



*Presentation to*

## **MWRA Board of Directors**

*Hayes Pump Station Rehabilitation Resident  
Engineering/Resident Inspection Services  
Contract 7668*

December 11, 2024



# Project Location





# Contract 7375 Awarded at 10/23/24 BOD Meeting



Influent gate



Screen/grinder



Pumps



## Procurement Results

Consultant	Proposed Cost
<b>Hazen and Sawyer</b>	<b>\$1,759,118</b>
<i>Engineer's Estimate</i>	<i>\$2,268,000</i>

Contract duration 36 months

Staff recommends award to Hazen and Sawyer, P.C.



*Presentation to*

## **MWRA Board of Directors**

*Ward Street and Columbus Park Headworks Upgrade  
Contract 7429, Amendment 1*

December 11, 2024





# Ward Street and Columbus Park Headworks Upgrade

Major upgrade of both facilities including:

- Replacement and automation of screenings and grit collection and conveyance
- Resurfacing all channels, and influent and effluent shafts
- Replacement of all equipment/systems
- Replacement and redundancy improvements added to Odor Control and HVAC systems
- SCADA improvements
- New superstructures over underground channels



Ward Street Headworks

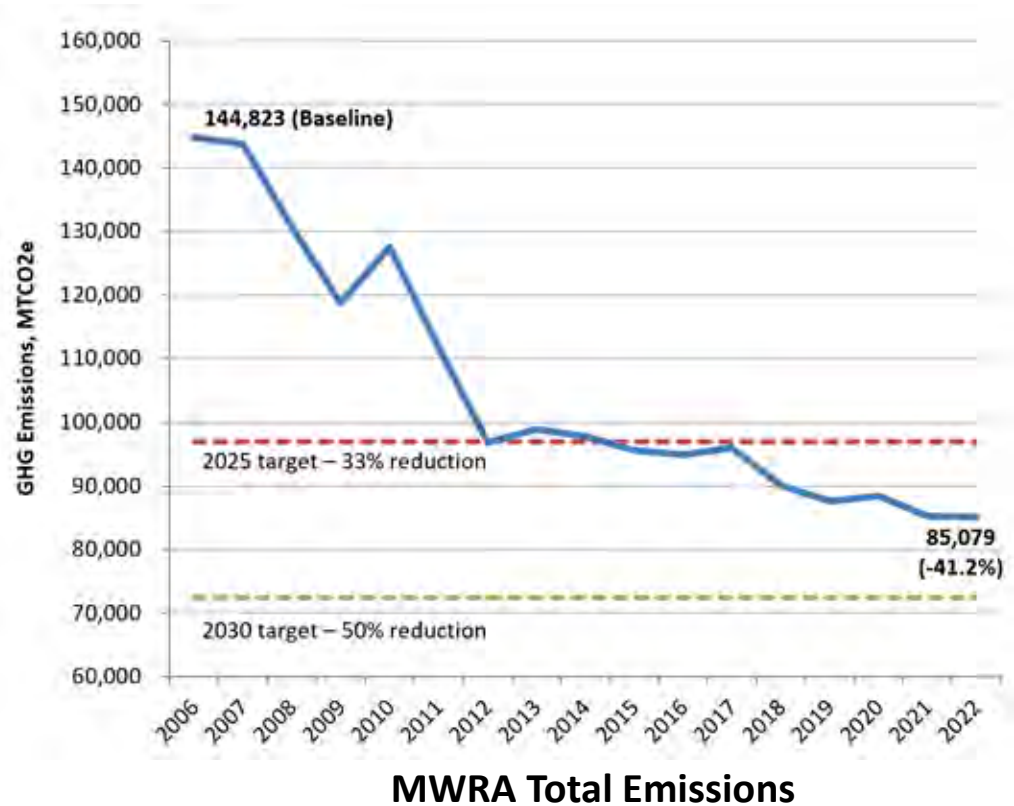


Columbus Park Headworks



# Efforts to Reduce Carbon Footprint

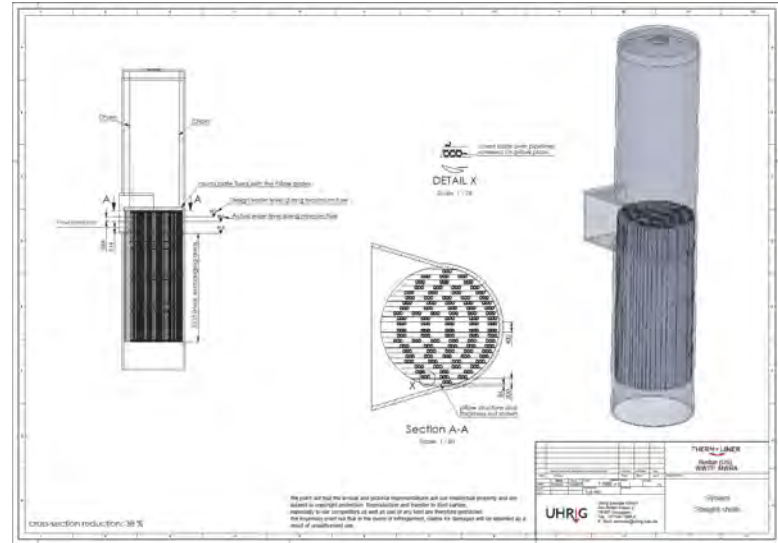
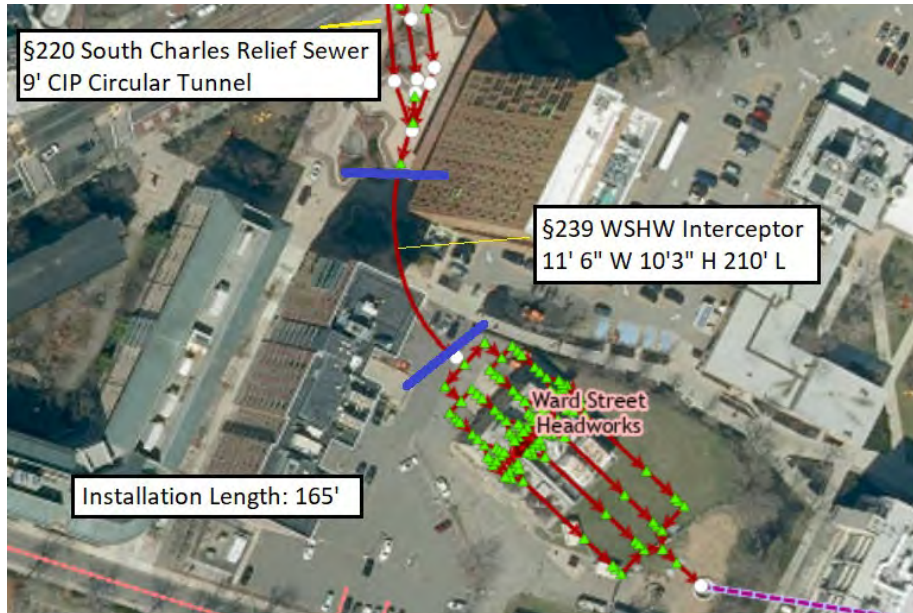
## Executive Order No. 594: Decarbonizing and Minimizing Environmental Impacts of State Government





# Proposals Evaluated for Heat Recovery

- Effluent channels
- Tunnel Shafts
- Upstream influent sewers



- Clogging concerns
- Installation concerns
- Lack of demonstrated experience of similar size





## Air Source Heat Pumps in Classified Spaces

Large airflow requirements for safety of staff.

12 air changes per hour of 100% outside air.

