

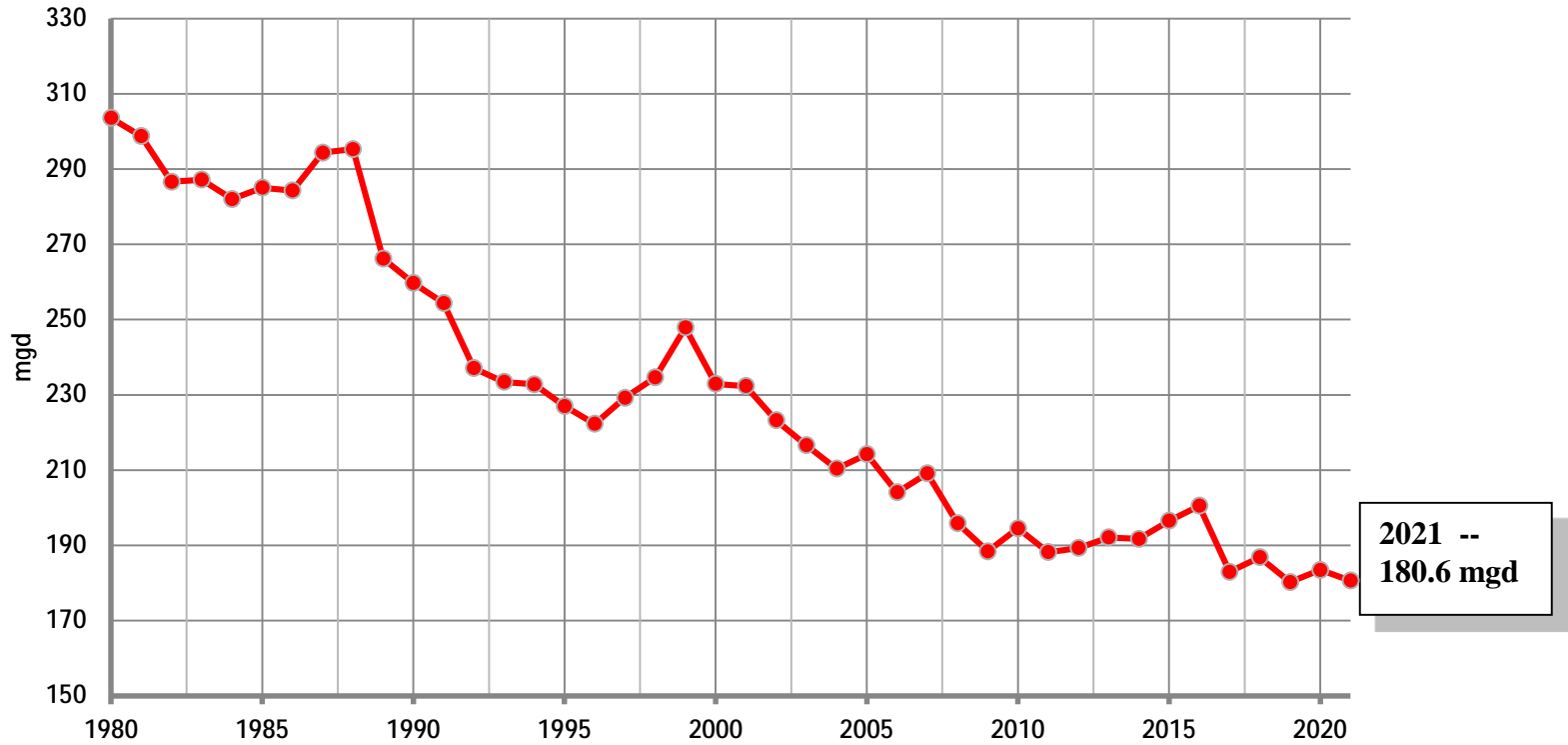


*2021 Water Use Trends and  
Reservoir Status*

February 16, 2022

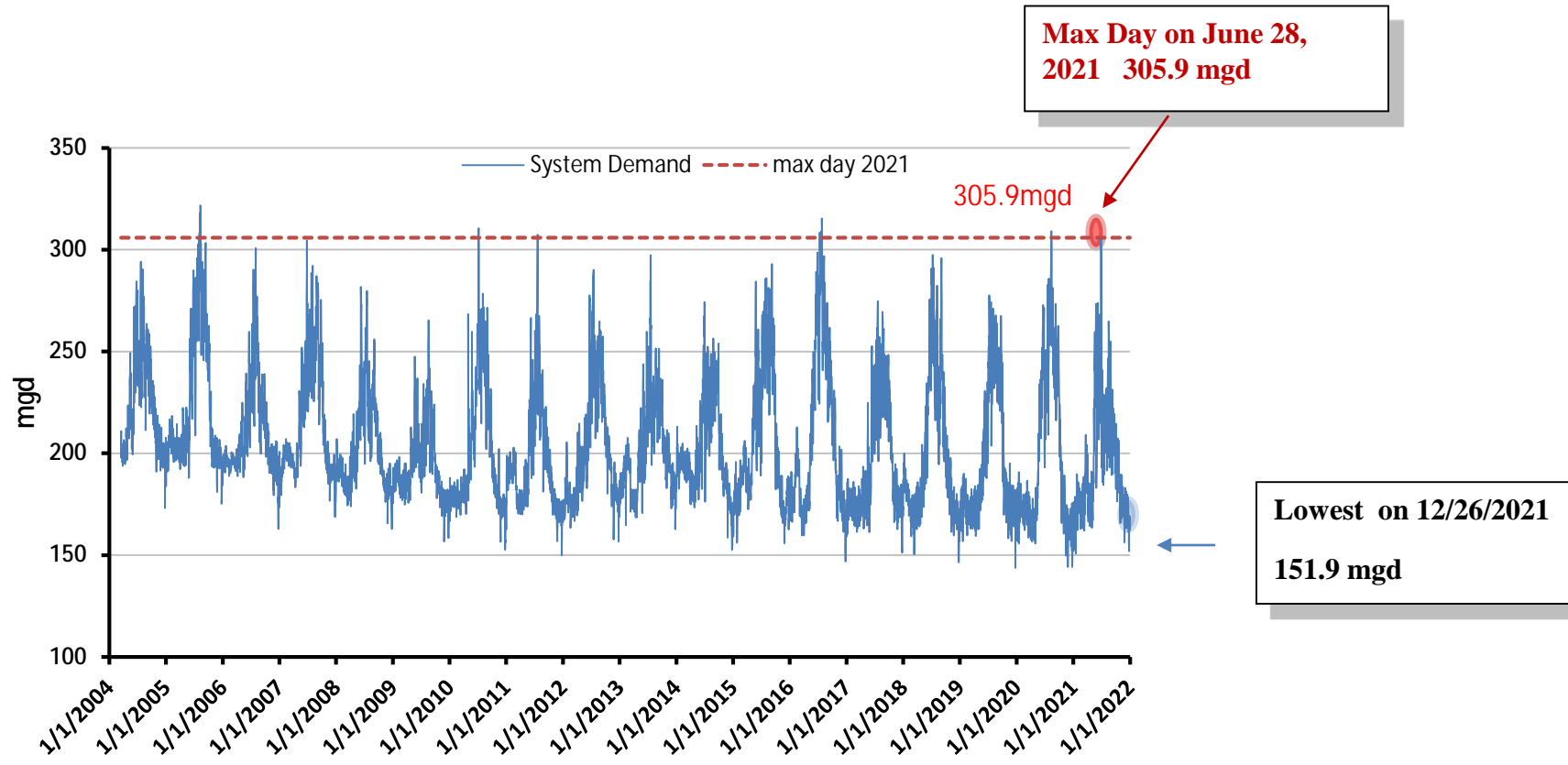


# Total Consumption by MWRA Communities (1980 to 2021)





# Daily System Demand



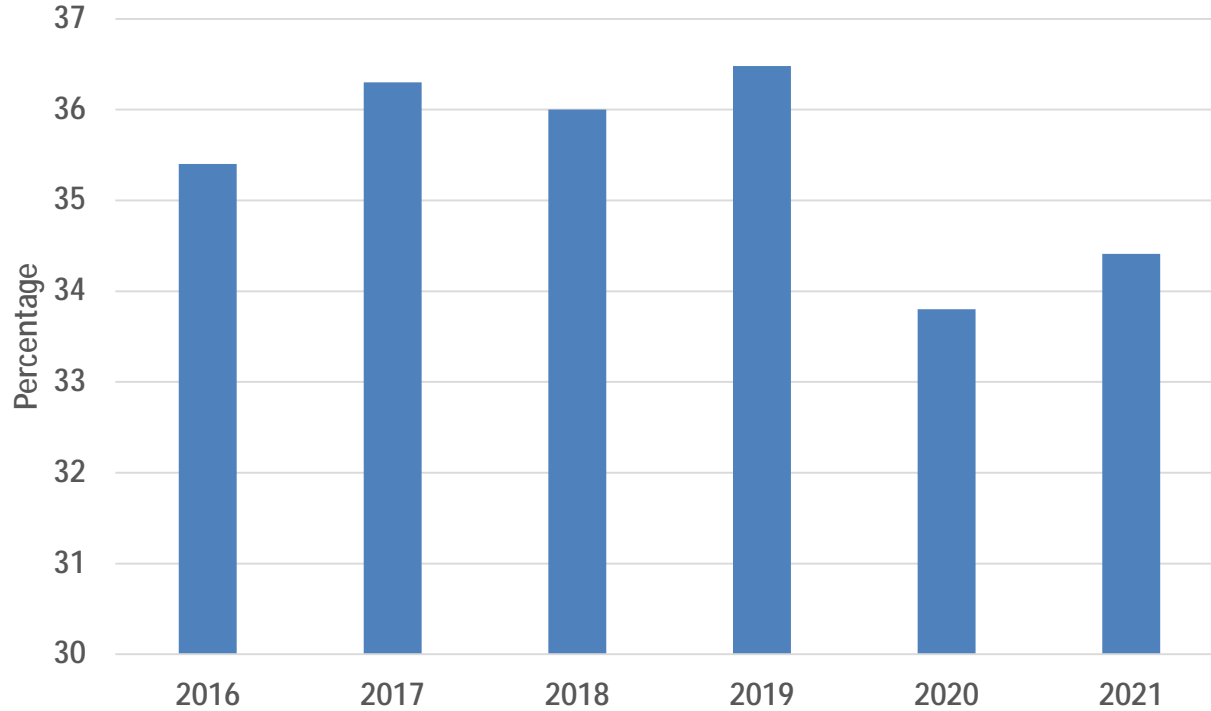


# Boston Water Use (1900 to 2021)



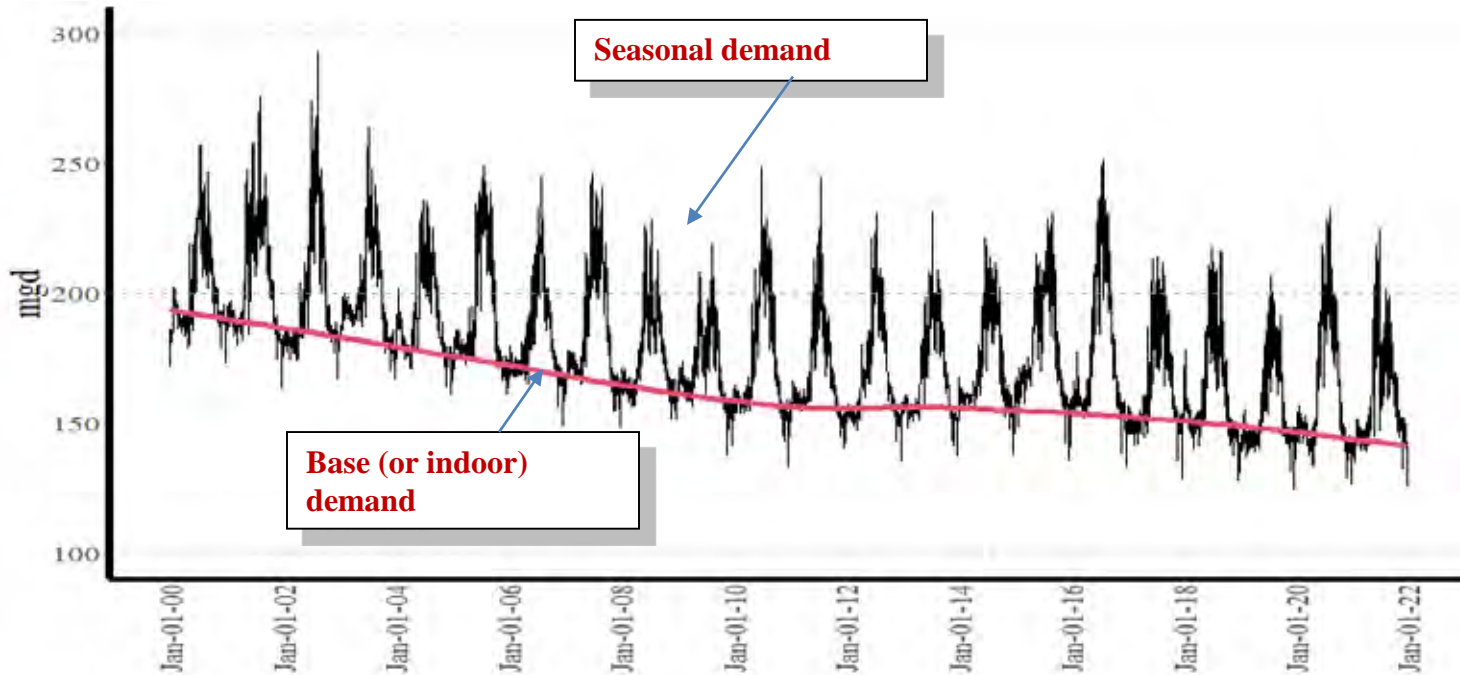


# Boston's Share of Total Demand



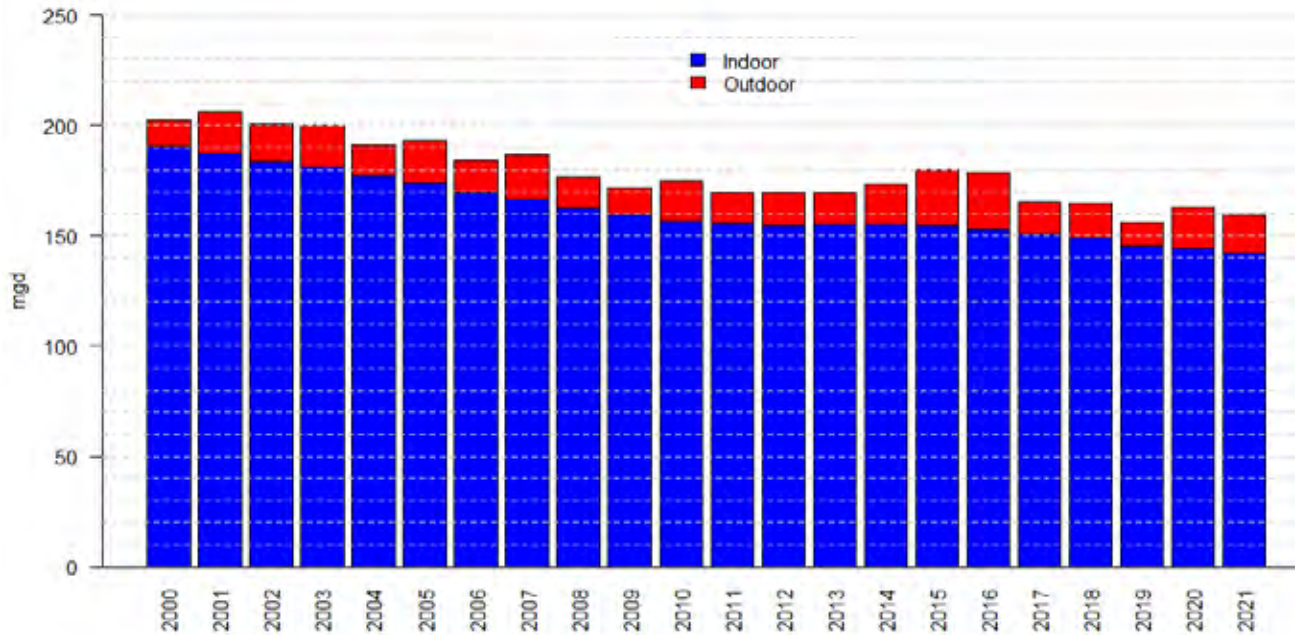


# Fully Supplied Communities Demand (2000 to 2021)



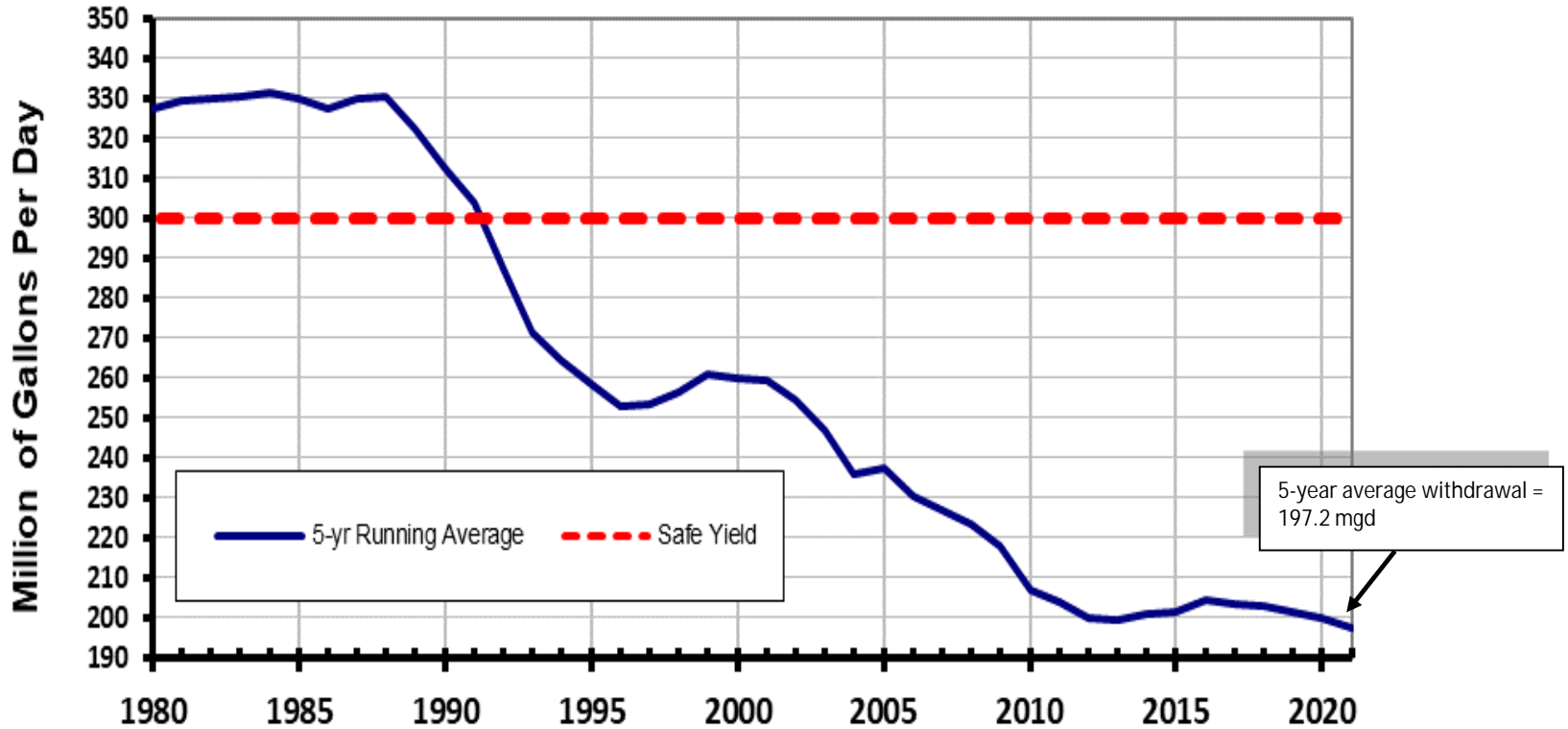


# Fully Supplied Communities (Annual Base and Outdoor Use)





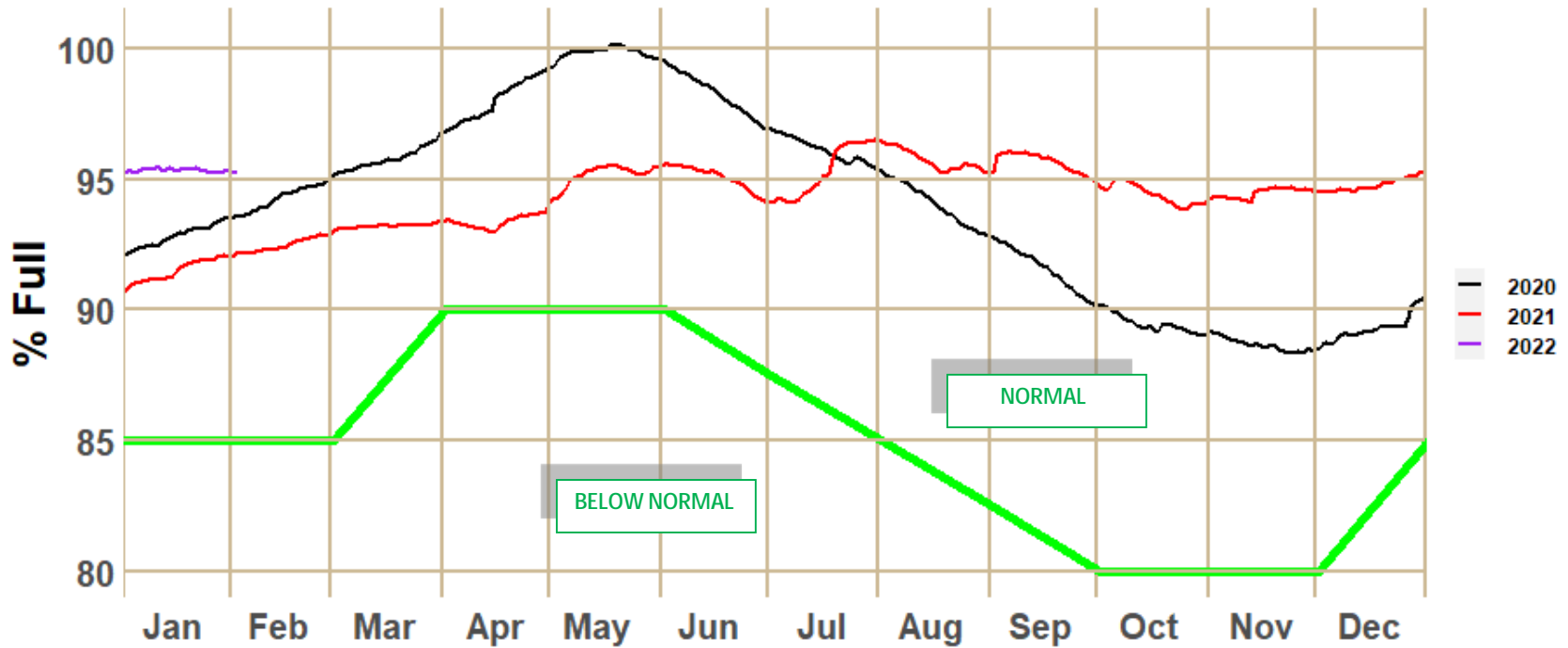
