

**Ware Water System  
Massachusetts Water Resources Authority  
Quabbin Reservoir/Chicopee Valley Aqueduct  
Connection Feasibility - DRAFT**

**TO:** Stuart Beckley, Town Administrator, Town of Ware  
Gibby St. George-Sorel, DPW Director, Town of Ware  
Andy Lalashius, Water Supervisor, Town of Ware

**FROM:** Charlie Gore PE, Project Manager  
Megan Olson, Staff Engineer

**COPY:** Jeff Faulkner PE, Senior Project Manager, Tighe & Bond

**DATE:** February 2, 2021

---

## **1 Introduction**

This memorandum discusses the feasibility of utilizing the Massachusetts Water Resources Authority (MWRA) Chicopee Valley Aqueduct (CVA) which is water from the Quabbin Reservoir as a water supply for the Town of Ware.

A description of the Ware water system including the proposed Barnes Street Water Filtration Plant (WFP) is provided within this memorandum along with a discussion on the general MWRA system connection process, connection options, physical infrastructure needed for a connection, and an opinion of probable costs.

## **2 Ware Water System Description**

The Ware Department of Public Works (DPW) maintains the public water supply to the Town of Ware which includes:

- Four groundwater supply wells
- Two chemical treatment systems (disinfection and pH adjustment)
- Two water storage tanks
- One booster pump station
- Approximately 42 miles of distribution water mains

The Ware water system serves approximately 2,350 customers broken down as follows:

- 2,153 residential
- 132 commercial
- 2 agricultural
- 24 industrial
- 32 municipal

Based on 2015 data, the average day demand was approximately 652,200 gallons per day (gpd) and the maximum day demand was approximately 1,061,000 gpd.

## **2.1 Proposed Water Filtration Plant**

The Town of Ware initiated the design of the Barnes Street WFP to remove iron and manganese from the Barnes Street Wells.

The proposed Barnes Street WFP was planned to be designed to meet projected 2025 average day demand of 0.78 MGD and maximum day demand of 1.37 MGD. The current permitted Barnes Street well sources have a total capacity of 1.80 MGD which will be the maximum Barnes Street WFP design capacity.

Based on the February 2017 Wright-Pierce Preliminary Engineering report, the primary treatment process of the Barnes Street WFP will include GreensandPlus™ pressure filter vessels. Raw water will be dosed with sodium hypochlorite and potassium hydroxide prior to filtration. Following filtration, finish water will be dosed with potassium hydroxide. The final design of the Barnes Street WFP reached the 95% design point in May 2018 and is currently on hold. At present, the Wright-Pierce Barnes Street WFP cost estimate including design construction contingency and related hard and soft costs is \$13.2 million.

The construction of the proposed Barnes Street WFP includes:

- Three GreensandPlus™ media filters, media, air blower for filter cleaning process, associated valving and piping, and filter control panel
- Installation of process transfer pumps, backwash pumps, finished water pumps, recycle pumps, solids/residuals pumps and other ancillary pumping systems
- Chemical feed systems
- Masonry building to house the equipment complete with treatment, chemical feed, mechanical/electrical support rooms and laboratory
- Site work including grading, raw and finished water main installation, sewer main installation, exterior process piping, utilities, and other associated equipment
- Piping, site work, equipment systems, structures, instrumentation, control and electrical systems

## **2.2 Project Need**

Options to connect to the MWRA are being considered due to the cost of the proposed Barnes Street WFP. The Town wishes to ascertain if a connection would be viable from an administrative, technical and financial perspective. The following sections discuss the general MWRA System connection process, physical infrastructure needed to connect, and probable construction cost. The water usage information above was used for evaluating a connection option with a new 1.37 million gallons per day (MGD) booster pump station/corrosion control building. Future demand considerations, if significantly greater, would require further evaluation.

### 3 General MWRA Connection Process

The MWRA is a wholesale water and sewer services public authority that serves more than 3.1 million people within Massachusetts. The MWRA conveys water from the Quabbin and Wachusett Reservoirs, with respective capacities of 412 billion gallons and 65 billion gallons, to 51 communities in the Metro-Boston area and three (3) communities in Western Massachusetts.

In addition, the MWRA currently supplies the City of Chicopee, Town of Wilbraham, and the South Hadley Fire District No. 1 with approximately 10 MGD via the CVA. Water leaving the Quabbin Reservoir, and at times water from the Ware River, is treated at the MWRA William A. Brutsch Water Treatment Plant (MWRA Brutsch WTP) on Route 9 in Ware using chlorine and ultraviolet (UV) light for disinfection. Water flows via gravity to the Nash Hill Covered Storage Tank in Ludlow. The towns are then responsible for their own corrosion control, pH and alkalinity adjustment, any additional chemical addition for water quality improvement, and compliance with the Safe Drinking Water Act (SDWA) lead and copper rule. Chicopee utilizes sodium carbonate and sodium bicarbonate and Wilbraham and South Hadley Fire District #1 add sodium silicate.

Tighe & Bond contacted Katie Ronan, an Environmental Analyst at MWRA, and discussed the process of connecting to the CVA. Information was provided during a December 16, 2020 virtual meeting and via responses to questions contained within a MWRA January 15, 2021 email.

Based upon information provided by MWRA, required steps for connection to the MWRA Water System are generally as follows:

1. Undertake comprehensive water supply planning and adopt effective demand management measures. MWRA's Enabling Act criteria require water conservation, local source protection and maintenance, assessment of feasibility of local sources, the adoption of Water Management Plan, and water use surveys.
2. Document justification and need for connecting to the MWRA Water System.
3. Meet with CVA communities and gain consensus on connecting through formal vote of local governing body. (each ?)(3)
4. Meet with MWRA to formally begin the process of admission. Review MWRA permit requirements for CVA connection and work within MWRA easements/property.
5. Meet with the Water Resources Commission. Undertake an Interbasin Transfer Act (ITA) requirements review to determine if a "Determination of Insignificance" or "Significant" transfer approval process is required.
6. Conduct a MEPA consultation and scoping session to develop Environmental Impact Report (EIR) content.
7. Prepare an EIR and respond to public comments. Confirm permit requirements and mitigation measure(s) requirements.
8. Obtain approval of the Legislature and Governor. The approval of the Legislature and Governor can occur at any time in the process.

9. Submit an application to MWRA Advisory Board and to MWRA Board of Directors. There is no application form per se; the application consists of a compilation of documentation developed in the preceding steps.

A checklist of the application contents is provided in MWRA's *STEPS FOR ADMISSION OF NEW COMMUNITIES TO THE MWRA WATER SYSTEM* included in Attachment A. Attachment B includes MWRA Policy #:OP.10 Admission of New Community to MWRA Water System.

### 3.1 Feedback from Existing CVA Communities

Tighe & Bond reached out to some existing community water systems connected to the CVA in an informal manner and obtained the following information:

- MWRA Billing is quarterly based on previous year usage. Payment is due within 30 days
- A master meter is used for billing
- MWRA Billing is based on proportionate share of CVA costs based on flow
- Communities set their own water rates with their own customers
- Communities have their own standby chlorination facilities
- Communities have their own corrosion control chemical facilities
- MWRA performs has their own Massachusetts certified laboratory and some water samples from the community can be sent to the MWRA laboratory
- Communities generally have good working relationships with MWRA staff and are easy to communicate with
- The existing CVA Communities will be able to comment on the new request for connection. They will likely want to ensure that the new connecting communities do not impact future use/growth within the existing CVA communities
- Communities do not control MWRA rate increases

### 3.2 Constraints and Issues Related to Connecting

The following preliminary list of constraints and issues have been identified regarding connecting the Ware water system to the MWRA CVA system.

