



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 13, 2022
SUBJECT: 2021 Annual Update on New Connections to the MWRA System

COMMITTEE: Administration, Finance and Audit

INFORMATION
 VOTE

Rebecca Weidman, Director, Environmental & Regulatory Affairs
Katie Ronan, Environmental Analyst
Preparer/Title


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

RECOMMENDATION:

For information only. This 2021 Annual Update on New Connections to the MWRA System has been prepared pursuant to the “Annual Update” requirements of MWRA’s system expansion policies.

DISCUSSION:

MWRA’s system expansion policies require an annual update on the status of any new connections (connection approved within the preceding five years) to MWRA from outside the water and sewer service areas. Calendar year 2002 was the first year that MWRA system expansion policies prescribed this annual update requirement. In an effort to maintain a single document that includes all new connections, the 2021 Annual Update discusses all post-2002 connections to MWRA. A summary of each connection’s compliance in 2021 with requirements as stipulated in its water supply or sewer use agreement is provided. For water connections, requirements include compliance with water withdrawal limits and entrance payments due to MWRA. For wastewater connections, requirements address inflow removal, ongoing stipulations regarding management of wet weather flows, compliance with discharge limits, and entrance payments due to MWRA. Included at the end of the report is a discussion of inquiries from potential applicants for admission and other system expansion considerations for calendar year 2021.

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

- *OP.04, Sewer Connections Serving Property Partially Located in a Non-MWRA Community (the “Sewer Straddle” policy);*
- *OP.05, Emergency Water Supply Withdrawals;*
- *OP.09, Water Connections Serving Property Partially Located in a Non-MWRA community (the “Water Straddle” policy);*
- *OP.10, Admission of New Community to MWRA Water System; and*
- *OP.11, Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area.*

Summary of Approved Connections to the MWRA System

Water

In 2021, the Executive Office of Energy and Environmental Affairs and its agencies, through the Massachusetts Drought Management Task Force, continued to assess hydrologic conditions throughout the Commonwealth. MWRA maintains a separate Drought Management Plan specifically tailored to the capacity of its reservoirs. In 2021, Quabbin Reservoir levels remained well within the normal operating band throughout the year and rose steadily. Elevated reservoir levels resulted in a total of 20.26 million gallons spilled into the Swift River over 18 days. According to monthly DCR Hydrologic Conditions Reports, 2021 began with generally high temperatures and low precipitation. As a result, *Level 1 – Mild Drought* and *Level 2 – Significant Drought* declarations were issued across the Commonwealth between March and June. However, by July significant rainfall events, including Tropical Storm Elsa, battered most of the state and by October all regions returned to normal through the end of the year.

Given the relatively wet conditions in 2021, MWRA did not receive any requests for emergency withdrawals pursuant to *OP.05 Emergency Water Supply Withdrawals* related to water quantity. However, MWRA received numerous inquiries throughout the year related to water quality issues, including concerns regarding Per- and Polyfluoroalkyl Substances (PFAS) in local sources. The recently revised Drinking Water Regulations at 310 CMR 22.00 set a Maximum Contaminant Level (MCL) of 20 parts per trillion (ppt) for the sum of six PFAS compounds (PFAS6). All community public water systems were required to test for the PFAS6 in their finished drinking water by the end of calendar year 2021.

MWRA tested for PFAS6 during the first two quarters of 2021. No more than trace amounts were detected in MWRA’s finished water; too low to quantify. Many partially served and non-MWRA water communities detected PFAS6 in their local drinking water and must now evaluate both short-term and long-term remedies for meeting the PFAS6 drinking water MCL. Communities may consider a variety of options, including treating for PFAS, relying more heavily on local sources that have not exceeded the MCL, and obtaining water from an alternative source such as MWRA.

Throughout the year, staff provided information regarding *OP.05 Emergency Water Supply Withdrawals* and *OP.10 Admission of New Community to MWRA Water System* to various communities that detected PFAS6 in their local drinking water and worked closely with several communities to help evaluate the conceptual feasibility of obtaining water from MWRA based geography, infrastructure, and water compatibility. Additionally, in early 2022, Dedham Westwood Water District, which is partially supplied by MWRA, requested authorization to temporarily increase use of MWRA water supply to blend with their local sources due to issues with elevated Total Trihalomethanes (TTHMs) in their finished water. MWRA authorized Dedham-Westwood to temporarily exceed the maximum annual volume specified in the Water Supply Continuation Agreement while the district installs measures to reduce TTHMs.

