Massachusetts Water Resources Authority

Quinapoxet Dam Removal Progress Update

February 12, 2025

Dam Removal Time-lapse

River Restoration

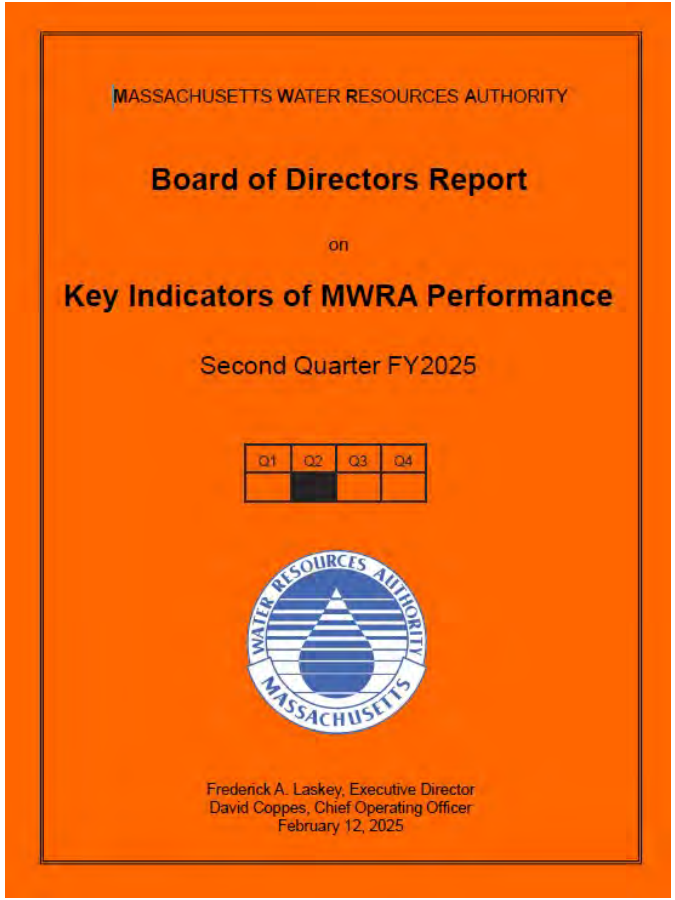
Restored Riverbed and Diversion Channel

Restored Riverbed

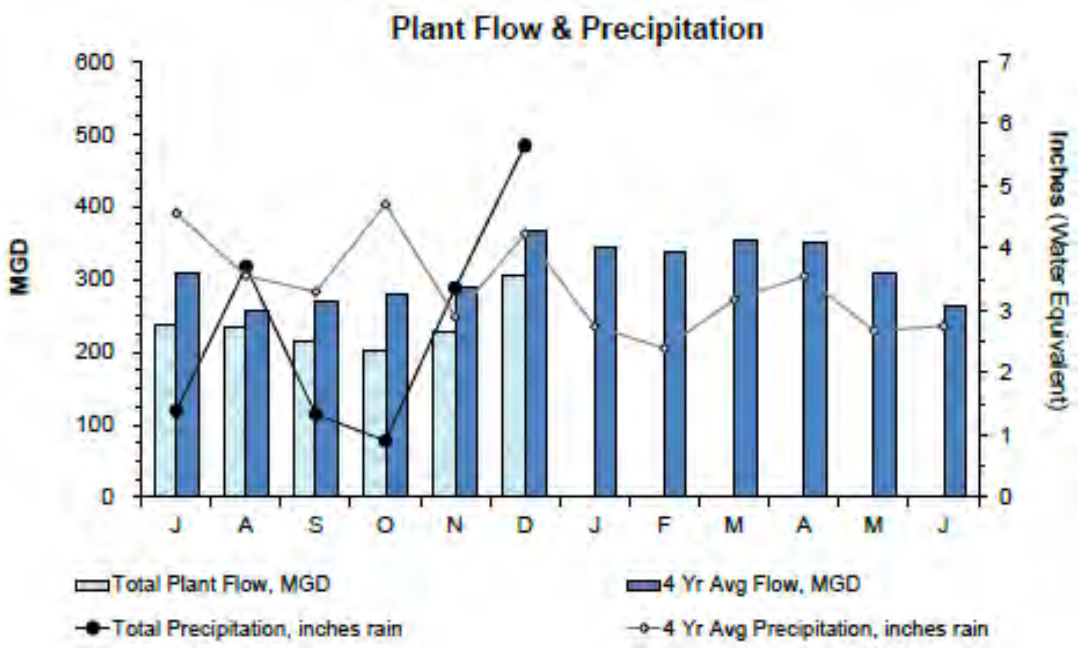
Riffles and Pools

Looking Upstream

FY25 Second Quarter Orange Notebook Highlights

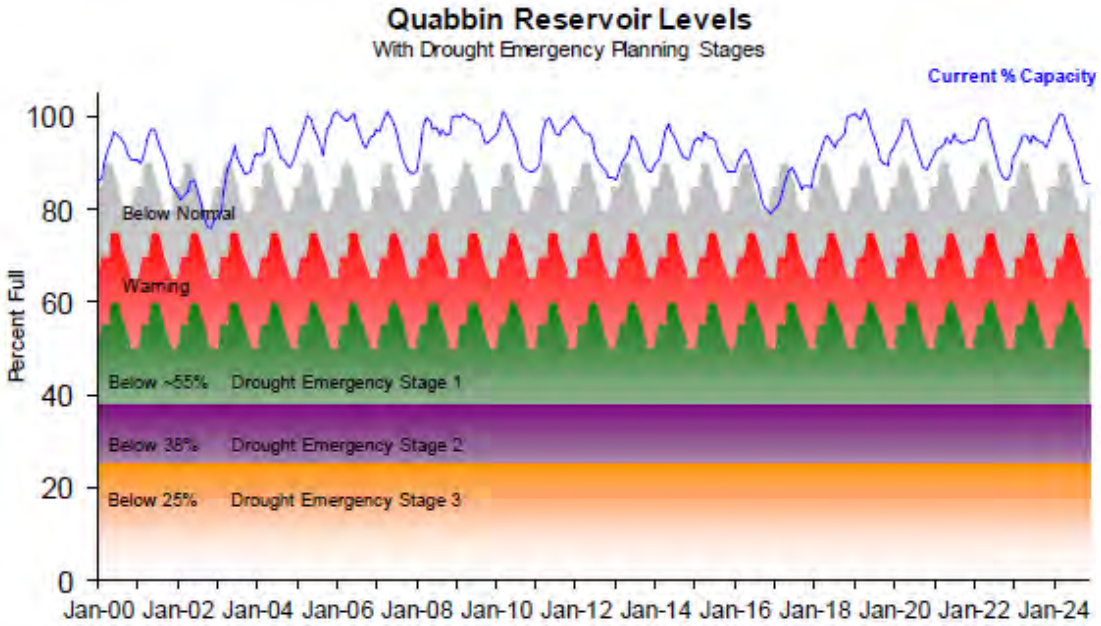


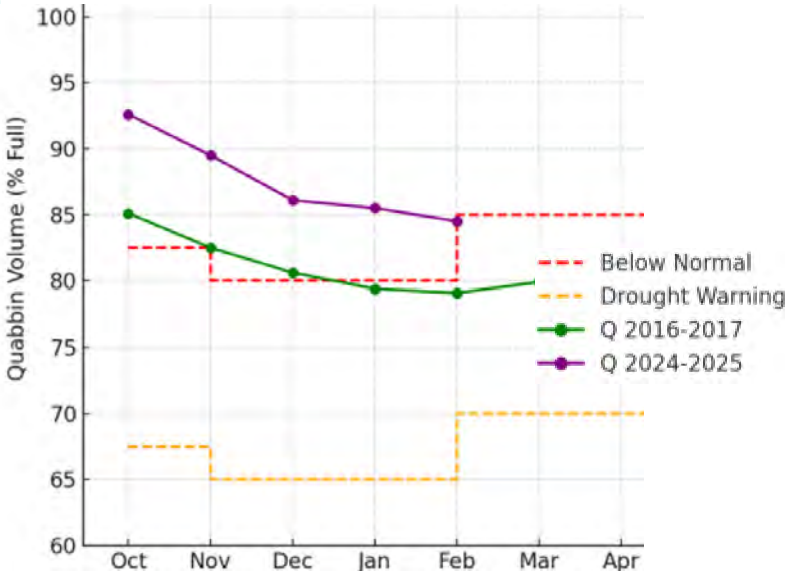
Low precipitation continued in the beginning of the quarter