- Ware has existing MassDEP approved water supply wells as a viable source of supply.
- Town of Ware would need to provide approval from several entities including:
  - Ware Community (via Town Meeting) and Ware Water Commissioners (Board of Selectmen)
  - CVA member communities
  - MWRA Advisory Board
  - MWRA Board of Directors
  - Massachusetts Water Resources Commission
  - Executive Office of Energy and Environmental Affairs/ Massachusetts Environment Policy Act
  - Massachusetts Department of Environmental Protection
  - Massachusetts State Legislature

- o Massachusetts Governor
- Using both surface water and groundwater sources to supply one water system is generally not preferred and a connection to the MWRA system to provide a partial supply connection other than for an emergency condition, would require further evaluation.
- The CVA system capacity following treatment at the MWRA Brutsch WTP is limited based on CVA/transmission main conveyance hydraulics and treatment systems operational limits. The CVA communities and MWRA need to agree there is sufficient available capacity for Ware to be admitted to the system.
- If a connection is allowed, the MWRA will need to identify and/or approve the connection location and method to be utilized.
- The "buy in" cost may be perceived as high by customers. It is possible to pay the "buy in" cost over several years thereby lessening the annual impact to customers.
- The MWRA water rate structure may be perceived as high by customers. Charges are based on the previous years' usage plus outstanding debt service from the "buy in" cost.
- Identification and implementation of communication protocols, system monitoring, instrumentation and controls would require coordination with MWRA and CVA members.
- Existing topographic conditions pose difficulties for conveying water from the CVA to the Town of Ware. The CVA flows by gravity parallel to the Swift River generally in a south and west direction. The Ware water system is located to the east of the CVA and at a higher elevation than the CVA.
- Site locations for the Ware booster pump station/corrosion control building will require further identification and evaluation. Land takings, and/or temporary/permanent easements may be required.

MWRA input on the above connection constraints and issues is presented below.

- MassDEP is the lead voice on connections to ensure that the MWRA system is not abused or overused.
- If Ware continues to use existing sources, MassDEP will be interested in blending and water quality compatibility.
- If Ware is permitted to connect to the CVA system, MWRA indicated that there is no penalty for exceeding the volume limit that would be defined in a MWRA/Town of Ware contract. MWRA will supply more water, to the extent possible, if an unexpected emergency arises. It is expected that the volume limit defined in the contract are determined and agreed upon in good faith. However, if a community regularly exceeds contract limits, the contract would need to be revised and an additional entrance fee would be assessed for any increase in usage.
- If Ware were admitted and connected to the CVA system, Ware would represent approximately 8% of the new CVA total demand at the flows stated above. The 8% is derived from the total flow provided to the three CVA communities and the maximum day demand from the previous year.
- The entrance fee based on Ware's water usage would be roughly \$2.8 million based on the Net Asset Value (NAV) of the entire MWRA water system. The CVA's separate cost center is used for rate assessments and water rates are different for the Metro and CVA systems.

- The annual assessment for 630,000 gpd in the CVA system would be roughly \$460,000. This assessment is projected to increase by 2.5% to 3% annually.
- There is adequate capacity in the CVA system to supply Ware at the volumes indicated above. Preliminary indications are that there would not be issues with peak summer day demand. However, more detailed engineering review and hydraulic analysis would be required to confirm this. The maximum day capacity of MWRA Brutsch WTP is 16 MGD. Initial evaluation indicates that Ware's additional flow would not negatively impact existing CVA communities, though further analysis is necessary.
- The CVA is 48-inch or 36-inch diameter pipe along its alignment. Connection options are discussed in the following section.

## **4 CVA Connection Options**

Based on discussions with the MWRA and Town of Ware, two potential options for connecting the Ware water system to the MWRA's CVA were identified. Figure 4-1 displays the two transmission main route options for connecting the Ware water system to the MWRA CVA water system. The purple lines represent the water mains in the Ware water system, the blue line represents the MWRA's CVA, and the two red lines illustrate the two alignment options for connecting the Ware water system to MWRA CVA water system. These routes were evaluated hydraulically and financially and deemed to be the most reasonable options for connecting the Ware water system to the MWRA CVA water system.

### **4.1 Option 1 - Belchertown Road (Route 9)**

The first transmission water main route option evaluated for connecting the Ware water system to the MWRA CVA water system follows Belchertown Road (Route 9) from the MWRA Brutsch WTP to near the Ware Anderson Road WST. A 12-inch pipe would run from the CVA near the MWRA Brutsch WTP to the proposed Ware booster pump station/corrosion control building. Water would then be pumped from the Ware booster pump station/corrosion control building to the Ware water system via a 16-inch transmission main for 4.6 miles along Route 9.

### **4.2 Option 2 - Old Belchertown Road**

The second transmission water main route option evaluated for connecting the Ware water system to the MWRA CVA water system follows Old Belchertown Road from the intersection of River Road and Old Belchertown Road to Palmer Road (Route 32). In this option, the connection to the CVA is located further downstream on the CVA. The CVA would be tapped approximately 2.3 miles downstream from the MWRA Brutsch WTP at the Old Belchertown Road River Road Intersection. A 12-inch pipe would run from the CVA to the proposed Ware booster pump station/corrosion control building. Water would then be pumped from the Ware booster pump station/corrosion control building to the Ware water system via a 16-inch transmission main for 3.2 miles along Old Belchertown Road.

### **4.3 MWRA Input on the 2 CVA Connection Options**

A preliminary review by MWRA indicated that the proposed locations are potentially feasible. However, if Ware decides to pursue admission, field investigation would be required. There may be tradeoffs on contact time for Surface Water Treatment Rule (SWTR) disinfection credit between the two options, which the Town of Ware would need to consider. Investigation would also be necessary to determine whether a live tap or dewatering the CVA to use an original side tap would be preferable.







For siting purposes for a Ware booster pump station/corrosion control building, MWRA provided information on the minimum hydraulic grade line of the CVA system at the proposed connection locations. MWRA noted that a wide range of assumptions would need to be evaluated prior to design.

