



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: April 12, 2023
SUBJECT: 2022 Annual Update on New Connections to the MWRA System

COMMITTEE: Administration, Finance and Audit

INFORMATION
 VOTE

Rebecca Weidman, Director, Environmental & Regulatory Affairs
Katie Ronan, Project Manager, Environmental Permitting
Preparer/Title


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

MWRA's system expansion policies require an annual update to the Board of Directors on the status of new connections to the MWRA water and sewer systems. This 2022 Annual Update on New Connections to the MWRA System has been prepared pursuant to these requirements. This staff summary also includes an update on MWRA's system expansion efforts in 2022 and potential future connections.

RECOMMENDATION:

For information only.

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 2002 Annual Update discusses all post-2002 connections to MWRA. A summary of each connection's compliance in 2022 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.

Reduced demand on MWRA's water supply over the last several decades has positioned MWRA as a source of reliable water supply for existing and interested new communities. In 2022, despite drought conditions and MWRA fully supplying the City of Cambridge for three months, MWRA continued to have plenty of available water for new communities seeking admission to MWRA. This report includes a discussion of inquiries from potential applicants for admission in calendar year 2022 and other related system expansion activities, including the Board of Directors' approval in September 2022 of a five-year waiver of MWRA's water system entrance fee under certain conditions. This waiver extends through December 31, 2027.

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 2022, 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 our reservoirs. In 2022, Quabbin Reservoir levels remained well within the normal operating band, spilling 14.1 billion gallons into the Swift River over 141 days. According to monthly DCR Hydrologic Conditions Reports, 2022 began with generally high temperatures and below normal snowfall. Below normal rainfall continued as the year progressed and *Level 1 – Mild Drought* and *Level 2 – Significant Drought* conditions developed throughout most of the state. Several regions across the Commonwealth reached *Level 3 - Critical Drought* declarations between July and August. Conditions gradually improved during the fall and all regions returned to normal by the beginning of 2023.

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.

