



# FY25 First Quarter Orange Notebook Highlights

MASSACHUSETTS WATER RESOURCES AUTHORITY

## Board of Directors Report

on

## Key Indicators of MWRA Performance

First Quarter FY2025

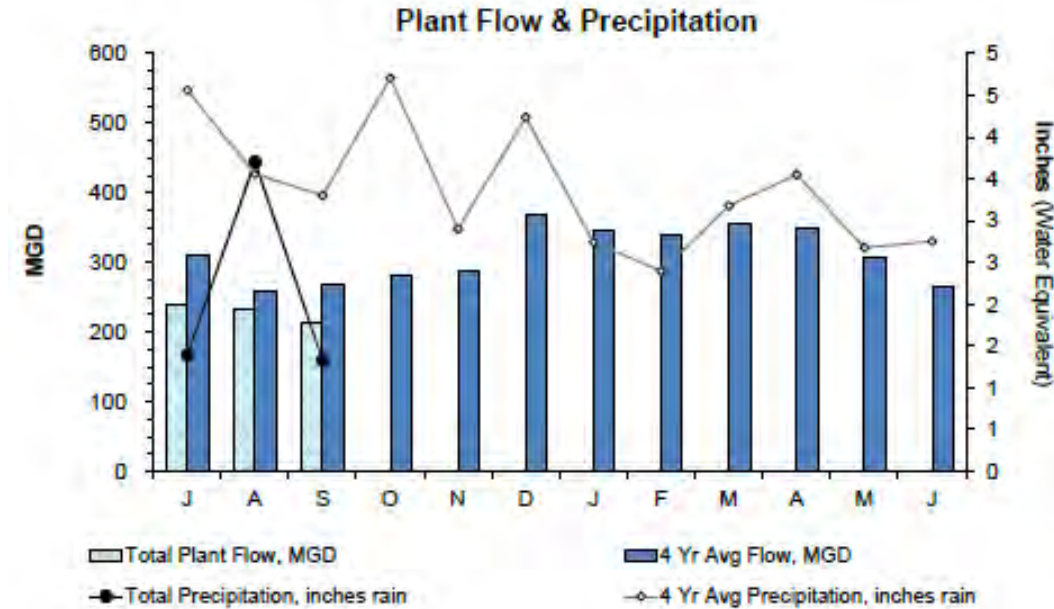
Q1	Q2	Q3	Q4



Frederick A. Laskey, Executive Director  
David Coppes, Chief Operating Officer  
November 13, 2024



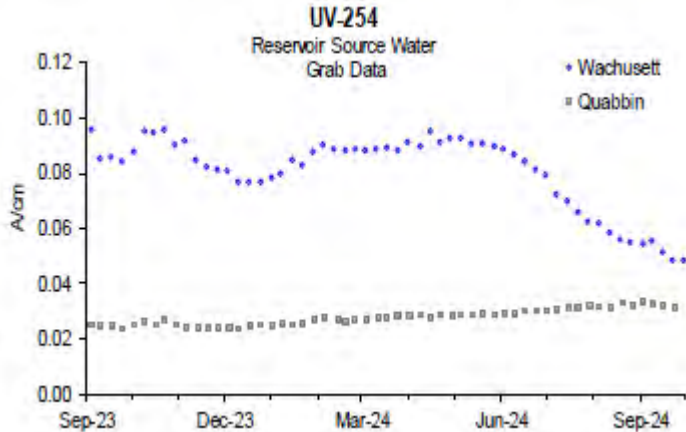
# A break from the high precipitation of previous quarters



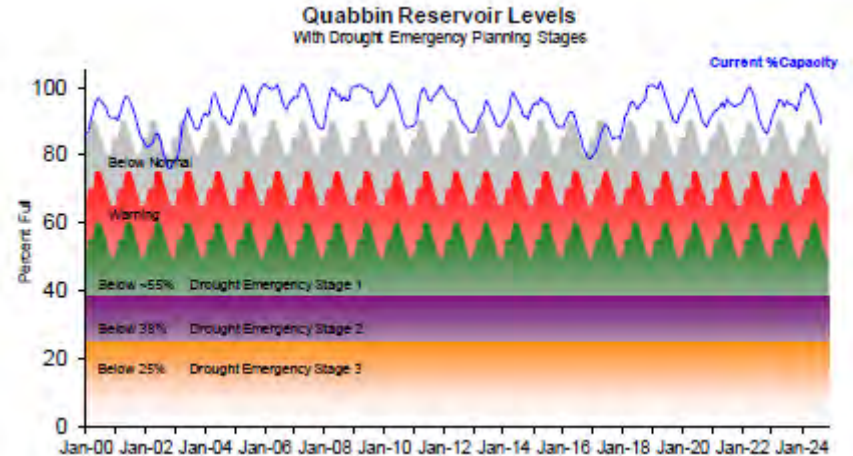
- Precipitation 44% below average
  - FY25Q1: 6.4 in
  - Average: 11.4 in
- Deer Island flow 18% below average
- Power for wastewater pumping 13% below average



