor control and HVAC systems; and associated structural, electrical and instrumentation improvements. In 2010, MWRA contracted with Malcolm Pirnie, Inc. (now Arcadis U.S., Inc.) for Design and Construction Administration Services for Remote Headworks Upgrade for the Chelsea Creek Headworks, Ward Street Headworks and Columbus Park Headworks facilities. Following completion of Preliminary Design, MWRA made the decision to

move forward with design and construction of the Chelsea Creek Headworks only, and use “lessons learned” from that project in completing the design and construction of Ward Street and Columbus Park Headworks. Construction at Chelsea Creek Headworks is nearly complete, with an anticipated completion in April 2021.



Figure 1. Remote Headworks Facilities

This contract will provide design and engineering services during construction for the upgrade of the Ward Street and Columbus Park Headworks. The upgrade will include replacement and automation of all solids handling equipment, including screens, grit collection systems, and solids conveyance systems; replacement of all influent and effluent gates and stop planks; odor control and HVAC systems; instrumentation and control systems; and repair of the concrete surfaces of the headworks channels, settling basins, and influent and effluent shafts. The project also includes modifications to ensure the facilities are flood resistant and will coordinate with the City of Boston’s flood mitigation plans for Moakley Park, which is adjacent to the Columbus Park Headworks Facility. To improve construction sequencing, the consultant will evaluate the feasibility and benefit of constructing a new building over the existing underground grit channels.



Figure 3. Ward Street Headworks



Figure 2. Columbus Park Headworks

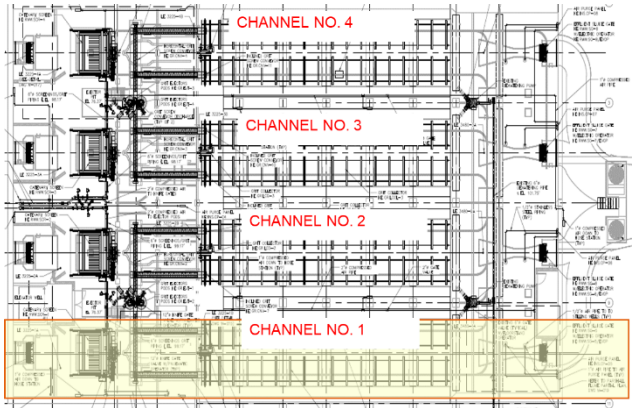


Figure 4. Sequencing of Channel Upgrades

The upgrades to Ward and Columbus Park Headworks will be one of the most complex MWRA projects in a number of years, from both a design and construction perspective. Coordination and scheduling will be extremely important. During construction, both headworks must continue to handle maximum flow capacity by maintaining three of four channels in service. The screening and grit equipment in the channels at each facility will be replaced one channel at a time.

Demolition of existing equipment, installation of new equipment, and facility start-up must be staged and sequenced by channel. Uninterrupted operation of both headworks during construction will be required, including screenings and grit collection and removal, odor control, HVAC, flow monitoring, gas monitoring, and SCADA monitoring and control. In addition, a safe working environment for MWRA staff, as well as the contractor's personnel, must be maintained throughout construction.

The scope of services assumes that the design will provide contract documents for two construction contracts to be publicly bid in accordance with the provisions of Massachusetts General Laws Chapter 149. Design and construction bidding services are estimated to take 48 months from the date of the notice to proceed and includes a six-month stagger for bidding each construction contract. Construction is estimated to take an additional 48 months, plus a 12-month warranty period, for a contract duration of 108 months.

### Procurement Process

On September 12, 2020, MWRA issued a one-step Request for Qualifications Statements/Proposals (RFQ/P) that was publicly advertised in the Central Register, the Boston Herald, Banner Publications and El Mundo. In addition, approximately 143 firms received notice of the RFQ/P via the MWRA Supplier Portal, and the solicitation/advertisement was emailed directly to 71 engineering firms.

The following criteria were used to evaluate each of the proposals: Cost (24 points); Qualifications and Key Personnel (24 points); Experience/Past Performance on Similar Non-MWRA Projects

and Past Performance on MWRA Projects (24 points); Technical Approach/Capacity/Organization and Management Approach (23 points); and MBE/WBE Participation (5 points).