# Reservoir Withdrawals – 5 Year Running Average







# Quabbin Reservoir Volumes for 2020 to 2021





*Metropolitan Redundancy Interim Improvements  
Projects Update*

February 16, 2022



# Commonwealth Avenue Pumping Station



- Provides redundancy for City of Newton if City Tunnel taken out of service
- Alternate low service supply from WASMS 1 and 2
- New low service pumps



# New Low Service Pumps 4 and 5



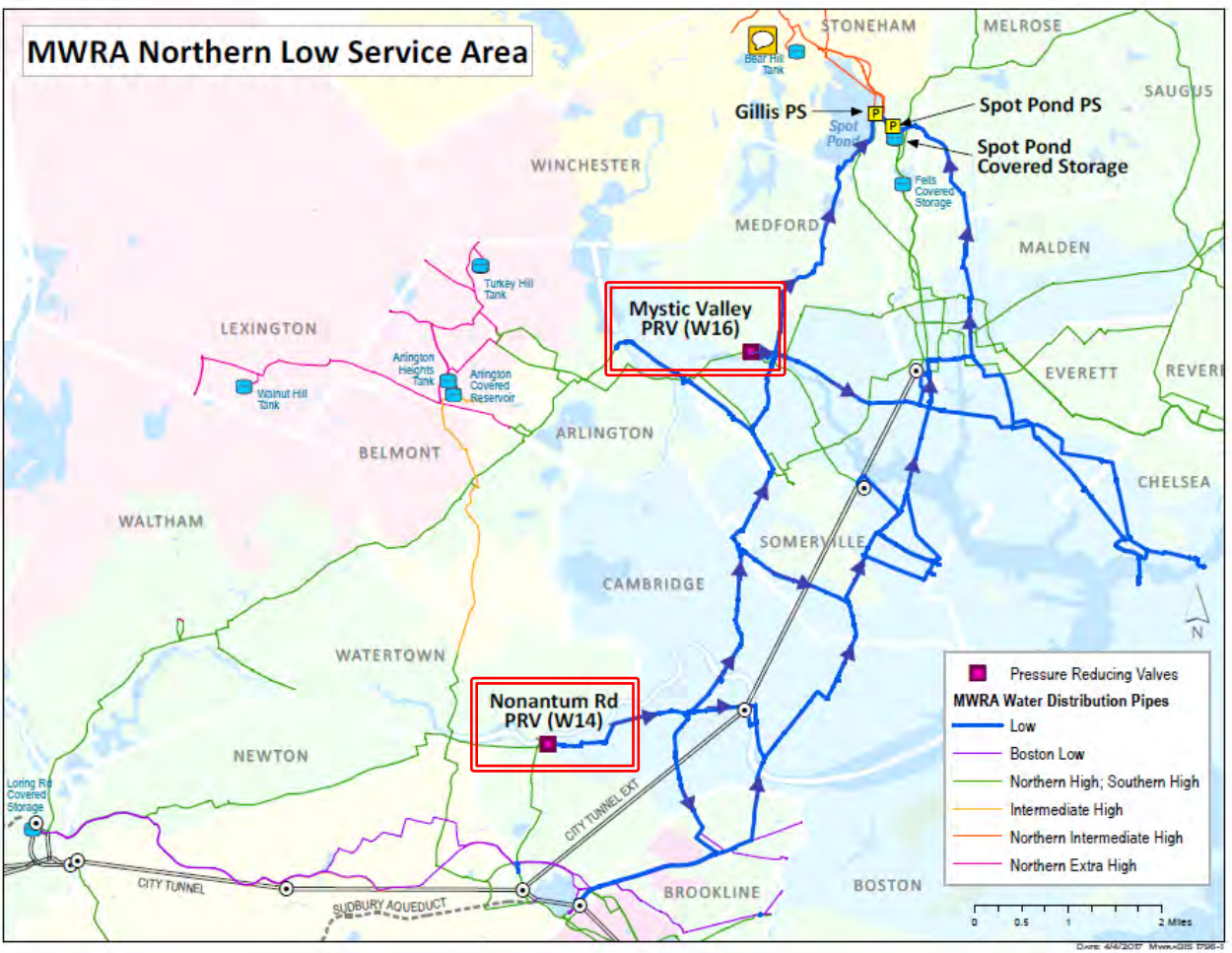


# New Service Line Connection to Low Service WASM 1 and 2





# Low Service Pressure Reducing Valve Improvements



- Increase capacity of WASM high service supply to Northern Low System
