



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

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

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.

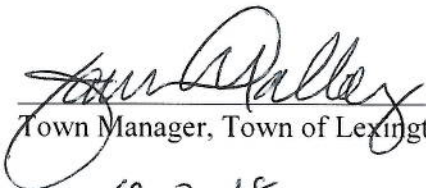
4.11 Other Parties

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

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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

**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.**

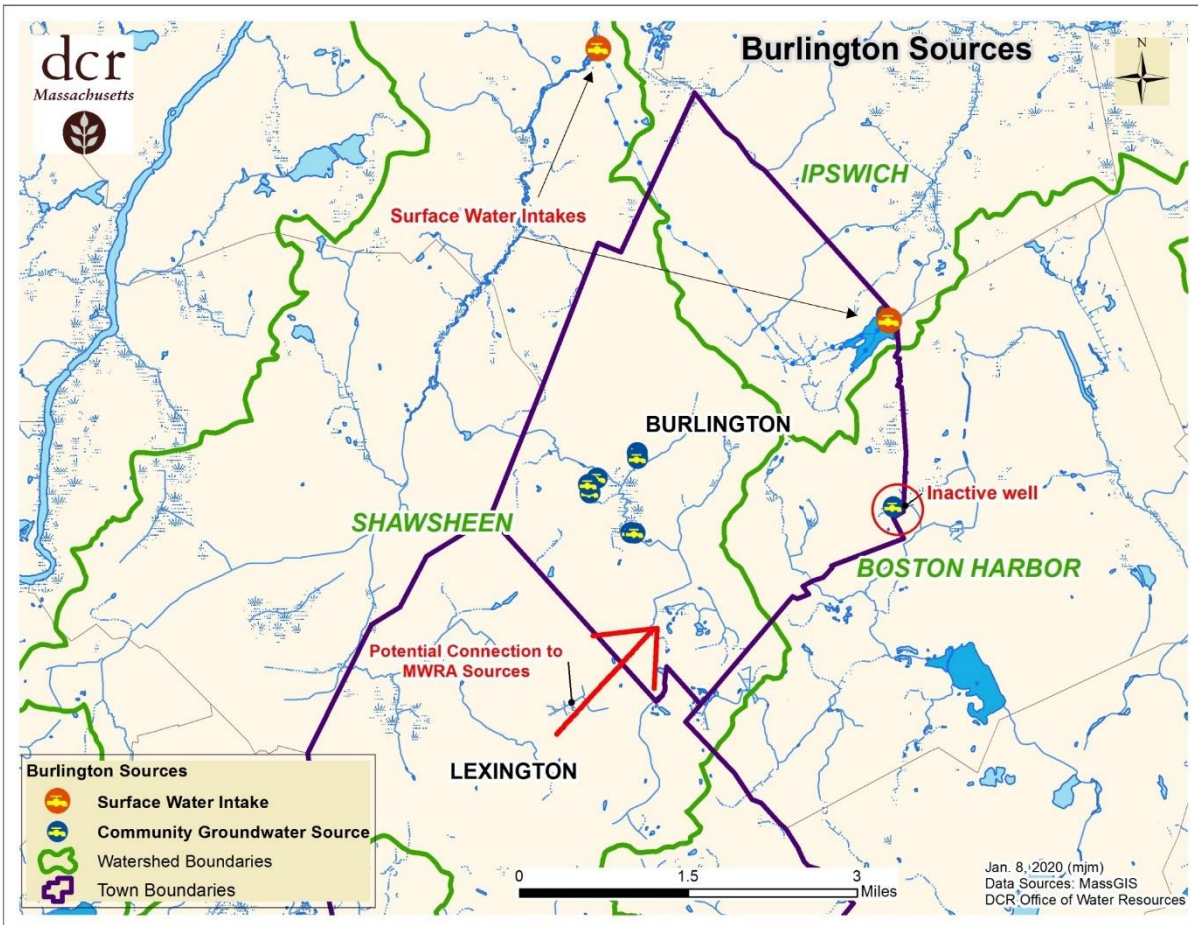
SYNOPSIS OF THE EVALUATION CRITERIA (313 CMR 4.05)

Criteria	Application Meets?
Criterion #1: MEPA Compliance	Yes
Criterion #2: Viable In-Basin Sources	Yes, with conditions
Criterion #3: Water Conservation	Yes, with conditions
Criterion #4: Forestry Management	Yes, with conditions
Criterion #5: Reasonable Instream Flow	Yes
Criterion #6: Impacts of Groundwater Withdrawals	Not Applicable
Criterion #7: 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 1st and June 30th, 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.