A pre-proposal meeting was held remotely on September 23, 2020 and attended by nine firms, six of which were potential prime consultants. A pre-proposal site visit was held at Ward Street Headworks on September 30, 2020 and attended by five firms, four of which were potential prime consultants. MWRA received proposals on October 30, 2020 from Arcadis U.S., Inc., and CDM Smith Inc.

The proposal costs and overall level of effort are presented below:

<b><u>Firm</u></b>	<b><u>Proposed Contract Cost</u></b>	<b><u>Level of Effort</u></b>
<i>Engineer's Estimate</i>	\$24,504,960.00	144,147 hours
Arcadis U.S., Inc.	\$27,722,135.33*	166,968 hours
CDM Smith Inc.	\$28,896,530.00	160,866 hours

\* Contract cost adjusted to correct minor mathematical errors.

The five voting members on the Selection Committee scored and ranked the proposals as follows:

	<b><u>Total Points</u></b>	<b><u>Order of Preference* Total Score</u></b>	<b><u>Final Ranking</u></b>
CDM Smith Inc.	407.7	5	1
Arcadis U.S., Inc.	359.6	10	2

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

CDM Smith has teamed with AECOM for this contract and has presented a strong project team with excellent qualifications, experience and past performance on relevant projects. All members of the team greatly exceed the minimum qualifications required for this contract, and the proposed Project Manager from CDM Smith and Project Engineer from AECOM both have experience with multiple projects that required maintenance of operations throughout construction. The qualifications of the technical staff are excellent and the vast majority are located locally. CDM Smith and AECOM have previously worked together successfully on the MWRA 2009 Transport SCADA project that included the Ward Street and Columbus Park Headworks facilities.



Figure 5. Conceptual Layouts



CDM Smith’s technical approach demonstrated a clear understanding of the project and challenges expected. Its proposal discussed conceptual options for a new building(s) and odor control layouts, and a discussion of new technologies for use in staff training. CDM Smith’s constructability review team includes the current Resident Engineer for the Chelsea Creek Headworks Project.

CDM Smith’s cost estimate was \$4,391,570, or 18% higher than the Engineer’s Estimate. Not unlike the other proposal, a significant portion of the difference from the Engineer’s Estimate was in CDM Smith’s level of effort to complete the Design Report and Final Designs. The Engineer’s estimate was primarily based on spending for the design of the Chelsea Headworks, but may have fallen short given the additional scope to evaluate and design new buildings over the underground grit channels at each facility. CDM Smith’s level of effort for Administration and Management during the design phase and some of the initial project tasks to collect and develop critical facility information (geotechnical, hazardous materials, terrestrial 3D

laser scanning, etc.) were also noted to be higher than the Engineer’s Estimate. Overall, the cost proposal includes a reasonable number of hours and distribution of hours among labor classifications for each task.

CDM Smith’s internal references were excellent on projects including the construction of a water storage facility and rehabilitation of clarifiers at Deer Island. Many of the CDM Smith team members worked on a multiphase project for Upper Blackstone Clean Water that included design of a new headworks facility and upgrade of an existing one and received an excellent recommendation.

Arcadis has presented a project team with relevant MWRA experience. The Project Manager and two of the Deputy Project Engineers worked on the Chelsea Creek Headworks upgrades. Arcadis’s proposal also includes Hazen and Sawyer as a subconsultant to provide odor control design and permitting services, as well as Construction Management for one of the construction projects. Hazen and Sawyer staff are working on MWRA’s Nut Island Odor Control and HVAC Improvements project, which also includes Arcadis as a subconsultant. Overall, however, the team proposed by Arcadis to support the Project Manager has fewer years of experience than the CDM Smith team. In addition, they have less experience with design of projects requiring maintenance of operations throughout construction than the CDM Smith team, and the majority of staff are not located locally.

Arcadis’s technical approach demonstrated a clear understanding of the project, emphasized lessons learned and ways to improve upon the Chelsea Creek Headworks’ design, and discussed potential improvements to grit and screenings collection and conveyance.