- Precipitation 16% below average
- Deer Island flow 22% below average
- New low flow records for October and November
- October monthly flow was second lowest since plant startup

Impacts of drought on water supply

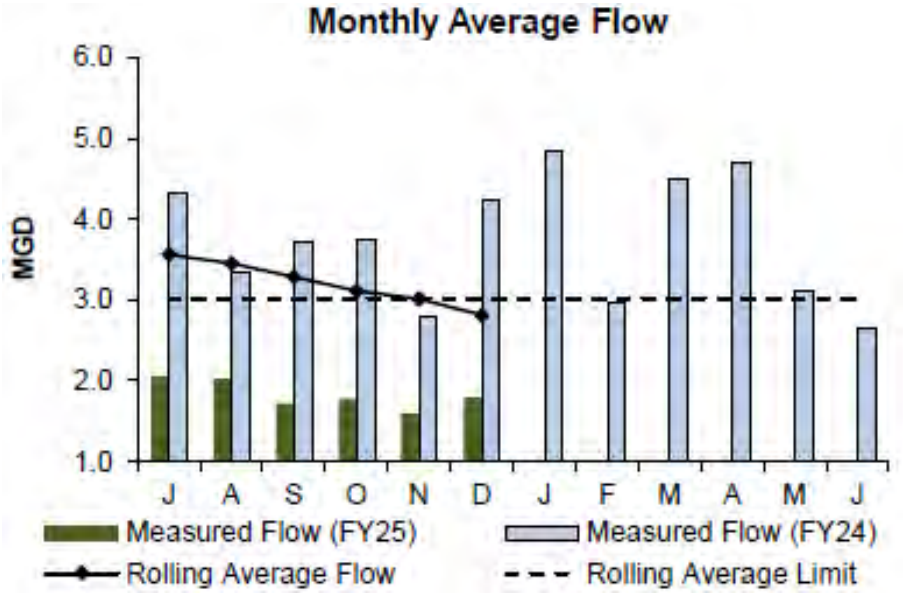


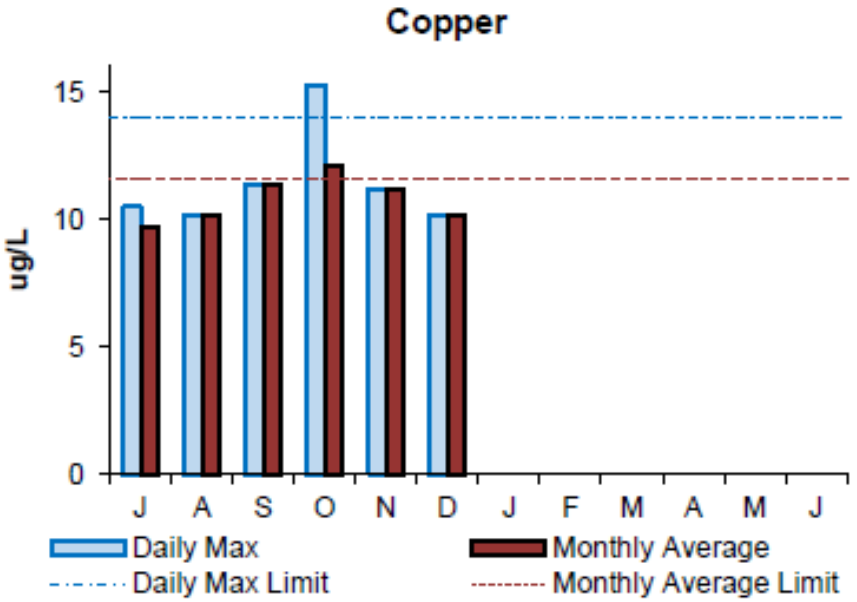


- Quabbin went down by 3.9 ft. and was at 85.5% capacity at the end of December – normal operating range
- On February 1st Quabbin levels dropped to below normal, with target rising to 85%

Violations at Clinton Wastewater Treatment Plant

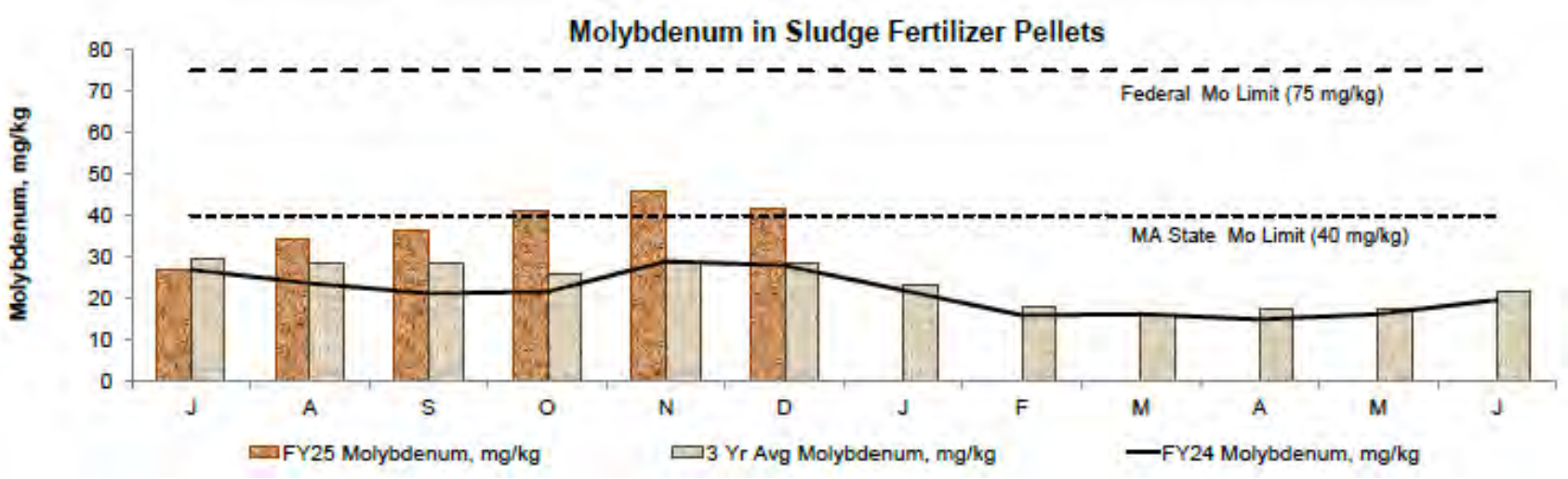
- Despite low precipitation, 12-month average flow was still over the limit in October
- Clinton effluent was over copper limits in October due to drought
  - Lack of dilution from normal inflow and infiltration during rainfall