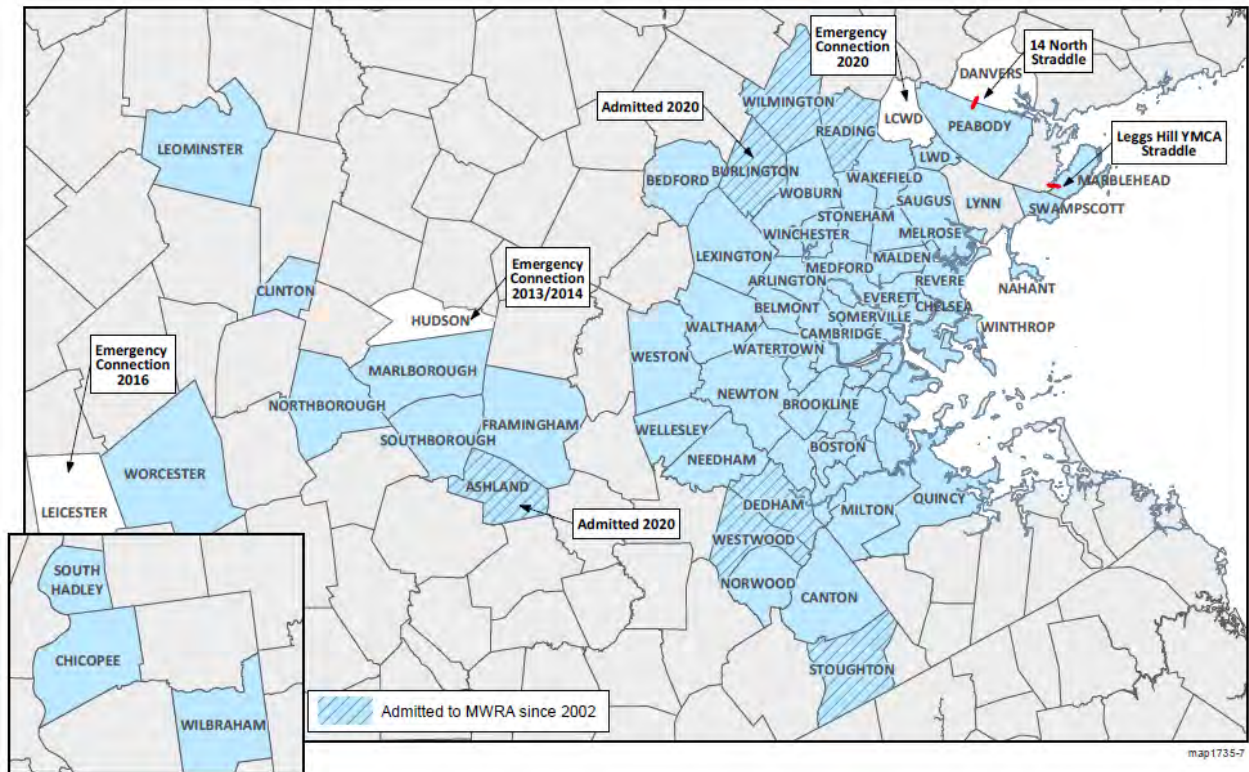


Figure 1: New Water Connections Since 2002

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	2022 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)	367.7 mg/yr
Wilmington (partial supply)	OP.10, New	5/09 (admitted) 10/20 (approved for temporary exceedance) 9/22 (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)	252.5 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)	147.9 mg/yr

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	2022 MWRA Withdrawal
		2/22 (approved temporary increase)			
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 (additional 1.5 mgd) paid in full.	766.5 mg/yr (3.8 mgd max)	623.1 mg/yr
YMCA Salem/ Marblehead	OP.09, Straddle	11/06 (admitted)	Entrance fee of \$70,823 paid in full.	0.0127 mgd	0.005503 mgd
14 North Danvers/ Peabody	OP.09 Straddle	05/03 (admitted)	Entrance fee of \$64,063 paid in full.	0.012 mgd	0.006537 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 are summarized below.

- The Town of Burlington was approved by the Board of Directors for admission to the MWRA water system on December 16, 2020. Burlington intends to connect to MWRA in a two-phased approach. A Water Supply Agreement was executed in 2021, in alignment with the first phase of Burlington’s connection, which allows the Town to obtain up to 324 mg/year and 0.886 mgd on average from MWRA via a connection to the Town of Lexington’s local water system. In 2022, Burlington withdrew a total of 367.7 million gallons, exceeding its Water Supply Agreement withdrawal limit. Phase 2 of Burlington’s connection involves construction of a pipeline, which will allow Burlington to obtain up to 6.5 mgd from MWRA. Construction of the Phase 2 pipeline is expected to be complete by July 2023. Burlington will be seeking Board approval in the coming months to amend its Water Supply Agreement accordingly.
- The Town of Wilmington requested temporary approval to exceed its Water Supply Agreement limit of 219 mg/yr in 2022. Wilmington, which is partially supplied by MWRA, requested this temporary approval because declining groundwater levels caused a substantial drop in the production capabilities of local groundwater wells. The Town’s Water Supply Agreement includes a provision allowing for a temporary increase in water volume in excess of the withdrawal limit without revision to the Agreement in emergency situations. In total, the Town withdrew 252.5 mg/yr in 2022 under this temporary approval. Wilmington’s ten-year Water Supply Agreement is up for renewal in 2024. MWRA staff will work with Wilmington in 2023 to determine the Town’s actual water needs going forward and update the Water Supply Agreement accordingly, if necessary.

- The Dedham-Westwood Water District requested temporary approval to exceed its Water Supply Agreement limit of 73 mg/year in 2022. The District, which is partially supplied by MWRA, requested this temporary approval to increase blending of MWRA water with local supplies while in the process of taking measures to permanently reduce Total Trihalomethanes (TTHMs) in local finished water, in compliance with MassDEP’s Maximum Contaminant Level (MCL). The District’s Water Supply Agreement includes a provision allowing for a temporary increase in water volume in excess of the withdrawal limit without revision to the Agreement in emergency situations. In total, the District withdrew 147.9 million gallons from MWRA in 2022 under this temporary approval. The District indicated that they may request an increase to their Water Supply Agreement withdrawal limits. MWRA staff are working with the District to determine their water needs and if any additional approvals to the Water Supply Agreement are required.
- 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.

Emergency Supplies to MWRA Member Communities

From August 30 to mid-November 2022, Cambridge activated its emergency connection to MWRA’s water system. MWRA fully supplied Cambridge with drinking water while upgrades were being made to the Cambridge Water Treatment Plant treatment system for per- and polyfluoroalkyl substances (PFAS) removal.