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

Figure 1: New Water Connections Since 2002

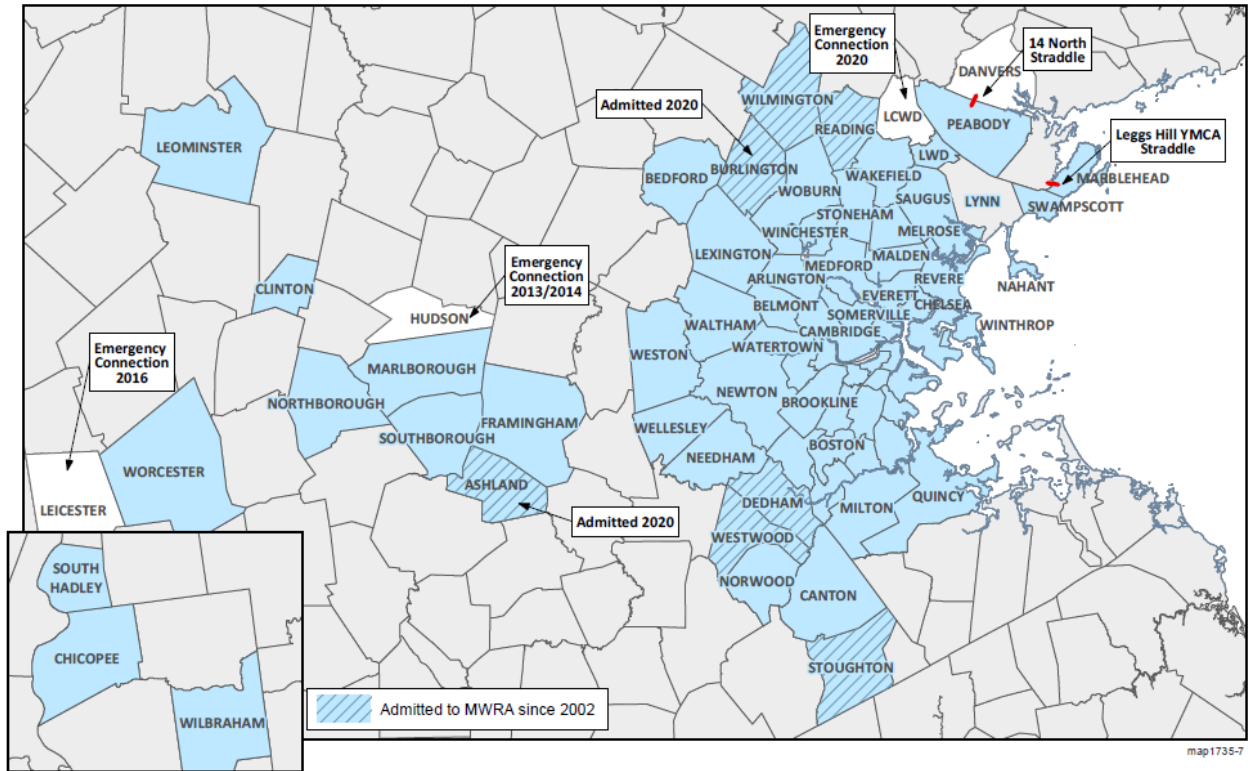


Table 1 - Approved Connections to MWRA Water System Since 2002

Applicant	Applicable MWRA Policy	Approval Date or Emergency Period (month/year)	Entrance Fee or Payment of Charges Under the Emergency Policy	MWRA Approved withdrawal	2021 MWRA Withdrawal
Ashland	OP.10, New	12/20 (admitted)	Entrance fee of \$388,336.34, w/ 20-year payment schedule to begin 2023.	32.8 mg/yr, (0.09 mgd average, 0.648 mgd max)	0
Burlington	OP.10, New	12/20 (admitted)	Entrance fee of \$4,407,986.46, w/ 20-year payment schedule to begin 2023.	324 mg/yr (0.886 mgd average, 1.5 mgd max)	270.8 mg/yr
Wilmington (partial supply)	OP.10, New	5/09 (admitted) 10/20 (approved for temporary exceedance)	Entrance Fee of \$2,809,320 w/ 20-year payment schedule. On-time payments.	219 mg/yr (0.6 mgd average, 1.2 mgd max)	154.8 mg/yr
Dedham Westwood W.D (partial supply)	OP.10, New	12/05(admitted) 12/14(amended) 10/18 (approved temporary increase)	Entrance fee of \$548,748 (first 0.1 mgd) and \$566,727 (additional 0.1 mgd) paid in full.	73 mg/yr (2 mgd max)	55.3 mg/yr
Hudson	OP.05 Emergency	6/13 (emergency) 12/13 (emergency) 6/14 (emergency) 1/16 (emergency)	MWRA has received a total of \$1,033,787 for emergency withdrawals.	N/A	0
Reading	OP.10, New	11/05 (admitted) 10/07 (amended)	Entrance Fee of \$3,285,242 (first 0.6 mgd) & \$7,799,606	766.5 mg/yr (3.8 mgd max)	606.7 mg/yr

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Applicant	Applicable MWRA Policy	Approval Date or Emergency Period (month/year)	Entrance Fee or Payment of Charges Under the Emergency Policy	MWRA Approved withdrawal	2021 MWRA Withdrawal
			(additional 1.5 mgd) paid in full.		
YMCA Salem/Marble head	OP.09, Straddle	11/06 (admitted)	Entrance fee of \$70,823 paid in full.	0.0127 mgd	0.004591 mgd
14 North Danvers/Pea body	OP.09 Straddle	05/03 (admitted)	Entrance fee of \$64,063 paid in full.	0.012 mgd	0.007028 mgd
Stoughton (partial supply)	OP.10, New	6/02 (admitted)	Entrance fee of \$5,657,117 paid in full.	419.75 mg/yr (2.5 mgd max)	25.7 mg/yr

mg/yr = million gallons per year, mgd = million gallons per day