## **5 Physical Infrastructure Needed for Connection**

The Town of Ware would bear responsibility for funding, constructing, owning, and maintaining the following infrastructure:

- Connection to CVA per MWRA approved method (new live tap or original side tap)
- Master Metering Vault for revenue/billing (MWRA would own this)
- Transmission main from CVA to Ware water system
- Hydrants and isolation valves for flushing, dealing with breaks along the transmission main
- Booster Pump Station/Corrosion Control Building including pumps, instrumentation and controls, chemical storage tanks and chemical metering pumps, chlorine analyzer, and standby disinfection, flow metering for chemical pump control
- Standby Generator to run the Booster Pump Station/Corrosion Control system
- Electric Service adequate for 3-phase power

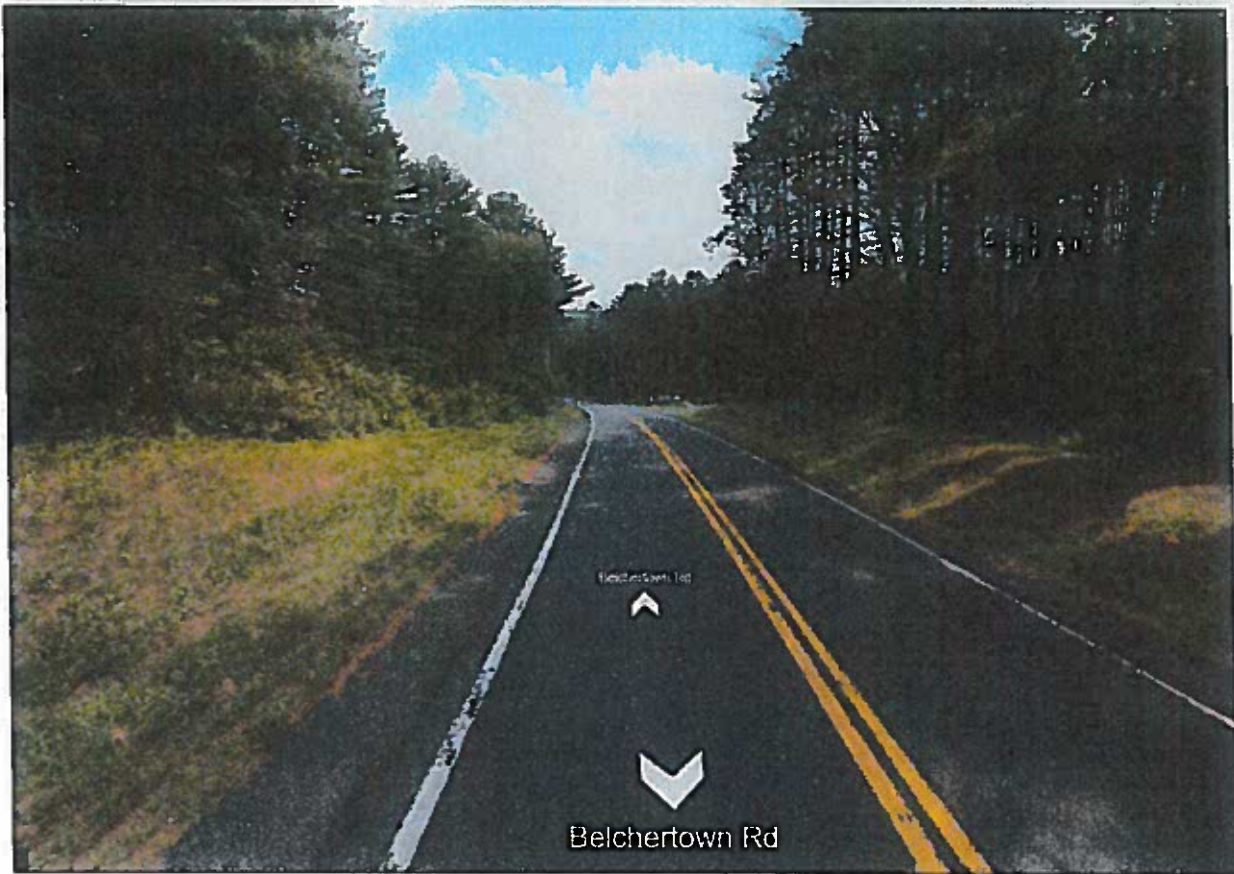
Physical Infrastructure differences between options are discussed in the following sections.

### **5.1 Option 1 - Belchertown Road (Route 9)**

Option 1 includes a 16-inch water transmission main that is approximately 4.6 miles. The desire is for a majority of the water transmission main to be installed in the grass roadway shoulder, reducing the need for pavement restoration, however a review of road right of way location and existing utilities/constraints has not been reviewed at this conceptual phase. Figure 5-1 is a photograph of a typical portion of Route 9 for the Option 1 alignment. Because Route 9 is a State Road, a MassDOT permit will be required to construct the work.

Figure 5-2 shows the elevation profile of the proposed transmission main on Route 9. Due to topography changes along the transmission main, Option 1 would require a minimum of two air release valves, one at each elevation peak along the water transmission main alignment. The total electrical loads for the booster pumps and ancillary equipment, lighting, etc. would be determined during design and furnished to the electric company to verify electric service, transformer requirements and estimated costs.





**FIGURE 5-1**

Belchertown Road (Route 9), Ware near Monson Turnpike Road  
(source: Bing Maps®)



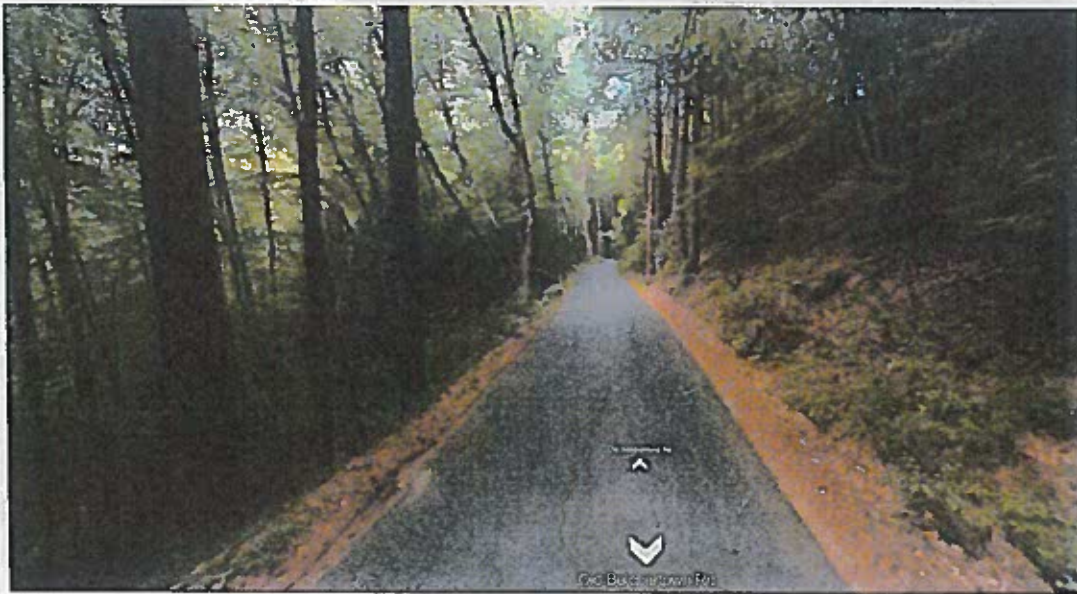
**FIGURE 5-2**  
Option 1 - Route 9 Elevation Profile



## 5.2 Option 2 - Old Belchertown Road

Option 2 includes a 16-inch water transmission main that is approximately 3.2 miles along town-owned Old Belchertown Road. This option is 1.3 miles shorter than Option 1. To provide electric service, 3 phase power extension to the Ware booster pump station/corrosion control building is possibly needed for Option 2. The total electrical loads for the booster pumps and ancillary equipment, lighting, etc. would be determined during design and furnished to the electric company to verify electric service, transformer requirements and estimated costs. The transmission main would connect from Old Belchertown Road to the existing 12-inch water main on Palmer Road (Route 32). Old Belchertown Road is a primarily residential road with some sharper turns, narrow road widths, and areas of steep terrain.