Molybdenum in Sludge Fertilizer Pellets

- Molybdenum (Mo) levels in fertilizer pellets in the 2nd quarter (42.7 mg/kg) exceeded MA land limits (40 mg/kg), but well below federal limit (75 mg/kg)
- This is **not a permit violation** since pellets are being distributed to other states
- Likely source is corrosion inhibitor in cooling towers



Presentation to

MWRA Board of Directors

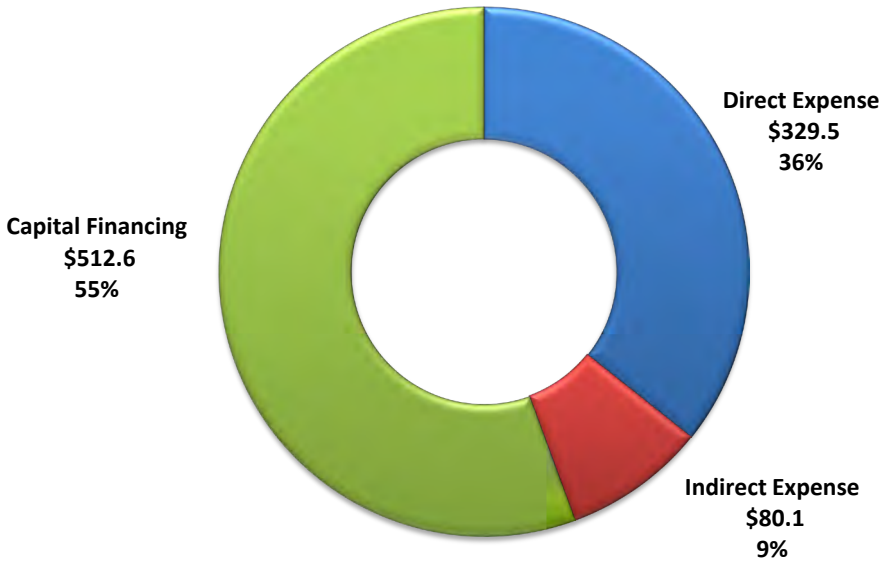
Fiscal Year 2026
Proposed Current Expense Budget

February 12, 2025

FY26 Proposed CEB – Budget Structure

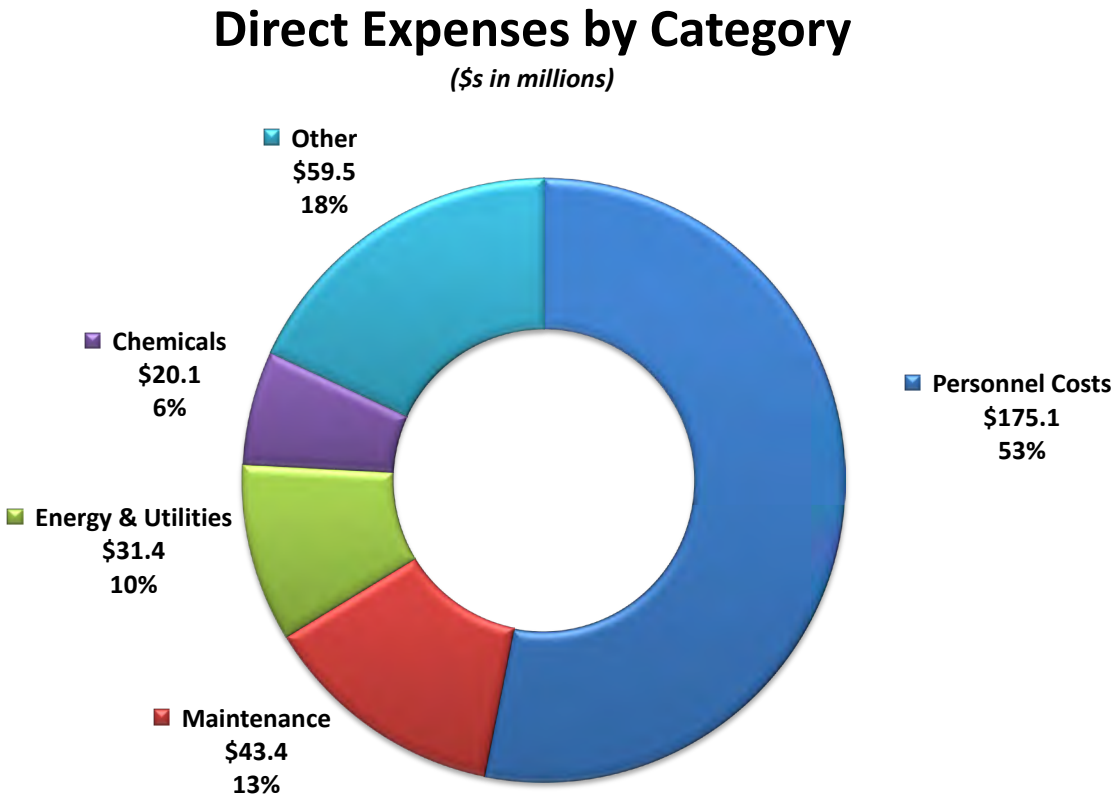
FY26 Proposed Current Expense Budget

($s in million)



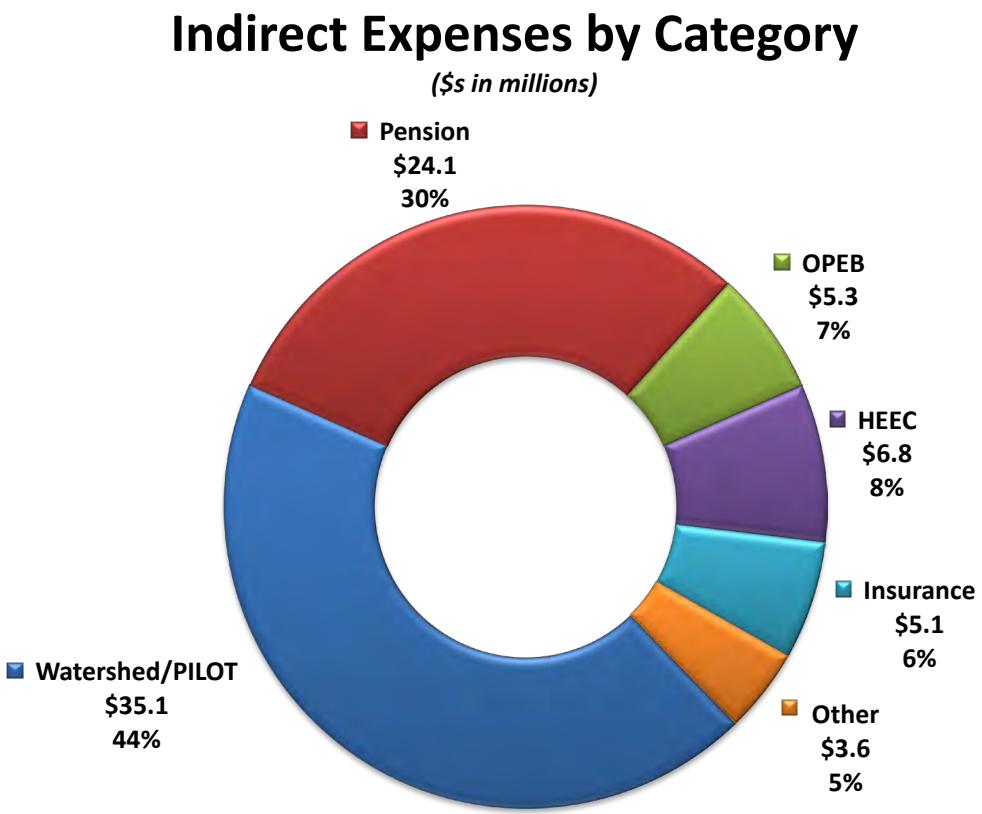
FY26 Proposed CEB:
Increase of $21.6 million or 2.4% over FY25.