- Difficult to site number of heat pumps required
- Electrical demand would exceed capacity of grid
- Would still require use of fossil fuels during peak heating conditions
- Heavy units have structural impacts on substructure
- Difficult to attenuate noise output



# Updated HVAC Basis of Design

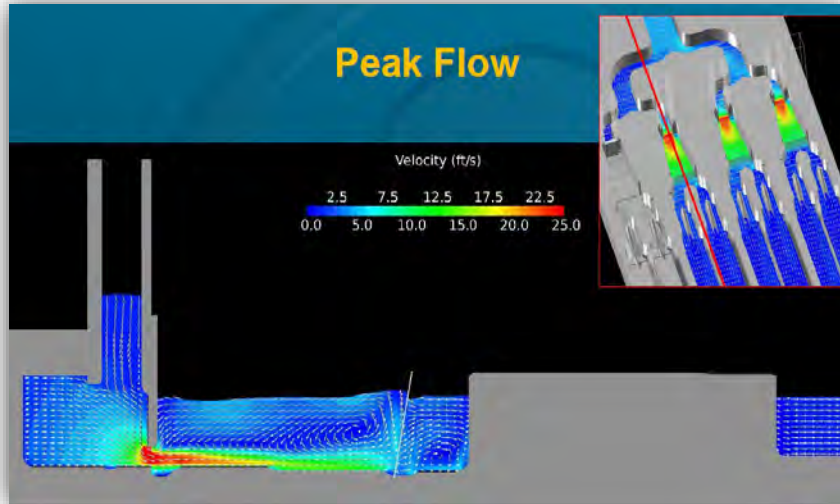
Final Design includes:

- Natural gas condensing boilers for heating classified spaces
- Variable Refrigerant Flow (VRF) heat pumps for non-classified spaces
- Considerations for future heat recovery options



# Wet Weather Operations Improvements

- Problems at Chelsea Creek when 'choking' during large wet-weather events.
- Potential to impact capacity; concern for increased overflows upstream.
- Evaluate methods to prevent similar issues at Ward Street and Columbus Park.
- Install blocks and baffles to minimize turbulence and improve screen performance.



Computer Modeling of Velocities



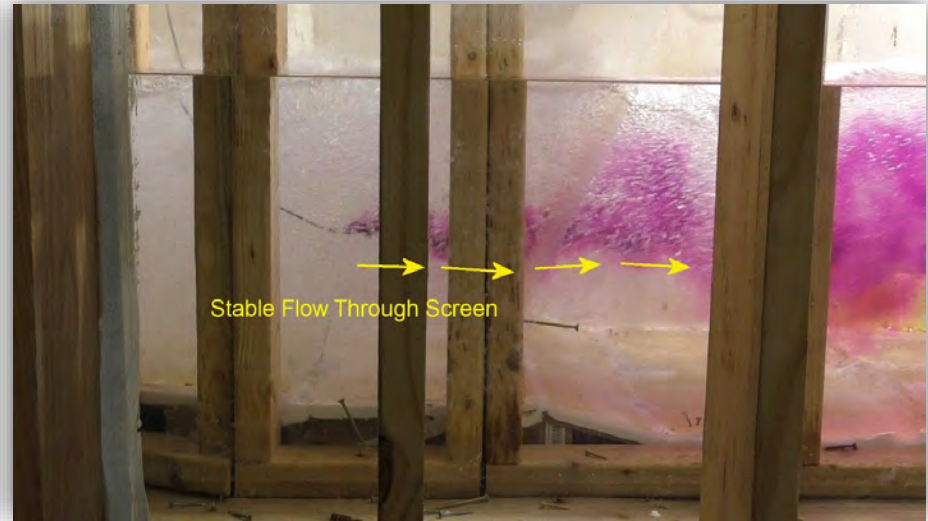
Blocks and Baffles in Scale Model



# Energy Dissipation – Physical Scale Model



Flow with No Energy Dissipation



Improved Flow with Blocks and Baffles



## This Amendment

### Time Extension

**32 months**

Evaluations delayed full start of Final Design

### Escalation for Final Design and ESDC

**\$2,219,000**

Maintains the proposed hours, at higher than anticipated salaries and 32 months later than the original schedule

### Administrative Costs

**\$738,000**

Additional administration and management for the extended 32-month Preliminary Design period.