Figure 5-3 is a photograph of a typical section of Old Belchertown Road. A minimum of one air release valve would be required at the peak elevation along the 3.2-mile water transmission main alignment. **FIGURE 5-4** Figure 5-4 demonstrates the elevation profile of Old Belchertown Road where the 16-inch transmission main would be installed.



**FIGURE 5-3**

Old Belchertown Road, Ware

(source: Bing Maps®)



**FIGURE 5-4**  
 Option 2 - Old Belchertown Road Elevation Profile



## 6 Opinion of Probable Cost

### 6.1 Conceptual Costs

For the 2 options, conceptual costs for the physical infrastructure needed for the connection have been developed and are presented in Attachment C Opinion of Probable Construction Costs. These costs reflect simplified quantity estimates and unit pricing to capture current conceptual costs plus engineering and contingency. These costs are for the purposes of planning; they exclude costs for special construction and are not intended to be in the Itemized cost estimate. The following special construction costs are not included:

- Drainage system work
- Utility relocation
- Environmental resource area restoration
- Work required for contaminated soils or groundwater

The above bulleted items, if determined to be required, would add to the project cost.

Conceptual cost estimates are based on a projected August 2021 Engineering News Record (ENR) 20-City Average Construction Cost Index of 11799. The projection is based on a three percent annual increase of the August 2020 index. The conceptual cost are based on Class 5 level construction cost estimates, as defined by the Association for the Advancement of Cost Engineering (AACE) International Recommended Practices and Standards. According to these standards, the estimate class designators are labeled Class 1, 2, 3, 4, and 5, where a Class 5 estimate is based on the lowest level of project definition and a Class 1 estimate is closest to full project definition and maturity. The end usage for a Class 5 estimate is project screening or feasibility purposes. The expected accuracy range of a Class 5 estimate is between +50% to -30%. The level of project definition for a Class 5 estimate is between 0% and 2%. As further engineering is completed to define the scope of construction, the class of cost estimate will further refine the accuracy needed to support allocation of funds for construction of the project.

A summary of opinion of probable construction costs for each option is included in Attachment C based on preliminary quantities. Construction costs include the following:

- Connection to CVA per MWRA approved method (new live tap or original side tap)
- Master Metering Vault for revenue/billing (MWRA would own this)
- Transmission main from CVA to Ware water system
- Valves for isolation at 1,000 foot spacing
- Hydrants for flushing at 2,000 foot spacing
- Air release valves/manholes
- Temporary trench paving
- Permanent trench paving
- Half Road width Mill and Overlay paving for State Road
- Rock/boulder excavation Allowance based on 15% of excavated material being rock
- Bridge/culvert crossings Allowance of \$750,000. Survey, review of record drawings, geotechnical investigations and preliminary design would be needed to establish this cost in greater detail as noted below.

- Booster Pump Station/Corrosion Control Building including pumps, instrumentation and controls, chemical storage tanks and chemical metering pumps, chlorine analyzer, and standby disinfection, flow metering for chemical pump control
- Standby Generator to run the Booster Pump Station/Corrosion Control system
- Electric service/3-Phase Power Allowance
- Police Detail Allowance
- Environmental Resource area protection
- Contractor General Conditions (bonds, insurance, etc.) at 15% of construction cost
- Engineering and Contingency Allowance at 40% of construction cost
- Materials and Bidding Contingency at 25% of construction cost

Survey, geotechnical investigations, permitting and design would be needed to further define project costs. Table 6-1 presents an Opinion of Probable Project Costs.

**TABLE 6-1**

Opinion of Probable Project Costs

Description	Option 1 Belchertown Road (Route 9)	Option 2 Old Belchertown Road
Opinion of Construction Cost with Engineering and Contingency as presented in Attachment C	\$25,900,000	\$19,800,000
Land Acquisition Allowance	\$250,000	\$250,000
Anticipated MWRA System Buy-in fee	\$2,800,000	\$2,800,000
<b>Total</b>	<b>\$28,950,000</b>	<b>\$22,850,000</b>

## 6.2 Project Impacts

### 6.2.1 Potential to Supply New Customers

Abutters along the water transmission main, at a sufficient distance from the booster pump /corrosion control facility that provides sufficient contact time to comply with the Surface Water Treatment Rule, may have the ability to connect to the new water main. This ability could fuel additional growth in the area where private wells are not feasible and there are suitable soils for wastewater disposal systems in the area.

### 6.2.2 Project Abutters and Community Outreach

Abutters will experience various impacts associated with construction activity under each option. Traffic patterns will also be impacted throughout construction, and appropriate coordination, approvals, notifications, and signage should occur prior to the start of the

project. Traffic Control and Police Detail allowances generally include estimated hours based on construction duration, detours including barriers, signage, and portable changeable message signs.

### 6.2.3 Wetlands

Identification of wetlands and other water body impacts will be assessed regardless of which option is chosen. A Wetlands Protection Act Notice of Intent will be filed with the Ware Conservation Commission and the MassDEP, if needed. Erosion controls barriers will be installed based upon wetland and riverfront buffer zones and sedimentation control devices will be installed in all catch basins within the project area.

## 7 Summary

From the preliminary feasibility perspective, the MWRA CVA system is a potentially viable water supply source for the Town Ware if MassDEP and the CVA communities are agreeable to allow admittance to the system, and the MWRA, MEPA, WRC, Massachusetts legislature and Governor approve a connection.

Two potential connection options were evaluated from a planning perspective. These options would require infrastructure improvements, including transmission main, Ware booster pump/corrosion control building and appurtenances that would cost in excess of \$20,000,000 to construct. Permits to construct these improvements would be required from applicable local and state agencies. In addition to construction costs for improvements, an admittance fee of \$2,800,000 would need to be paid to MWRA. A summary of costs is presented in Table 7-1.

**TABLE 7-1**

**Project Cost Comparison**

Description	Barnes Street WFP	MWRA CVA Connection Option 1 Belchertown Road (Route 9)	MWRA CVA Connection Option 2 Old Belchertown Road
Total Cost	\$13,200,000	\$28,950,000	\$22,850,000

Given that Ware currently has viable permitted water supply wells that are not contaminated, it may be difficult to obtain concurrence or agreement from MassDEP that a connection to the CVA system is warranted or approvable. It is likely that the timeline to obtain approval will be several years unless an emergency connection is required for some reason.

Due to the estimated cost to construct improvements and join the MWRA CVA system, and the multiple year timeline to obtain acceptance to the MWRA system, Tighe & Bond recommends that the Town of Ware proceed with construction of the Barnes Street WFP.

## 8 Attachments

The following are included as attachments.

- A MWRA's *STEPS FOR ADMISSION OF NEW COMMUNITIES TO THE MWRA WATER SYSTEM*
- B MWRA Policy #:OP.10 Admission of New Community to MWRA Water System MWRA OP.10
- C Opinion of Probable Construction Cost

\\tighebond.com\data\Data\Projects\W\W2133 Ware NPDES Permit\013 Ware - Water Treatment OPM\Report\_Evaluation\Quabbin Technical Memo\Ware MWRA CVA Connection Memo\_rev1.docx



**Tighe&Bond**

## **APPENDIX A**



## **Admission of New Community to MWRA Water System**

**Policy #: OP.10**

<b>Effective Date:</b> November 12, 2014	<b>Last Revised:</b> 11/12/2014
<b>Contact:</b> Planning Department, Operations	<b>Former Policy #:</b> OP.10
<b>Reviewed by Chief Operating Officer:</b> Michael J. Hornbrook	<b>Date:</b> 11/12/2014
<b>Reviewed by Internal Audit:</b> John A. Mahoney	<b>Date:</b> 11/12/2014
<b>Approved by Executive Director:</b> Frederick A. Laskey	<b>Date:</b> 11/12/2014

**Purpose** This policy explains the criteria and process the MWRA will use to evaluate a request for admission of a new community to the MWRA water system and requests from state, county, institutional and federal facilities for water service to locations in communities not included in section 8 (d) of MWRA's Enabling Act (St.1984, c.372).