FY26 Proposed CEB – Direct Expenses



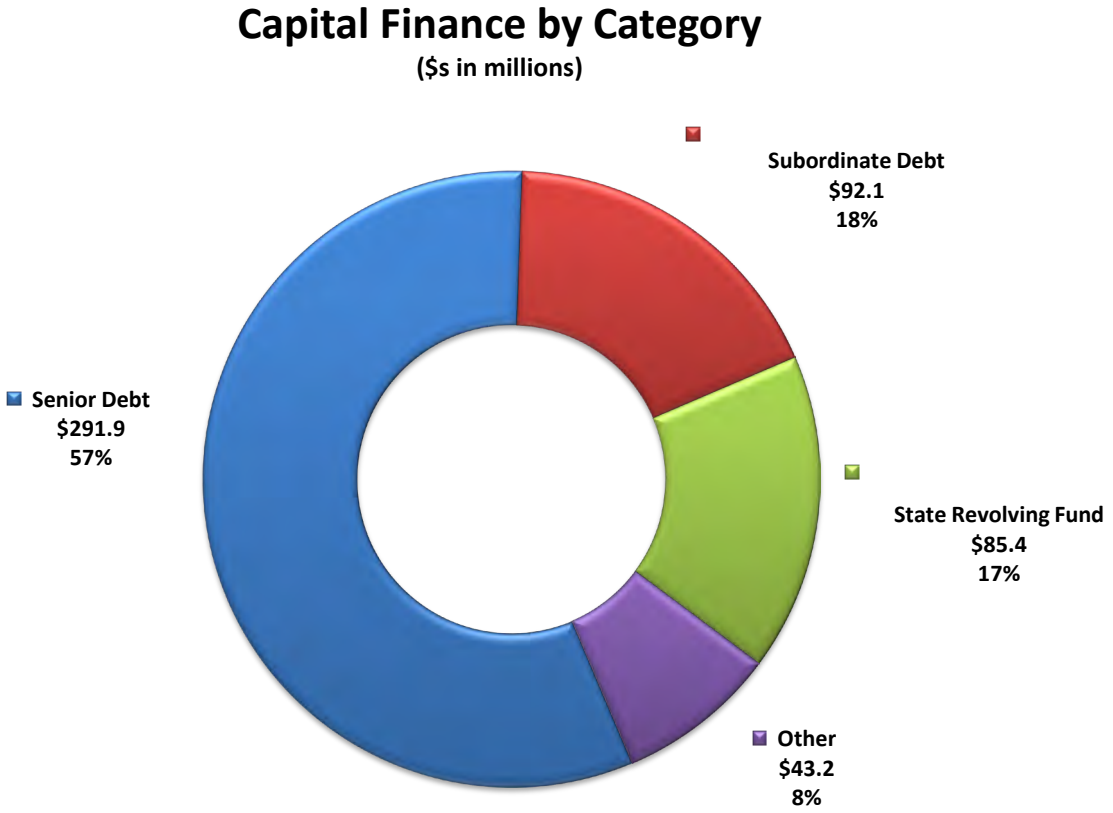
- **Direct Expenses**: Increase of $8.5 million or 2.6% over FY25 driven by higher Other Services and Wages & Salaries, partially offset by lower Maintenance.
- **Other Services**: Increase of $6.7 million or 19.8% over FY25 driven by Sludge Pelletization which increased by $6.1 million or 26.9% primarily due to the addition of potential landfill disposal costs due to PFAS issues.
- **Wages & Salaries**: Increase of $3.5 million or 2.6% over FY25. Funds 1,166.2 FTEs (1,168.0 FTEs in FY25). Includes a Vacancy Adjustment (reduction) of $5.6 million.
- **Maintenance**: Decrease of $3.3 million or 7.1% from FY25 driven by the completion of several large projects.

FY26 Proposed CEB – Indirect Expenses



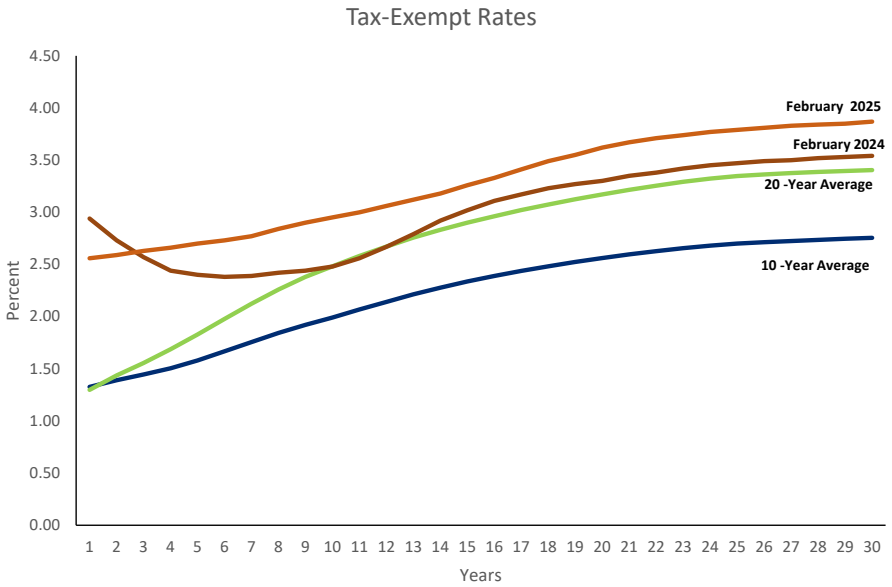
- **Indirect Expenses**: Increase of $4.6 million or 6.2% over FY25 driven by higher Pension and Watershed Reimbursement, partially offset by lower HEEC.
- **Pension**: Increase of $2.8 million or 13.3% over FY25. Includes Actuarially Determined Contribution (ADC) of $18.3 million plus an additional $5.8 million to assist with reaching full funding by 2030.
- **Watershed Reimbursement**: Increase of $2.6 million or 8.0% over FY25 driven by higher Wages & Salaries, Fringe Benefits, Equipment, and PILOT. Funds 151 FTEs, with no vacancy adjustment included.
- **HEEC Payment**: Reduction of $1.4 or 16.8% from FY25 based on the latest cost estimates.