- Low service pump stations can supply Northern High Service in event of a tunnel failure



# Existing PRV Vaults



W16 Mystic Valley Parkway PRV Vault



W14 Nonantum Road PRV Vault



# Construction of New Nonantum Road PRV Vault

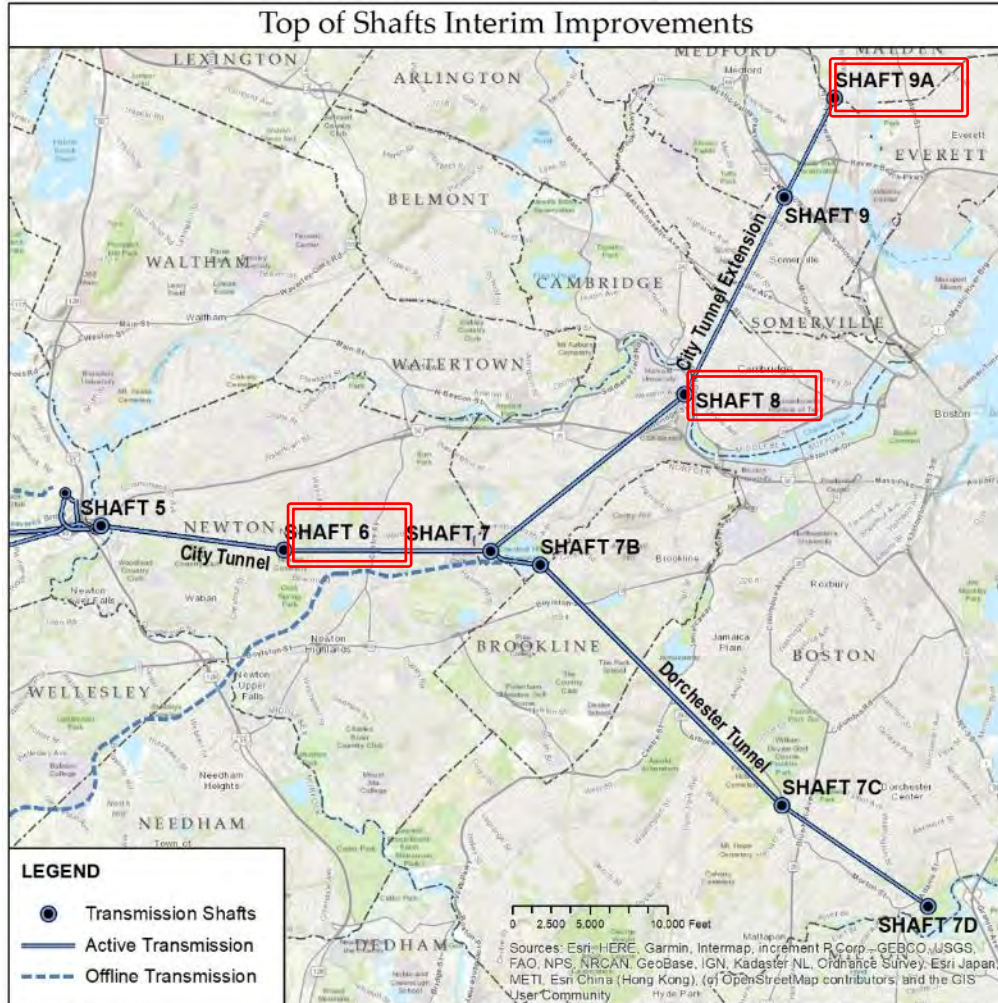






# Top of Shafts 6, 8 and 9A Interim Improvements

Top of Shafts Interim Improvements



Contract 7561 improved and protected critical facilities related to the existing tunnel system at:

**Shaft 6 – Newton**

**Shaft 8 – Brighton**

**Shaft 9A – Malden**

Future work at:

Shaft 5 – Weston

Shaft 7 – Boston College

Shaft 7B – Chestnut Hill

Shaft 7C – Dorchester

Shaft 7D – Dorchester

Shaft 9 – Somerville



# Shaft 8 Before and After Epoxy Coating





# Shaft 9A Air Valve – Before And After Encapsulating Coupling (installed by MWRA)





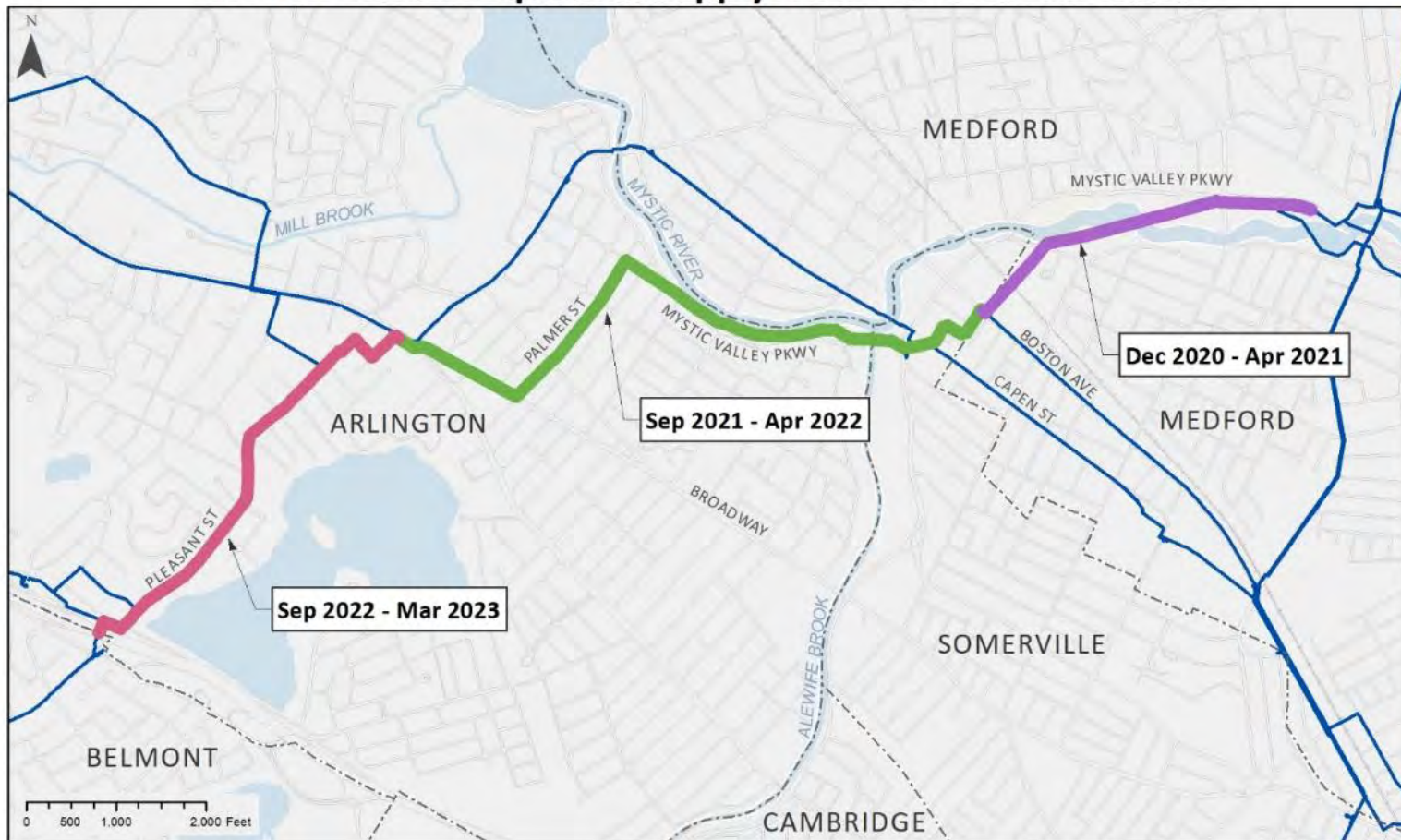
# Carbon Fiber and Wax Tape Wrap Complete





# Rehabilitation of WASM 3 (Medford, Somerville and Arlington)

## MWRA Weston Aqueduct Supply Main - CP1 Rehabilitation





# WASM3 - Existing Pipe, Cleaned Pipe, New Cement Lining





# WASM 3 - Cement Lining Machine and Conveying Machine





# WASM 3 – New Air Valve Structure







# WASM 3- Access Pits Over 60-inch Pipeline





# Chestnut Hill Pump Station Design



- New connection to provide isolation of pumping station in the event of failure of the City or Dorchester Tunnels
- Allows pumping from Chestnut Hill Reservoir to Southern High and Southern Extra High service areas in emergency

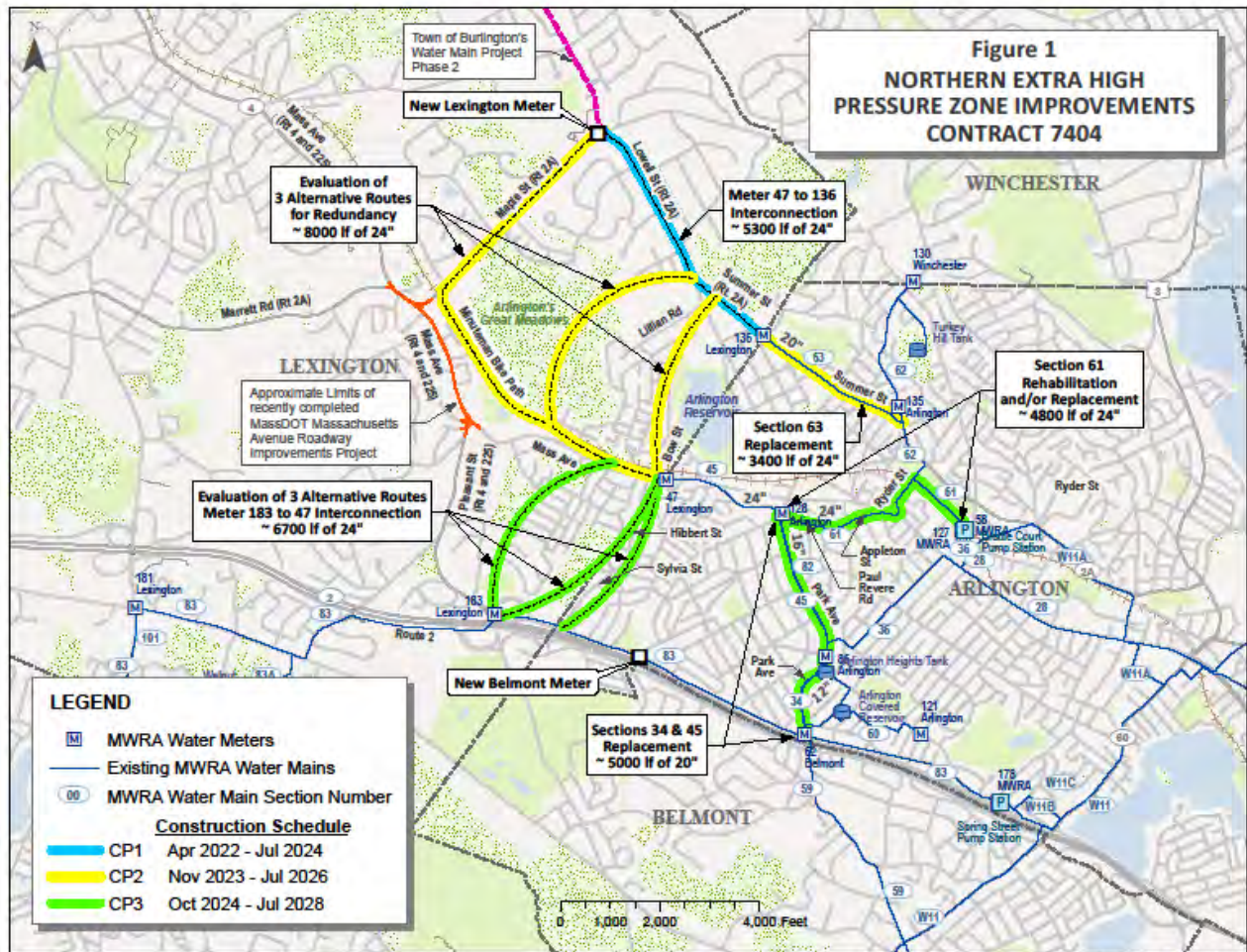


*Northern Extra High Pressure Zone  
Improvements Section 63 (Lexington)  
Contract 6522*

February 16, 2022



# Project Schematic



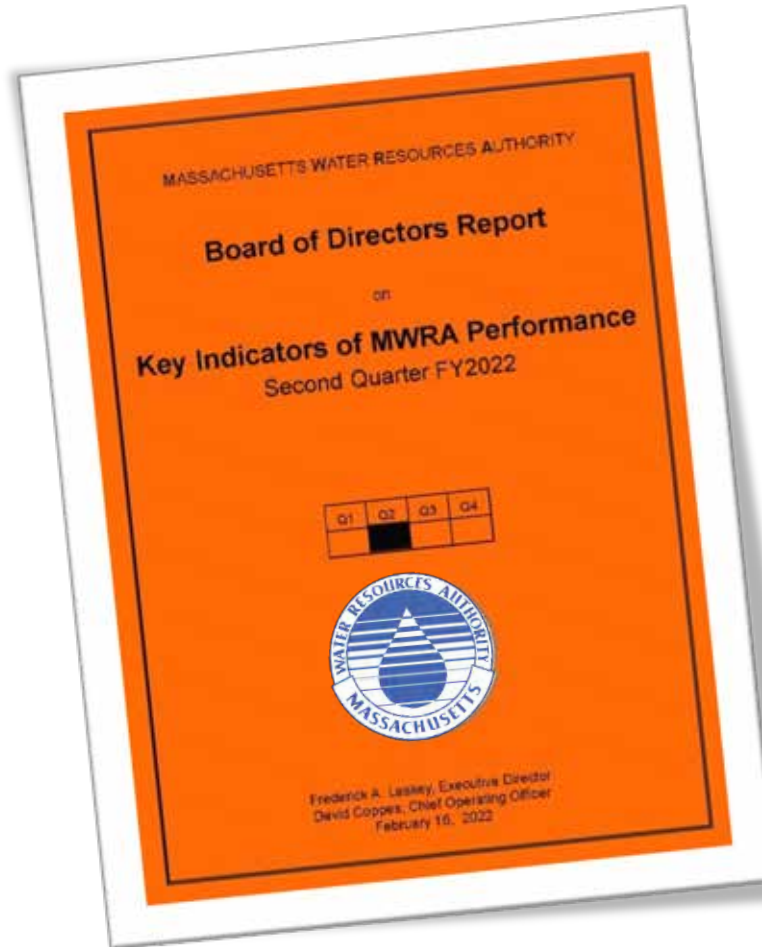


## Contract 6522 Bid Results

Bidders	Bid Amount
<i>Engineer's Estimate</i>	<i>\$9,625,000</i>
GVC Construction, Inc.	\$10,919,410*
Albanese, D&S, Inc.	\$11,737,000
R. Zoppo, Corp.	\$12,596,500
RJV Construction Corp.	\$12,632,500
Revoli Construction Co. Inc.	\$12,952,500