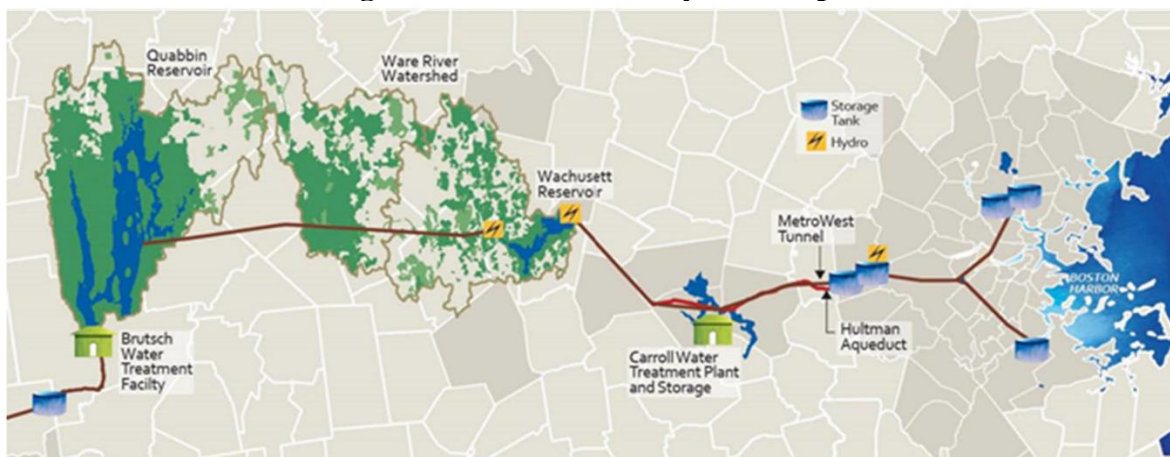
Criterion #5 requires that "reasonable instream flow in the river from which the water is transferred is maintained." In addition, per Criterion #7 the WRC must consider the "cumulative impacts of all past, authorized or proposed transfers on streamflows, groundwater, lakes, ponds, reservoirs or other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

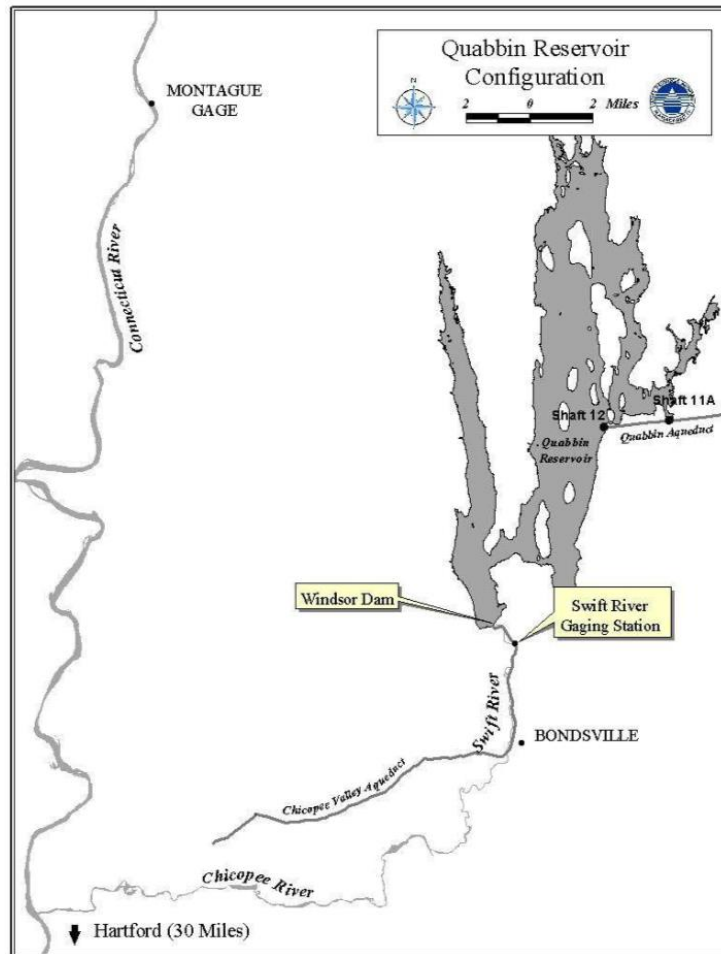
The Quabbin Reservoir, located in the Chicopee River Basin, has a well-protected watershed area of 186 square miles, and a maximum storage capacity of 412 billion gallons, equivalent to between five- and six-years’ worth of supply. The Quabbin contributes about 53% towards the system safe yield of 300 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