## This Amendment

### Additional Design Items

**\$184,000**

- Support during pilot testing of energy dissipation elements
- Additional evaluations to meet new City of Boston wetlands performance standards
- Coordination with City of Boston's Resilient Moakley Park Connectors project

### Pneumatic Ejection System

**\$382,000**

Design, programming, and startup services for the pneumatic ejection system

### Allowance

**\$500,000**

Flexibility to address design issues without further delay



*Presentation to*

## **MWRA Board of Directors**

*Management, Operation and Maintenance of the Union  
Park Pump Station/CSO Facility and Unstaffed Pump  
Stations: Woodard & Curran, Contract S606, Amendment 1*

December 11, 2024



# Union Park Pump Station / CSO Facility

- Treats and pumps combined sewer overflows (CSO) from the South End of Boston and discharges to the Fort Point Channel
- Jointly owned with BWSC



Facility Location



View of facility from Malden Street





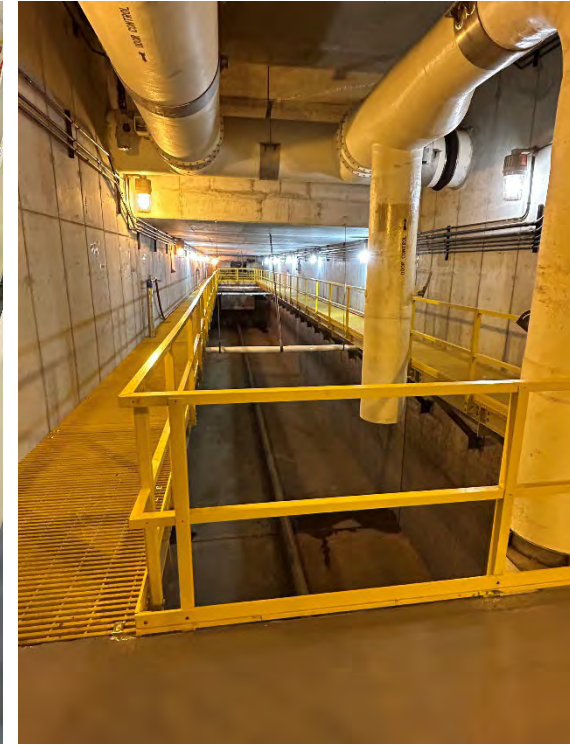
# Union Park Pump Station / CSO Facility



Gas turbine engines with right angle drives



Facility pumps



One of six detention basins



# Current Contract

- Three year contract with Woodard & Curran
- Includes operation and preventative maintenance
- Allowance for corrective maintenance and repairs
- Option for two, one-year extensions subject to Board approval
- Meet or exceed staff levels and qualifications. Performance is satisfactory.



Operator in control room at Union Park





## Amendment 1

- Two additional years
- Increase in annual service fee of 1.5% for each year
- Maintain annual allowances for maintenance and repairs
- BWSC Board of Commissioners approved on November 27, 2024

### Amendment summary

Year	BWSC	MWRA	Total
4	\$1,822,010.47	\$681,428.53	\$2,503,439
5	\$1,845,590.93	\$690,150.07	\$2,535,741
Total	\$3,667,601.40	\$1,371,578.60	\$5,039,180

