



*2023 Change Order and
Amendment Report*

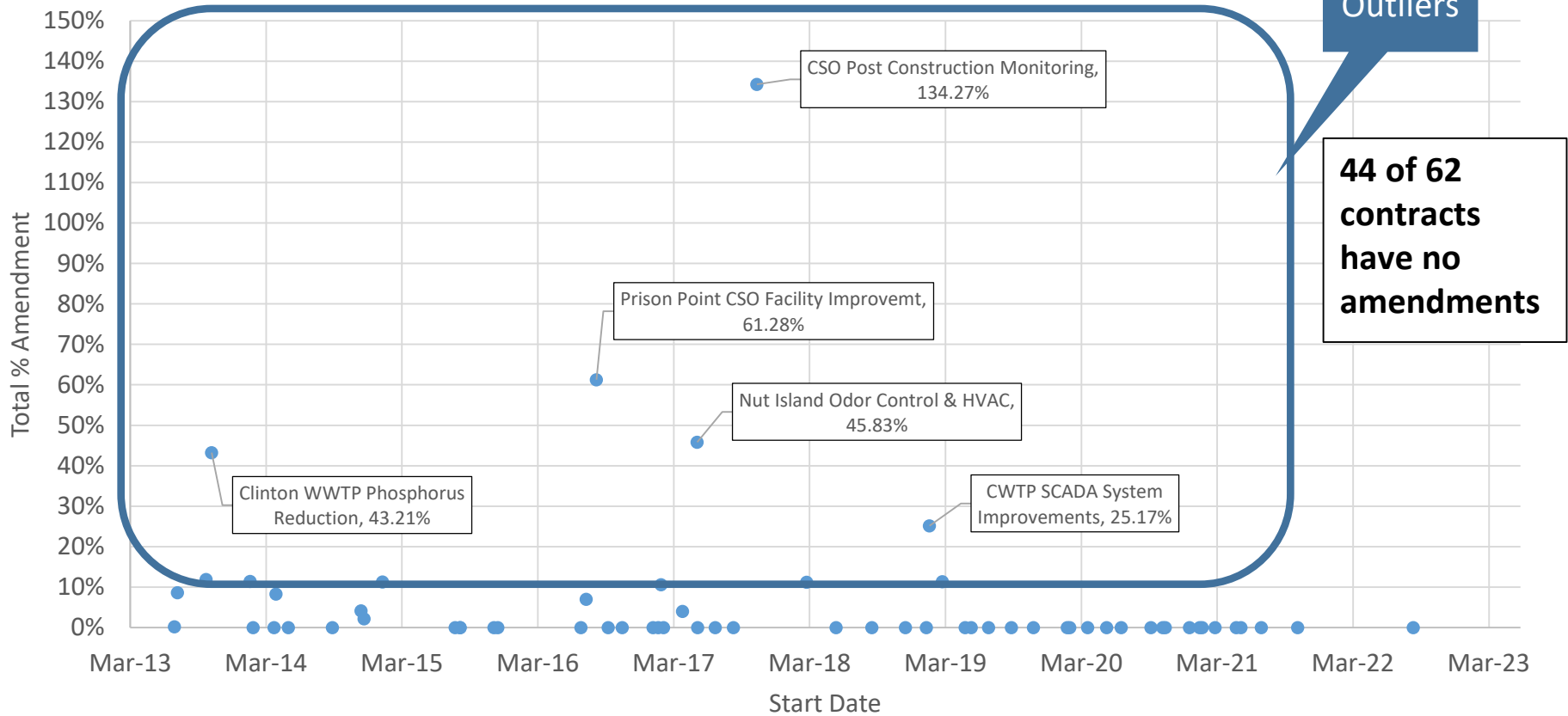
April 12, 2023



Amendment Statistics

	Total Contracts	Chapter 30	Chapter 149
# of Contracts	62	32	30
Contracts w/amendments	18	8	10
Award Amount	\$201M	\$85M	\$116M
Amendment Amount	\$12M	\$5M	\$7M
% Amendment	5.84%	5.74%	5.91%