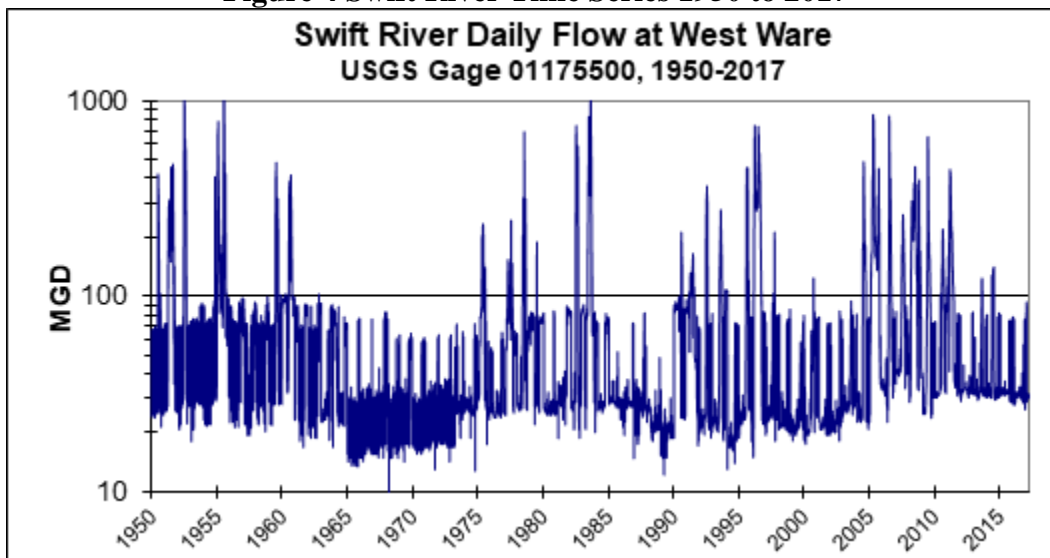
Several types of data are available to evaluate the potential impact of the Burlington transfer, as well as any planned or proposed transfers, on the Quabbin Reservoir. Streamflow data, or a hydrograph showing the impact of the proposed transfer on the donor river basin, is usually evaluated as part 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).

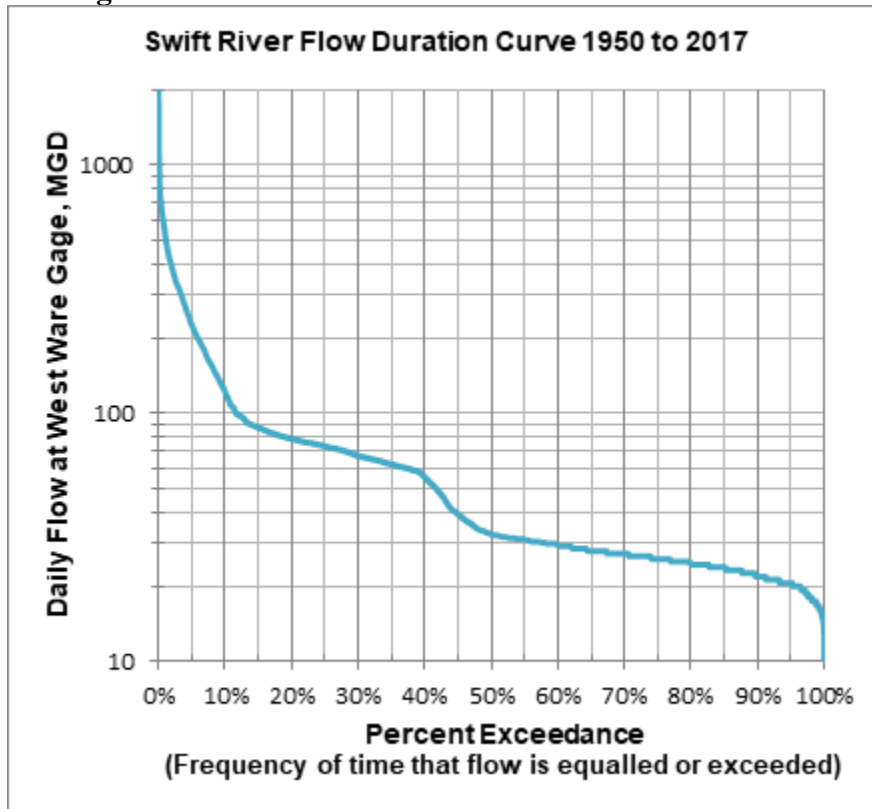
Figure 4 Swift River Time Series 1950 to 2017