**Eligibility** This policy applies to communities seeking admission to the MWRA water system, and to state, county, institutional, and federal facilities seeking MWRA water for a location outside MWRA's water service area as set forth in section 8 (d) of MWRA's Enabling Act (St.1984, c.372).

---

*Continued on next page*

LCI	17,421	From Chart	\$ 17,277	\$ 17,278	\$ 16,166	\$ 16,338	\$ 16,338	\$ 16,296	\$ 16,392	\$ 16,272	\$ 16,463	\$ 16,519	\$ 16,888
MM	42,799	From Chart											
PH	2,973												
	8,478												
PPI	38.3%												

PH = 200 percent of poverty level/Population where poverty status is determined  
 PPI = Population for whom poverty status is determined

### Typical Residential Customer Impacts

Contributions based on 8" meter customer rates

Account Type	100% Rate Funded	25% OF Contribution	50% OF Contribution	75% OF Contribution	80% OF Contribution	85% OF Contribution	90% OF Contribution	95% OF Contribution	100% OF Contribution
100% Rate Funded	\$ 478.68	\$ 531.20	\$ 581.80	\$ 615.55	\$ 653.13	\$ 711.44	\$ 846.81	\$ 971.82	\$ 1,099.87
25% OF Contribution									
50% OF Contribution									
75% OF Contribution									
80% OF Contribution									
85% OF Contribution									
90% OF Contribution									
95% OF Contribution									
100% OF Contribution									

Account Type	100% Rate Funded	25% OF Contribution	50% OF Contribution	75% OF Contribution	80% OF Contribution	85% OF Contribution	90% OF Contribution	95% OF Contribution	100% OF Contribution
100% Rate Funded	\$ 478.68	\$ 531.20	\$ 581.80	\$ 615.55	\$ 653.13	\$ 711.44	\$ 846.81	\$ 971.82	\$ 1,099.87
25% OF Contribution									
50% OF Contribution									
75% OF Contribution									
80% OF Contribution									
85% OF Contribution									
90% OF Contribution									
95% OF Contribution									
100% OF Contribution									

Account Type	100% Rate Funded	25% OF Contribution	50% OF Contribution	75% OF Contribution	80% OF Contribution	85% OF Contribution	90% OF Contribution	95% OF Contribution	100% OF Contribution
100% Rate Funded	\$ 478.68	\$ 531.20	\$ 581.80	\$ 615.55	\$ 653.13	\$ 711.44	\$ 846.81	\$ 971.82	\$ 1,099.87
25% OF Contribution									
50% OF Contribution									
75% OF Contribution									
80% OF Contribution									
85% OF Contribution									
90% OF Contribution									
95% OF Contribution									
100% OF Contribution									

# 2020 Water Rate Model

## Debt

Existing and Projected Debt

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000	3001	3002	3003	3004	3005	3006	3007	3008	3009	3010	3011	3012	3013	3014	3015	3016	3017	3018	3019	3020	3021	3022	3023	3024	3025	3026	3027	3028	3029	3030	3031	3032	3033	3034	3035	3036	3037	3038	3039	3040	3041	3042	3043	3044	3045	3046	3047	3048	3049	3050	3051	3052	3053	3054	3055	3056	3057	3058	3059	3060	3061	3062	3063	3064	3065	3066	3067	3068	3069	3070	3071	3072	3073	3074	3075	3076	3077	3078	3079	3080	3081	3082	3083	3084	3085	3086	3087	3088	3089	3090	3091	3092	3093	3094	3095	3096	3097	3098	3099	3100	3101	3102	3103	3104	3105	3106	3107	3108	3109	3110	3111	3112	3113	3114	3115	3116	3117	3118	3119	3120	3121	3122	3123	3124	3125	3126	3127	3128	3129	3130	3131	3132	3133	3134	3135	3136	3137	3138	3139	3140	3141	3142	3143	3144	3145	3146	3147	3148	3149	3150	3151	3152	3153	3154	3155	3156	3157	3158	3159	3160	3161	3162	3163	3164	3165	3166	3167	3168	3169	3170	3171	3172	3173	3174	3175	3176	3177	3178	3179	3180	3181	3182	3183	3184	3185	3186	3187	3188	3189	3190	3191	3192	3193	3194	3195	3196	3197	3198	3199	3200	3201	3202	3203	3204	3205	3206	3207	3208	3209	3210	3211	3212	3213	3214	3215	3216	3217	3218	3219	3220	3221	3222	3223	3224	3225	3226	3227	3228	3229	3230	3231	3232	3233	3234	3235	3236	3237	3238	3239	3240	3241	3242	3243	3244	3245	3246	3247	3248	3249	3250	3251	3252	3253	3254	3255	3256	3257	3258	3259	3260	3261	3262	3263	3264	3265	3266	3267	3268	3269	3270	3271	3272	3273	3274	3275	3276	3277	3278	3279	3280	3281	3282	3283	3284	3285	3286	3287	3288	3289	3290	3291	3292	3293	3294	3295	3296	3297	3298	3299	3300	3301	3302	3303	3304	3305	3306	3307	3308	3309	3310	3311	3312	3313	3314	3315	3316	3317	3318	3319	3320	3321	3322	3323	3324	3325	3326	3327	3328	3329	3330	3331	3332	3333	3334	3335	3336	3337	3338	3339	3340	3341	3342	3343	3344	3345	3346	3347	3348	3349	3350	3351	3352	3353	3354	3355	3356	3357	3358	3359	3360	3361	3362	3363	3364	3365	3366	3367	3368	3369
--	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------



## Admission of New Community to MWRA Water System (OP.10), Continued

**In this Policy**      This policy contains the following parts:

<b>Policy Name / Part Name</b>	<b>Page #</b>
Admission Criteria A. Enabling Act Criteria B. Other Criteria	3
Application Process A. Findings Required by Statute B. Additional Requirements C. MWRA Review of Application	4
Water Supply Agreement	9
Waivers	10
Entrance Fees	11
Connections and Connection Costs	11
Application of Individual Users	11
Annual Update	12

*Continued on next page*

## **Admission of New Community to MWRA Water System (OP.10),**

Continued

---

### **Admission Criteria**

In evaluating whether to permit the admission of new communities to the MWRA waterworks system, the MWRA must evaluate the following two groups of criteria:

#### **A. Enabling Act Criteria**

- The MWRA must, in accordance with Section 8 (d) of Chapter 372 of the Acts of 1984, find that the following six criteria are met:
  - The safe yield of the watershed system, on the advice of the MDC, is sufficient to meet the new community's demand.
  - No existing or potential water supply source for the community 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.
  - A water management plan has been adopted by the community and approved by the Water Resources Commission.
  - Effective demand management measures have been developed by the community, including the establishment of leak detection and other appropriate system rehabilitation programs.
  - A local water supply source feasible for development has not been identified by the community or DEP.
  - A water use survey has been completed which identifies all users within the community that consume in excess of twenty million gallons a year.
- Admission of the applicant community into the MWRA has received approval from the MWRA Advisory Board, the General Court, and the Governor.
- An applicant community has accepted the extension of MWRA's water system to the community by majority vote of the city council if a city or a majority vote of the town meeting if a town.