Total % Amendment By Start Date





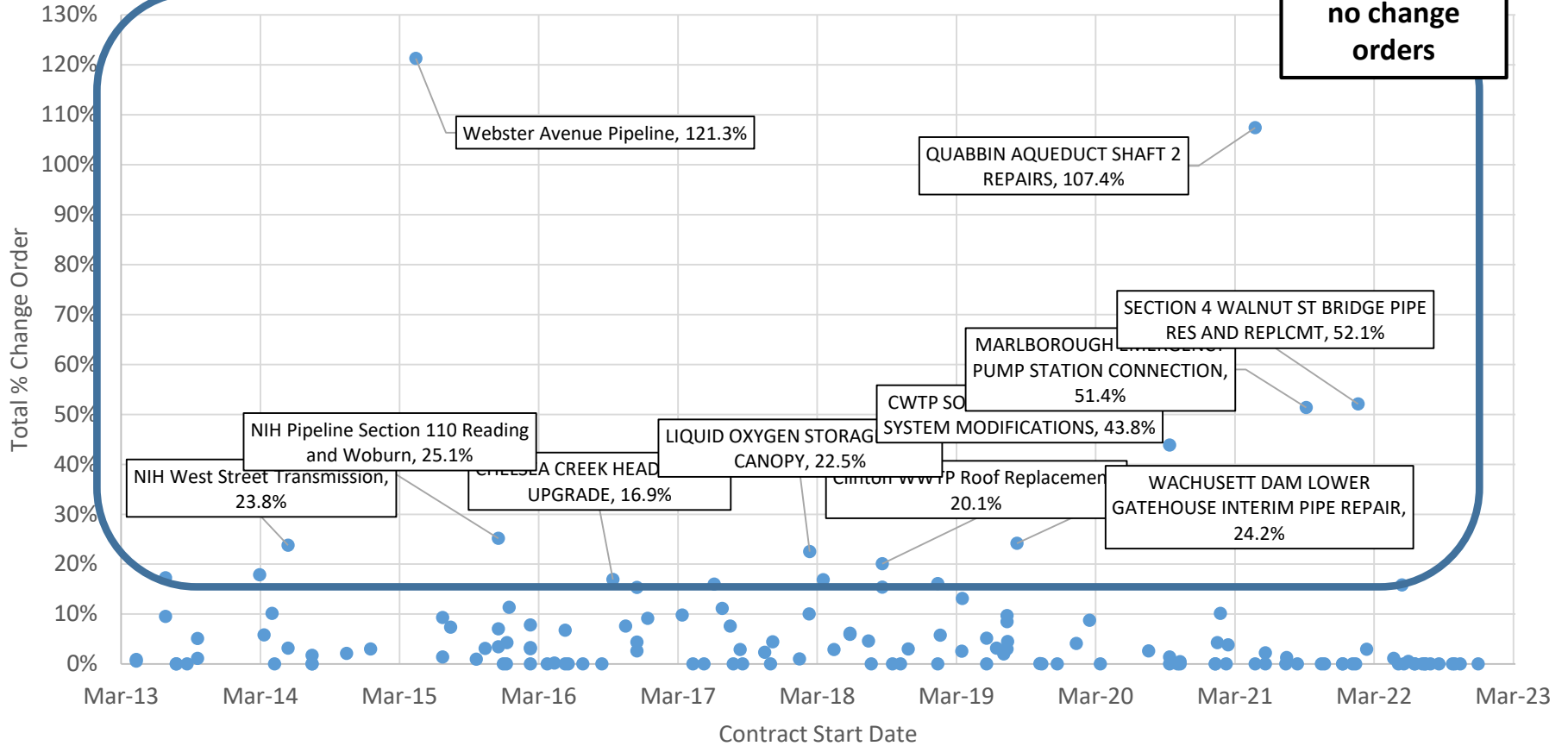
Change Orders Statistics

	Total Contracts	Chapter 30	Chapter 149
# of Contracts	141	59	82
Contracts w/change orders	85	31	54
Award Amount Total	\$776M	\$323M	\$453M
Change Order Amount	\$43M	\$15M	\$28M
% Change Order	5.55%	4.73%	6.14%