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

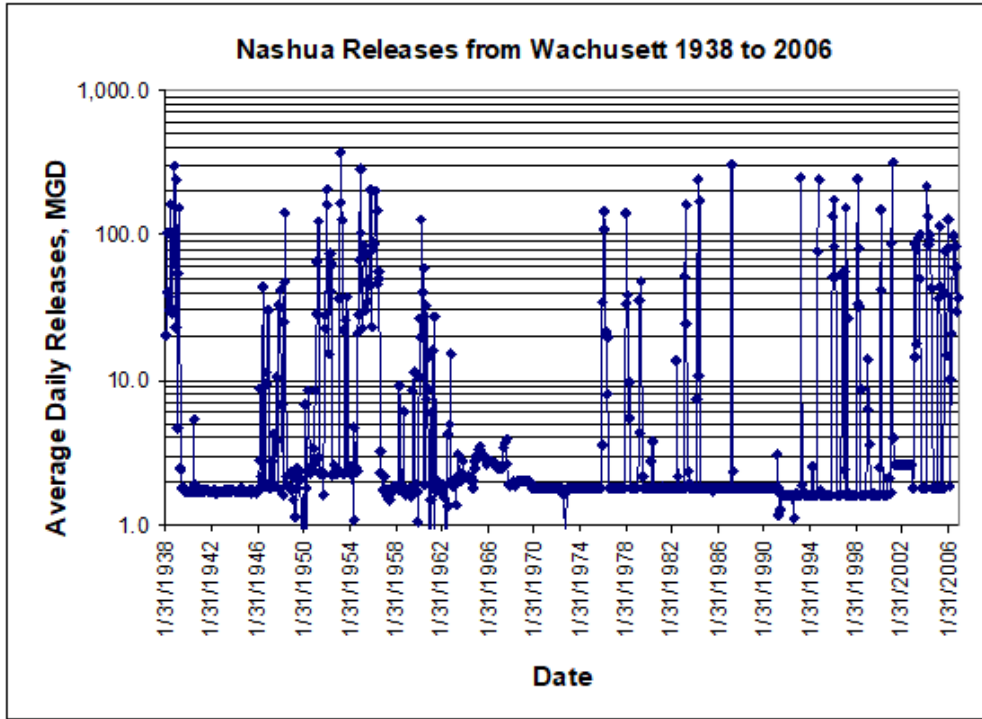


Figure 7 Wachusett Releases Flow Duration Curve 1938 to 2006

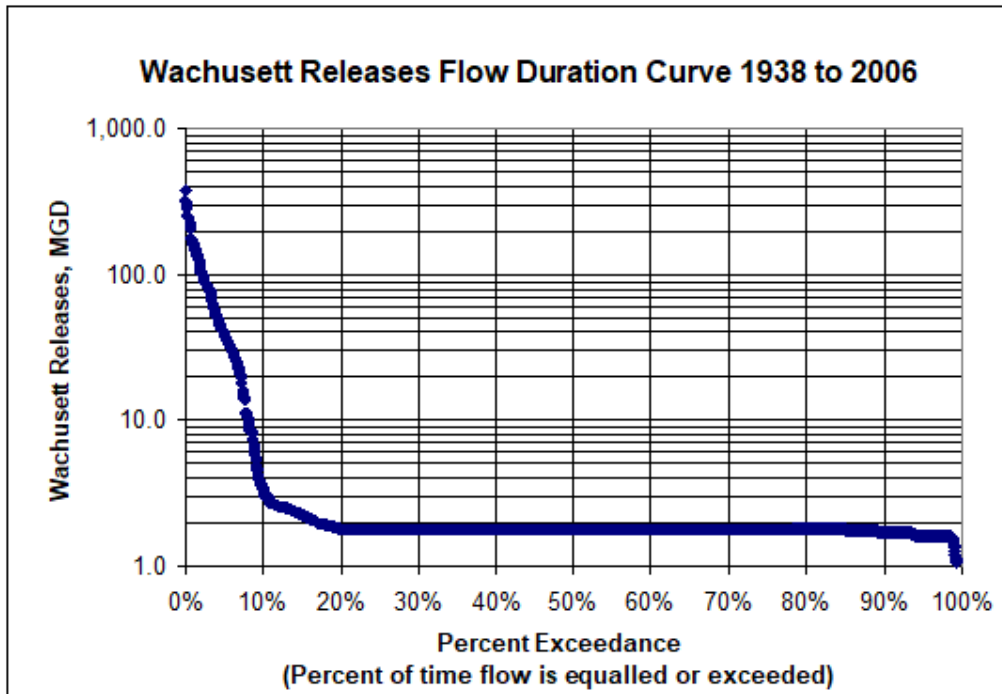


Figure 8 shows a times series of Nashua River daily releases from 2002-2018 taken from the DEIR.