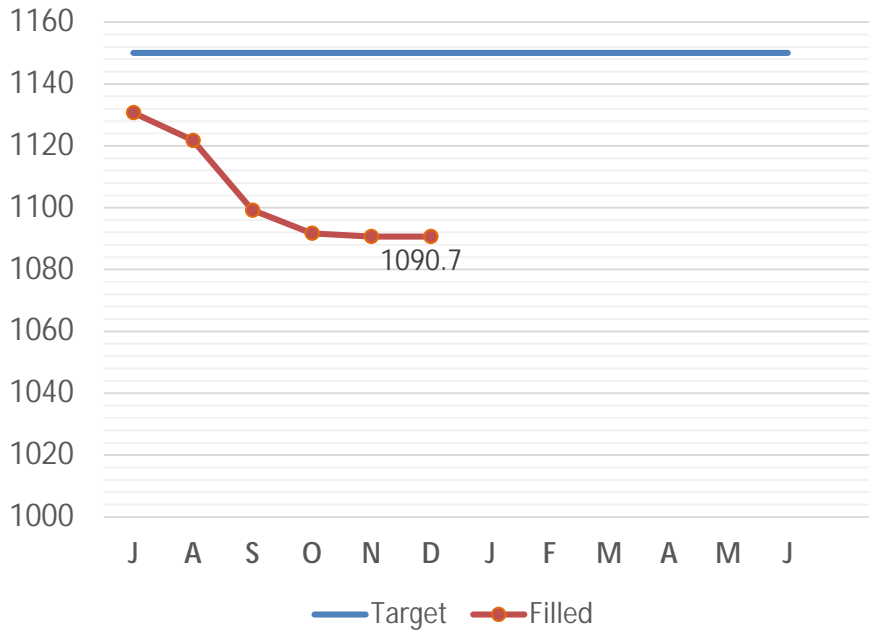
# Massachusetts Water Resources Authority





# Staffing

## FTE TRACKING



FY22 Target for FTEs = 1150

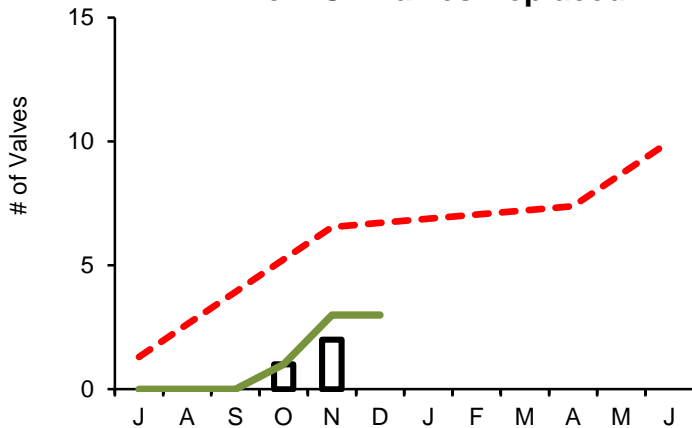
FTEs as of December 2021 = 1,090.7

Tunnel Redundancy as of December 2021 = 10



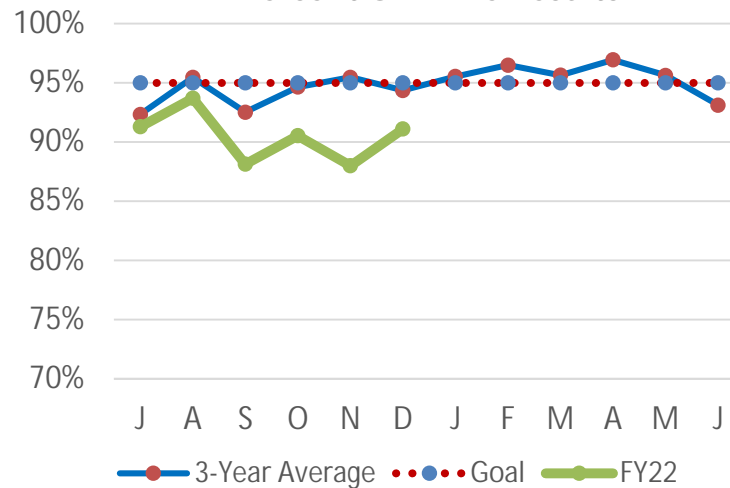
# Staffing Impacts

### Blow-Off Valves Replaced



Q2-FY22 there were three blow off valves replaced. The total replaced for the fiscal year to date is three. Below target due to isolation and permit issues and staff vacancies.

### Percent On-Time Results

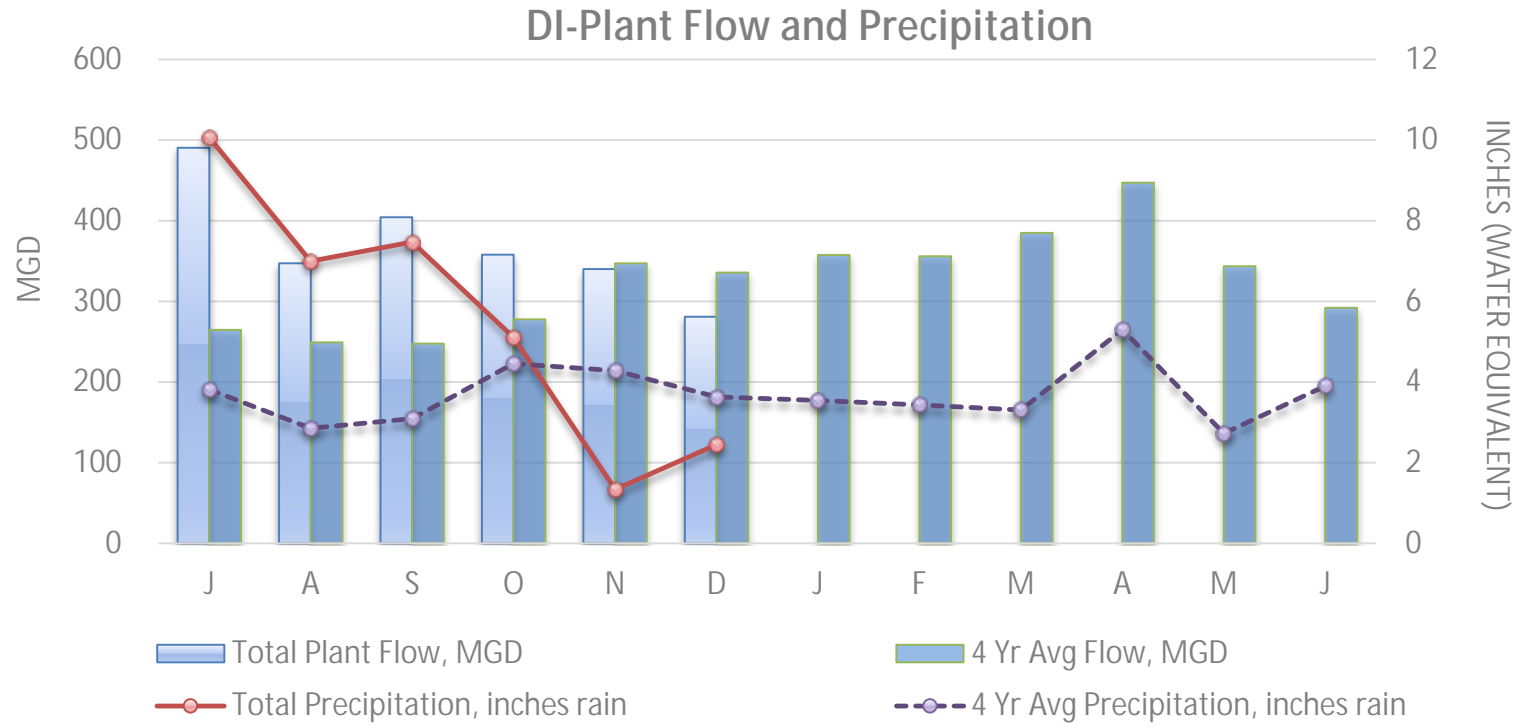


The Percent On-Time measurement fell below the 95% goal due to staffing vacancies