Arcadis’s cost estimate was \$3,217,175, or 13% higher than the Engineer’s Estimate. Similar to CDM Smith, a significant portion of this difference is in the proposed level of effort to prepare the Design Report and complete the Final Designs, as well as greater levels of effort than estimated for the geotechnical and hazardous materials program and bidding services. Overall, the cost

proposal includes a reasonable number of hours and distribution of hours among labor classifications for each task.

Internal references for Arcadis were mixed on multiple, recent projects for the MWRA, including the Deer Island HVAC replacement project and Prison Point CSO Facility rehabilitation. Some of these projects have had several key personnel changes and delays. Change order issues were also a concern on the Chelsea Creek Headworks project. External references included expansion of the Hartford Water Pollution Control Facility that included construction of a new headworks facility, which received an excellent recommendation.

Based on final rankings, the Selection Committee recommends the award of this contract to CDM Smith Inc., in an amount not to exceed \$28,896,530.


**BUDGET/FISCAL IMPACTS:**

The FY21 CIP includes a budget of \$22,000,000 for Contract 7429. The award amount is \$28,896,530 or \$6,896,530 over budget. This amount will be absorbed within the five-year CIP spending cap.

**MBE/WBE PARTICIPATION:**

The minimum MBE and WBE participation requirements for this project were established at 7.18% and 5.77%, respectively. CDM Smith has committed to 7.36% MBE and 5.77% WBE participation.

## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Instrumentation Services – Metropolitan Boston  
Safety, Inc.  
Contract OP-418


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**COMMITTEE:** Wastewater Policy & Oversight

       INFORMATION  
  X   VOTE

  
Michele S. Gillen  
Director of Administration

Charles Ryan, Director, Wastewater O&M  
Lisa Bina, P.E., Senior Program Manager, PC & PS  
George Bacon, P.E., Project Manager, PC & PS  
Preparer/Title

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

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### RECOMMENDATION:

To approve the award of Contract OP-418, Instrumentation Services – Metropolitan Boston, to the lowest responsive bidder, Safety, Inc., and authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$270,600, for a contract term of 730 calendar days from the Notice to Proceed.

### DISCUSSION:

Contract OP-418 will provide scheduled process instrumentation systems services, non-emergency and emergency on-call services and replacement parts for instrumentation equipment located at 28 various wastewater facilities, including headworks, pump stations, CSO facilities, the Chelsea screen house, and the Clinton Wastewater Treatment Plant. Contract OP-418 is the fifteenth consecutive instrumentation service contract to be awarded since 1991.

The instrumentation equipment to be serviced under this contract is vital for the safe and efficient operation of these facilities. The equipment measures operational parameters such as wastewater levels, gate positions, flow rate, chemical tank levels, and environmental gas concentration. These values provide information that ensures the facilities are operating safely and within design parameters.

The contractor's primary responsibility will be to provide calibration and corrective repairs to the life safety gas monitoring systems at 25 of 28 MWRA facilities. Two of the facilities, Wiggins Pumping Station and MWR003 Control Gate, do not have fixed gas monitoring systems. The third facility, Union Park CSO Pump Station, is jointly owned with BWSC. The operations and maintenance of this facility, including the gas monitoring system, is contracted to a third party. This contract also includes servicing of the gas monitoring system and all other instrumentation at the Nut Island Headworks facility. In addition, the contract includes as-needed emergency

corrective repairs for instrumentation at any of the wastewater facilities that are normally maintained by MWRA's SCADA staff or at the Union Park CSO Pump Station.