- Staff recommend approval



*Presentation to*

**MWRA Board of Directors**

*MWRA Contract 7366*

*Braintree-Weymouth Pump Station Improvements  
Change Order 10*

December 11, 2024





# 7366 Braintree-Weymouth Pump Station Improvements Project Site







# 7366 Braintree-Weymouth Pump Station Improvements

## Site Conditions





# 7366 Braintree-Weymouth Pump Station Improvements Interim Odor Control System







# 7366 Braintree-Weymouth Pump Station Improvements

## New Carbon Adsorber for Odor Control System







# 7366 Braintree-Weymouth Pump Station Improvements

## Channel #2 Mechanical Screen







# 7366 Braintree-Weymouth Pump Station Improvements

## Channel #2 Process Equipment





*Presentation to*

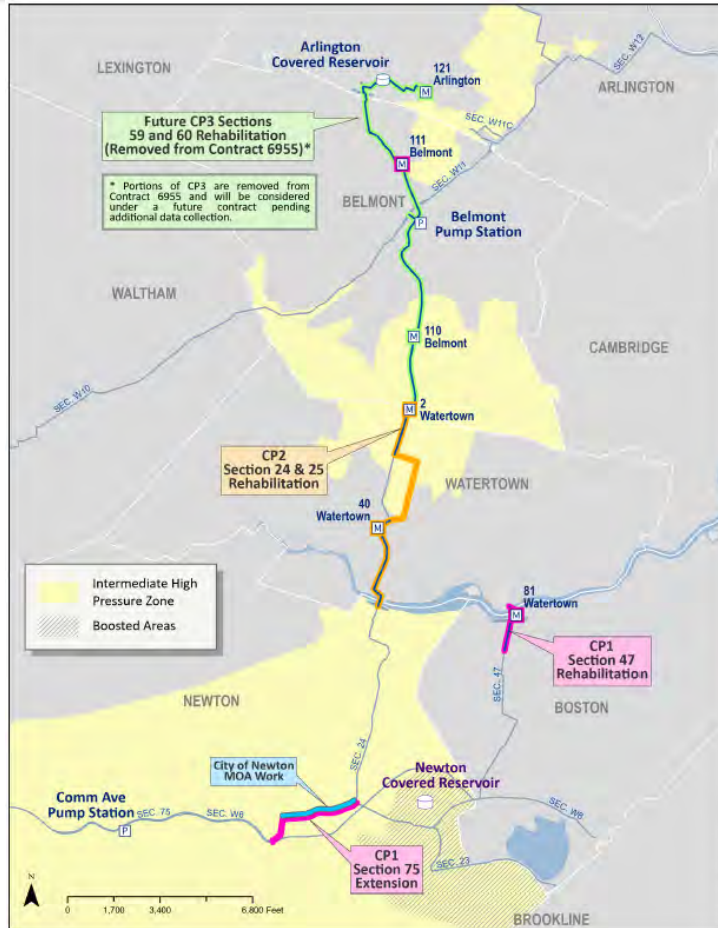
## **MWRA Board of Directors**

*Intermediate High Pipeline Improvements CP1  
Section 75A and 47, Contract 7484*

December 11, 2024



# Intermediate High Pipeline Improvements Location Map



- **Project Goals**

- Improve system reliability
- Provide hydraulic looping and redundancy between the IH Pressure zones
- Provide operational flexibility
- Improve water quality





# Intermediate High Pipeline Improvements CP1 Contract 7484

<b><u>Contractor</u></b>	<b><u>Bid Amount</u></b>
P. Gioioso & Sons, Inc.	\$22,580,000
RJV Construction Corp.	\$22,848,000
Albanese D&S, Inc.	\$25,473,000
<i>Engineer's Estimate</i>	<i>\$25,619,800</i>
Albanese Bros. Inc.	\$27,894,124