Additionally, throughout the second half of 2022 into 2023, MWRA provided water to Winchester via Spot Pond in accordance with an Agreement between the Town and MWRA. Winchester requested approval to withdraw water from Spot Pond while the Town works on its North Reservoir Dam and while MWRA rehabilitates its Section 89 pipeline, which serves a portion of Winchester.

MWRA worked with the Lynn Water and Sewer Commission (LWSC) to test three emergency interconnections between the City and MWRA in late 2022. These efforts were in response to significant drought conditions, resulting in LWSC’s reservoir system falling below 40 percent capacity. Local precipitation events in late 2022 resulted in reservoir levels rebounding to the extent that an emergency connection to MWRA’s water system was unnecessary.

Sewer

In 2022, 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 Rivers 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 2002

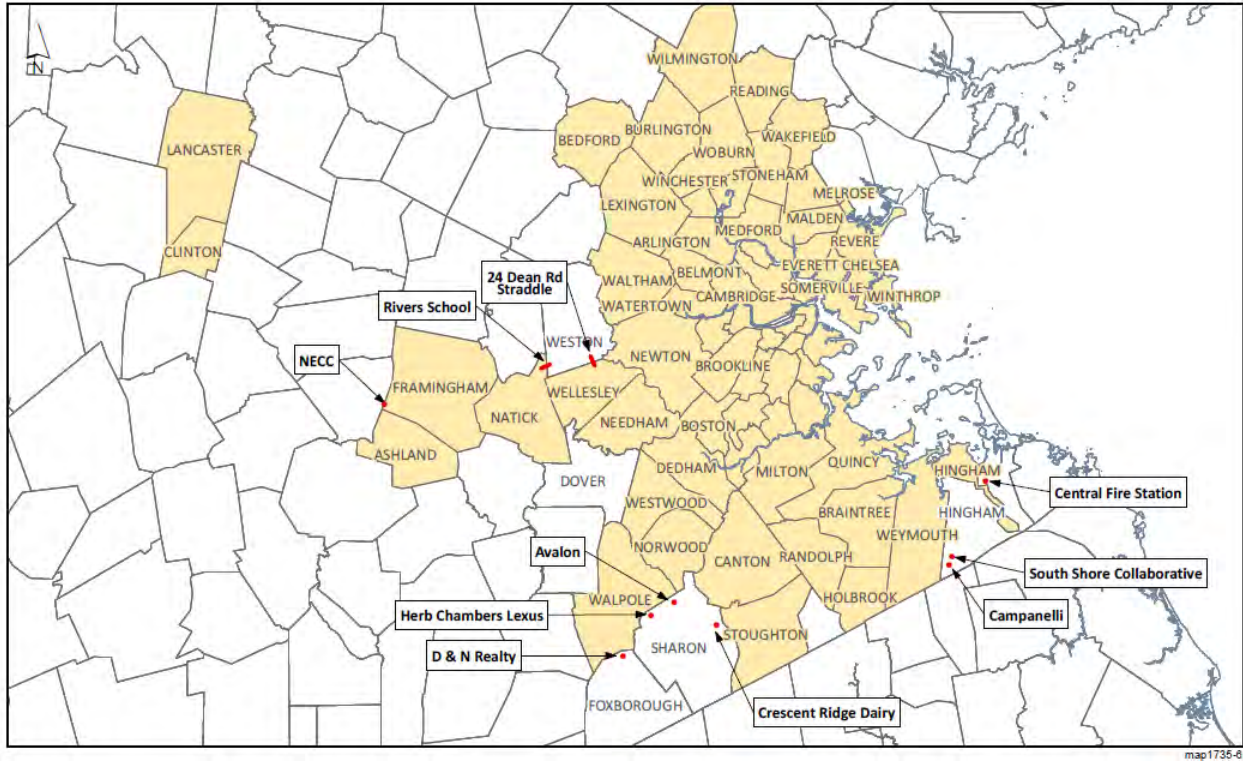


Table 2 - Approved Connections to MWRA Sewer System Since 2002

Applicant	MWRA Policy	Approval Date	Entrance Fee Payment	Status of Inflow Removal/Other Contract Requirements	MWRA Approved Discharge	Estimated Discharge to MWRA in 2022*
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)	4,097 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	4,056 gpd
New England Center for Children, Southborough	OP.11	7/15	\$51,898 Paid in full	Inflow removal completed.	12,500 gpd	7,267gpd
FoxRock Realty, South Shore Collaborative, Hingham	OP.11	4/12	21,883 paid in full	Inflow removal completed.	5,336 gpd	1,953 gpd
24 Dean Road, Weston/Wellesley	OP.04 Straddle	3/11	\$18,033 paid in full	Inflow removal completed.	575 gpd	387 gpd
Family 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)	**
Avalon Bay, Sharon	OP.11	6/07	\$105,586 paid in full	Inflow removal completed.	16,120 gpd	15,899 gpd