# Impacts of lower precipitation on water supply

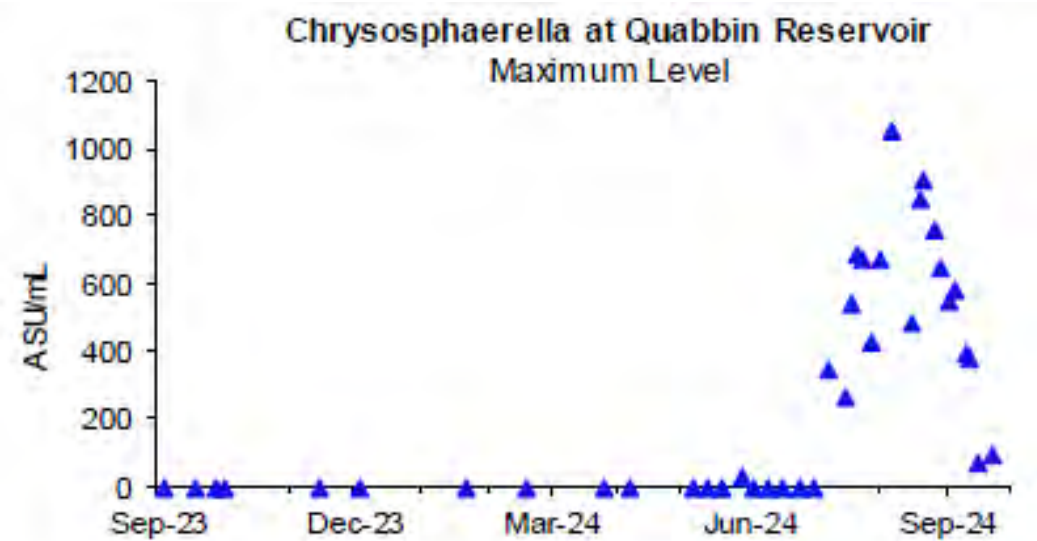


- Transfers from Quabbin to Wachusett continued, improving water quality
- Quabbin at 90% capacity – in normal operating range





## *Chrysosphaerella* algae in Quabbin Reservoir



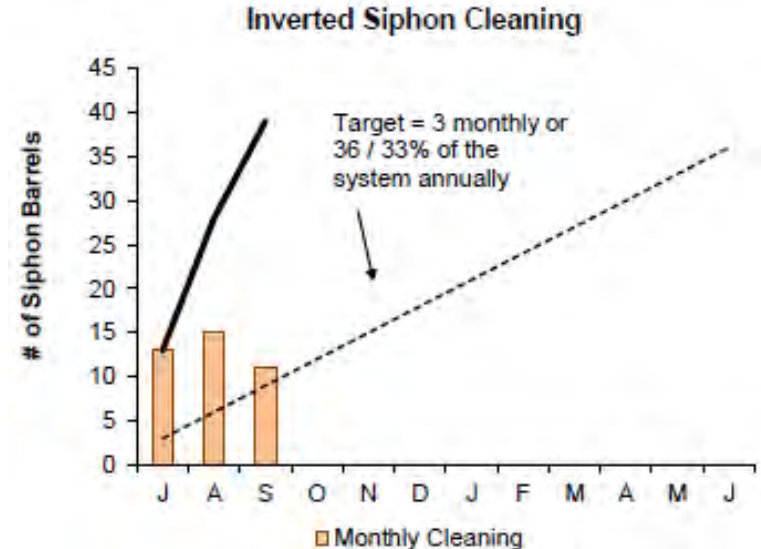
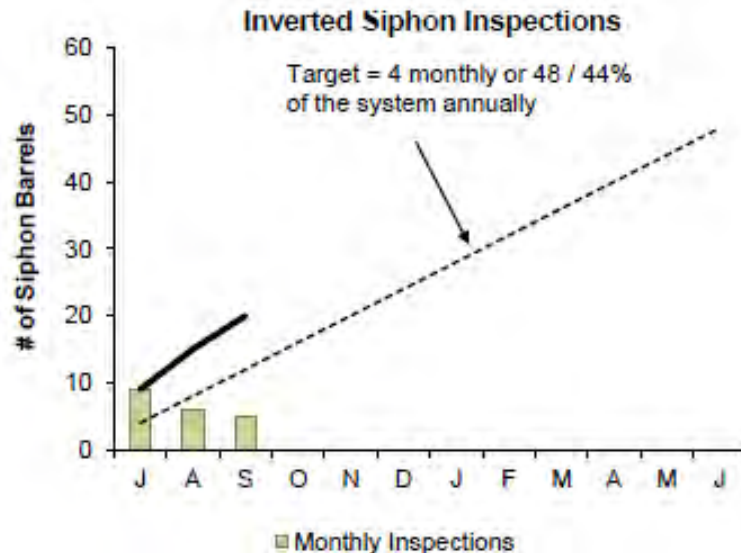
- Elevated levels of *Chrysosphaerella* detected in Quabbin in July
- Led to 13 taste complaints in CVA
- Levels started to decline in September





# Siphon inspections and cleaning above targets

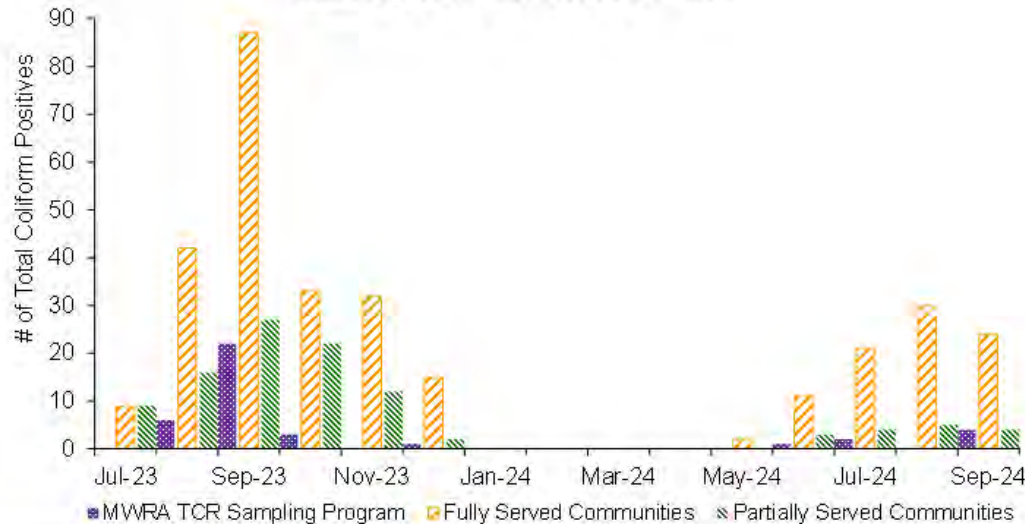
- Staff changed approach to inspect more siphons in the summer
- 20 siphons inspected compared to target of 12
- 39 siphons cleaned – already surpassed annual target





# Total coliform positives lower than last summer

Monthly Total Coliform Positives



- 1.1% of samples positive for coliform
- Decrease in coliform positives compared to Q1FY24 (2.5%)
- Driven by lower precipitation
  - Less organic matter
  - Higher system demand = lower water age