The highlights of Table 1 include:

- In 2021, all new water supply connection withdrawals were below their MWRA Water Supply Agreement limits.
- The Town of Burlington was approved by the Board of Directors for admission to the MWRA water system on December 16, 2020. Burlington plans to connect to MWRA in a two-phased approach. A Water Supply Agreement was executed in 2021, in alignment with Phase 1 of the connection, which allows Burlington to obtain up to 324 mg/year and 0.886 mgd on average from MWRA via a connection to the Town of Lexington local water system. Phase 2 involves construction, by Burlington, of a pipeline in Lexington’s local water system that will connect directly to the MWRA water system, which will allow Burlington to obtain up to 6.5 mgd from MWRA. Construction of the Phase 2 pipeline is expected to be complete in 2023, at which time the Water Supply Agreement will be amended.
- The Town of Ashland was approved by the Board of Directors for admission to the MWRA water system on December 16, 2020. A Water Supply Agreement was executed in 2021, which allows Ashland to obtain up to 32.8 mg/year or 0.09 mgd on average from MWRA via a connection to the Town of Southborough’s local water system. Ashland intends to use MWRA to supplement local water supply, primarily between the months of October and January, when use of the Hopkinton Reservoir is restricted. Ashland did not withdraw water from MWRA in 2021.
- For permanent connections made prior to 2020, all entrance fees have been paid pursuant to agreed-upon schedules of payments included in Water Supply Agreements. Burlington and Ashland will begin entrance fee payments in 2023.

Sewer

In 2021, there were no new formal applications for admission under OP.11 or OP.4, the “Sewer Straddle” policy. Since 2002, ten entities have been approved to discharge into the MWRA wastewater system. Most recently, Crescent Ridge Dairy was approved in 2019 pursuant to OP.11, and The River School was approved in 2020 pursuant to OP.04, the “Sewer Straddle” policy.

Figure 2 shows and Table 2 summarizes connections to the MWRA sewer system since 2002, when annual reporting requirements were established.