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Applicant	MWRA Policy	Approval Date	Entrance Fee Payment	Status of Inflow Removal/Other Contract Requirements	MWRA Approved Discharge	Estimated Discharge to MWRA in 2022*
Herb Chambers Lexus, Sharon	OP.11	5/07	\$40,750 paid in full.	Inflow removal completed.	6,400 gpd (average) 10,500 gpd (max)	4,071 gpd***
Hingham Fire Station, Hingham	OP.11	4/07	\$8,429 paid in full	Inflow removal completed.	782 gpd	197.51 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
<p>* Wastewater discharges are estimated based on water meter readings. ** Family Funway permanently closed several years ago. MWRA staff are still awaiting discharge information from the owner, but estimate that it will be well below the approved discharge volume and similar to the 2021 discharge volume of 3,213 gpd. ***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). <i>gpd = gallons per day</i></p>						

The key findings of Table 2 are noted below.

- Most wastewater discharges in 2022 were below the approved agreement limits, and entities reported compliance with obligations related to sewer system operations.
- Rivers School was over its approved estimated discharge limit of 3,000 gpd, with an average daily flow at 4,097 gpd. Staff are working with the school to determine if adjustment of the 2020 Sewer Connection Agreement is necessary. The Rivers School notes that actual discharges may be less, due to water used to create ice and maintain such for its ice hockey rink.
- Family Funway in Foxborough was a small amusement park that permanently closed in 2022. Ownership of the site has not changed. MWRA staff will work to ensure that any future owners are aware of annual estimated discharge reporting requirements.

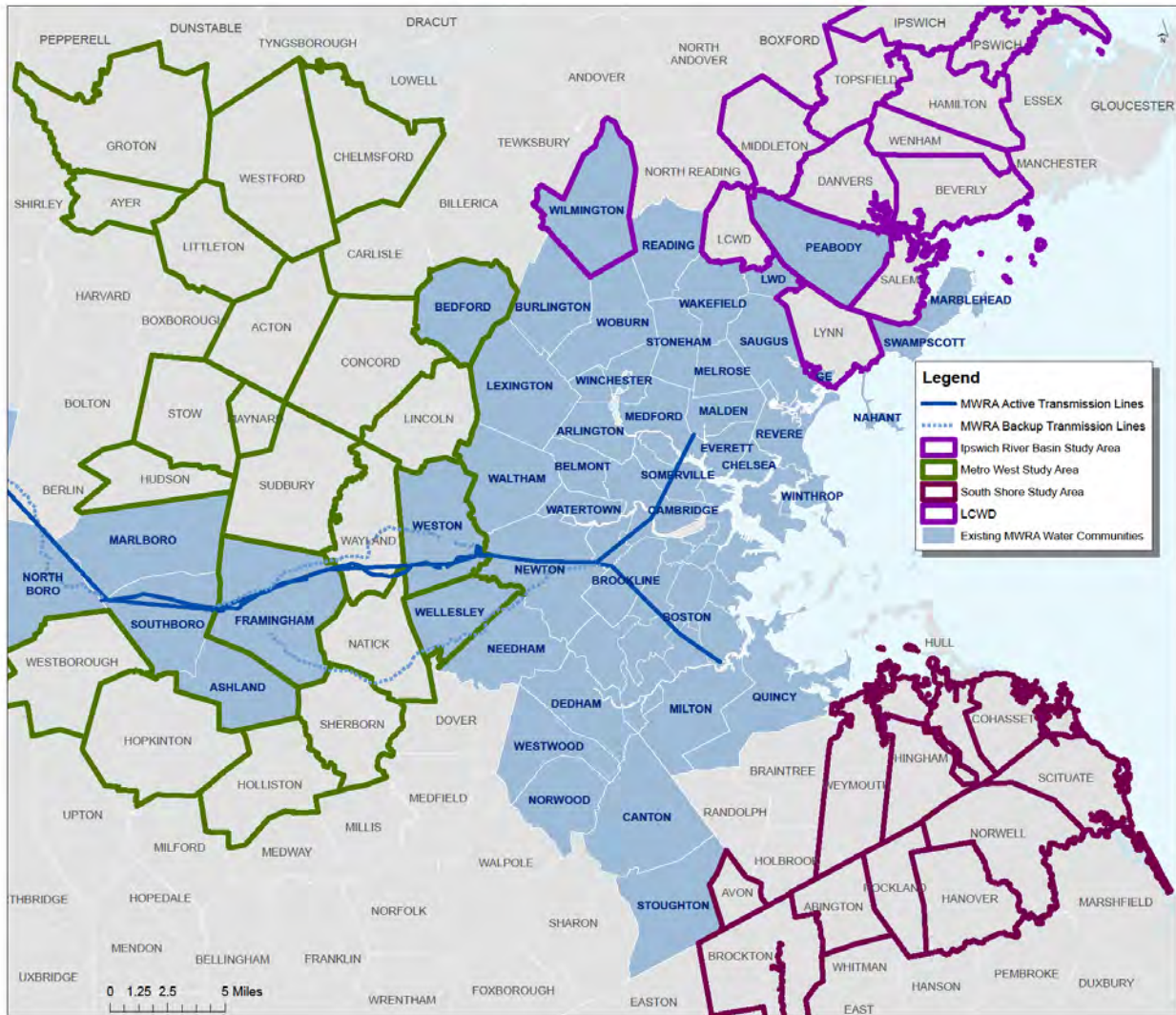
System Expansion and Potential Future Connections