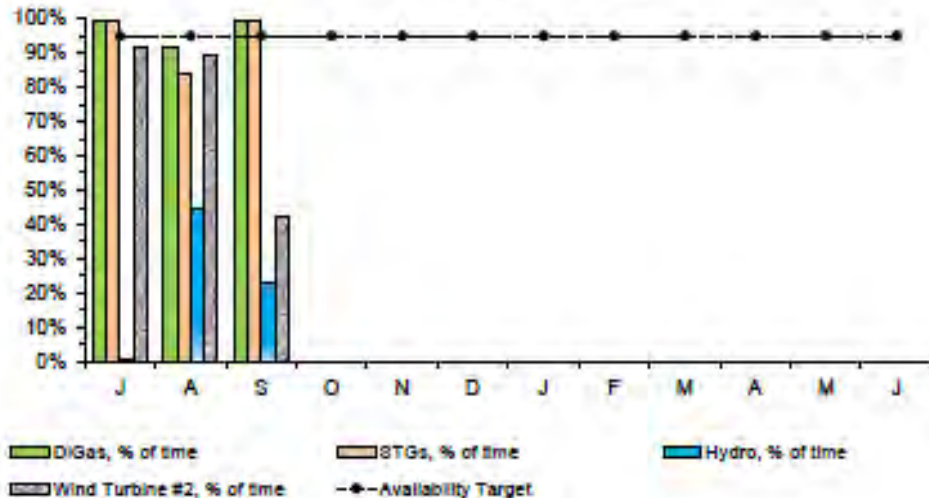


# Renewable energy production at Deer Island below targets

Renewables provide roughly 25% of DI's electricity on average, but was 23% in Q1

- Steam turbines: 6% below due to annual maintenance
- Hydro: 78% below due to rehab of T1 and mechanical issues for T2
- Wind: 18% below due to mechanical issues
- Solar: 28% below due to failed inverter

Self-Generation Equipment On-Line  
(% of Time In Operation)



DI hydro turbine



*Presentation to*

**MWRA Board of Directors**

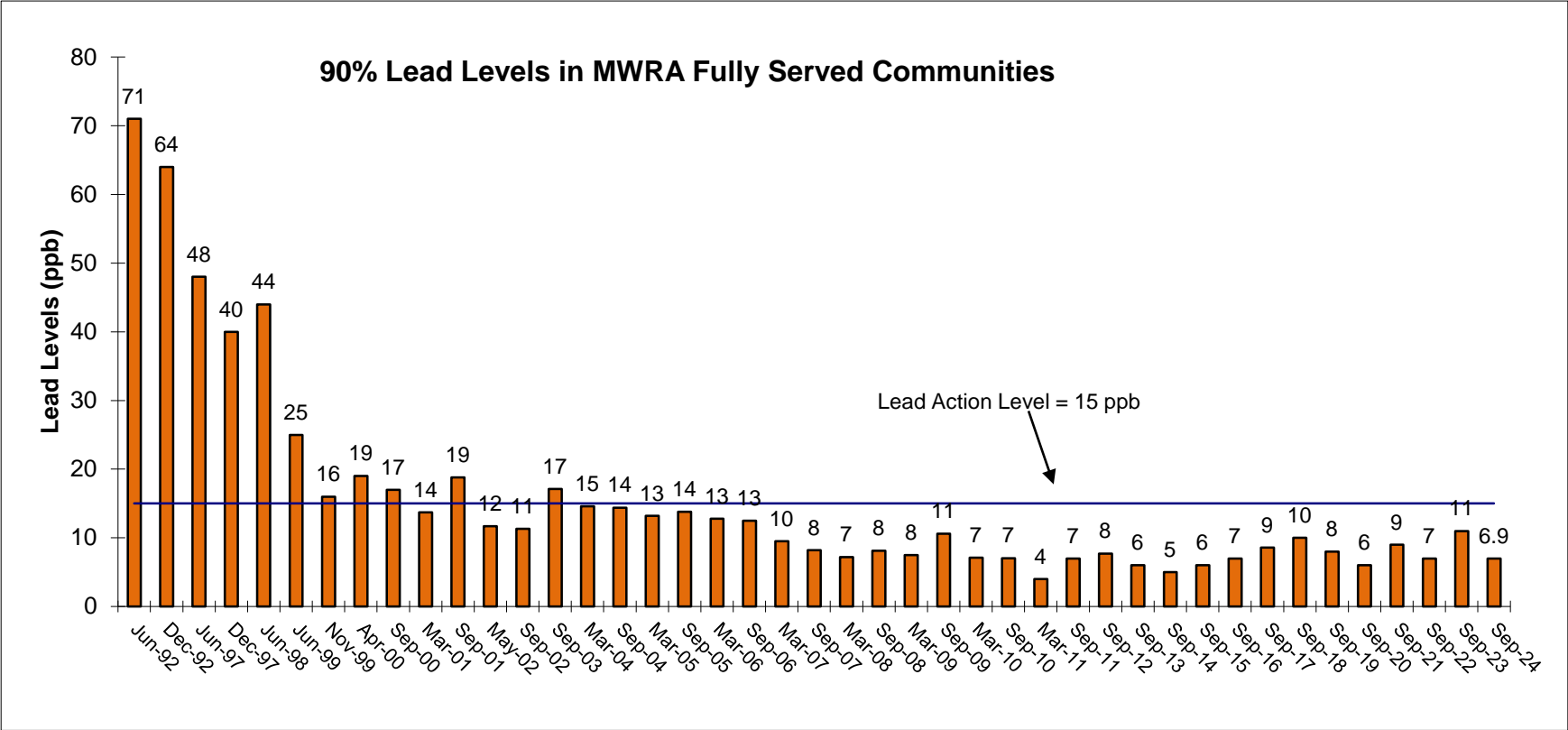
*Update on Lead and Copper Rule Compliance*