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

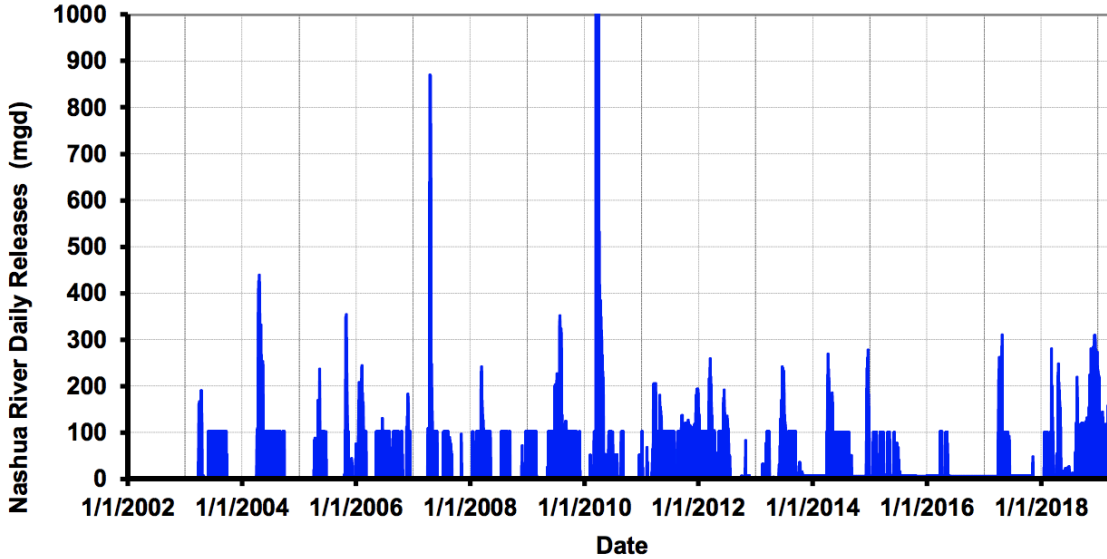
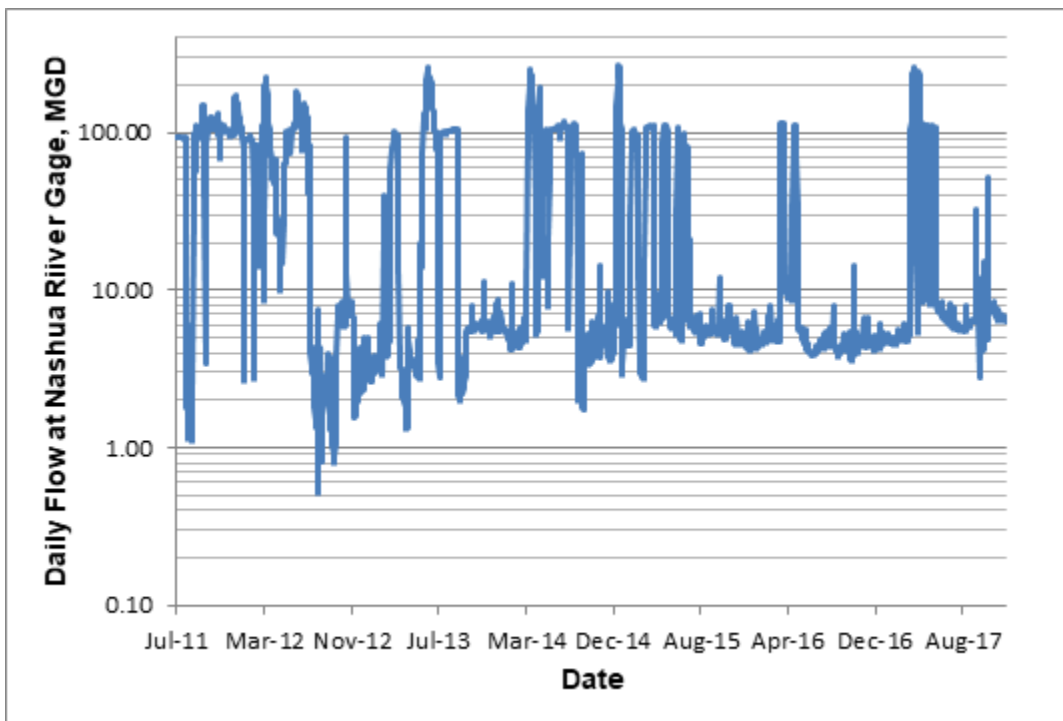