## **Lowest Bid \$22,580,000**

- MWRA work \$16,000,00
- Newton work \$5,250,000
- Allowances \$1,330,000

**Construction Duration - 30 months**



*Presentation to*

## **MWRA Board of Directors**

***MWRA Contract 7117 Northern Intermediate High  
Section 89 Replacement Pipeline  
Change Order 10***

December 11, 2024



# 7117 Northern Intermediate High Section 89 Replacement Eugene Drive Reconstruction





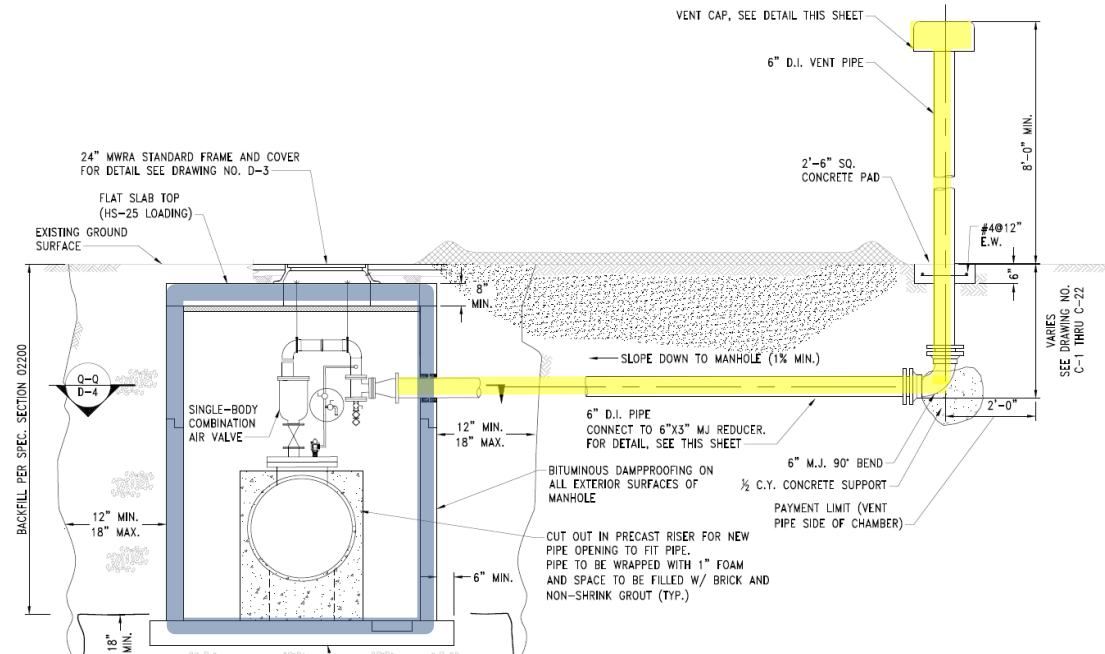


# 7117 Northern Intermediate High Section 89 Replacement Montvale Avenue Utility Conflicts





# 7117 Northern Intermediate High Section 89 Replacement Air Release Valve Vault Vent Piping







# 7117 Northern Intermediate High Section 89 Replacement Phase 3: Slip Lining Under Route 93 Exit Ramp







# 7117 Northern Intermediate High Section 89 Replacement Phase 3: Pipe in Easement between Stoneham & Winchester





*Presentation to*

**MWRA Board of Directors**

**MWRA Contract 7348  
Quinapoxet Dam Removal  
Project Update**

December 11, 2024





# 7348 Quinapoxet Dam Removal Project Site







# 7348 Quinapoxet Dam Removal River Flow in January 2024







# 7348 Quinapoxet Dam Removal River Diversion Channel







# 7348 Quinapoxet Dam Removal

## Dam Demolition







# 7348 Quinapoxet Dam Removal Dam Demolition







# 7348 Quinapoxet Dam Removal Acceleration of Peninsula Construction for Quabbin Transfer







# 7348 Quinapoxet Dam Removal Acceleration of Peninsula Construction for Quabbin