November 13, 2024





# 2024 Lead Results – 6.9 ppb compared to 15 ppb Action Level





## Summary of Results

- 16 of 595 samples were over the Action Level
- 15 of the 16 were at sites with lead service lines
- Only one community was individually over the Action Level
  - Required to do the 24-hour Public Notice
  - Will mail Public Education brochure with December bills
  - Continue lead service line replacement



## Regulatory Changes – October/November 2024

- Every community was required to submit a service line inventory
  - All MWRA communities met October 16 deadline
  - Staff reviewing the data
- By November 15 - Every community required to mail information to everyone with:
  - Lead service line
  - Galvanized service line requiring replacement (GRR)
  - Unknown material service line
- 24-hour hour Public Notice now required for all systems over the Action Level



## Regulatory Changes – after October 2027

- Lead Action Level lowered from 15 parts per billion (ppb) to ten ppb
- All lead service lines to be replaced within ten years, regardless of lead sample results
- Changed sampling and 90<sup>th</sup> % calculation (will raise reported levels)
- Allowing deferral of changes to corrosion control if all lead service lines are replaced within five years of the exceedance
  - MWRA target: Communities replace all lead service lines by end of 2032



# Lead Service Line Replacement

- Changes to MWRA Service Line Replacement Program
  - 25% grant if paying for private side - effective July 2024
  - First two applications , Chelsea and Revere
  - Expect disbursement in February 2025
- Provided assistance to 3 communities for EPA grants
  - Awaiting EPA decision
- Continue to work with SRF for additional assistance to accelerate replacements







*Presentation to*

**MWRA Board of Directors**

*Watershed Land Acquisition*

November 13, 2024



# Today's Presentation

- Overview of Water Supply Land Acquisition History
- Key steps in the Land Acquisition Process
- Current Status of Watershed Land Protection by the numbers
- Walk-through of the *Story Map* presentation and evaluation of parcels by Land Acquisition Panel (LAP)
- Update on Wachusett Watershed Model inputs



# History of the Land Acquisition Program

- **Goal:** Protect watershed land from urbanization. Restore/maintain stable forest cover. Protect water supply.

## Two permanent land acquisition tools:

- **Fee:** outright purchase; complete transfer of property ownership to DCR.
- **Watershed Preservation Restriction (WPR):**
  - The landowner retains ownership;
  - Prohibits detrimental activities;
  - Terms of each WPR are unique. Based on template approved by MWRA and the DCR Office of General Counsel.
- Protected by Article 97 of the Amendments to the Massachusetts Constitution.

### ORDER OF TAKING WATERSHED PRESERVATION RESTRICTION

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION AND RECREATION

**ORDERED:** That the Department of Conservation and Recreation (the "Department," hereinafter) by virtue of the power and authority conferred upon it by General Laws Chapter 92A+4, Section 17, and acts in amendment thereof or in addition thereto and every other power and authority hereto enabling, for the purposes of said acts and provisions and for the purpose of watershed protection and management, including but not limited to the prevention of soil erosion, soil compaction, surface water run-off, sedimentation or other fouling or degrading of the water supply or the watershed land surrounding the water supply, does hereby order the taking of and does hereby take under the provisions of General Laws Chapter 79, in the name and for the benefit of the Commonwealth of Massachusetts and subject to the provisions of Article 97 of the Amendments to the Constitution of the Commonwealth of Massachusetts, as amended, a Watershed Preservation Restriction as defined in General Laws chapter 184 section 31 and with the benefit of chapter 184 section 32, in perpetuity and as further defined hereinbelow (hereinafter "Restriction"), over land situated in the Town of XXXXX in the XXXX County, Commonwealth of Massachusetts (the "Premises," hereinafter). For a description see Exhibit A attached hereto and incorporated herein.

Meaning and intending to take a Watershed Preservation Restriction in the Premises.

The parcel described above **CONTAINS** (XX.XX) ± acres of land.

Excepted from the rights herein taken by the Commonwealth are all easements for wires, cables, conduits, pipes, poles and other appurtenances for the conveyance of water, sewage, steam, gas and electricity, and for the transmission of telephone and telegraph communications and data or signals by electrical or electronic or electromagnetic means of any kind, now lawfully in or upon said lands, and also excepted are all other easements of record on, over, under, across and through said land.

This Restriction places the following restrictions on the Premises:

1. No construction or placing of buildings or structures or parts thereof, or roads, ways, paths or any portions thereof, excepting the placement of fencing and signs along the boundary of the Premises;
2. No construction or placing of poles, towers, conduits, wires or cables, or any utility or telecommunication systems, or any portions thereof.



# History of the Land Acquisition Program

MWRA creation in 1984 placed watershed land acquisition under the then Metropolitan District Commission.

Initially funded by 3 state bonds and a fiscal year budget allocation:

- Commonwealth open space bonds of \$3 million in 1983,
- \$30 million in 1987
- \$135 million bond established by the Watershed Protection Act of 1992.

MWRA was then billed for the purchases of watershed lands and paid the debt service on the bonds.