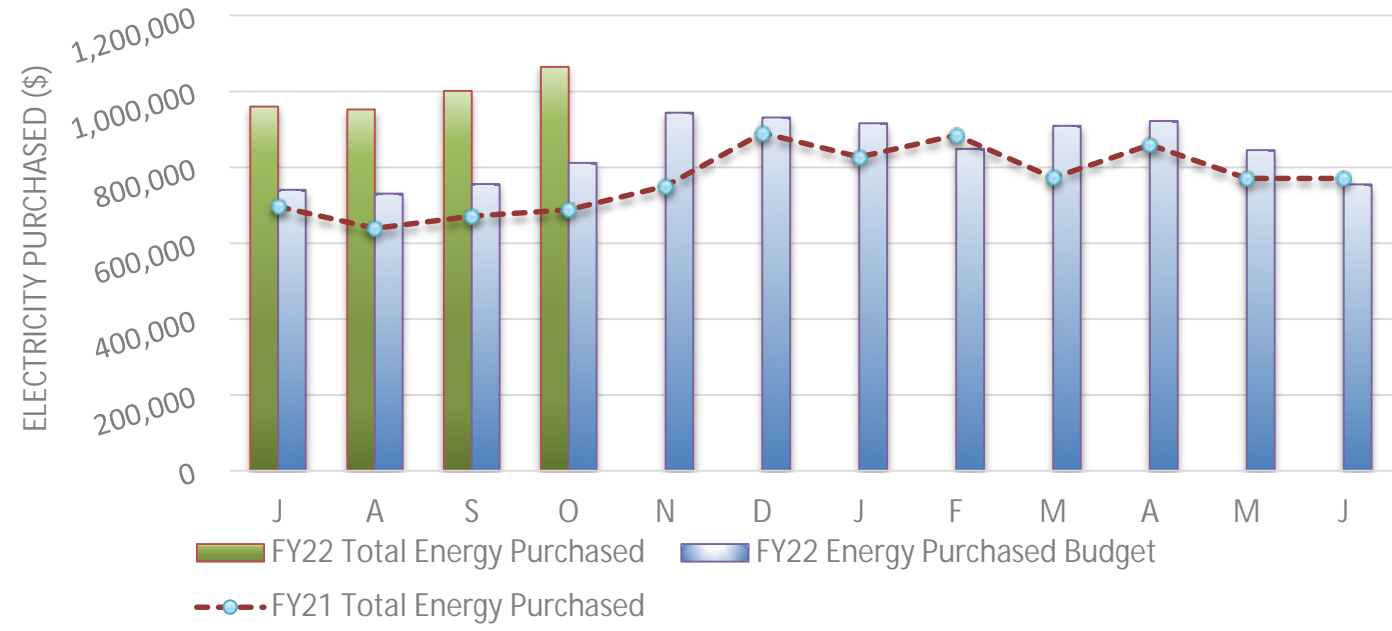
# Deer Island Flows





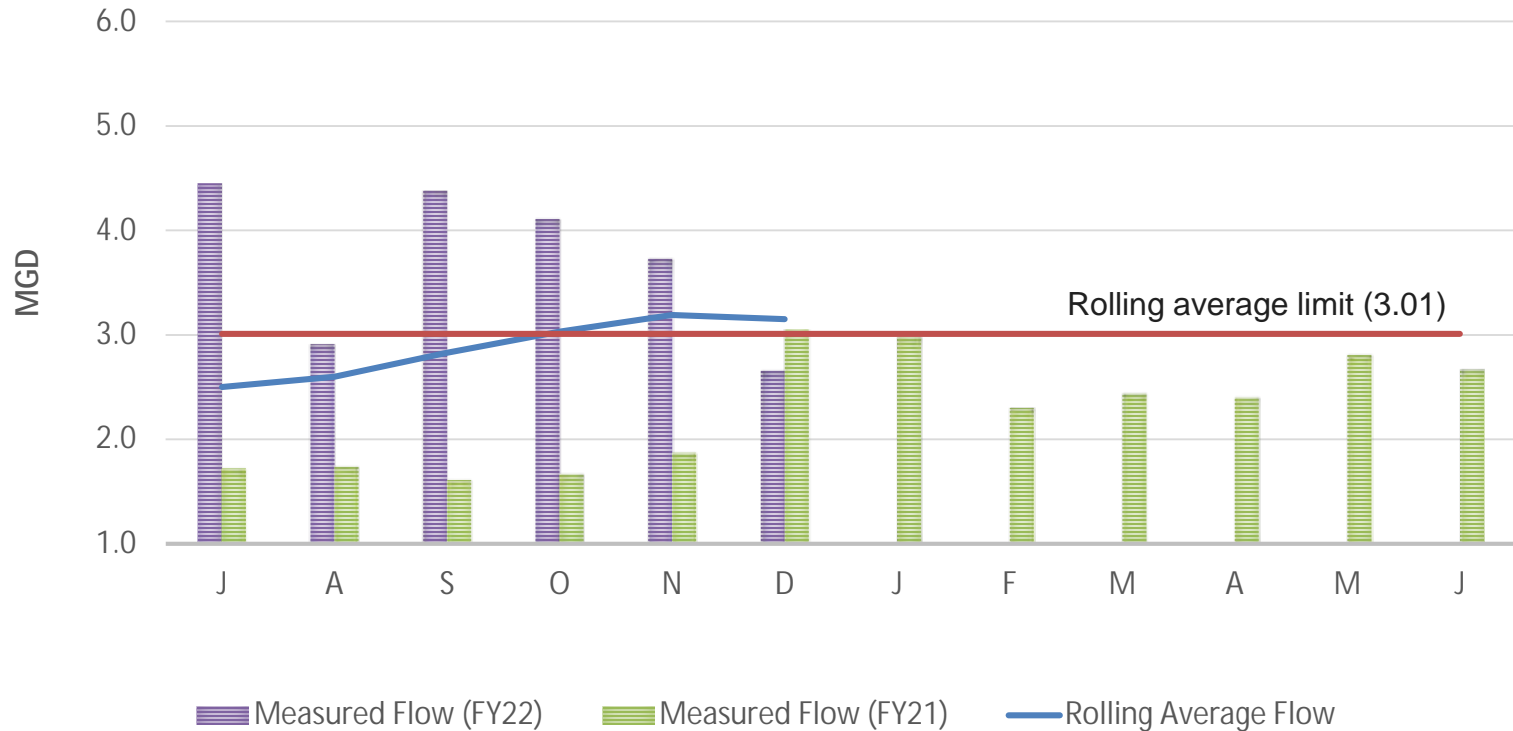
# Energy Costs - Deer Island

## Total Cost of Electricity



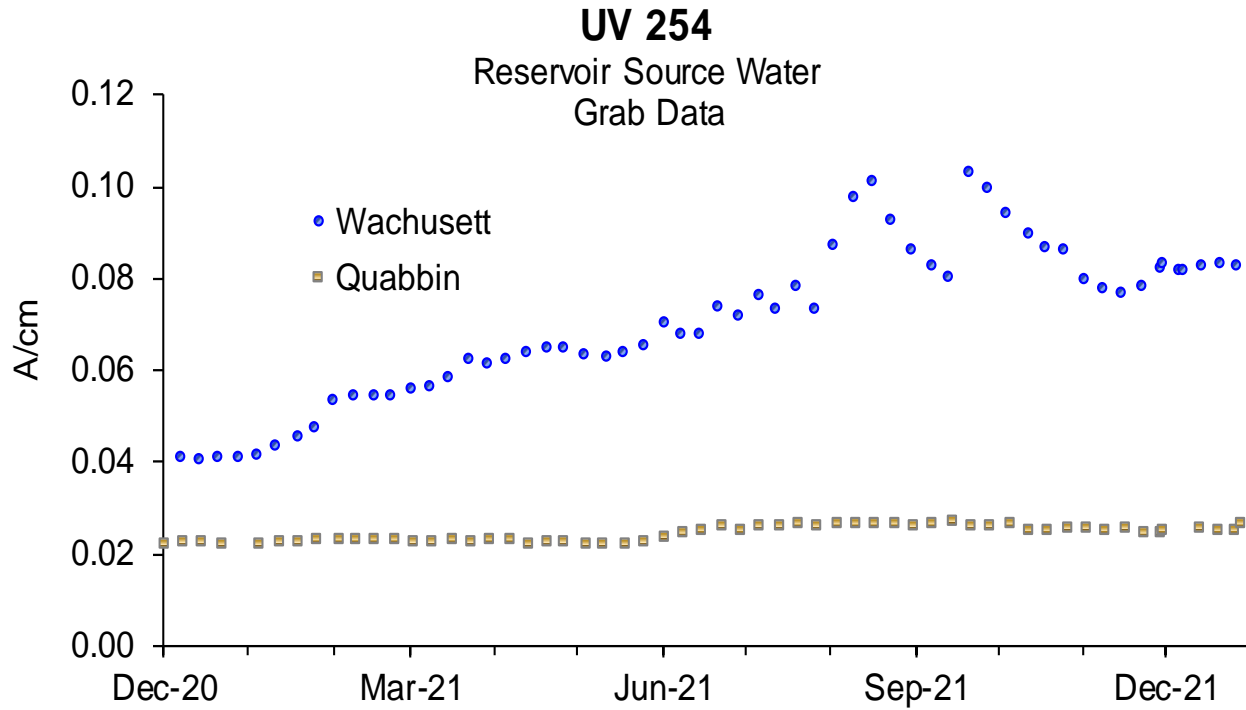


# Clinton Wastewater Treatment Plant Flow





# Reservoir Water Quality



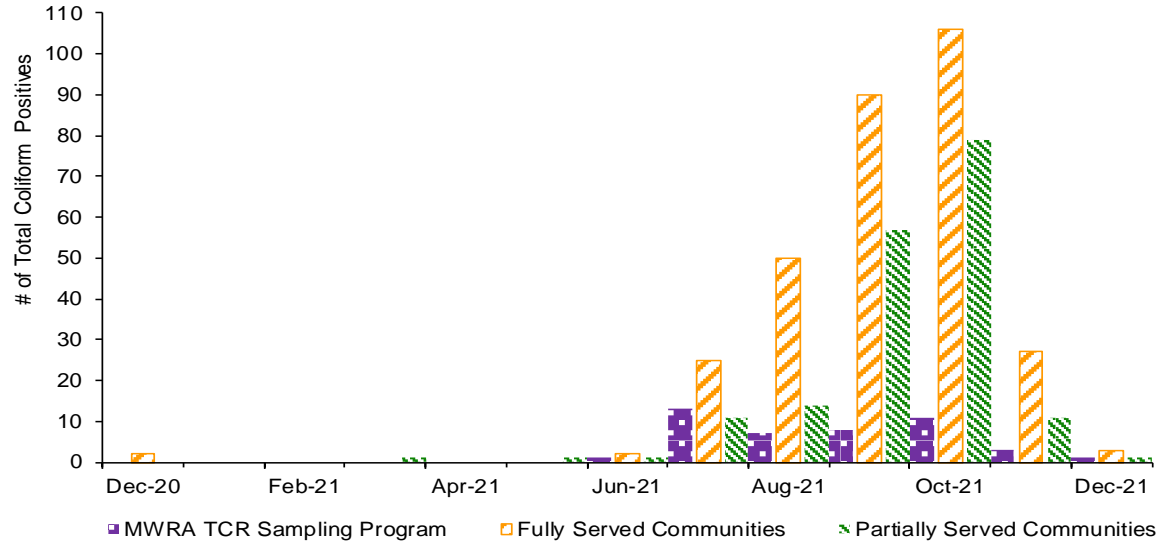


# Distribution System Water Quality

## Chlorine Residuals in Fully Served Communities

	2020	2021											
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
% <0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.7	0.9	0.5	0.4
% <0.2	0.4	0.2	0.1	0.0	0.0	0.0	0.2	0.7	1.3	2.8	3.1	1.7	0.8
% <0.5	2.5	1.9	0.8	0.2	0.3	0.2	0.6	2.6	6.0	12.3	10.9	7.4	2.8
% <1.0	5.3	3.6	2.5	1.5	2.0	1.0	2.1	8.6	17.3	27.9	26.2	15.7	7.3
% ≥1.0	94.7	96.5	97.6	98.5	98.0	99.0	97.9	91.4	82.7	72.1	73.8	84.4	92.7