---

*Continued on next page*

## **Admission of New Community to MWRA Water System (OP.10), Continued**

---

### **Admission Criteria continued**

- Providing water service to a state, county, institutional or federal facility outside MWRA's water service area has received approval from the MWRA Advisory Board.

#### **B. Other Criteria**

- Any expansion of the MWRA water service system shall strive for no negative impact on the interests of the current MWRA water communities, water quality, hydraulic performance of the MWRA water system, the environment, or on the interests of the watershed communities; shall attempt to achieve economic benefit for existing user communities; and shall preserve the rights of the existing member communities. Any evaluation of the impacts of new communities shall clearly evaluate all changes to system reliability.
- The applicant community has met all legal requirements for admission; and
- Upon admission, the applicant community will pay fair compensation for past investment in the MWRA waterworks system by existing user communities.

---

### **Application Process**

#### **A. Application**

An applicant shall submit three copies of a completed application to the MWRA Executive Director for review. A copy shall also be submitted to the MWRA Advisory Board. MWRA staff will review and evaluate the completed application to determine whether the requirements of the Enabling Act and additional requirements can be met, and whether water service can be provided by MWRA without jeopardizing standards and requirements set forth in this policy.

---

*Continued on next page*

## Admission of New Community to MWRA Water System (OP.10), Continued

---

### Application Process, continued

#### B. Requirements

- In a formal application for entrance to the MWRA waterworks system, an applicant community must provide detailed documentation to enable MWRA to make the necessary findings required by MWRA's Enabling Act (Section 8 (d) of St.1984, c.372).

In addition to providing documentation for the Section 8 (d) findings above, the applicant must provide the following.

- Documentation of approvals from the Secretary of Environmental Affairs in the MEPA process, the Water Resources Commission in the Interbasin Transfer Act process, the MWRA Advisory Board, the DEP on local source feasibility, the General Court, and the Governor. Prior to a formal application to MWRA, MWRA will strive to streamline the approval process, by review of application material concurrently with other approval processes, and by coordination with state agencies to document environmental and hydraulic impacts on MWRA's system.
- A detailed description of the water conservation and water accountability programs undertaken by the community and other entities including: leak detection and repair, commercial and industrial water conservation, residential water conservation efforts, large meter downsizing, meter replacement, municipal facility conservation, unaccounted-for water analysis (present data for UAW levels in last 3 years), true cost pricing and conservation based pricing for water and sewer service.
- Communities shall provide a plan for water conservation. MWRA encourages communities to have a plan that adheres to the Commonwealth's water conservation standards, including guidelines for lawn and landscapes. (Enforcement shall be the responsibility of the Water Resources Commission (WRC), Department of Environmental Protection (DEP) and other Commonwealth agencies.)
- A description (and copy) of municipal zoning and non-zoning measures designed to protect local sources of supply with a comparison showing how they meet DEP's regulations and policies for adequate water supply protection measures.

---

*Continued on next page*



## **Admission of New Community to MWRA Water System (OP.10), Continued**

---

### **Application Process, continued**

- Copies of any studies conducted on existing and potential local water source safe yield, protection needs, contamination threats, and water demand forecasts. If no studies are available on a potential local source known to the community or DEP, then the applicant should prepare documentation on estimated safe yield, protection needs and contamination threats, even for those sources previously determined to be infeasible to develop.
- A disaggregation of the community's total water consumption by customer class: residential, industrial, commercial, municipal facilities, unaccounted-for, other, and agricultural. A listing of large customers using over one million gallons a year should be provided.
- A Local Water Supply Management Plan if the applicant is a community. For a plan contents, refer to Attachment A. A Water Management Plan approved by the Water Resources Commission will also satisfy MWRA's Local Water Supply Management Plan requirement. A community's application must address how the requested connection is consistent with the stated objectives of the community's Local Water Supply Management Plan.

All other applicants (*i.e.*, state, county, institutional, and federal facilities) must address how the proposed water connection/water use is consistent with a Local Water Supply Management Plan, if it exists. MWRA also reserves the right to reject applications for those cases in which the community does not have a Local Water Supply Management Plan.

---

*Continued on next page*

## Admission of New Community to MWRA Water System (OP.10), Continued

### Application Process, continued

#### C. MWRA Review of Application

Upon receipt of an application for admission to the waterworks system the MWRA will:

- Review the application's documentation on the necessary findings required by the MWRA's Enabling Act, and other criteria listed in the Admission Criteria.
- Review documentation submitted pursuant to the Requirements section of this Policy (Section B.) to help determine if MWRA can make the findings required listed in Admission Criteria.
- Analyze the applicant's demand impact on the MWRA waterworks system and consider the projected long-term demand of the system with the new community and contrast it to the MWRA's operations through average, wet and drought scenarios. The analysis must include the possibility of increased usage of MWRA supplies by partially supplied and non-MWRA communities due to drought conditions. Impacts on service to other community connections under various hydraulic conditions and to reservoir and watershed conditions must also be evaluated.
- Upon the request of the applicant, and subsequent to the completion of application review by MWRA staff and following consultation with the Advisory Board, submit a status report to the Board of Directors to inform it of the request, staffs' review and the status of other pending permits or approvals.

*Continued on next page*

## **Admission of New Community to MWRA Water System (OP.10), Continued**

---

### **Application Process, continued**

#### **D. Concurrent Reviews**

Other regulatory approvals or permits may be required before a request for service may be approved. It is the responsibility of the applicant to obtain all such approvals. Copies of all applications or requests for regulatory approval shall be submitted to the MWRA as early as practicable to facilitate MWRA review of the request. MWRA will cooperate with other regulatory agencies to coordinate its review where possible, and will review and comment in other regulatory processes as appropriate. Final action by MWRA cannot be taken until the following regulatory approvals, where required, have been obtained.

- Massachusetts Environmental Policy Act – Executive Office of Environmental Affairs
- Interbasin Transfer Act - Water Resources Commission
- Local water supply source feasibility - Massachusetts Department of Environmental Protection

#### **E. Legislation**

Legislation is required to extend MWRA's water system to a local body not listed in Section 8 (d). Proposed legislation should be submitted to MWRA for review before filing. MWRA may require that certain conditions be included in the proposed legislation.

---

*Continued on next page*

## **Admission of New Community to MWRA Water System (OP.10),**

Continued

---

### **Water Supply Agreement**

If MWRA approves the request for new service, it will establish appropriate terms and conditions of service in the form of a water supply agreement for an initial term of five years. The agreement will be consistent with MWRA's Continuation of Contract Water Supply regulations (360 CMR 11.00). Before contract renewal, MWRA will reevaluate and assess the status of the community's demand management efforts.