# Current Land Acquisition

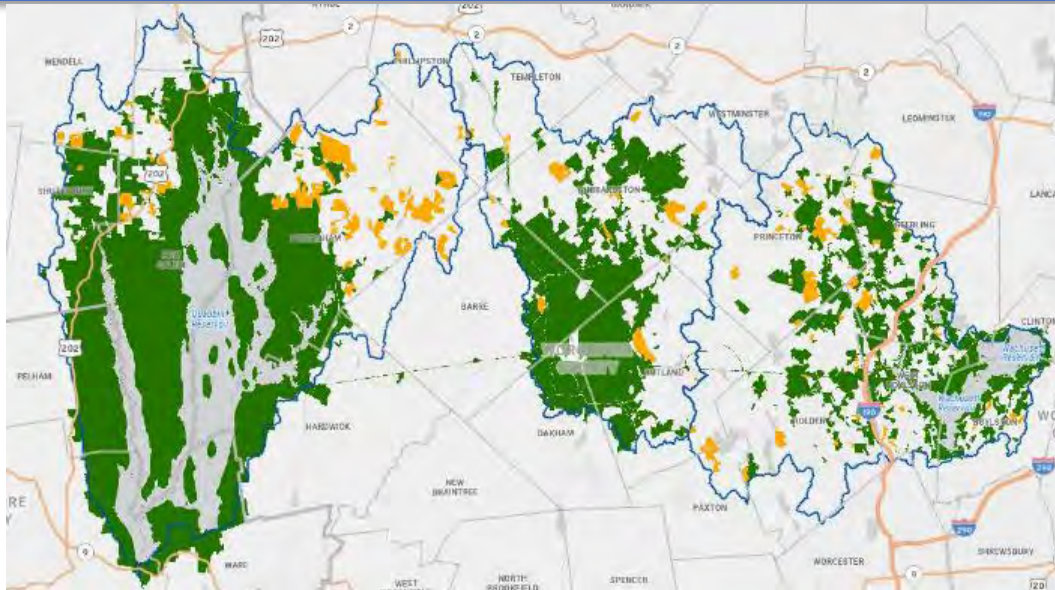
- DCR created in 2003 and assumed prior MDC role
- Water Supply Protection Trust created in 2004 to oversee DCR Watershed O&M Plan and Budget
- MWRA Board of Directors approved use of bond proceeds to acquire watershed land in Dec 2004
- Since 2005 funded by MWRA (~ \$1M/year)
- Presently the FY25 CIP includes \$34 million for watershed land acquisitions, of which \$29.1 million has been spent through October 2024.
- MWRA also pays full Payment in Lieu of Taxes (PILOT) on all fee acquisitions to the towns.







# Present Status of Watershed Land Protection



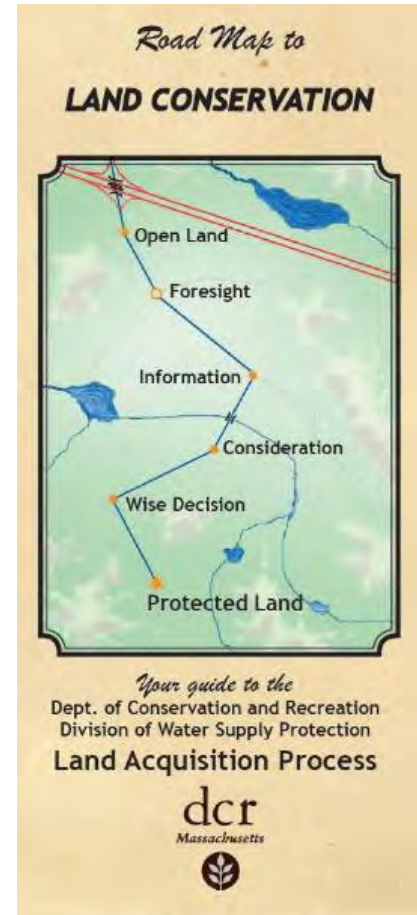
Watershed	DWSP Fee	DWSP WPR	Total DWSP Controlled	DCR % of Watershed Protected Land
Quabbin Reservoir	58,973	5,201	64,174	62.7%
Ware River	24,565	1,414	25,979	41.2%
Wachusett Reservoir	18,675	2,717	21,392	29.2%
<b>TOTAL</b>	<b>102,213</b>	<b>9,332</b>	<b>111,545</b>	<b>46.5%</b>
Sudbury and Foss Reservoirs	2,775	-	2,775	14.5%





# Critical Steps in the Land Acquisition Process

- **Project Cultivation**
  - Landowners, partner organizations, realtors, active outreach.
- **Information Gathering**
  - Desk-review of Land Acquisition Model, GIS data, resource threats, deeds and surveys.
- **Landowner Meeting**
  - “Kitchen-table” meeting with the landowner;
  - Discuss the landowner’s goals, conservation options (WPR vs Fee), and walk the land.





# Critical Steps in the Land Acquisition Process

- **Land Acquisition Panel (LAP) Project Review**
  - DCR-DWSP senior staff and an MWRA representative.
  - ‘Story Map’ presented to LAP.
  - Input from forestry, environmental quality, and operations.
  - Project fit, budget constraints, competing opportunities considered.
- **Land Acquisition Model**
  - Key component of review process.
  - Focuses on factors most significantly impacting water quality.





# Critical Steps in the Land Acquisition Process

- **Price Negotiation**
  - Independent professional appraisal to determine fair market value.
- **MWRA Board Approval**
  - Staff Summary presentation to the MWRA Board of Directors in Executive Session.
  - The Board votes on whether to approve the acquisition of a particular parcel at the negotiated price.







# Critical Steps in the Land Acquisition Process

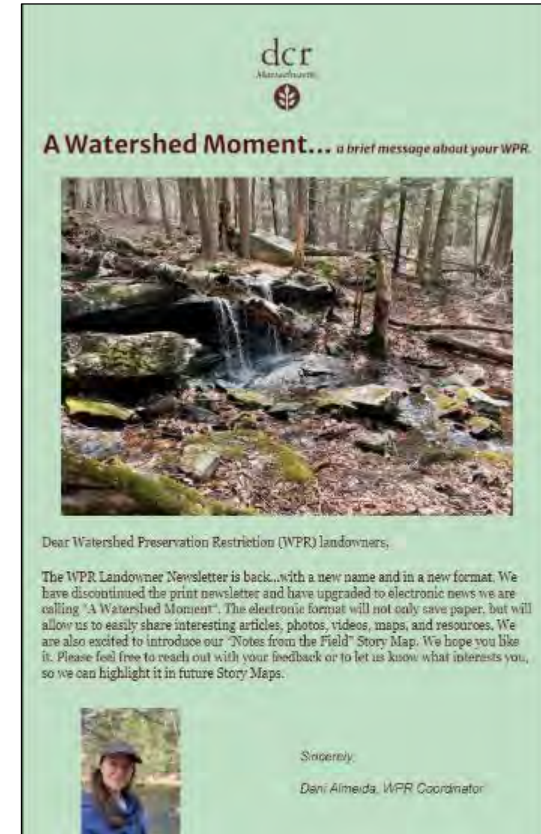
- **Due Diligence**
  - DCR's legal team and outside firms perform additional due diligence: title exams, surveys, and environmental assessments.
- **Final Approvals**
  - DCR submits the package to MWRA's legal team and the Division of Capital Asset Management and Maintenance (DCAMM) for review and approval and funding.
- **Project Tracking and Monitoring**
  - Project file is closed out. Records entered into Land Information System.
  - Fee properties incorporated into DCR land management.
  - WPRs integrated into Stewardship Program.