**Procurement Process**

Contract OP-418 was advertised as a Non-Professional Services contract in the Boston Herald, Goods and Services, El Mundo, Banner Publications, and on MWRA's e-Procurement system (Event No. 4402). A remote pre-bid conference was held on Wednesday, September 16, 2020. One bid was received on October 14, 2020:

<u>Bidder</u>	<u>Bid Amount</u>
Safety, Inc.	\$270,600
<i>Engineer's Estimate</i>	<i>\$307,600</i>

Historically, MWRA has had difficulty generating competition for this contract due to the limited number of contractors who specialize in this work and have sufficient staff available to service the large quantity of gas monitoring systems included in this contract. Safety's bid price is 12% below the Engineer's Estimate. Staff reviewed the bid and contacted a representative from Safety to discuss the firm's bid. The contract price is comprised of four hourly rates for different categories of work, and two allowances – for replacement parts and for COVID-19 safety measures. The hourly rates bid by Safety are within the range of rates received from other firms in prior bids. Staff are confident Safety's bid price is reasonable, complete and includes the full scope of work under this contract. Furthermore, Safety's references were checked and found to be favorable.

Staff are of the opinion that Safety, Inc. possesses the skill, ability and integrity necessary for the successful performance of this work. Therefore, staff recommend the award of this contract to Safety, Inc., as the lowest responsive bidder.


**BUDGET/FISCAL IMPACTS:**

The FY21 Current Expense Budget contains sufficient funding for the remainder of the fiscal year for 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.

## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** December 16, 2020  
**SUBJECT:** Agency-Wide Technical Assistance Consulting Services  
Kleinfelder Northeast, Inc.  
Contract 7604, Amendment 2

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**COMMITTEE:** Wastewater Policy & Oversight

INFORMATION  
 VOTE

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

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

*This staff summary was postponed at the November 18, 2020 Board of Directors meeting. The technical assistance task order contract 7604 includes the most cost effective and efficient completion of three on-going projects by Kleinfelder. The projects are the River Road Drainage and Slope Stability Repair Project, Roof Replacements at the Belmont, Lexington, and Spring Street Pumping Stations, and the Lonergan Intake Lower Gatehouse and Southborough Facilities Fuel Storage Tank Replacements. Although River Road is owned by DCR, the River Road Repair Project benefits the MWRA as it provides access to the MWRA's Wachusett Reservoir Lower Gatehouse. The MWRA has several required upgrade projects planned in the next several years for the Lower Gatehouse and repair of this road is necessary for these projects to proceed.*

### RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve Amendment 2 to Contract 7604, Agency-Wide Technical Assistance Consulting Services, with Kleinfelder Northeast, Inc., extending the contract term by twelve months from December 29, 2020 to December 29, 2021 with no increase in the contract amount.

### DISCUSSION:

Contract 7604 is an agency-wide, multi-discipline, technical assistance contract, which makes available, on a continuing, as-needed basis, the services of a qualified, professional engineering firm to assist MWRA staff on engineering study and design initiatives. Under this contract, the consultant has successfully worked on 28 task orders that include evaluations, structural assessments, construction cost estimates, permitting, code reviews, and design development. Some examples of the projects completed include evaluation and recommendations for Somerville Marginal Conduit failure; permitting, investigation and testing recommendations for structural evaluation of Belle Isle Siphon Sandcatcher; concrete/masonry, roof and structural review of the Bellevue 1 Standpipe and Arlington Heights Water Tanks; construction cost estimates for Nut Island Odor Control and HVAC System Improvements and Prison Point CSO Facility

Improvements; and building code evaluations for Shaft 5, Hingham Pump Station, and Somerville Marginal CSO Facilities.

The Notice to Proceed for Contract 7604 was issued on June 29, 2018 to Kleinfelder Northeast, Inc., for a two-year term in an amount not to exceed \$2,500,000. The contract was extended on April 22, 2020 under delegated authority by six months to December 29, 2020. This six-month time extension was required to complete several ongoing task orders, which are scheduled for completion by the end of December 2020. This time extension amendment is requested for the continued progress on longer duration task orders.

### **This Amendment**

Amendment 2, if approved, will extend the current expiration date by one year, from December 29, 2020 to December 29, 2021, which will allow Kleinfelder to continue working on task orders that cannot be completed within the current contract duration.

The following on-going projects with Kleinfelder can be completed within the recommended time extension of this contract, thereby maintaining design-related knowledge and expertise and consistency from the design through engineering services during construction.