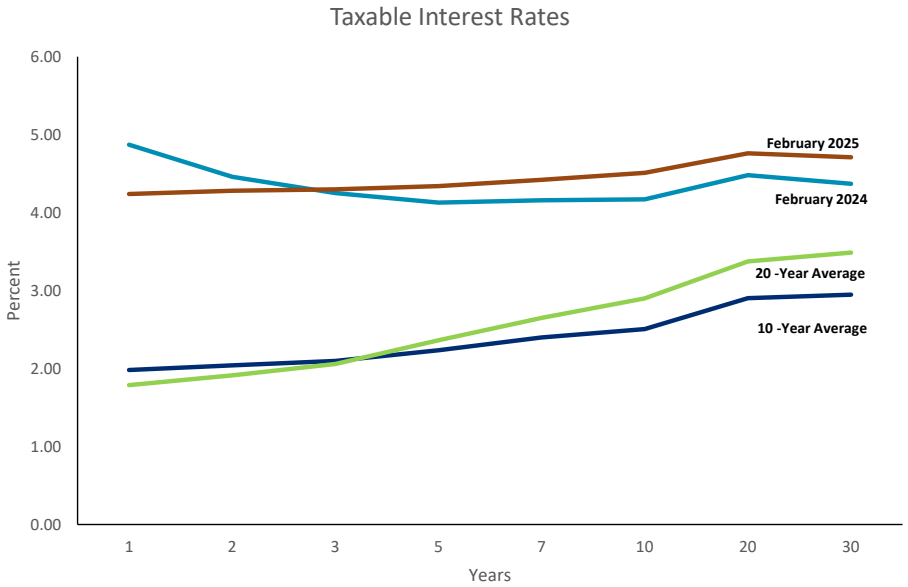
FY26 Proposed CEB – Capital Finance



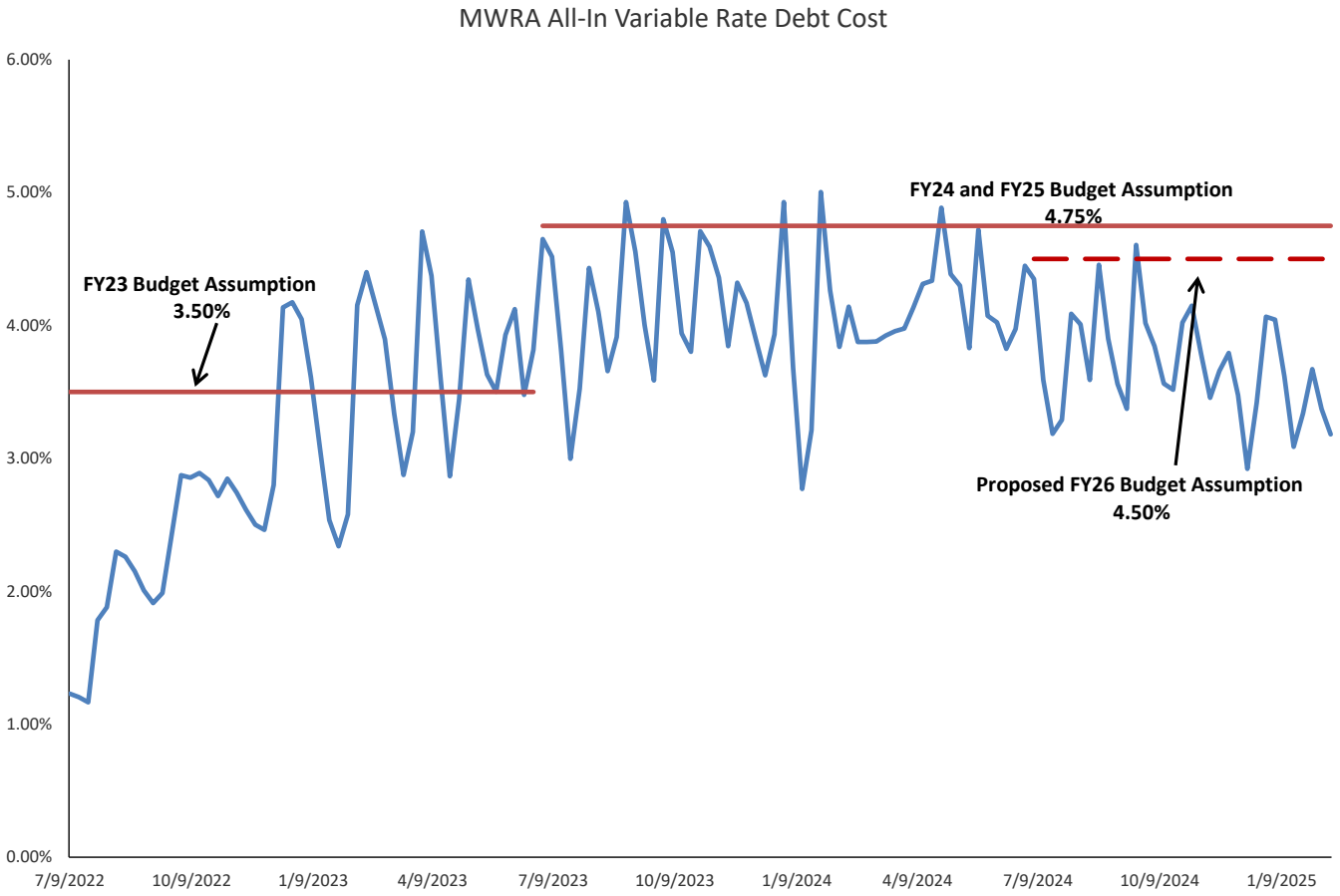
- **Capital Finance**: Increase of $8.4 million or 1.7% over FY25 driven by the structure of new and existing debt.
- **Variable Interest**: Assumes a rate of 4.5% (4.75% in FY25).
- **Defeasance**: Includes a $15.0 million defeasance benefitting FY26-32.