# WPR Stewardship and Monitoring

- DCR currently holds 158 WPRs over 9,300 acres across Quabbin, Ware River and Wachusett watersheds.
- WPR lands remain privately owned. DCR has ongoing stewardship obligations.
- WPR Program objectives:
  - **Documentation of Baseline Conditions:** Baseline Report of physical conditions of property at time of acquisition.
  - **Routine Monitoring:** Check for compliance with restrictions. DCR-DWSP staff monitor WPRs on the ground every two years.
  - **Violation Resolution:** Efficient resolution of non-compliance.
  - **Maintenance of Landowner Relationships:** Frequent communication, such as bi-annual newsletters providing landowners with resources.







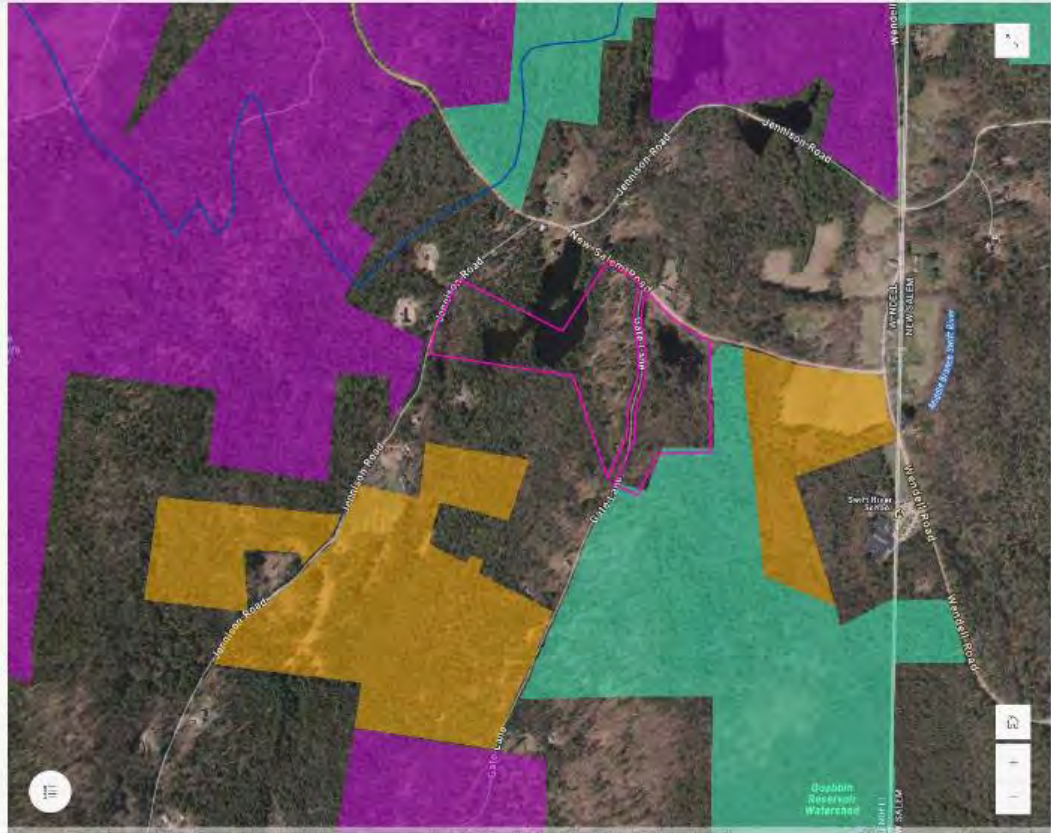
## "Smith" - Wendell

### "Smith" - Open Space

The Smith property borders DWSP-owned land on its southern and eastern sides. It sits at the northern end of a vast, contiguous mosaic of protected open space, which includes DWSP-held Watershed Preservation Restrictions (WPRs) and extensive DWSP-owned land extending to the south.



Boundary shared with DWSP owned land.

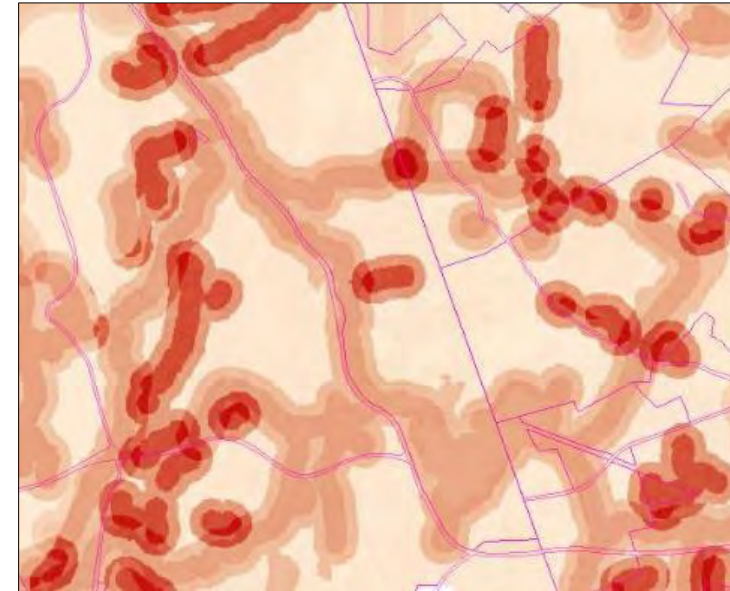






# Land Acquisition Model updates in 2024

- Developed in mid-1990s for Wachusett Reservoir watershed  
*Since expanded to all three watersheds*
- Evaluates parcels based on weighted criteria:  
*Slope, zoning, sewer systems, aquifers, and both Watershed Protection Act (WsPA)-regulated and non-regulated areas*
- Some subbasins assigned higher priority  
*ie. Supply more water and/or are closer to reservoirs and intakes.*
- Model output is a spatial 'heatmap'.
- Evolving model. Improvements in data accuracy, GIS mapping and modeling over the years.