Figure 2: New or Increased Volume Sewer Connections Since 2001

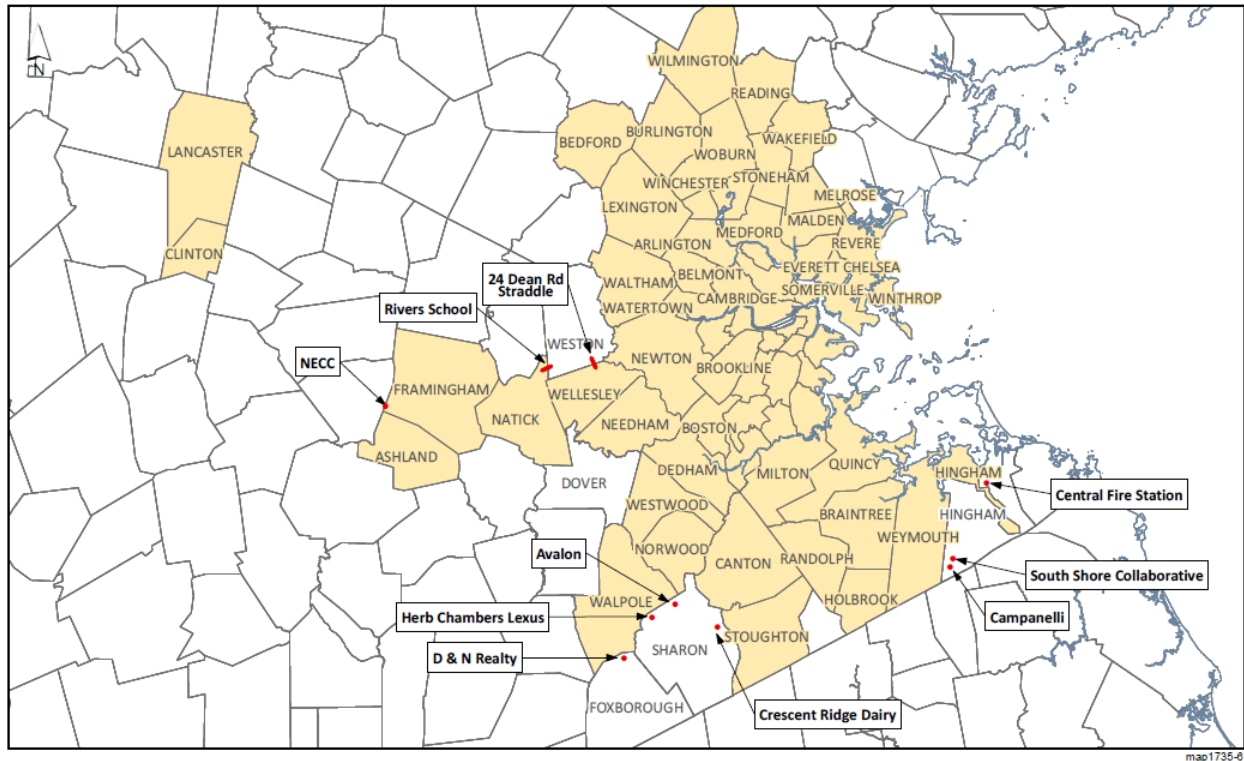


Table 2 - Approved Connections to MWRA Sewer System Since 2002

Applicant	MWRA Policy	Approval Date	Entrance Fee Payment	Status of Inflow Removal/Other Contract Requirements	MWRA Approved discharge	Estimated Discharge to MWRA in 2021*
Rivers School, Weston	OP.04, Straddle	6/20	\$42,086 paid in full	Payment of \$141,600 to Natick to complete inflow removal.	3,000 gpd (average) 12,000 gpd (max)	2,996 gpd
Crescent Ridge Dairy, Sharon	OP.11	5/19	\$33,642 paid in full	Payment of \$200,000 made to Stoughton to complete inflow removal.	10,000 gpd	3,707 gpd
New England Center for Children, Southborough	OP.11	7/15	\$51,898 Paid in full	Inflow removal completed.	12,500 gpd	4,103 gpd
FoxRock Realty, South Shore Collaborative, Hingham	OP.11	4/12	21,883 paid in full	Inflow removal completed.	5,336 gpd	1,698gpd
24 Dean Road, Weston/Wellesley	OP.04 Straddle	3/11	\$18,033 paid in full	Inflow removal completed.	575 gpd	298 gpd
Funway, D&N Realty, Foxborough	OP.11	6/07	\$168,391 paid in full	Inflow removal completed.	13,000 gpd (average) 22,750 gpd (max)	3,213 gpd