FY26 Proposed CEB - Long-Term Interest Rates

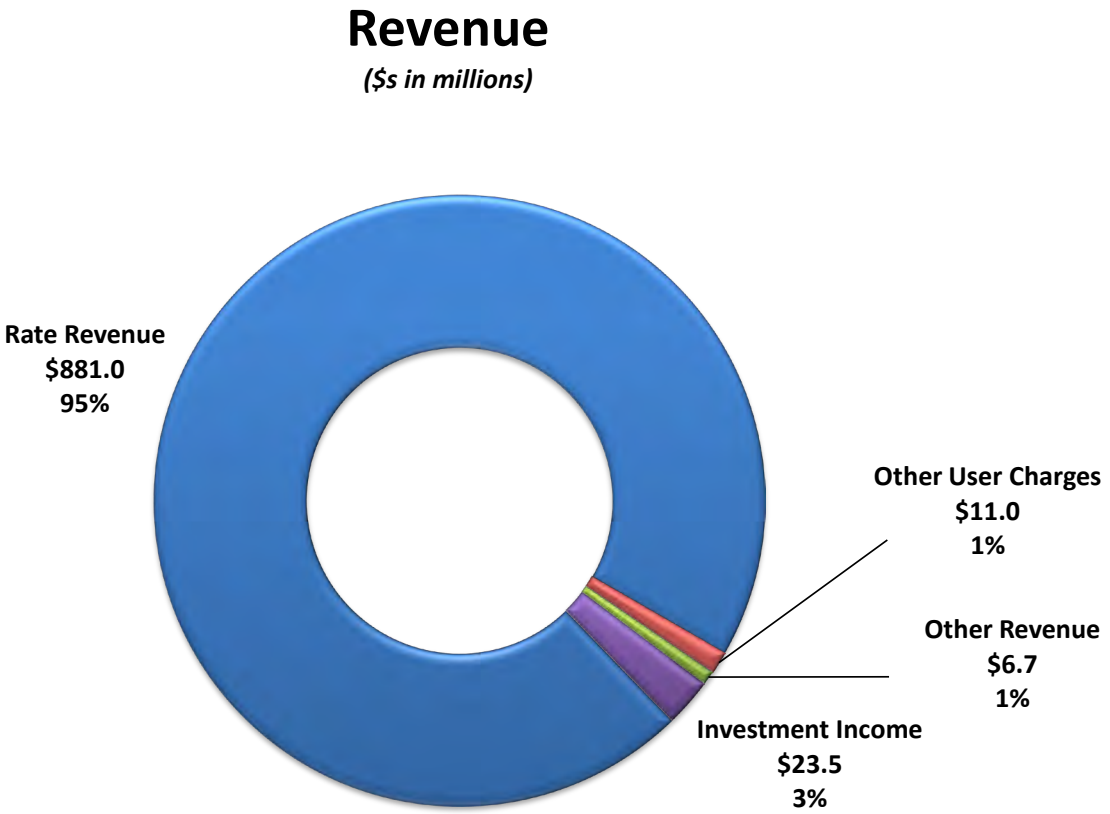




FY26 Proposed CEB - Short-Term Tax-Exempt Interest Rates

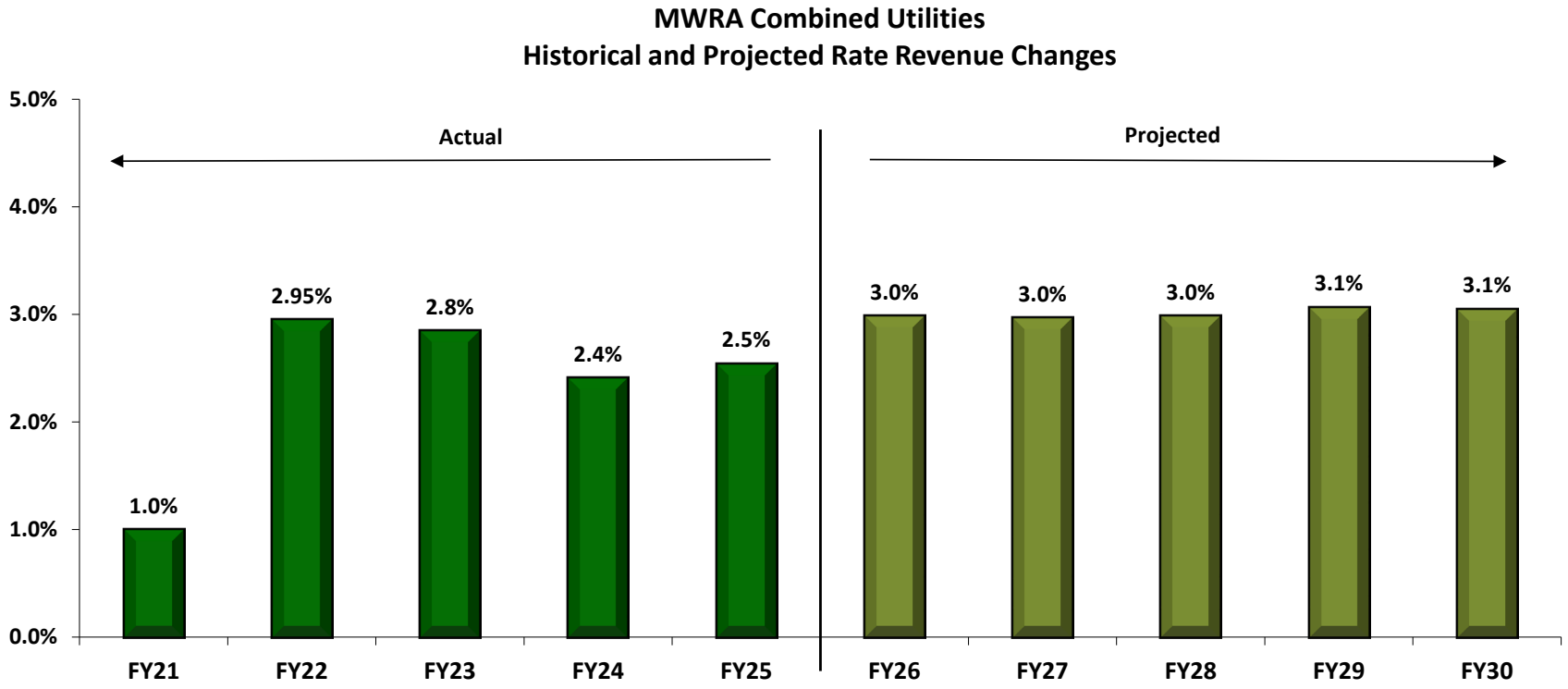


FY26 Proposed CEB – Revenue by Category

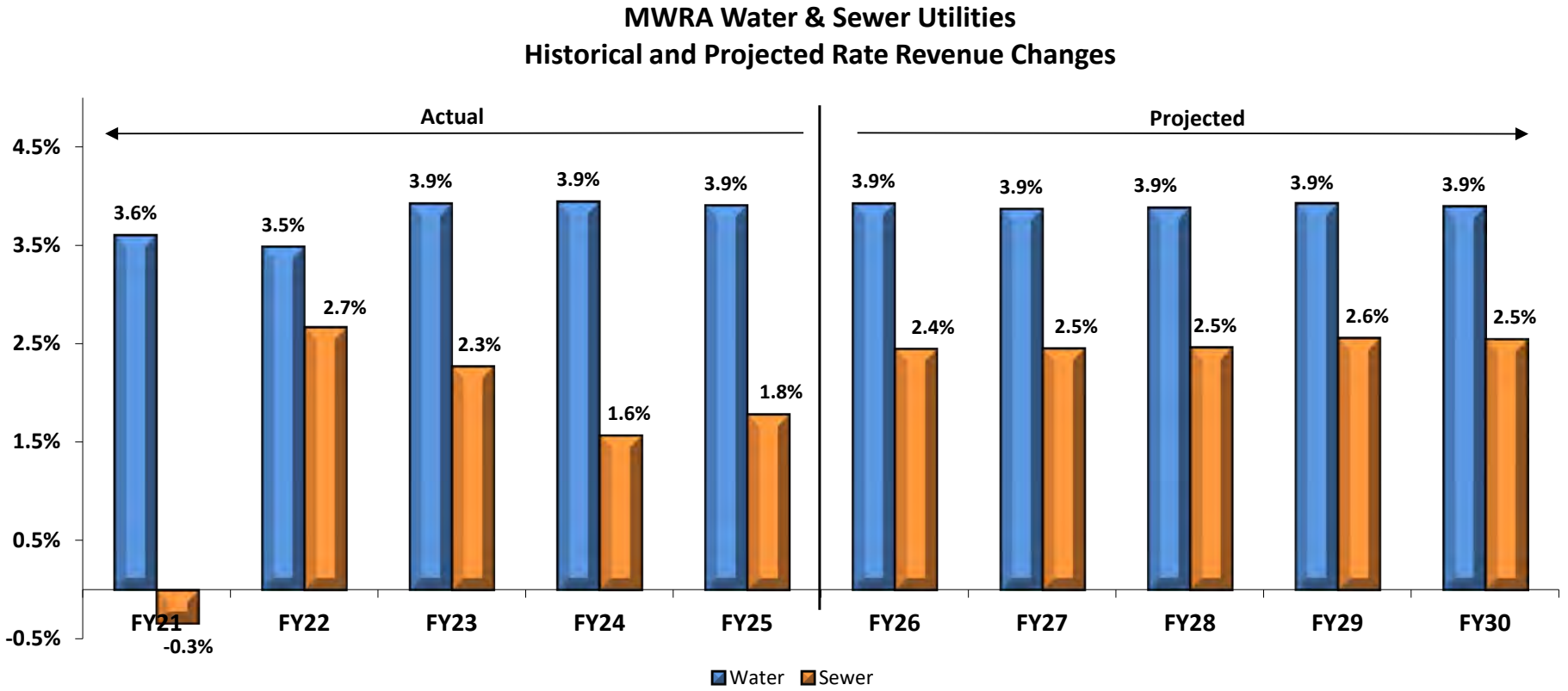


- **Total Revenues**: Increase of $21.6 million or 2.4%.
- **Rate Revenue**: Increase of $25.5 million or 3.0% over FY25 (previously projected at 3.3%).
- **Investment Income**: Short-term interest projected at 3.75% (5.0% in FY25).
- **Rate Stabilization**: No planned usage in FY26.