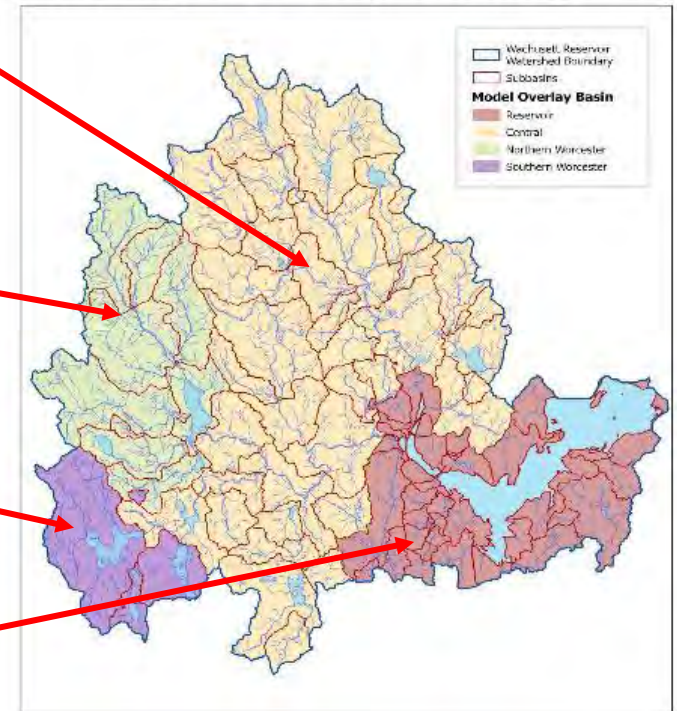
*Screenshot of the Land Acquisition Model.*



# Model updates – Worcester Basin of Wachusett Watershed

- **Central Basin:** Increased the overlay basin weight due to its significant contribution to the overall tributary inflow to the Wachusett Reservoir.
- **Northern Worcester Basin (Quinapoxet Reservoir drainage area):** Increased the overlay basin weight in light of its short reservoir residence time and notable contribution (19%) to the overall tributary inflow to the Wachusett Reservoir.
- **Southern Worcester Basin (Kendall/Pine Hill Reservoir drainage area):** Maintained the current overlay basin weight, given its higher water diversion rates and longer residence times.
- **Reservoir Basin:** Retained the highest overlay basin weight given its proximity to the Reservoir.