Table 2 - Approved Connections to MWRA Sewer System Since 2002						
Applicant	MWRA Policy	Approval Date	Entrance Fee Payment	Status of Inflow Removal/Other Contract Requirements	MWRA Approved discharge	Estimated Discharge to MWRA in 2021*
Avalon Bay, Sharon	OP.11	6/07	\$105,586 paid in full	Inflow removal completed.	16,120 gpd	15,609 gpd
Herb Chambers Lexus, Sharon	OP.11	5/07	\$40,750 paid in full.	Inflow removal completed.	6,400 gpd (average) 10,500 gpd (max)	4,223 gpd**
Hingham Fire Station, Hingham	OP.11	4/07	\$8,429 paid in full	Inflow removal completed.	782 gpd	213 gpd
Campanelli (now Gill Research Drive, LLC), Hingham	OP.11	2/04	\$11,162, paid in full	Inflow removal completed.	2,475 gpd	No reporting requirement
* Wastewater discharges are estimated based on water meter readings.						
**Water consumption figures are adjusted downward by 5% to account for a certain percentage of water that is used by the facility and not returned as wastewater (such as landscaping, water consumed).						

gpd = gallons per day

The key findings of Table 2 include:

- All wastewater discharges in 2021 were below their approved agreement limits and entities reported compliance with obligations related to sewer system operations.
- Avalon Bay, a residential community in Sharon, was within its approved discharge limit in 2021, after being slightly over the limit in 2020.
- Crescent Ridge Dairy, located in Sharon, began discharging for the first time in 2021. Crescent Ridge Dairy was approved by the Board of Directors in 2019 to discharge up to 10,000 gpd to MWRA via the Town of Stoughton’s local wastewater system.

Potential Future Connections and Expansions

As noted above, several communities inquired about the admission process and feasibility of connecting to MWRA or expanding existing service volumes in 2021. Numerous non-MWRA water communities across the Commonwealth that detected PFAS6 in their local drinking water evaluated connecting to the MWRA water system as an option for addressing PFAS6 concentrations above the drinking water MCL.

Communities

Hopkinton: In 2021, Hopkinton inquired about the possibility of receiving supplemental water supply from MWRA. Staff met with Hopkinton to provide information regarding the admission process and requirements as well as logistical considerations related to infrastructure and water quality. MWRA understands that Hopkinton has obtained a consultant to evaluate the feasibility of a connection.

Lynnfield Center Water District: Lynnfield Center has expressed intentions to connect to the MWRA water system, pursuant to OP.10, to remedy local contamination issues and increased difficulty meeting local demand. Lynnfield Center is working with the Town of Wakefield to develop plans for a new water main that would allow them to connect to MWRA via the local Wakefield water distribution system. This scenario would also remedy water quality issues (due to two dead end pipes) in the Wakefield water distribution system. MWRA staff have met with both Lynnfield Center and Wakefield and provided detailed information regarding the admission process and requirements. Staff will continue to coordinate with the two communities regarding timing, infrastructure and water quality considerations.

Natick: The Town of Natick reached out to MWRA early in 2021, after detecting PFAS6 in local drinking water. MWRA staff worked with the community throughout the year as it evaluated both short and long term options to remedy the situation. Several coordination meetings were held and conceptual emergency connections points to the MWRA water system were identified and evaluated. Detailed information regarding the admission process and requirements were provided. MWRA understands that Natick has decided to pursue treatment for PFAS, but may be interested in constructing an emergency connection to the MWRA system that would allow the community to obtain emergency withdrawals pursuant *OP.05 Emergency Water Supply Withdrawals* in the future.