Transfer







# 7348 Quinapoxet Dam Removal River Diversion Channel In Service December 6th







# 7348 Quinapoxet Dam Removal Quabbin Transfer Resumed on December 9th







# 7348 Quinapoxet Dam Removal Contractor Working during Quabbin Transfer





*Presentation to*

**MWRA Board of Directors**

***FY21-FY25 Strategic Business Plan  
Annual Update for FY24***

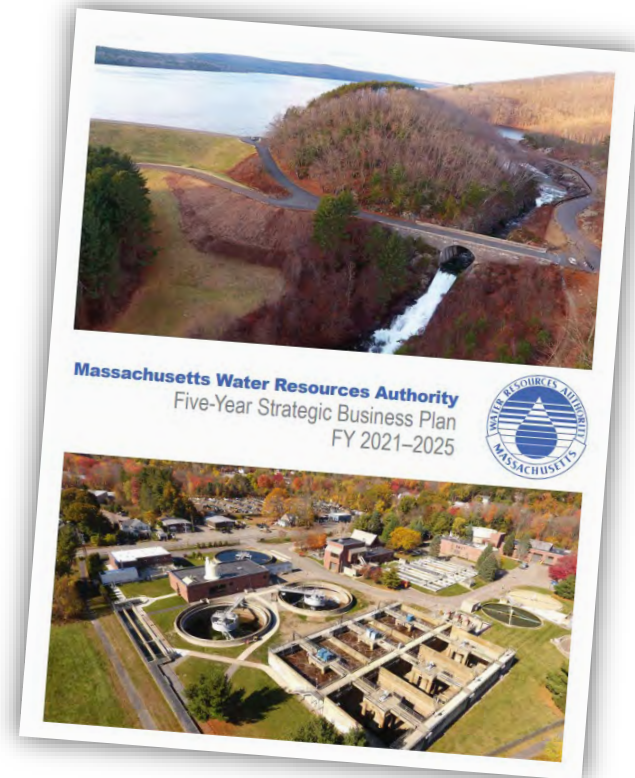
December 11, 2024



# MWRA's Five Year Business Plan FY21-FY25

## *The purpose of the Five Year Plan (and the annual update) is:*

- A tool for identifying and prioritizing strategic initiatives
- Provide transparency to ratepayers
- Measuring progress toward initiatives and/or identify potential road blocks
- Provide a bridge to the long term master plan, the CEB/CIP, and the Orange and Yellow Notebooks







# Business Plan Guiding Principals

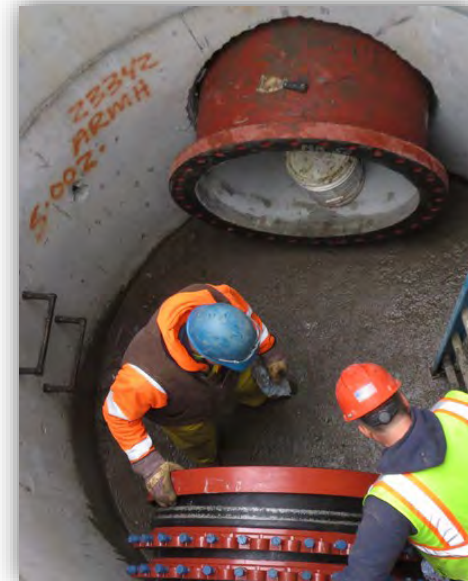
- Public Accountability & Transparency
- Cost-Effective Services
- Collaboration With Internal/External Partner
- System Resilience
- Environmental Stewardship
- Workforce Development
- Diversity, Equity & Inclusion



# Business Plan Structure

*The plan articulates goals and initiatives by six strategic areas:*

- Drinking Water Quality and System Performance
- Wastewater Management and System Performance
- Infrastructure Management and Resilience
- Finance and Systems Management
- Diversity, Equity, Inclusion and Workforce Development
- Environmental Sustainability