Figure 9 shows a times series of Nashua River flows from the newer USGS Gage 01095503 from July 2011 (when the period of record starts) through 2017. Additional demands from Burlington are not expected to affect Nashua River releases, which represent a majority of the low flows, from the Wachusett reservoir.

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

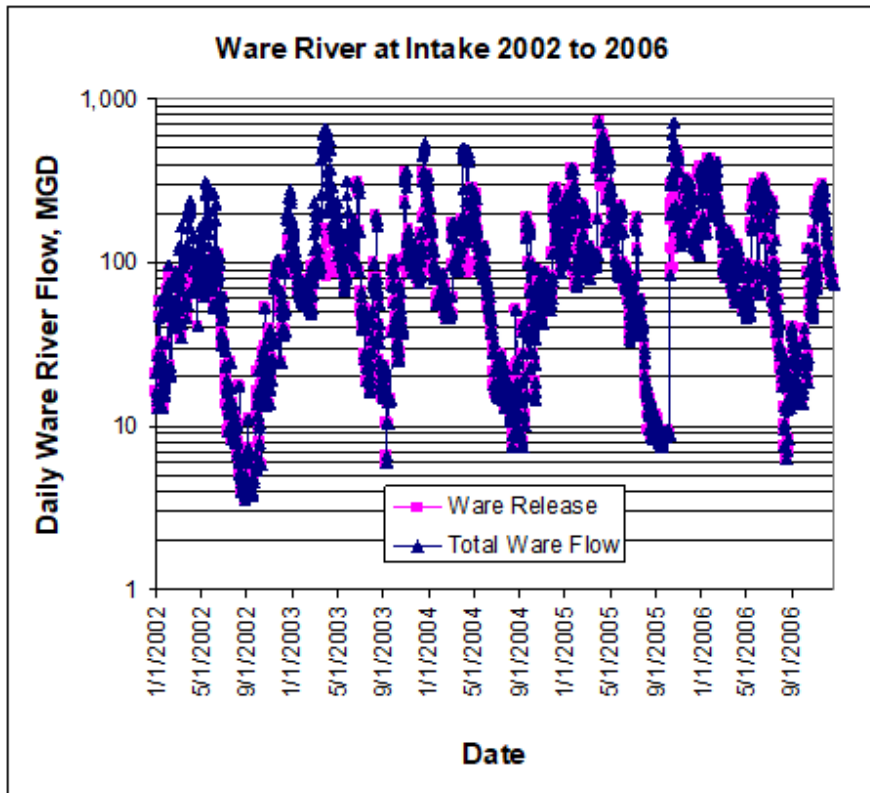
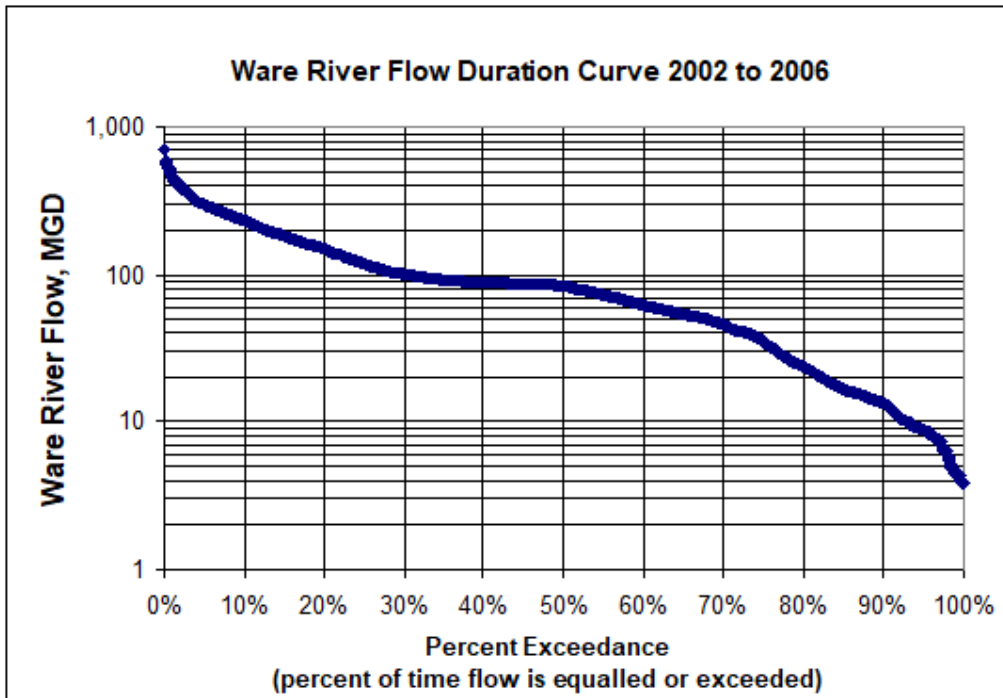