Wachusett Land Acquisition Model Overlay Basins



Planning, DCR-10/22/2024

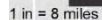


*Presentation to*

**MWRA Board of Directors**

*Community Water Interconnections*

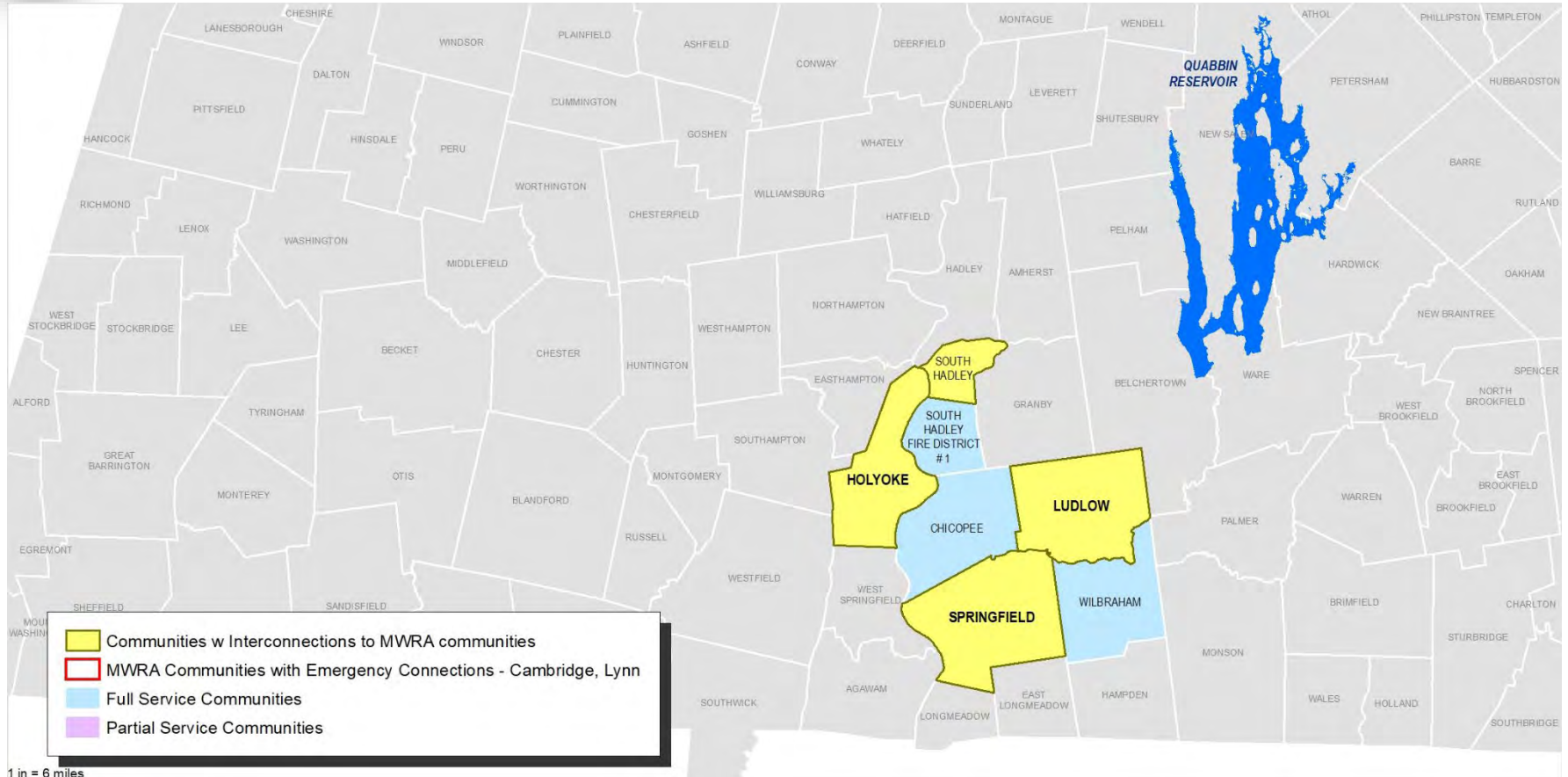
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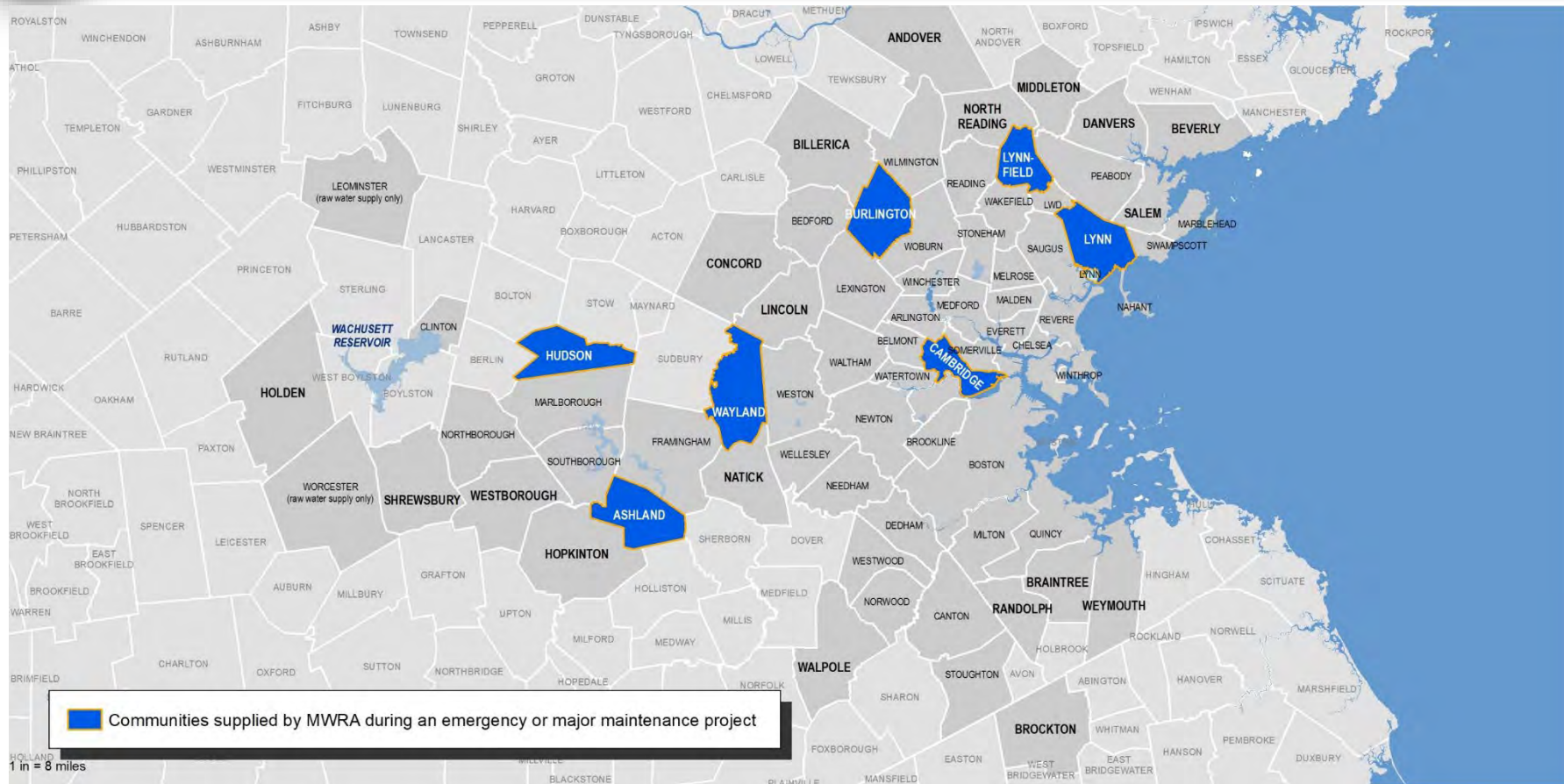


# Interconnections with MWRA Communities





## Communities Supplied by MWRA during Emergencies







# Drought and/or Water Quality Issues



Cambridge's Hobbs Reservoir - 2019



Hobbs Reservoir - 2016



# Maintenance Activities



LWSC Low Service Reservoir - 1989



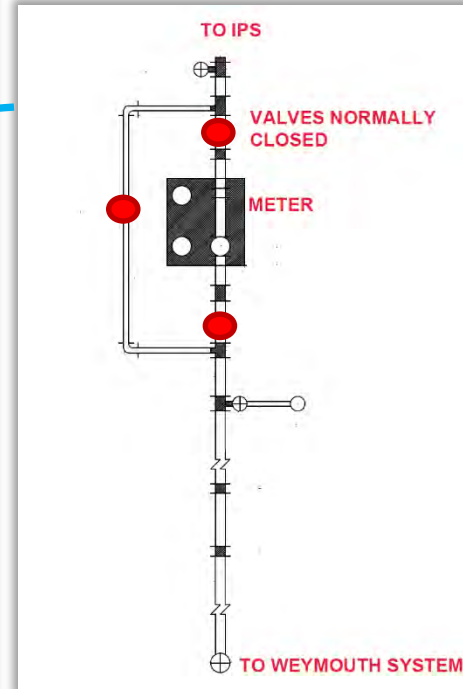
Low Service Reservoir  
Replacement Cover - 2015





# MWRA Community to Non-MWRA Interconnection

## B-W Intermediate Pump Station – Emergency Interconnection with Weymouth



*Interconnection Detail*



## MWRA Community to MWRA Community