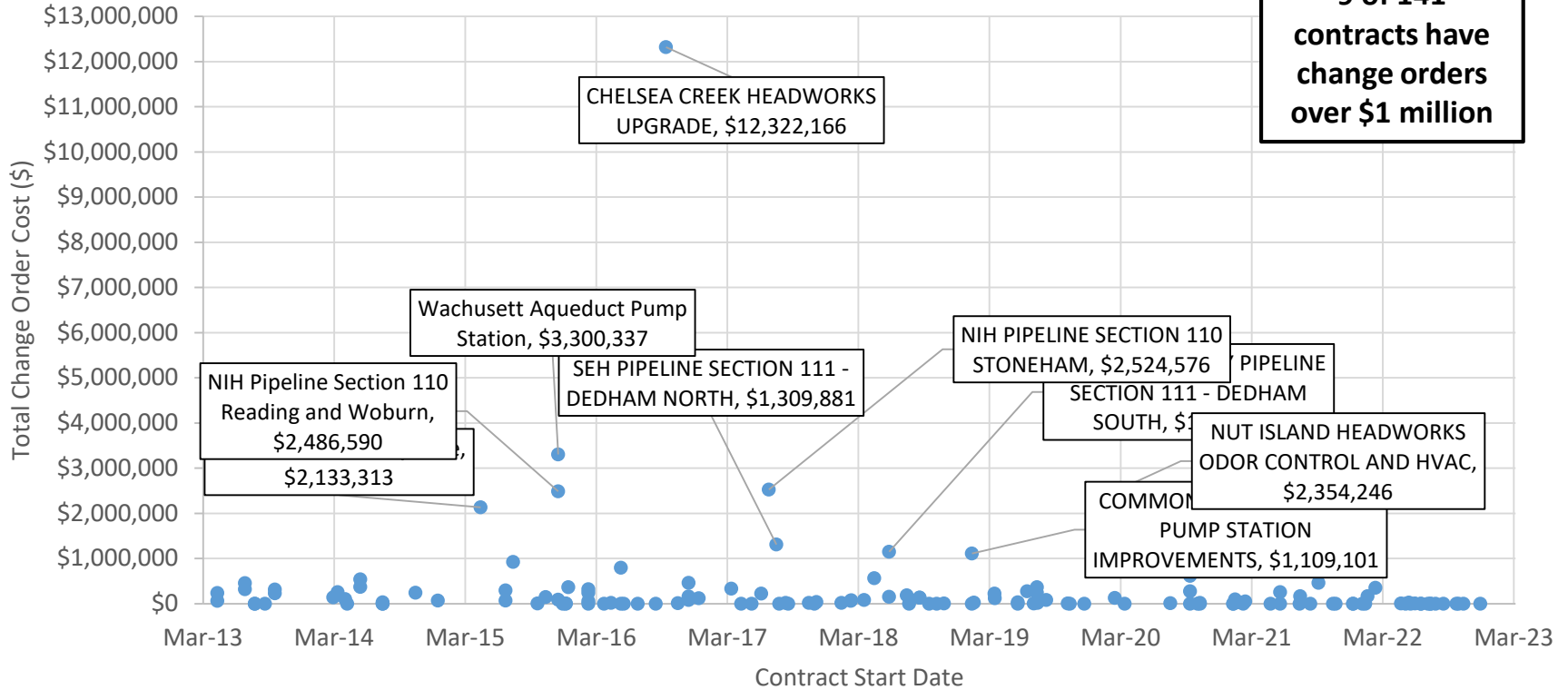
Outliers

Total % Change Order by Start Date

56 of 141 contracts have no change orders



Total Change Order Cost by Start Date





Change Order: Unforeseen Condition Material Delays for Fiberglass Reinforced Plastic Duct at Nut Island