# Some Highlights from the FY24 Annual Update

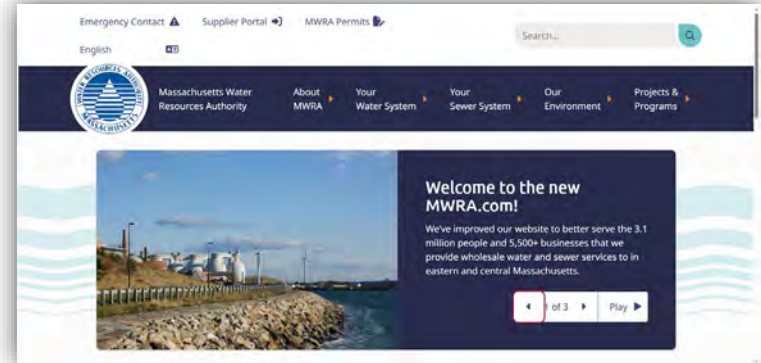
- Completed 4,055 lead and copper tests from 154 schools and childcare facilities in 35 communities.



- Completed Nut Island Improvements. Awarded 2024 Best Water/Environmental project in New England by Engineering News Record.



- Launched new MWRA.com website containing a new search functionality.





## Some Highlights from the FY24 Annual Update

- Held first annual STEM fair at Deer Island during Massachusetts STEM Week.



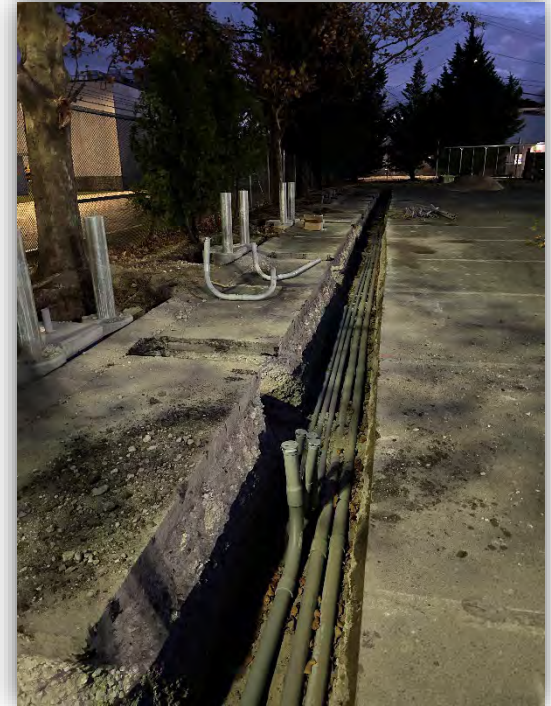
- Updated Decarbonization Standard Procedures to incorporate MWRA's and the Commonwealth's decarbonization priorities and requirements.





## Some Highlights from the FY24 Annual Update

- Funding approved to install EV infrastructure at the Chelsea Facility. Will add 15 dual port level II chargers and 5 level III smart chargers.
- Developed an Instrumentation training program for Deer Island Treatment Plant.



- Began removal of the Quinapoxet Dam.



# Completed Objectives

- Implemented subscriber-based CSO Public Notification Program.
- Implemented Sanitary Sewer Overflow reporting system.



## Combined Sewer Overflow (CSO) Notifications

Subscribe to MWRA CSO, SSO, and Blending discharge notifications

[Subscribe now](#)

A combined sewer overflow (CSO) occurs when a large storm overwhelms the sewage system causing rainwater to mix with wastewater and discharge to a nearby water body.

This relief measure prevents sewage backups into homes and businesses. MWRA owns combined sewer outfalls that discharge a mixture of stormwater and sewage to the Charles and Mystic Rivers, Alewife Brook, and Boston Harbor.

When a CSO occurs at an MWRA-owned outfall, there is a notification displayed on the map below.

[Links to CSO pages for Boston, Cambridge, Chelsea and Somerville](#)

- Updated wastewater metering system.





## Completed Objectives

- Expanded integration between MAXIMO, Lawson, Process Information (PI) and Automated Vehicle Location systems
- Expanded use of predicative management tasks increasing functionality, asset tracking and improved workflow to reduce equipment and downtime.
- Performed dam stability evaluations, and other earthquake preparedness studies to bring our facilities up to current standards, as they are rehabilitated.
- Expanded MWRA-wide recycling efforts.