In the fall of 2022, MWRA completed two feasibility studies for expanding MWRA’s water system to the Ipswich River Basin (Beverly, Danvers, Hamilton, Ipswich, Middleton, Lynn, Lynnfield Center Water District, Peabody, Salem, Topsfield, Wenham, Wilmington) and to the South Shore (Abington, Avon, Brockton, Cohasset, Hanover, Hingham, Norwell, Scituate, Rockland, Weymouth, and the Former Naval Air Station). These studies were initiated at the request of the Baker-Polito Administration and in a direct legislative appropriation, respectively. The South Shore feasibility study also looked at expanding MWRA’s wastewater system to the South Shore. Both of these studies are available on www.mwra.com.

A third, ongoing study is examining the feasibility of expanding MWRA’s water system to communities in the Metro West area. The Metro West Feasibility Study includes the communities

of Acton, Ayer, Bedford, Chelmsford, Concord, Groton, Holliston, Hopkinton, Hudson, Lincoln, Littleton, Maynard, Natick, Sherborn, Stow, Sudbury, Wayland, Wellesley, Westborough, Westford and Weston. This study was requested by the participating communities, many of which are experiencing significant water quantity and quality issues. This study is in progress and will identify conceptual alternatives to supply water to the communities in the study area from MWRA’s tunnel system. It is anticipated that this study will be completed in June 2023.

Figure 3. Map of MWRA System Expansion Study Areas



In September 2022, the Board of Directors voted to adopt the MWRA Advisory Board’s recommendation to temporarily waive the entrance fee. Historically, new communities and entities seeking admission to the MWRA water system were charged an entrance fee, based on the value of the existing water system at the time of admission. The entrance fee has been identified as a barrier for new communities in need of water. Analysis has shown that selling additional water will benefit both new and existing water communities; for existing water communities, the additional sale of water could significantly reduce future annual water assessments. The waiver will extend through 2027 for new communities seeking admission for up to a combined total 20 mgd. To qualify for the entrance fee waiver, communities must demonstrate that local sources are impacted by water quality issues, local sources are located in a stressed basin or that local economic development is significantly constrained by existing local sources.

MWRA staff anticipate that the three feasibility studies will generate some additional interest in connecting to MWRA's water system. Below is a summary of communities that have expressed intentions or significant interest in pursuing admission to the MWRA water system in 2022.

Communities

Hopkinton: The Town of Hopkinton has expressed intentions to pursue admission to the MWRA water system, pursuant to OP.10, for supplement water supply and is working with a consultant to evaluate infrastructure connection options. Staff have been in contact with Hopkinton and have provided information regarding the admission process and requirements as well as logistical considerations related to infrastructure and water quality.