Figure 11 Ware River Flows and Flow Duration Curve, 2002 to 2006



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

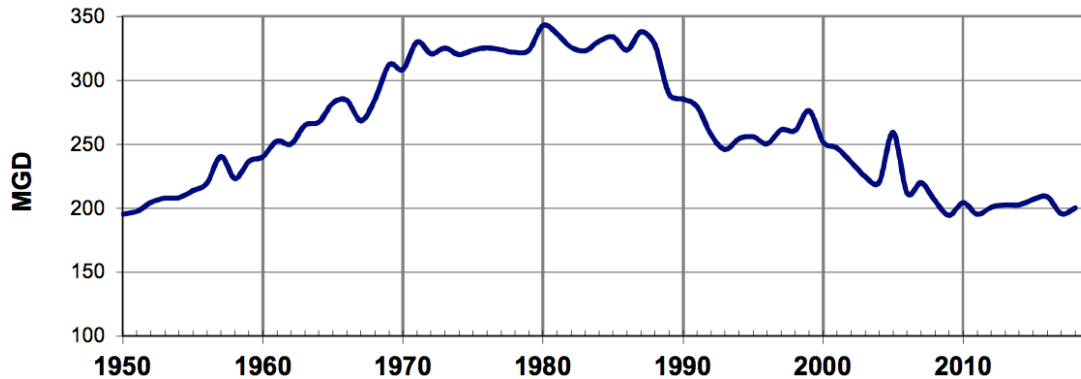
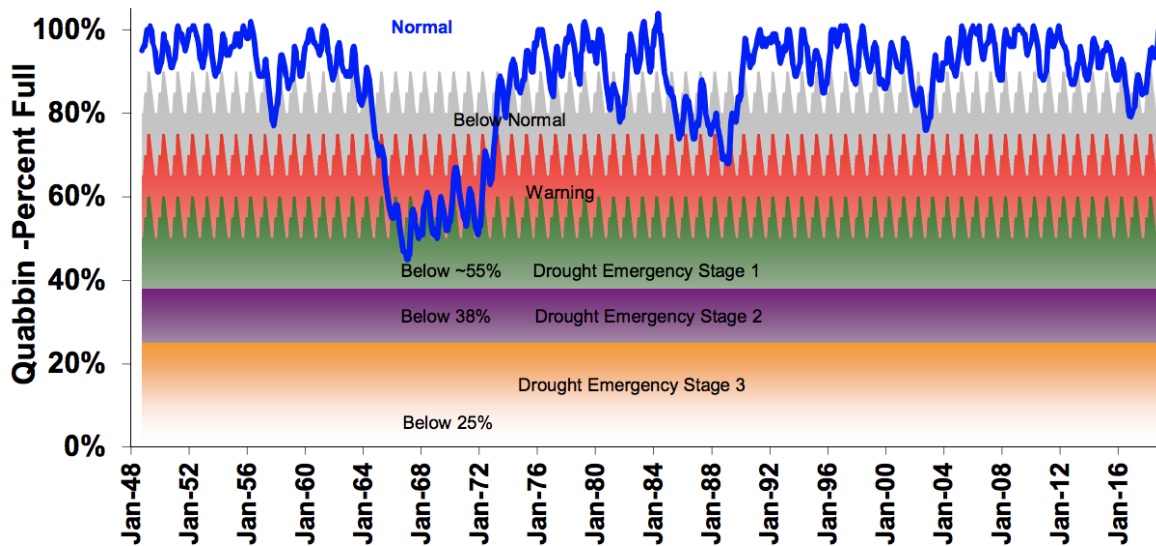