Wayland: The Town of Wayland reached out to MWRA early in 2021 after detecting PFAS6 in its local drinking water. MWRA staff worked with the community throughout the year as it evaluated both short and long term options to remedy the situation. Several coordination meetings were held and conceptual emergency connections points to the MWRA water system were identified and evaluated. Although Wayland ultimately opted to install temporary treatment to address short term PFAS concerns, a permanent connection to the MWRA water system pursuant to *OP.10 Admission of New Community to MWRA Water System* is under evaluation by the community. MWRA staff continue to coordinate closely with Wayland and have provided detailed information regarding the admission process and requirements, as well as logistical considerations related to infrastructure and water quality.

Wellesley: The Town of Wellesley is a partially supplied MWRA water community. In early 2021, Wellesley detected PFAS6 in finished water from its Morses Pond Water Treatment Plant. Wellesley formally requested authorization to temporarily increase withdrawals from MWRA above volumes authorized in its Water Supply Agreement, while installing temporary treatment for PFAS6 at the Morses Pond plant. Wellesley is currently evaluating long term options, including increasing withdrawals from MWRA. Staff have met with Wellesley on numerous occasions. Conceptual new connection points and infrastructure that may be necessary to increase MWRA capacity to Wellesley have been identified. Staff also participated in a remote public forum on PFAS6 in December and will continue to coordinate closely with the community.

Weymouth: The Town of Weymouth has expressed interest in obtaining up to eight mgd on average from MWRA to meet both community demand and future demand from the Union Point Development. MWRA staff met with Weymouth on multiple occasions throughout 2021 to discuss the admission process and requirements. Preliminary hydraulic modeling was performed and various conceptual pipeline routes were identified. The Commonwealth recently allocated \$300,000 of American Rescue Plan Act funding for MWRA to conduct studies to evaluate the feasibility of expanding MWRA water and wastewater systems to the South Shore. A portion of this work will specifically examine the existing capacity of MWRA's Southern High pressure zone

to identify additional infrastructure needed and potential operational changes to the Blue Hills tank that could increase capacity in this area. This study will also inform evaluations related to the feasibility of Weymouth obtaining water from MWRA.

Wilmington: The Town of Wilmington is currently a partially supplied MWRA water community. In November 2021, Wilmington reached out to MWRA staff to discuss the feasibility of obtaining full water supply from MWRA. The Town is evaluating options and inquired regarding the feasibility of purchasing up to 4.5 mgd from MWRA. Staff have provided detailed information regarding the admission process and requirements. Conceptual improvements in both the MWRA system and local system necessary to increase MWRA capacity to Wilmington have been identified. MWRA will continue to coordinate with Wilmington and its consultants.

Other: MWRA staff received inquiries and had high-level conversations with various other communities throughout the year including Acton, Dover, Hanover, Sharon, Walpole and others.

Non-Communities

Sherborn Potential Development: Pulte Homes of New England, LLC has been in contact with MWRA regarding a proposed residential development in Sherborn to be located near the Natick and Framingham borders. The developer has expressed intentions to pursue connecting to the MWRA water system via Framingham (which requires creation of a water district) and connection to the MWRA wastewater system via Natick. MWRA has met with Pulte to discuss requirements of admission to MWRA pursuant to both OP.10 and OP.11, as well as costs and logistical considerations of any potential connection. In 2021, Pulte Homes submitted an Environmental Notification Form for review under the Massachusetts Environmental Policy Act. MWRA commented on the proposed project, outlining the admission process and requirements as well as other challenges. A MEPA certificate was issued on the proposed project in July 2021, finding that a Draft Environmental Impact Report would be required. The certificate also raised a variety of concerns from various agencies, including from the Water Resources Commission and MassDEP regarding the viability of water sources from the same river basin.

The International: The International is a golf course located in the Town of Bolton, with property in the Town of Clinton. The course expressed interest in connecting to Clinton's distribution system due to water quality concerns in its existing wells. MWRA notified Clinton that this connection would need to be made pursuant to *OP.09 Water Connections Serving Property Partially Located in a Non-MWRA community*, the "Water Straddle" policy.

ATTACHMENT:

Attachment A: Policies for Admission to the MWRA

ATTACHMENT A

Policies for Admission to the MWRA

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

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