Lynnfield Center Water District: Lynnfield Center is pursuing admission to the MWRA water system, pursuant to OP.10. This connection will remedy local contamination issues and increased difficulty meeting local demand. Lynnfield Center is working with the Town of Wakefield to construct a new water main that will allow it to connect to MWRA via the local Wakefield water distribution system. This scenario will also remedy water quality issues (due to two dead end pipes) in the Wakefield water distribution system. MWRA staff have been in close contact with Lynnfield Center and its consultants throughout 2022, as it begins the admission process and applicable regulatory approvals. Lynnfield Center expects to begin the Massachusetts Environmental Policy Act (MEPA) and Interbasin Transfer Act (ITA) review processes in the coming months.

Walpole: The Town of Walpole has informed the Authority that it is currently investigating alternative supplemental water supply sources and that the Town intends to pursue admission to the MWRA water system. In December, MWRA staff met with the Town and provided detailed information regarding the admission process and requirements, pursuant to OP.10.

Wayland: The Town of Wayland intends to pursue admission to the MWRA water system pursuant to OP.10. Throughout 2022, staff have worked closely with the community and its consultants, as it evaluates infrastructure connection options. Several coordination meetings and site visits have been held. Staff have also provided detailed information regarding the admission process and requirements, as well as detailed logistical considerations related to infrastructure and water quality.

Wellesley: The Town of Wellesley is currently a partially supplied MWRA water community and has expressed interest in obtaining additional water from MWRA. Staff have met with Wellesley on numerous occasions and conceptual new infrastructure connection options have been identified. Staff will continue to coordinate closely with the Town.

Weymouth: The Town of Weymouth has expressed intentions to pursue admission to the MWRA water system, pursuant to OP.10, to obtain supply for both the Town and the Union Point Development located in South Weymouth. Staff have met with Weymouth and the developers throughout 2022 to discuss the admission process and requirements. MWRA's South Shore Feasibility Studies identified two conceptual infrastructure connections that could supply Weymouth and the development.

Non-Communities:

Former South Weymouth Naval Air Station: This development is a 1,400 acre community located within Abington, Rockland, and Weymouth. The site is partially developed, with additional development pending. The current development team has been in discussions with MWRA regarding a water connection.

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 local community system that is part of the MWRA service area.