## Monthly Total Coliform Positives



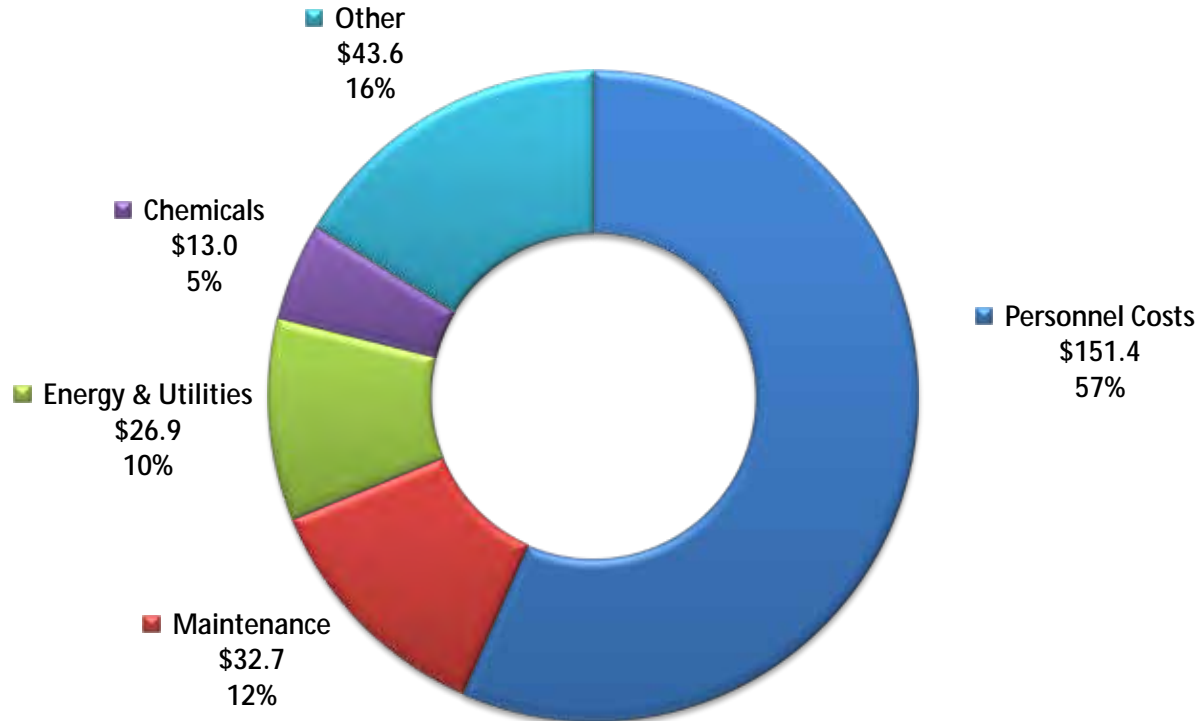


*MWRA Fiscal Year 2023  
Proposed Current Expense Budget*

February 16, 2022



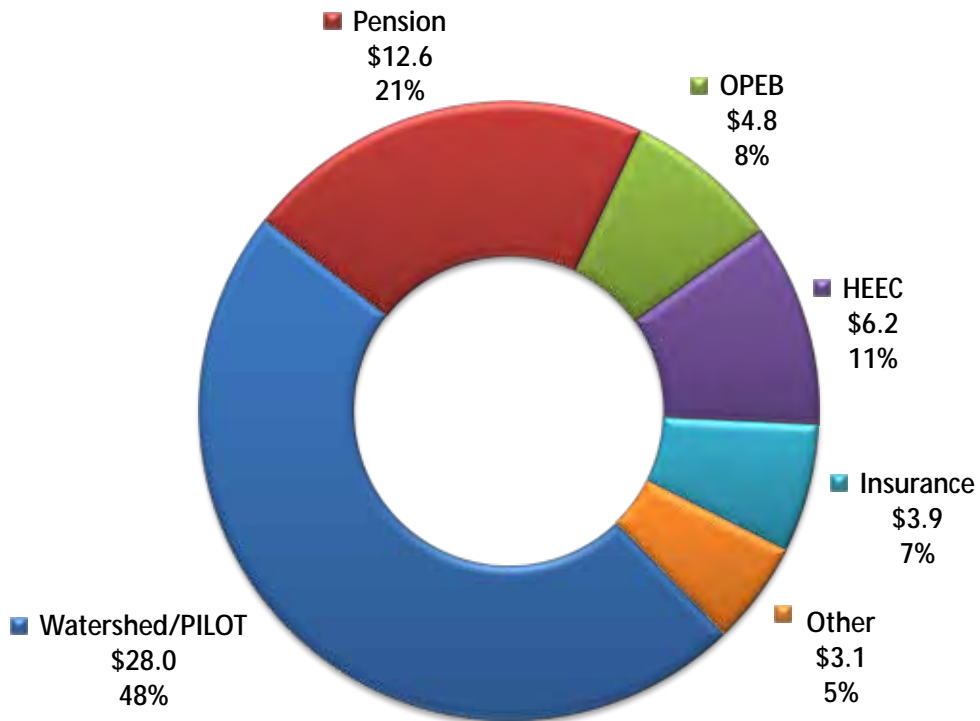
## Direct Expenses by Category *(\$s in millions)*





## Indirect Expenses by Category

*(\$s in millions)*

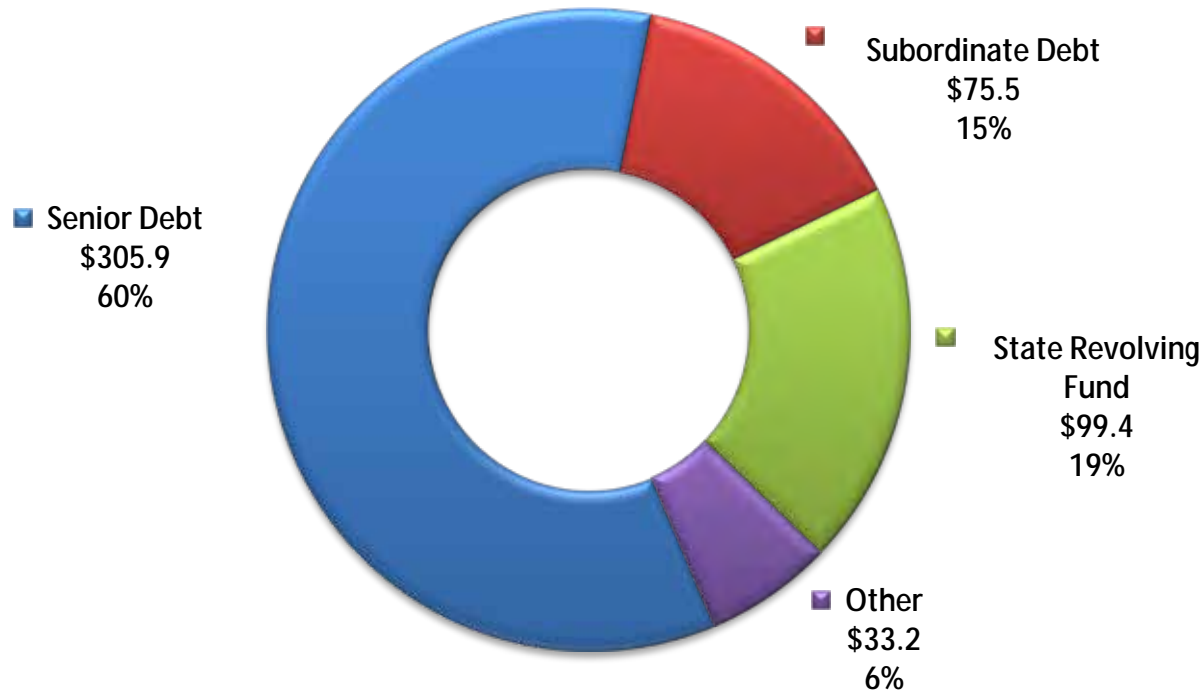






## Capital Financing by Category

(\$s in millions)

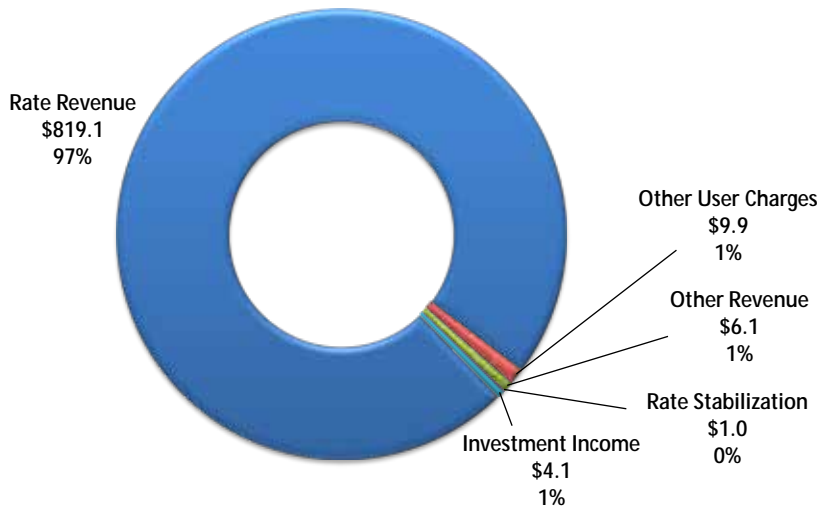




# FY23 Proposed CEB Budget Structure – Non-Rate Revenue

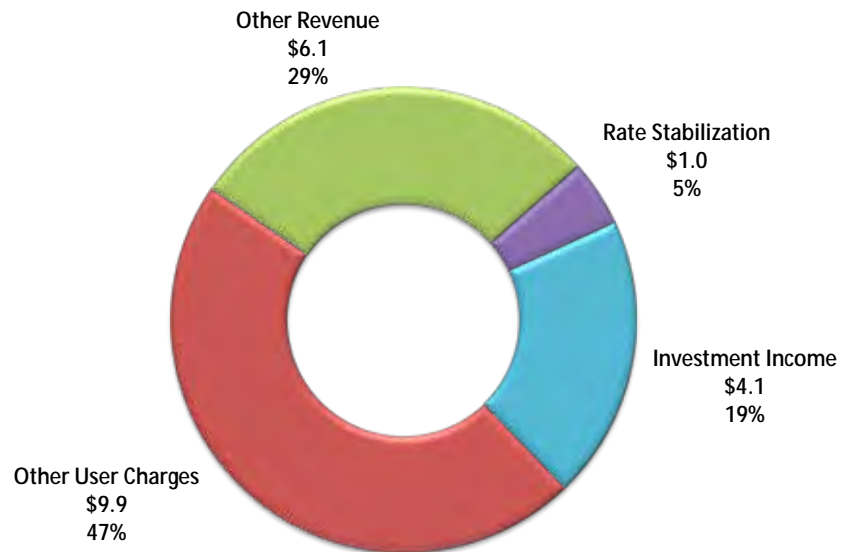
## Revenue

(\$s in millions)