Change Order: Unforeseen Condition Material Deliveries and Supply Chain Issues





Change Order: Unforeseen Condition Night Work and Reduced Work Hours in Waltham





Change Order: Unforeseen Condition Accelerate Work at Boston College during Summer Months





Change Order: Unforeseen Condition Site Restoration at Arlington Plaza





Change Order: Unforeseen Condition Ledge Removal in Newton





Change Order: Unforeseen Condition Contaminated Soil Quantities at Mystic River Parkway





Change Order: Unforeseen Condition Revise Support of Excavation to avoid New Utilities in Somerville





Change Order: Unforeseen Condition Existing Pipe Alignment at WASM PRV





Change Order: Design Error Support of Excavation for Connection to Marlborough Pump Station





Change Order: Design Error New HVAC Ductwork wn Conflict with Existing Support at Nut Island





Change Order: Unforeseen Condition Existing Utilities





Change Order: Unforeseen Condition East Boston Sewer Relief Utility Interferences





Update on MWRA's Maintenance Program

April 12, 2023



Maintenance Program Goals

- Life Cycle Management: Cost effectively replace components at appropriate time
- Ensure reliable plant operations
- Preserve value of ratepayers investment
- Manage maintenance activities to avoid large budget spikes
- Continue to utilize maintenance best practices





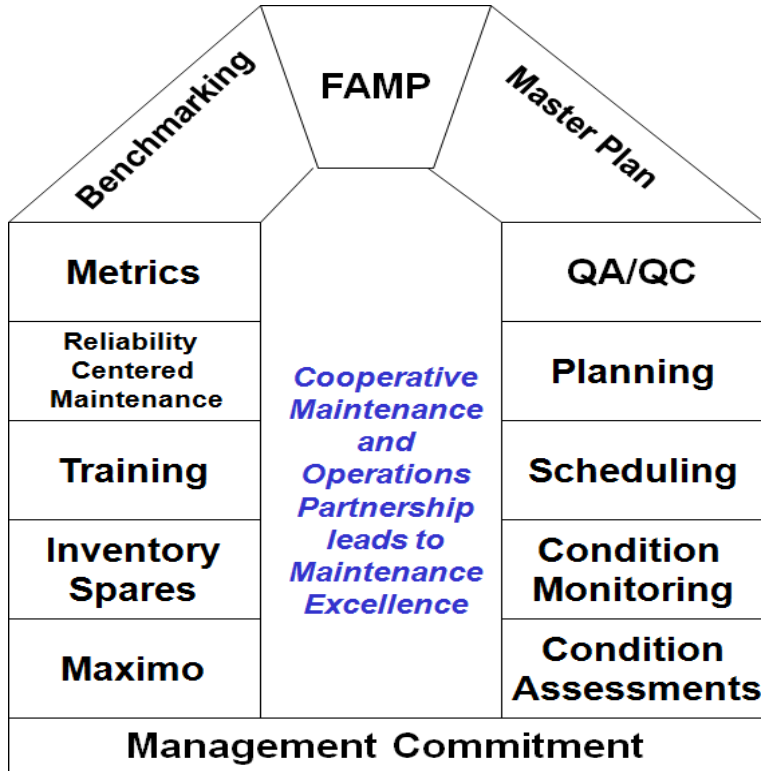
From Chicopee Valley to Boston Harbor: Spanning 800 Square miles

- **Water system** > 200 Facilities
 - 105 Miles of Aqueducts and Tunnels
 - 36 Tunnel Shaft/Valve Structures
 - 2 Water Treatment Facilities
- **Wastewater system** - 65 Facilities
 - 2 Treatment Plants
 - 23 Miles of Tunnels
 - 61 Siphon with >7 Miles of Piping
 - 13 Pump Stations
 - 4 Remote Headworks Facilities
 - 4 Combined Sewer Overflow Treatment Facilities and 2 CSO Storage Tanks
- Chelsea Administration and Maintenance Building
- Southborough Operations and Maintenance Building
- 655 Fleet Vehicles (Pick-ups, Dump trucks, Excavators, Vactor, cranes)