The agreement will set forth as appropriate:

- Firm limits on usage, including average and maximum daily use of MWRA water and a stipulation that any increase beyond the stated amounts would require a contract revision and recalculation of the entrance fee. Any significant increase will also require new approval by the MWRA Advisory Board and MWRA Board of Directors.
- A requirement that the applicant assume all costs of connection and pay an entrance fee.
- A requirement that the applicant continue to use all local non-MWRA sources of water to the maximum feasible extent.
- A requirement that the applicant continue to implement all practicable conservation measures. Communities shall be encouraged to adhere to the Commonwealth's water conservation standards, including guidelines for lawn and landscapes, and follow the MWRA's regulations for Leak Detection (360 C.M.R. 12.00).
- A requirement that the community protect local sources of supply in accordance with DEP's guidelines for water supply protection measures.
- Other conditions as may be appropriate.

---

*Continued on next page*

## **Admission of New Community to MWRA Water System (OP.10),**

Continued

---

**Waivers**      The MWRA may, in its discretion, waive any of the conditions or requirements set forth in this Policy and Procedure, not otherwise mandated by law or regulation, if it finds that the community has demonstrated unusual factors or extraordinary circumstances which would make imposition of the condition or requirement upon that community unfair or inappropriate and finds that the proposed action will not jeopardize the MWRA's ability to supply its water communities.

Connection Costs and Entrance Fees outlined in the following sections shall not be waived.



**Entrance Fees** The MWRA will charge an entrance fee to cover the new community's fair share of the costs of the waterworks system in place at the time user joins. The entrance fee may be paid in one lump sum, or may be paid pursuant to up to a 25-year, interest-free payment plan with a grace period for the first three years, with payments to be made in years 4-25. The 25-year, interest-free payment plan shall be subject to review by the Board of Directors every five years. To be eligible for this multi-year, interest-free payment plan, a new community must take substantive steps toward admission to the MWRA prior to the adoption of any revised policy by the Board of Directors. Substantive steps include any of the following: affirmative vote to join MWRA by Town Meeting, City Council or Board of Directors, or submission of MEPA documentation indicating MWRA is the preferred option and subsequent completion of MEPA process in a timely manner.

New communities joining the MWRA waterworks system as well as communities admitted to the MWRA since 2002 who desire to increase their MWRA-approved withdrawal shall be eligible for the interest-free payment plan. The entrance fee recovers the new user's proportional share of the waterworks system's asset base, which has already been paid for by the existing users of the system. The net asset value charge will be determined through allocating 25% of the net asset value to peak use and the remaining 75% to average use.

MWRA system average annual use and peak six-month average use will be based upon the prior five calendar years of average of water consumption. The user's projected need for MWRA water will be based upon a detailed analysis of local supplies and shortfalls. Its average annual use and peak six-month average use may be based upon its projected need, but in no case shall the projected need be more than the amount approved under MEPA and the Interbasin Transfer Act. Firm contract limits will be established based upon the usage volumes used in the entrance fee calculation.

The formula is as follows:

75% of NAV Allocated to Average Use + 25% of NAV Allocated to Peak Six-month system use = Total Entrance Fee

*Average Use*

New user's projected MWRA "average use" needs X NAV of  
System "average use" of Total Waterworks System

*Peak Use*

New user's projected MWRA "peak use" needs X NAV of Total Waterworks System  
System "peak use"

---

*Continued on next page*

## **Admission of New Community to MWRA Water System (OP.10),**

Continued

---

<b>Entrance Fees, continued</b>	If the applicant community has purchased MWRA water under an emergency supply agreement and has paid charges, which include asset value contributions, then those contributions will be treated as credits against the total entrance fee. Payments of premium charges under an emergency supply agreement are not credited against the entrance fee.
---------------------------------	---

---

<b>Connections and Connection Costs</b>	All new community water system connections shall be made directly to the MWRA transmission system wherever practical. The applicant community must pay all the costs of providing the connection. The MWRA will charge the costs to the new user as they are incurred, and as well as expenditures by MWRA for outside services necessary to make the connection. These costs may include, but are not limited to, costs of preliminary and final design, land acquisition, environmental review, pumping and storage facilities, and actual construction including construction services and resident inspection. The new user will pay only the connection cost incurred to serve its own needs. If other existing users will benefit from the new pipelines and facilities, the MWRA will assume an appropriate portion of the connection costs that will be added to the overall capital costs for water.
---	---

---

<b>Application of Individual Users</b>	The MWRA Enabling Act allows for arrangements involving the extension of the waterworks system to any local body, institution, agency or facility of the commonwealth or federal government if MWRA finds that the additional demand will not jeopardize the delivery of water to existing users and the MWRA Advisory Board approves arrangements beyond six months in length. All requests from state, county, institutional, and federal facilities outside the water service area will be subject to the policies and procedures outlined above, including the payment of entrance fees and connection costs. Connections and withdrawals by private entities outside the water service area shall remain prohibited. In the event exceptions arise to this prohibition, the applicant will be subject to the policies and procedures outlined above and shall obtain approval from: the receiving community; the transporting community; regulatory bodies, where required; the MWRA Advisory Board; the MWRA Board of Directors; and the Governor and General Court.
--	--

---

*Continued on next page*

## **Admission of New Community to MWRA Water System (OP.10), Continued**

---

**Annual Update** MWRA staff shall provide an annual update to the MWRA Board of Directors on the status of any new connections (connections approved within the preceding five years) into the MWRA system. This annual update shall at a minimum include information regarding the proponent entity's compliance with the conditions of approvals as stipulated within the water supply agreement and/or other affiliated contractual arrangements with the MWRA; and the status of payments due to either the MWRA or the proponent entity.

---

## **Attachment A**

### **Local Water Supply Management Plan Outline**

#### **Water Supply**

- Identify existing and potential water supplies in the community, zone II delineations, Interim Wellhead Protection Zones, and/or Zones A and B delineations for surface water sources, and watershed boundaries.
- Describe source water protection program, including compliance with DEP source water protection regulations.
- Identification of all water supply options, including compliance with DEP water protection regulations.
- Identification of all water supply options, including local, regional and conservation options.

#### **Regional Plans**

- Describe any existing regional or watershed plans and how these plans relate to the plans of the local community. Refer to reports and plans developed by regional planning agencies, local watershed associations, and other appropriate regional and/or non-governmental agencies.

#### **Future Plans**

- Analysis of existing zoning and master plan, including EOEa build-out analyses available from Massachusetts GIS.
- Identification of future water and wastewater needs and various alternatives for meeting these needs.
- Summary and evaluation of water infrastructure plans based on build-out and future needs.
- Overall summary based on above information.

#### **Analysis and Conclusions**

- An action plan, with timetables for implementation of the recommendations of the plan, a budget, and identification of people responsible for implementation.

**Tighe&Bond**

## **APPENDIX B**



## **STEPS FOR ADMISSION OF NEW COMMUNITIES TO THE MWRA WATER SYSTEM**

Communities seeking admission to MWRA must complete the following steps:

- Undertake comprehensive water supply planning and adopt effective demand management measures. MWRA's Enabling Act criteria require water conservation, local source protection and maintenance, assessment of feasibility of local sources, the adoption of Water Management Plan, and water use surveys. Typically, these efforts begin prior to the formal start of the admission process which is frequently, although not always, marked by the submission of an initial MEPA document. Communities typically look to MWRA after they have determined that conservation and local sources alone are not sufficient or feasible to meet water supply needs.
- Demonstrate acceptance of admission, by majority vote of city council if a city or majority vote of Town Council if a town. In the instance of a water district, a majority vote of its governing board is required.
- Obtain applicable regulatory approvals. This often includes Massachusetts Environmental Policy Act and Interbasin Transfer Act (ITA) reviews.