## Non-Rate Revenue

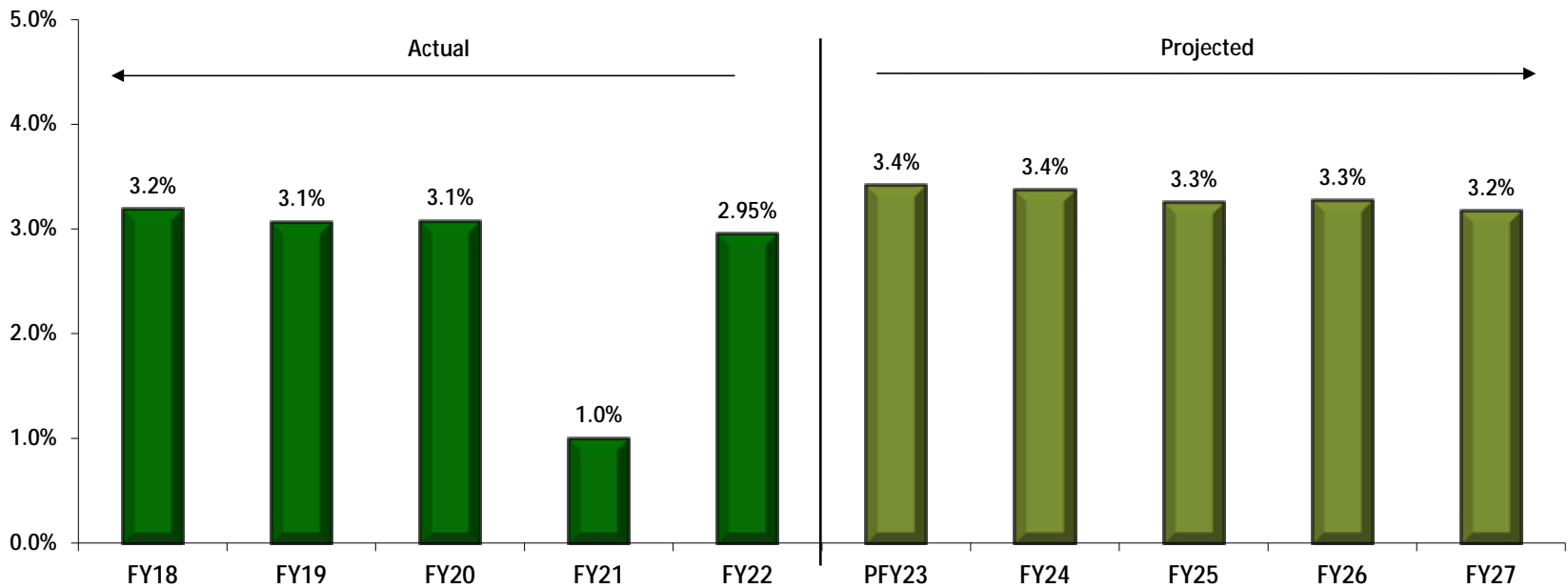
(\$s in millions)





# FY23 Proposed CEB – Rate Projections (Combined Utilities)

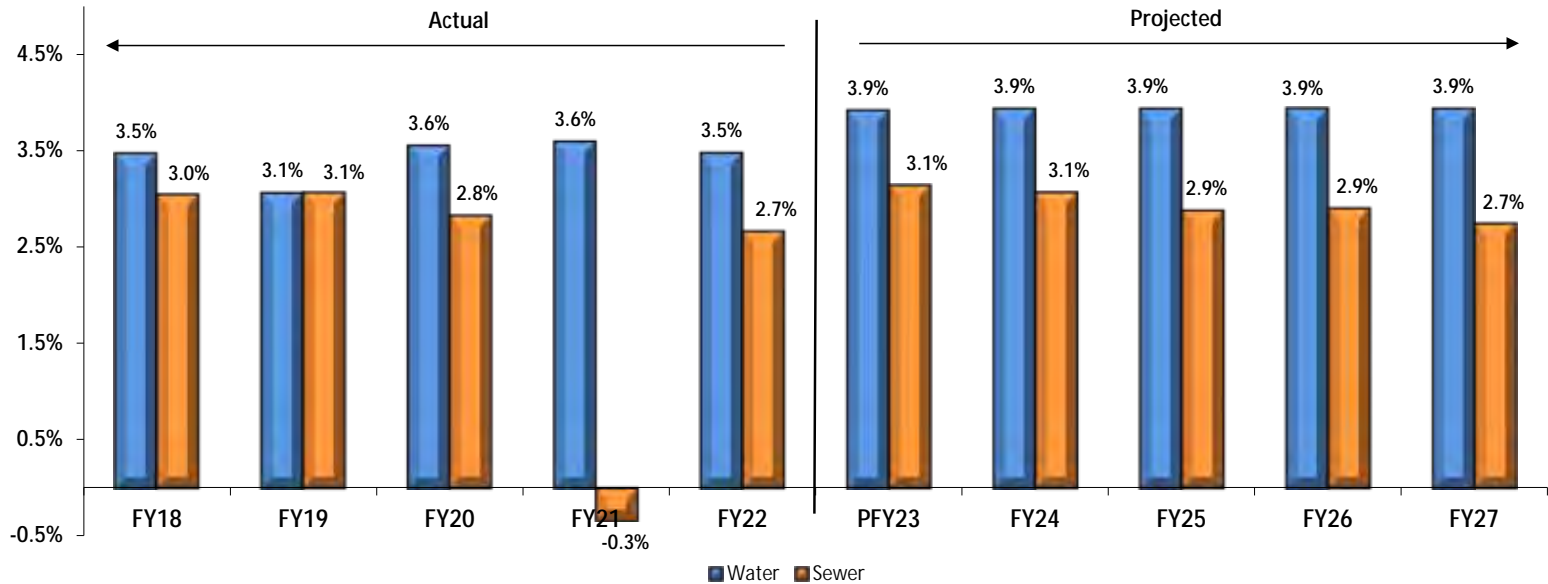
MWRA Combined Utilities  
Historical and Projected Rate Revenue Changes





# FY23 Proposed CEB – Rate Projections (By Utility)

MWRA Water & Sewer Utilities  
Historical and Projected Rate Revenue Changes





*Proposed Amendments to  
Management Policies*

February 16, 2022



# Proposed Amendments to Management Policies

Category	Delegate	Current Delegation	Proposed Delegation
Purchasing	Executive Director	\$1,000,000	\$3,500,000
	Director of Administration	\$35,000	\$120,000
	Director of Procurement	\$25,000	\$90,000
	Purchasing Manager	\$5,000	\$20,000
	Authorized Representative	\$2,000	\$10,000
Purchasing Amendments	Executive Director	25% of original contract or \$250,000 and not more than 6 months.	25% of original contract and not more than 6 months.
Chemical Purchases	Executive Director	N/A	\$15,000,000
Construction Contracts	Executive Director	\$1,000,000	\$3,500,000
Change Orders	Executive Director	25% of original contract or \$250,000 and not more than 6 months.	25% of original contract or not more than \$1,000,000 and not more than 6 months.
Professional Services (With an Individual)	Executive Director	\$50,000 and 12 months	\$200,000 and 24 months
Professional Services (With a Firm)	Executive Director	\$100,000 and 12 months	\$1,000,000 and 36 months
Non-Professional Services	Executive Director	\$250,000	\$1,000,000
Professional and Non-Professional Services	Director of Administration and Chief Operating Officer	\$35,000 and 12 months	\$350,000 and 12 months
	Deputy Chief Operating Officer, Director of Finance and General Counsel	\$10,000 and 12 months	\$100,000 and 12 months
	Authorized Designee	\$5,000 and 12 months	\$50,000 and 12 months
Amendments	Executive Director	25% of original contract or \$250,000 and not more than 6 months.	25% or \$500,000 and not more than 12 months. Re-delegation from the Board consistent with Change Orders
Temporary Delegation of Authority (All Categories)	A designee duly authorized in writing by the Executive Director		All approvals delegated to the Executive Director

## Other Proposed Changes:

- Human Resources
  - Board only approves appointment of non-union staff
  - PCR Amendments for title or cost center under Executive Director's delegated authority
- Law
  - Approval of claims under Executive Director's delegated authority increased from \$100,000 to \$300,000



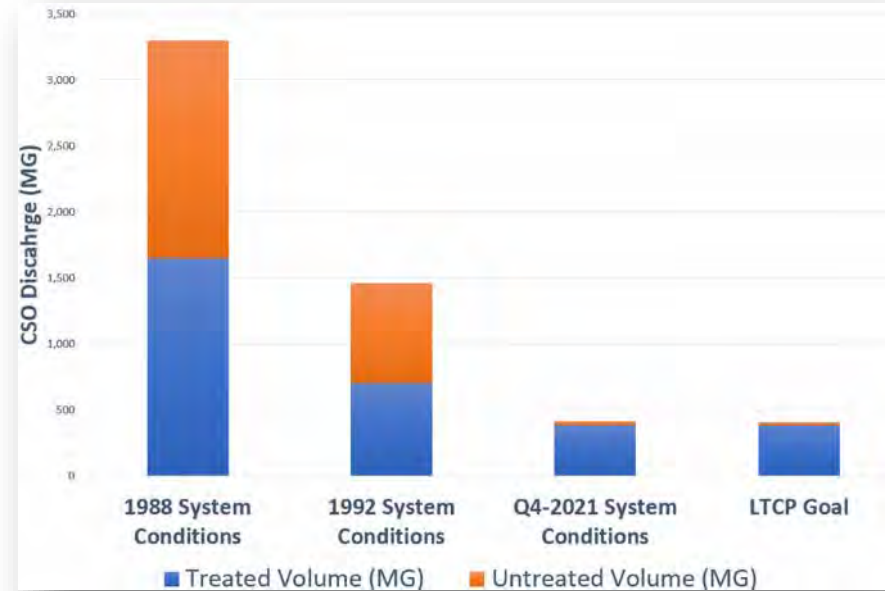
*CSO Post-Construction Monitoring and  
Performance Assessment  
Contract 7572, Amendment 3*

February 16, 2022



# Long-Term CSO Control Plan

- CSO annual discharge volumes
  - Down to 87% of 1988 levels
  - Reduced by 2.8 billion gallons
  - 93% treated
- Completed 35 projects/184 Milestones
- Total program cost - \$911M
- Final Performance Assessment report
  
- Demonstrated water quality Improvements
- Future Challenges

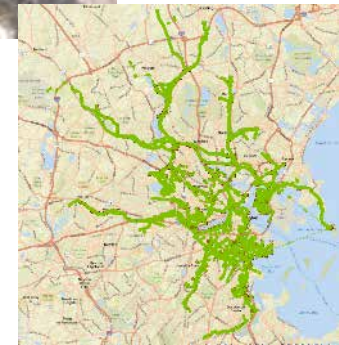






# This Contract

- Assessment of program achievements:
  - Documentation of system improvements
  - Hydraulic model update to determine outfall performance
  - Receiving water models to understand water quality improvements
- Support development of required reports
- System optimization evaluations to support variances





# Proposed Amendment

3 year extension to:

- Updated CSO Control Plan (variance requirement)
- Program Support
- Additional Investigations and Tracking of 16 CSO Outfalls
- Assist with Annual Progress Reports
- Assist with Supplement to Final Report