*2022 Annual Report Update on New
Connections to the MWRA System*

April 12, 2023



MWRA System Expansion Policies

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

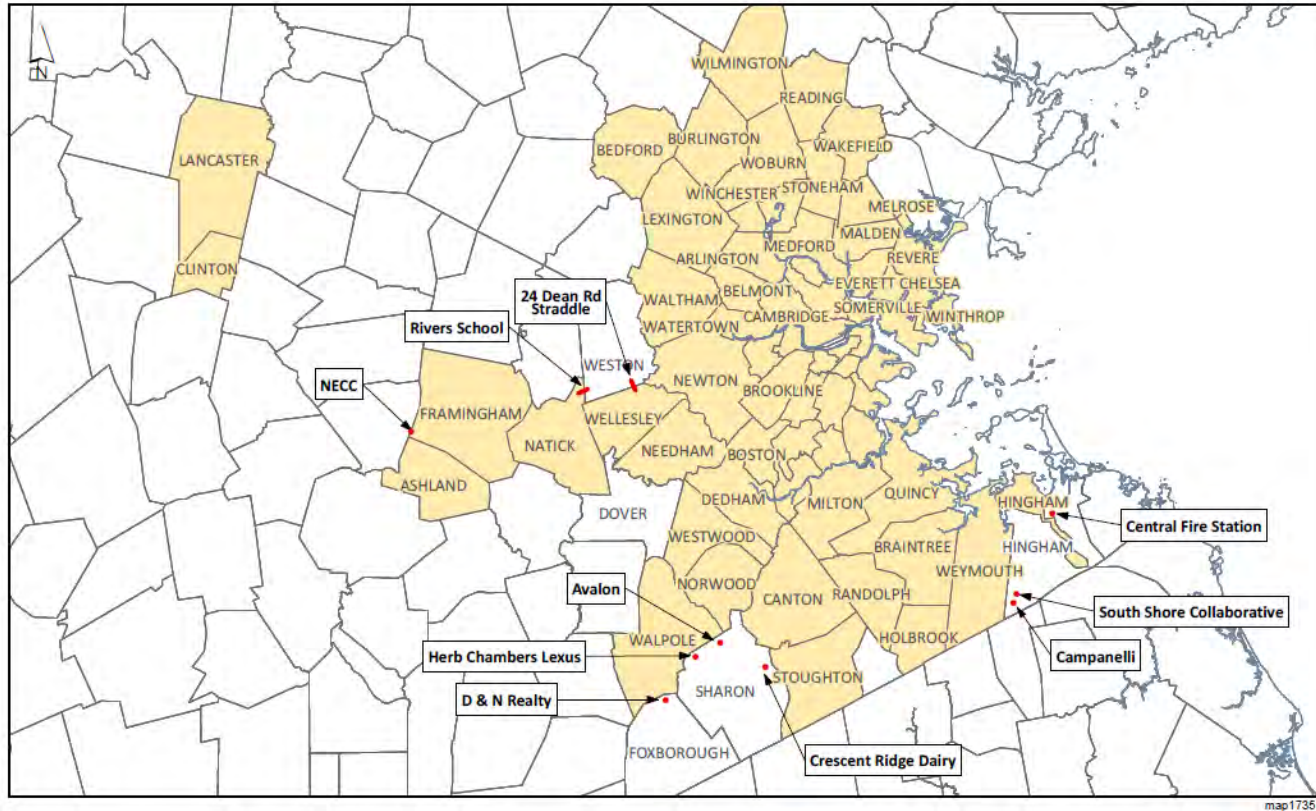


Entrance Fee Wavier

- Entrance Fee charged to new communities
 - Pursuant to OP.10
 - As of FY2023, roughly \$4.3 million per 1 MGD
- Waiver recommended by the MWRA Advisory Board and approved by the Board of Directors in September 2022
- Extends through December 31, 2027 with up to 20 MGD available to new communities that meet one of the following criteria:
 - Local sources are impacted by water quality issues
 - Local sources are located in a stressed basin
 - Economic development is significantly constrained by existing local sources