Facilities Asset Management Program

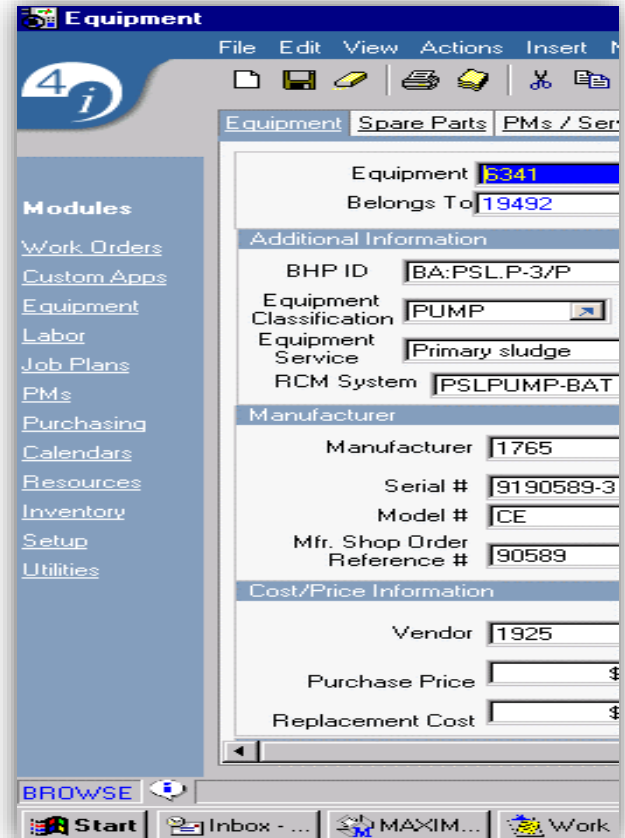


- Each block represents an area which contributes to MWRA's Asset Management Program
- Staff are always looking for new technology or improvements to increase productivity



Maximo is our computerized maintenance management system

- Nationally recognized Software
- >120,000 pieces of equipment in database
- Tracks all labor, materials and tools on work orders
- Produces reports for information, metrics and cost
- Interfaces with Lawson and PICS
- Tracks cost from acquisition to disposition





Condition Monitoring

- Monitor an assets operating condition
- Utilize trends to predict potential failures
 - Take corrective action to minimize downtime / avoid secondary damage
- MWRA staff perform most Predictive Maintenance tasks
- Condition Monitoring Techniques
 - Vibration
 - Oil analyses
 - Thermography
 - Acoustic ultrasonic





MWRA staff do the majority of maintenance work

- 464 positions perform or support maintenance activities
- 40% of all MWRA staff part of maintenance team
- Use of 'Light maintenance' to allow skilled trade staff time on critical equipment issues
- Outside expertise for specialized services

Hiring skilled staff is a current challenge

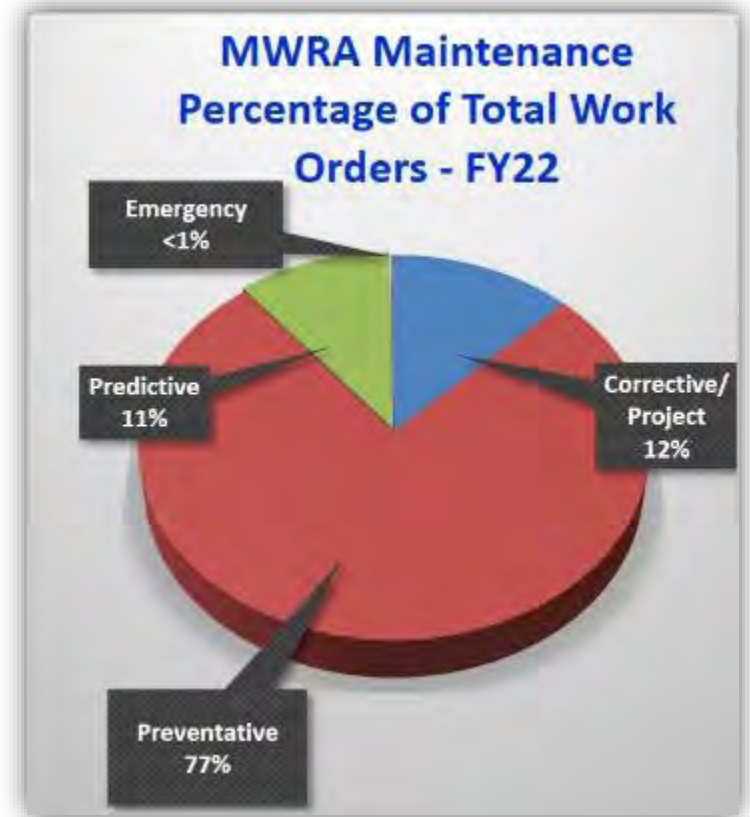
- Prioritize important tasks
- Utilizing reassignments
- Acting positions
- Use of overtime