The MEPA regulations list specific thresholds that trigger MEPA review, including: a) a new Interbasin Transfer of 1 mgd or more, or any amount determined significant by the Water Resources Commission; b) new water service to a municipality or district if the project is undertaken by an agency, and c) construction of one or more pipelines 5 miles in length.

Water Resources Commission review under the ITA is triggered by actions that increase the ability to transfer water (or wastewater) out of a donor basin. WRC may find transfers of 1 mgd or less to be insignificant if certain criteria are met. The level of review associated with "A Determination of Insignificance" is less than the review associated with a "Significant" transfer. For "Significant" transfers, WRC requires that communities seeking admission to MWRA follow a prescribed EIR scope that addresses donor basin and receiving area criteria derived from the ITA. The EIR represents the application to the WRC. MEPA review must be completed before WRC may hold hearings or approve (or deny) the interbasin transfer.<sup>1</sup>

- Obtain approval of the Legislature and Governor. The approval of the Legislature and Governor can occur at any time in the process.
- Submit an application to Advisory Board and to MWRA Board of Directors. There is no application form per se; the application consists of a compilation of documentation developed in the preceding steps. A checklist of the application contents is found on the next page.

---

<sup>1</sup> Following a Draft EIR and Final EIR (DEIR and FEIR), MEPA review may also include a Supplemental FEIR (SFEIR) or a Notice of Project Change.

- It is important to note that the time required to complete the preceding steps is highly variable.

<b>Contents of A Community's Application to MWRA and Advisory Board</b> <b>(Based on Enabling Act Criteria and OP#10, Admission of New Communities to Waterworks System)</b>	
•	Information on water demand from MWRA (typical peak, emergency peak, and average use).
•	Documentation that no water supply source has been abandoned without a DEP declaration
•	Documentation that no local supply source feasible for development has been indentified by the community or DEP.
•	Documentation that Effective Demand Management Measures have been established; detailed description of water conservation and water accountability programs undertaken
•	Water use survey of users consuming more than 20 million gallons/year
•	Description of municipal zoning and non-zoning measures designed to protect local sources of supply
•	Disaggregation of community's total water consumption by customer class
•	Documentation on safe yield, protection needs and contamination threats
•	Local Water Supply Management Plan or Water Management Plan approved by WRC. Documentation of community's adoption of the approved Plan.
•	Copy of signed legislation documenting approval of Legislature and Governor
•	MEPA Sign-off (Certificate of Adequacy)
•	WRC Approval of Interbasin Transfer, if applicable.
•	Documentation of acceptance of admission, by majority vote of city council if a city or majority vote of Town Council if a town or majority vote of governing board if a water district.

#### Entrance Fee:

The entrance/connection fee is based on system shares. If a community's water use will represent 1% of the system total, the connection or entrance fee will be 1% of the net asset value (NAV) of the water system. Currently the NAV of the water system is \$892,008,000, and the connection fee for a 1 mgd customer would be roughly \$4.4 million. That fee is payable over up to 25 years, interest free, with a three-year grace period.

The estimated per million gallon charge for water is approximately \$4,300 for FY21 and is projected to increase 3.9% annually in future years.

**Tighe&Bond**

## **APPENDIX C**

**Option 1 - Belchertown Road (Route 9)**

Item Description	Estimated Quantity	Unit	Unit Cost	Total Estimated Cost	Rounded Cost
Connection to CVA	1	EA	\$50,000	\$50,000	
MWRA Master Meter Vault	1	LS	\$75,000	\$75,000	
16-inch Ductile Iron Water Main	24,400	LF	\$350	\$8,540,000	
16-inch Butterfly Valve	26	EA	\$8,500	\$221,000	
Hydrants	13	EA	\$6,000	\$78,000	
Air Release Valve/Manhole	2	EA	\$8,500	\$17,000	
Temporary Trench Paving (6' wide, 3" depth)	2800	TONS	\$100	\$280,000	
Permanent Trench Paving (8' wide, 8" depth)	3800	TONS	\$100	\$380,000	
Milling (1/2 width of State Road)	38000	SY	\$4	\$152,000	
1 1/2" Overlay (1/2 width of State Road)	1400	TONS	\$100	\$140,000	
Rock/Boulder Excavation Allowance	4880	CY	\$100	\$488,000	
Bridge/Culvert Crossings Allowance	1	LS	\$750,000	\$750,000	
Booster Pump Station/Corrosion Control Building	1	LS	\$1,750,000	\$1,750,000	
Standby Generator	1	LS	\$100,000	\$100,000	
Electric Service/ 3-Phase Power Allowance	1	LS	\$150,000	\$150,000	
Police Detail Allowance	1	LS	\$375,000	\$375,000	
Environmental Resource Area Protection	10,000	LF	\$8	\$80,000	
Contractor General Conditions (15%)				\$2,043,900	
<b>Subtotal</b>				<b>\$15,669,900</b>	<b>\$15,700,000</b>
Engineering & Contingency (40%)				\$6,267,960	\$6,300,000
Material and Bidding Contingency (25%)				\$3,917,475	\$3,900,000
<b>Total</b>				<b>\$25,855,335</b>	<b>\$25,900,000</b>
<b>SAY</b>				<b>\$25,860,000</b>	<b>\$25,900,000</b>

**Option 2 - Old Belchertown Road**

Item Description	Estimated Quantity	Unit	Unit Cost	Total Estimated Cost	Rounded Cost
Connection to CVA	1	EA	\$50,000	\$50,000	
MWRA Master Meter Vault	1	LS	\$75,000	\$75,000	
16-inch Ductile Iron Water Main	17,500	LF	\$350	\$6,125,000	
16-inch Butterfly Valve	18	EA	\$8,500	\$153,000	
Hydrants	9	EA	\$6,000	\$54,000	
Air Release Valve/Manhole	2	EA	\$8,500	\$17,000	
Temporary Trench Paving (6' wide, 3" depth)	2,000	TONS	\$100	\$200,000	
Permanent Trench Paving (8' wide, 8" depth)	3,500	TONS	\$100	\$350,000	
Rock/Boulder Excavation Allowance	3,500	CY	\$100	\$350,000	
Bridge/Culvert Crossings Allowance	1	LS	\$750,000	\$750,000	
Booster Pump Station/Corrosion Control Building	1	LS	\$1,750,000	\$1,750,000	
Standby Generator	1	LS	\$100,000	\$100,000	
Electric Service/ 3-Phase Power Allowance	1	LS	\$150,000	\$150,000	
Police Detail Allowance	1	LS	\$250,000	\$250,000	
Environmental Resource Area Protection	10,000	LF	\$8	\$80,000	
Contractor General Conditions (15%)				\$1,568,100	
<b>Subtotal</b>				<b>\$12,022,100</b>	<b>\$12,000,000</b>
Engineering & Contingency (40%)				\$4,808,840	\$4,800,000
Material and Bidding Contingency (25%)				\$3,005,525	\$3,000,000
<b>Total</b>				<b>\$19,836,465</b>	<b>\$19,800,000</b>
<b>SAY</b>				<b>\$19,840,000</b>	<b>\$19,800,000</b>

CY=Cubic Yard  
EA=Each  
LF=Linear Foot  
LS=Lump Sum  
SY=Square Yard