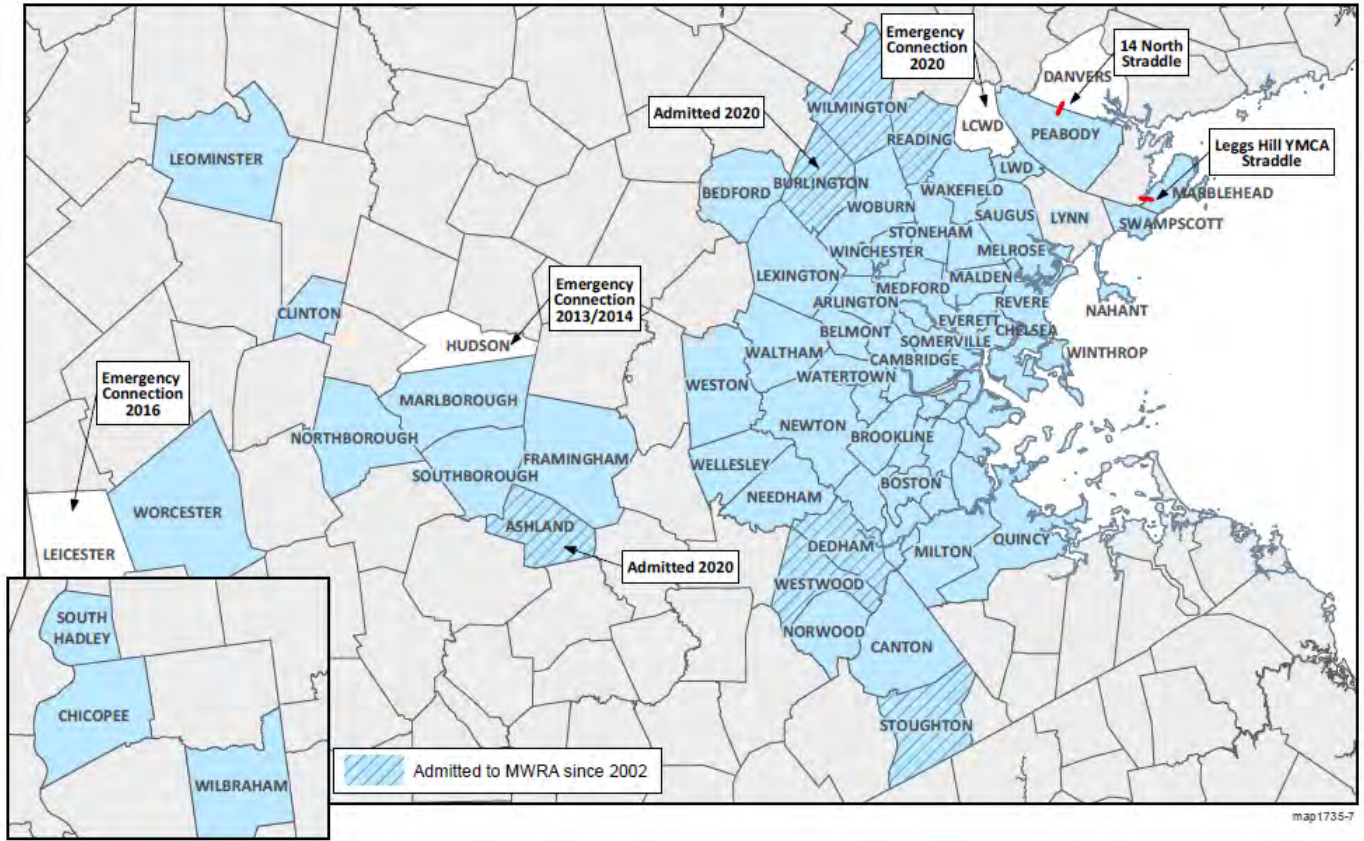


New Sewer Connections Since 2002





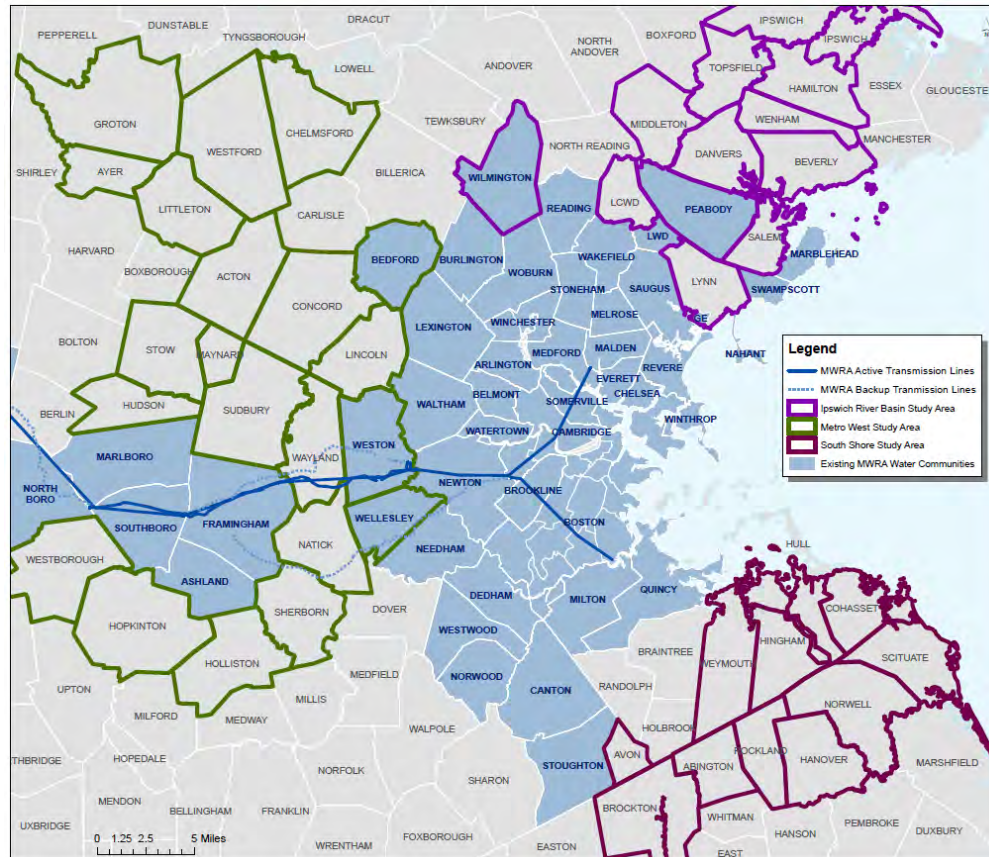
New Water Connections since 2002



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System Expansion Study Areas





Communities Pursuing or Considering Admission (OP.10)

- Hopkinton – Supplemental Supply via Southboro
- Lynnfield Center Water District – Supplemental Supply via Wakefield
- Walpole – Supplemental Supply via Norwood
- Wayland - Emergency/Partial Supply from MWRA Tunnel System
- Wellesley – Currently partial MWRA, seeking increased supply
- Weymouth – Supply for Town and former Naval Air Force Station development