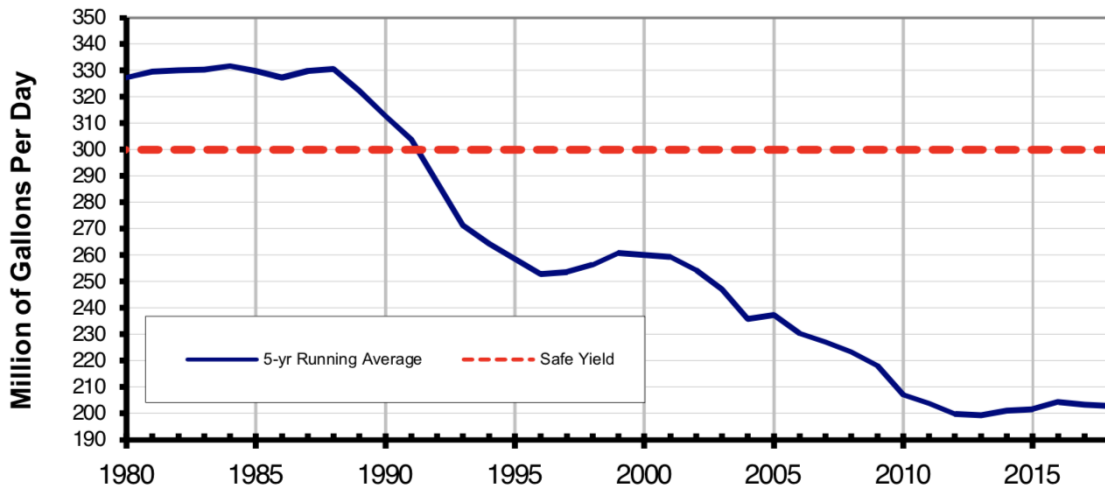
Figure 13 Quabbin Reservoir Levels 1948 – 2018



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

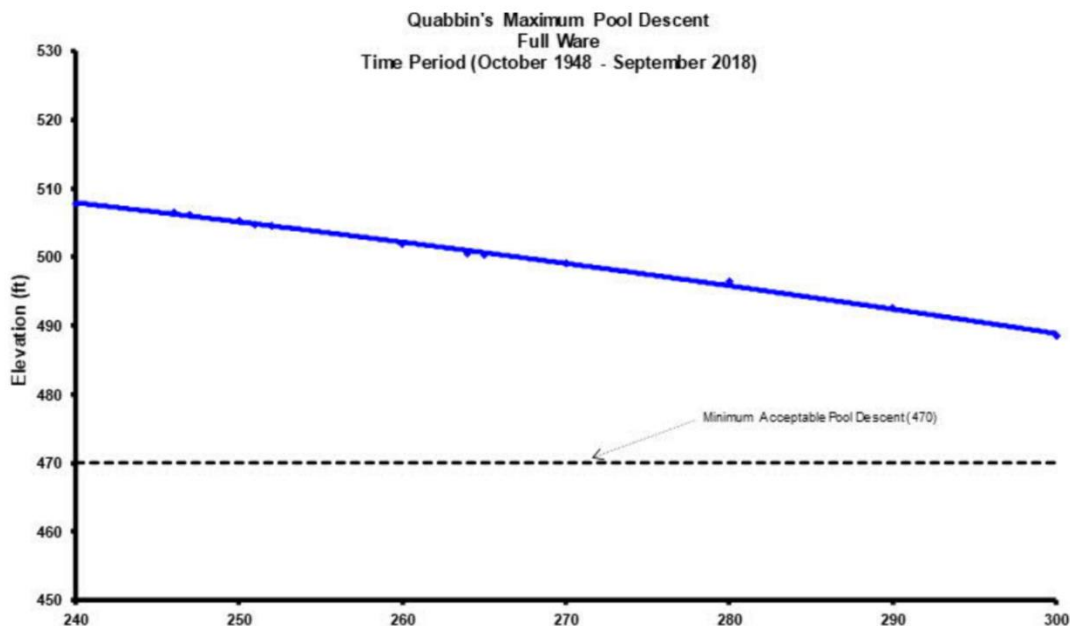
Drought Emergency Stage 1 is when the Quabbin levels are between 38% to 60% and there is a 10% target use reduction with mandatory restrictions (Table 2).

Table 2 MWRA Drought Management Stages

Stage	Trigger Range (Quabbin % Full) ²	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

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

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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