- River Road Drainage and Slope Stability – Geotechnical, Permitting, Design, Bidding and ESDC. In November 2018, a landslide occurred on the access road to the Wachusett Dam’s Lower Gatehouse. A previous landslide along another section of the roadway had occurred in January 2008 and emergency repairs were made soon after to restore access. Kleinfelder, under task order, was contracted to design permanent repairs. The design for the repair project is complete and bids are expected in early December. The work includes demolition and replacement of the existing road, installing a new drainage system to meet Massachusetts Stormwater Standards, reducing the outboard slope of the roadway, narrowing the road to one lane, adding a new guardrail system, and providing additional support below the road with higher strength soils. During the design, hazardous soils were found, which required additional permitting from MassDEP and will require additional reporting during removal and disposal of the soils. Staff recommend that Kleinfelder complete the construction engineering and environmental services given that they performed the initial soils characterization, and developed and submitted the required permits, which required additional MassDEP submittals during the construction phase.



*Figure 1 - River Road at Station 6+85*

performed the initial soils characterization, and developed and submitted the required permits, which required additional MassDEP submittals during the construction phase.

- Belmont, Spring Street and Lexington Street Pumping Stations Roof Replacements – Evaluation, Design and Bidding. This task order design is complete and in review prior to advertisement and bid. The anticipated construction award is March 2021. The design includes the replacement of the flat roofs at Belmont, Lexington Street, and Spring Street Pumping Stations. The construction work will entail replacement of the roofs, including membranes, flashing, insulation, conductor heads and downspouts, and the installation of a new OSHA-compliant roof access hatches and safety ladder systems. It is most efficient from both a time and cost prospective to have Kleinfelder complete the work under this contract as its staff have already completed the evaluation and design and could then provide the final design documents and bidding services under the existing task order within the contract extension period.



Figure 2- Spring St. Pump Station Roof

documents and bidding services under the existing task order within the contract extension period.

- Lonergan Intake Lower Gatehouse and Southborough Facilities Fuel Storage Tank Replacements – Siting, Design and Bidding. This task order includes evaluation and final design services associated with the removal, disposal, and replacement of vehicle fuel storage tanks at Lonergan Intake Lower Garage (two tanks) and Southborough Facilities (two tanks). After one of the fuel tanks at Gillis Pumping Station developed a breach to its inner wall in July 2016, a fuel storage tank replacement program was implemented to replace tanks before potential failures. Tank replacement priorities were developed based upon tank construction, age of tank, and tank condition. This is the second of three planned fuel tank replacement projects. The Lonergan and Southborough tanks are past their useful life and require replacement.



Figure 3- Southborough Fuel Pumps

Replacement includes full piping, new vehicle fuel dispensers, upgraded leak detection and tank monitoring systems and new vehicle fuel management systems. The fifty percent progress design submittal will be completed in December 2020, final bid documents are scheduled to be completed in April 2021 and a construction notice to proceed is anticipated in July 2021. Staff recommend that Kleinfelder complete the work under this contract as they have already completed the siting, and are nearly complete with the fifty percent design. It is more efficient for them to complete the design instead of assigning it to a new consultant.

Presently, \$2,358,366.53 (94.3%) of the total \$2.5 million contract amount has been committed to various task orders, including each of the task orders outlined above; \$1,452,644.24 (58.1%) of the total \$2.5 million contract amount has been invoiced for task order-related work performed. Therefore, contract funds are adequate and staff are only recommending a time extension of 12 months under Amendment 2.

**CONTRACT SUMMARY:**

	<u>AMOUNT</u>	<u>TIME</u>	<u>DATED</u>
Original Contract:	\$2,500,000.00	24 Months	06/29/18
Amendment 1:	0.00	6 Months	05/11/20
Amendment 2:	0.00	12 Months	Pending
Amended Contract Amount:	\$2,500,000.00	42 Months	

**BUDGET/FISCAL IMPACT:**

Amendment 2 is a time extension only and has no budgetary impact.

**MBE/WBE PARTICIPATION:**

There were no minimum participation requirements established for these contracts due to limited opportunities for subcontracting.