Maintenance Metrics

- Completed over 85,000 work orders
- 99.5% of Preventative Maintenance work orders completed
- 11% of all work orders for Predictive maintenance
- <1% work orders needed for emergency work
- 98% equipment availability
- 10% of 'light maintenance' work orders by Operations staff





Maintenance Budget

- Operations Division FY23 Current Expense Budget \$26.5 million for Maintenance
- On average \$24.7 million spending per year over last 5 years
- MWRA committed to ensuring assets well protected and replaced as needed by annual maintenance spending
- Annual maintenance budget preparation
 - Meetings with each department
 - Staff feedback is critical
 - Feedback provides sense of ownership to team





Results

- High equipment reliability
- High equipment availability
- Performance during stressor events
 - Large rain, hurricanes
 - Power outages, blizzards
 - Drought
 - Community main breaks and fires
- Award winning performance
 - NACWA Platinum Award for 15 years in a row
- Meets or exceed all regulatory requirements





*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

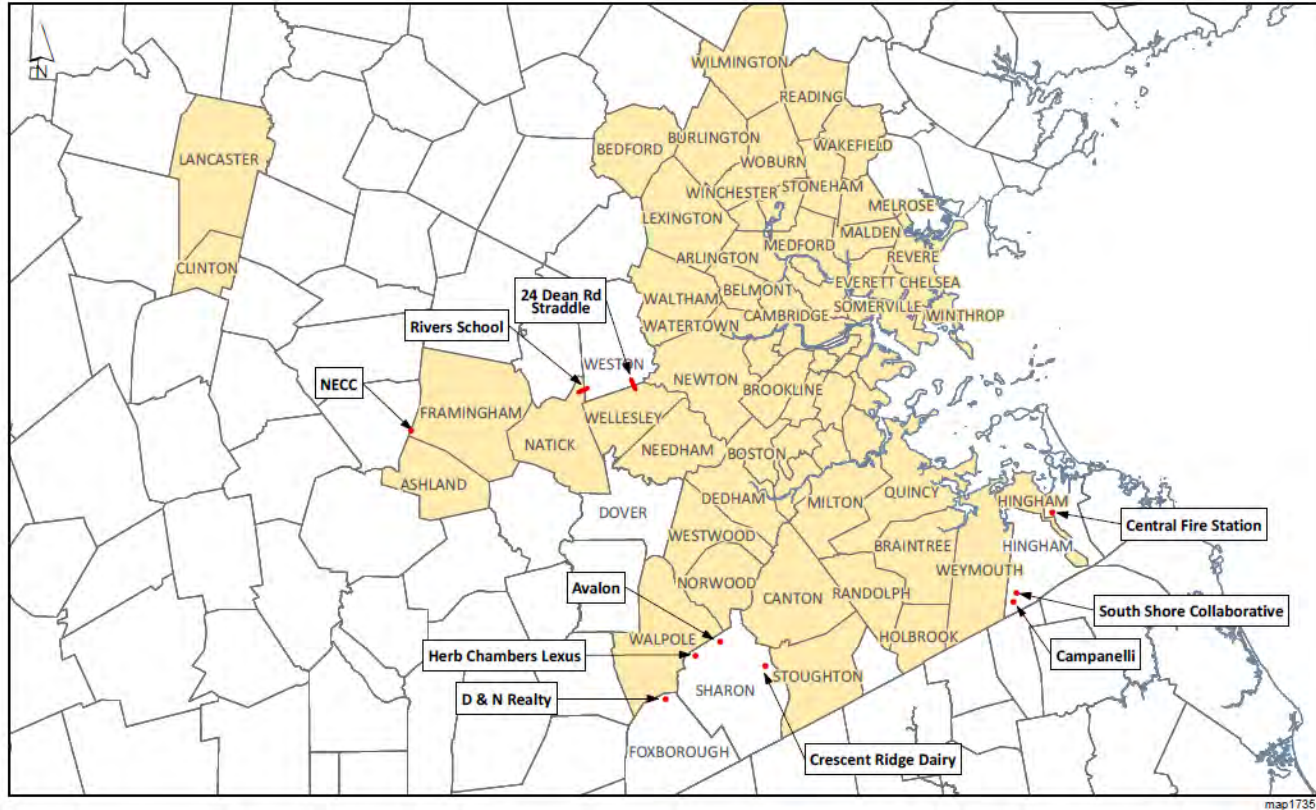


Entrance Fee Wavier

- 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

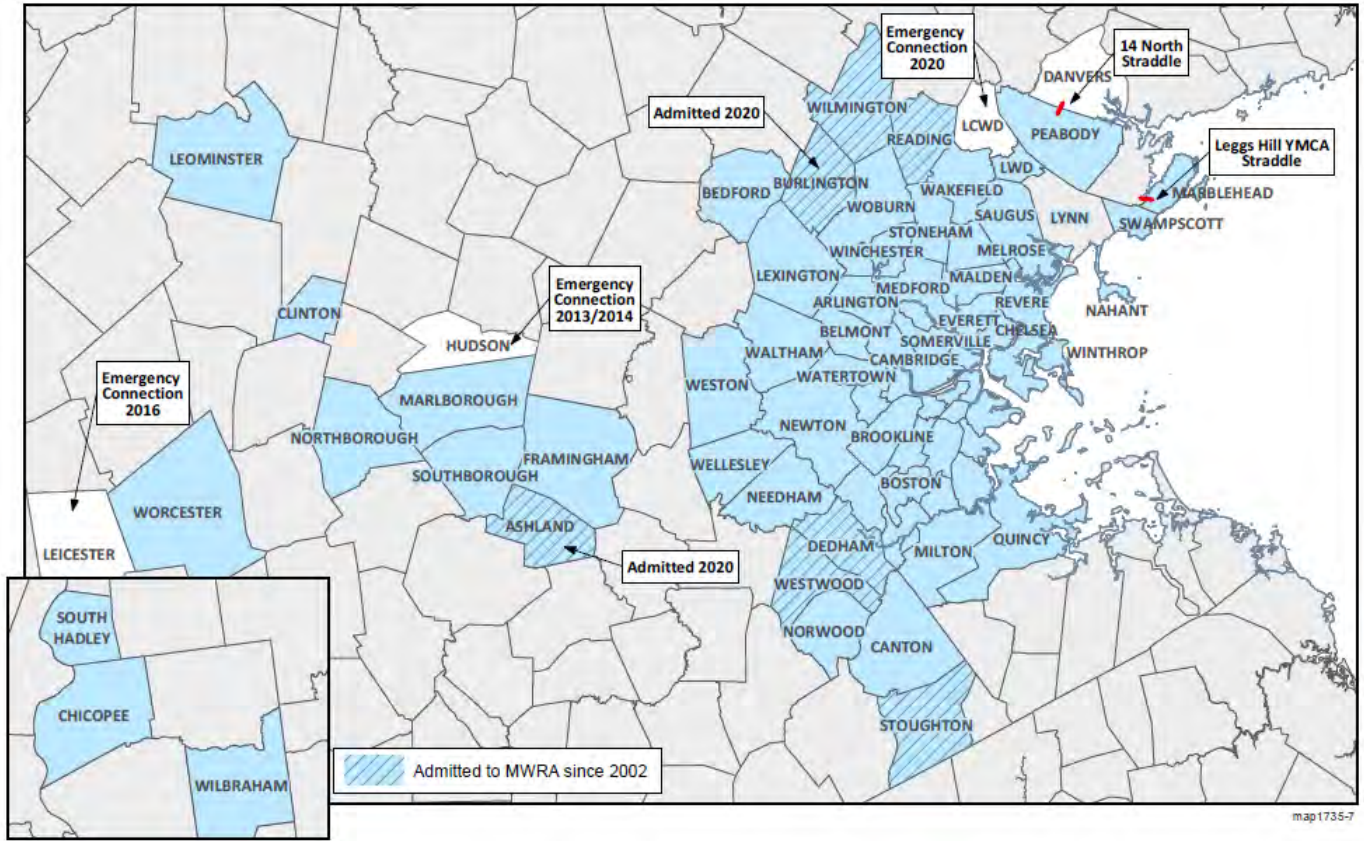


New Sewer Connections Since 2002





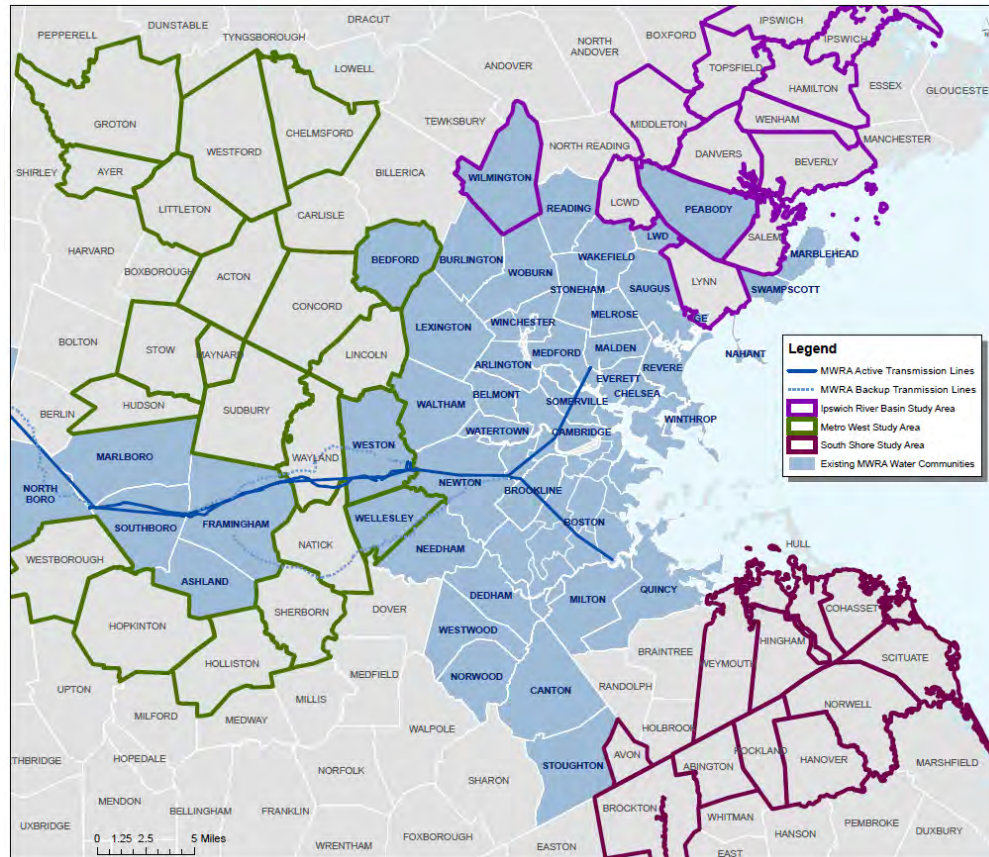
New Water Connections since 2002



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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