FY26 Proposed CEB – Rate Projections (Combined)



FY26 Proposed CEB – Rate Projections (By Utility)



FY26 Proposed CEB – Next Steps

- Spring Revisit Process
- Provide briefings to Advisory Board Staff
- MWRA Public Hearing
- MWRA Board Hearing in May
- Staff anticipate FY26 Budget adoption in June

Presentation to

MWRA Board of Directors

Combined Sewer Overflow Program Update

February 12, 2025

Completed Long Term Control Plan

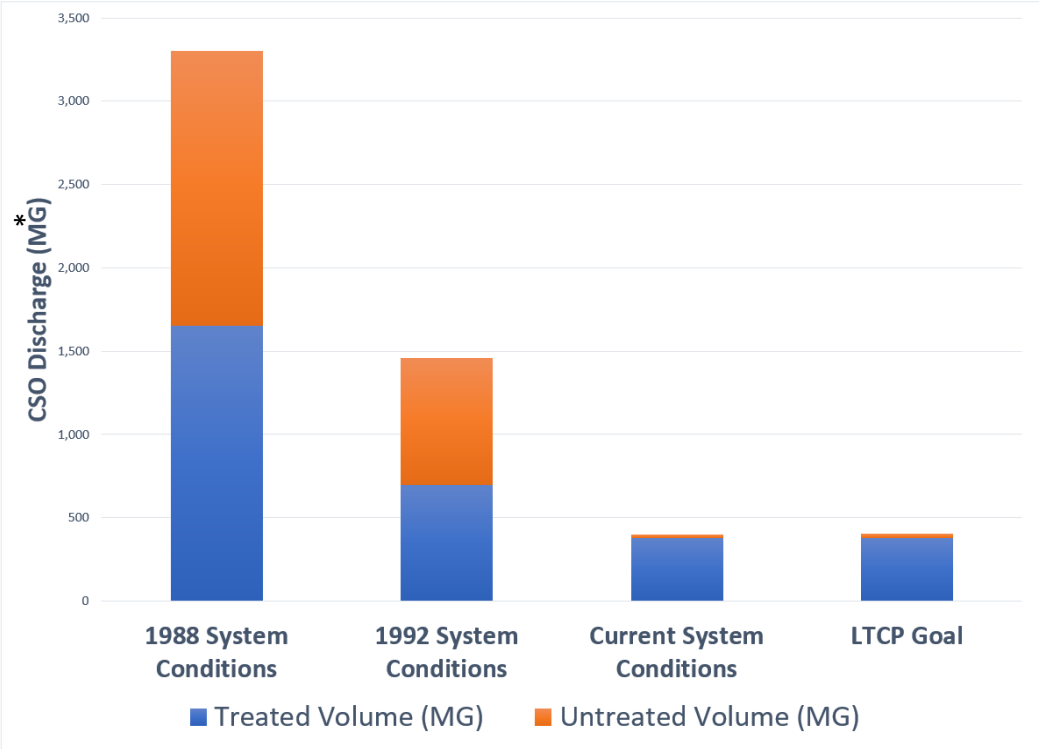
Types of CSO Control Projects

- Included a range of cost- effective projects (35 total) targeted to site specific control including:
  - System optimization
  - Sewer separation
  - Interceptor relief
  - Detention treatment facilities
  - Storage facilities
  - Upgrades to existing CSO facilities
- **Total cost $911 million ($1.52 billion in today's dollars)**
- When combined with related local community projects, that investment is **over $1 billion**.

System Wide CSO Reduction Since the Start of the CSO Program in the 1980s

Prior Long Term Control Plan

- System wide improvements including the Charles, Alewife, Mystic resulted in significant reductions in CSO discharge since 1980s.



System Wide CSO Reduction Since the 1980s

**Annual discharge volume based on the prior Typical Year*

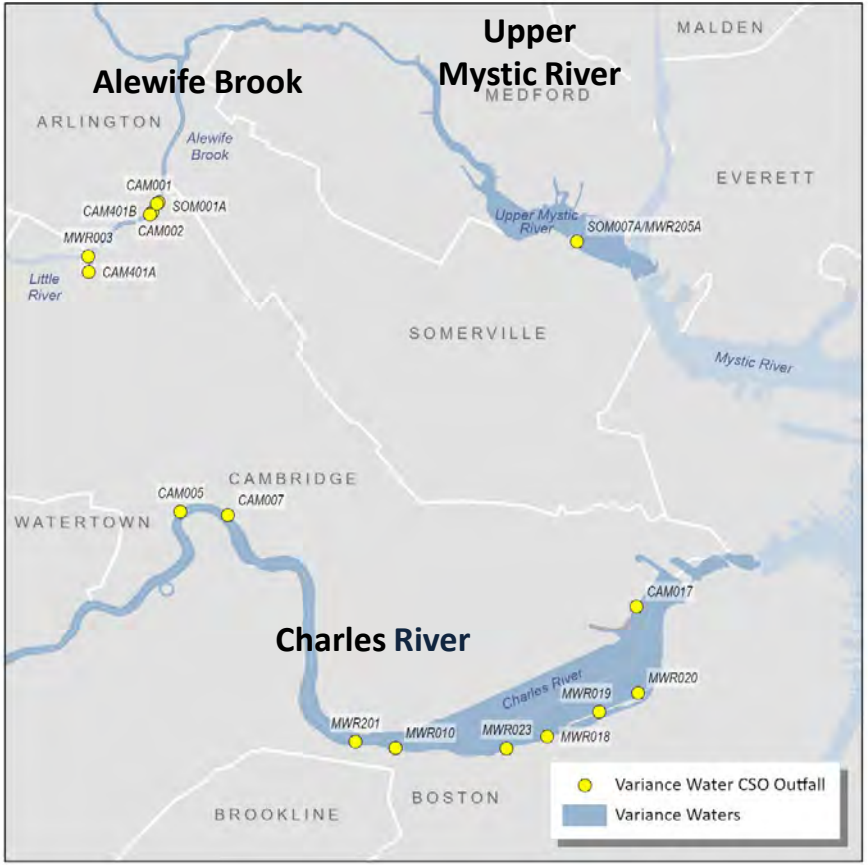
Variance Waters and Project Partners

City of Somerville

City of Cambridge

Massachusetts Water Resources Authority (MWRA)

https://voice.somervillema.gov/joint-cso-planning



2050 Design Storm CSO Activations and Discharge Volumes

2050 Typical Year

- A full year of rain data that best represents rain over time
- A representative "average" year for planning, as rain changes from year to year
- For the Updated CSO Control plan a new Typical Year was developed to reflect future climate conditions

Design Storms

- 2050 5-Year 24-hour and 25-year 24-hour design storms were developed to reflect future climate conditions

Receiving Water	Future Baseline Condition Model Results						
	Activation Frequency		CSO Discharge Volume (MG)				
	Prior Typical Year	2050 Typical Year	Prior Typical Year	2050 Typical Year	2050 Largest Storm in the Typical Year	2050 5-year Storm	2050 25-year Storm
Charles River	3	6	7.9	38.4	16.6	65.5	120.6
Alewife Brook	8	13	9.9	20.9	4.84	20.9	40.1
Upper Mystic	2	8	1.3	29.3	10.5	17.4	27.2

Updated CSO Control Plan Steps:

1) 2050 Typical Year & 2050 Design Storms

2) Unify Hydrologic & Hydraulic models

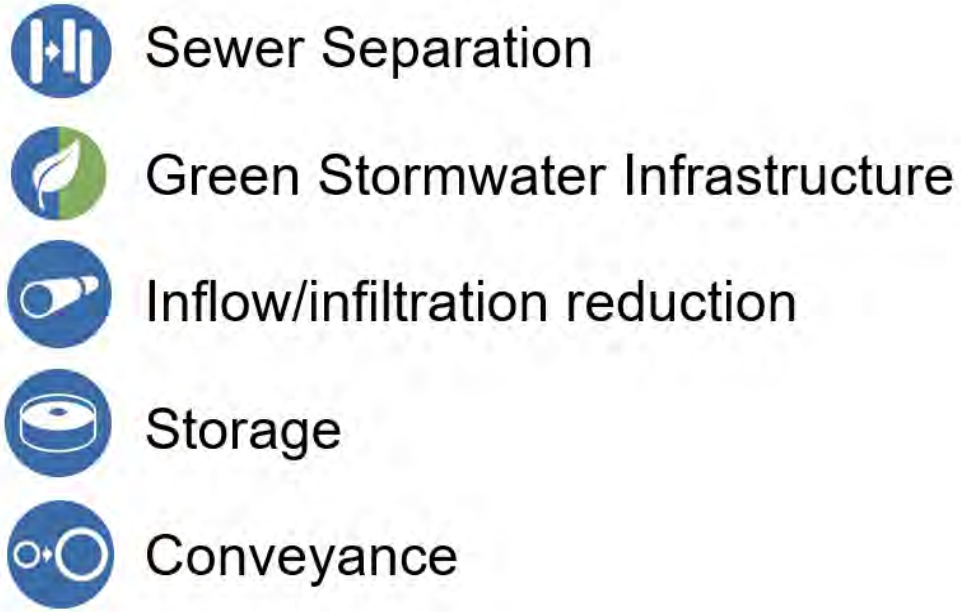
3) Create alternatives:

a) Identify scenarios to evaluate CSOs
- 2050 Typical Year
- 2050 5-yr
- 2050 25-yr

b) Combine CSO tools to develop various alternatives

c) Optimize regionally for each variance water

Step 3b Zoom In: CSO Reduction Tools



Updated CSO Control Plan Steps:

4) Develop conceptual layouts and preliminary cost estimates

5) Compare alternatives using weighted criteria

6) Assess Initially Preferred Alternative(s) for:
- Financial Capability Assessment
  - Impact to rate payers
  - Implementation schedule
- Compliance with Water Quality standards
  - What is the highest attainable use without a widespread economic or social impact?

7) Develop Draft Updated CSO Control Plan(s)

Step 5 Zoom In: Alternatives Evaluation Preliminary Criteria

Reduce/eliminate combined sewer overflows
Reduce flooding and flooding impacts
Reduce sanitary sewer overflows
Improve water quality
Rehabilitate old infrastructure (pipes, facilities)
Improve resilience of our infrastructure to future climate conditions
Improve service to low income and minority communities
Offers community co-benefits (e.g., green space, gathering space, heat reduction)
Minimize neighborhood disruption during construction
Minimize costs to ratepayers / taxpayers
Other criteria based on public feedback

Interim Progress: Preliminary List of Potential Alternatives

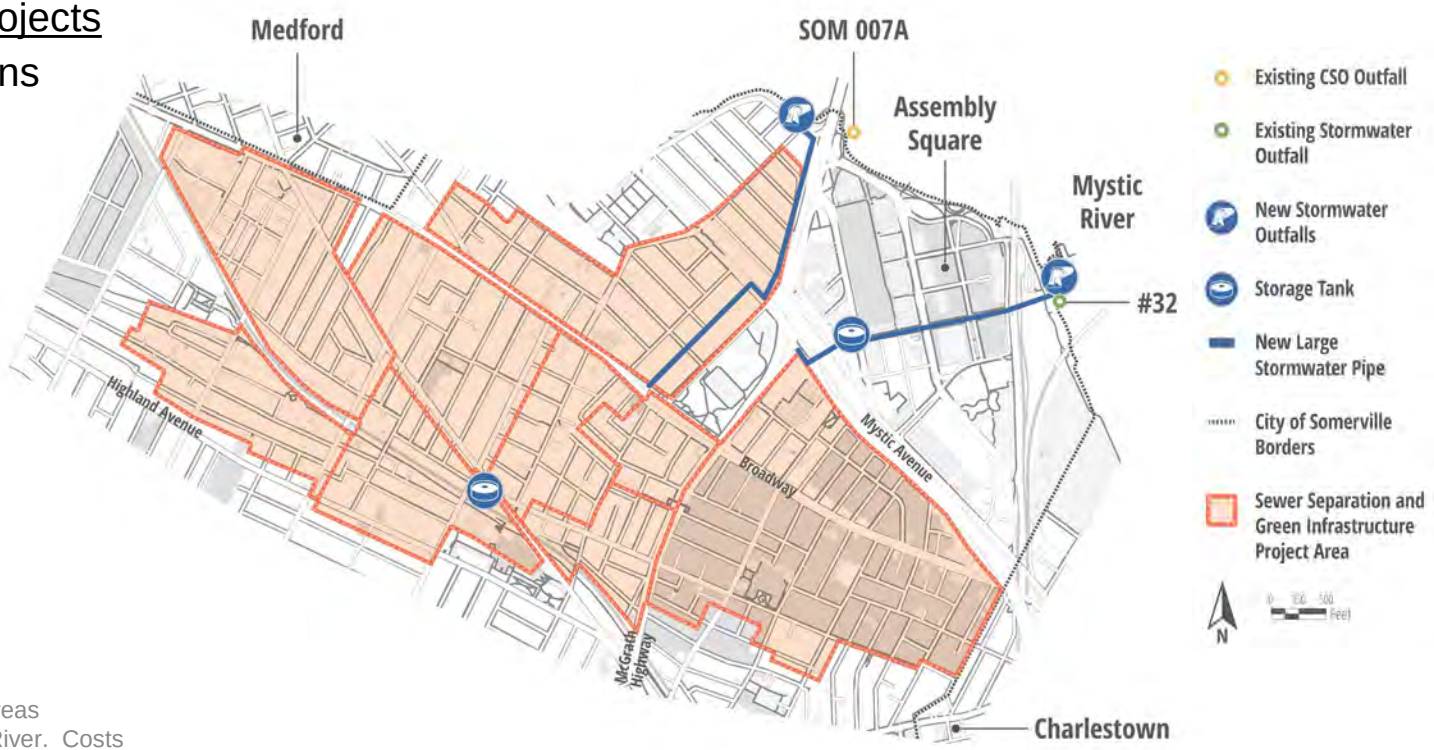
2050 Typical Year	2050 5-Year Storm	2050 25-Year Storm
Integrated alternative by outfall	-	-
Tunnel / Storage	Tunnel / Storage	Tunnel / Storage
Tunnel / Storage + Green Infrastructure	Tunnel / Storage + Green Infrastructure	Tunnel / Storage + Green Infrastructure
Sewer separation / Green Infrastructure	-	-
Hybrid	Hybrid	Hybrid

Mystic River Sewer Separation

City of Somerville - 2050 Typical Year CSO Control

Potential Mystic River Projects

- Large trunk storm drains
- 5.5MG storage tank
- 0.5 MG storage tank
- 2 Storm drain outfalls
- 560 acres of localized sewer separation



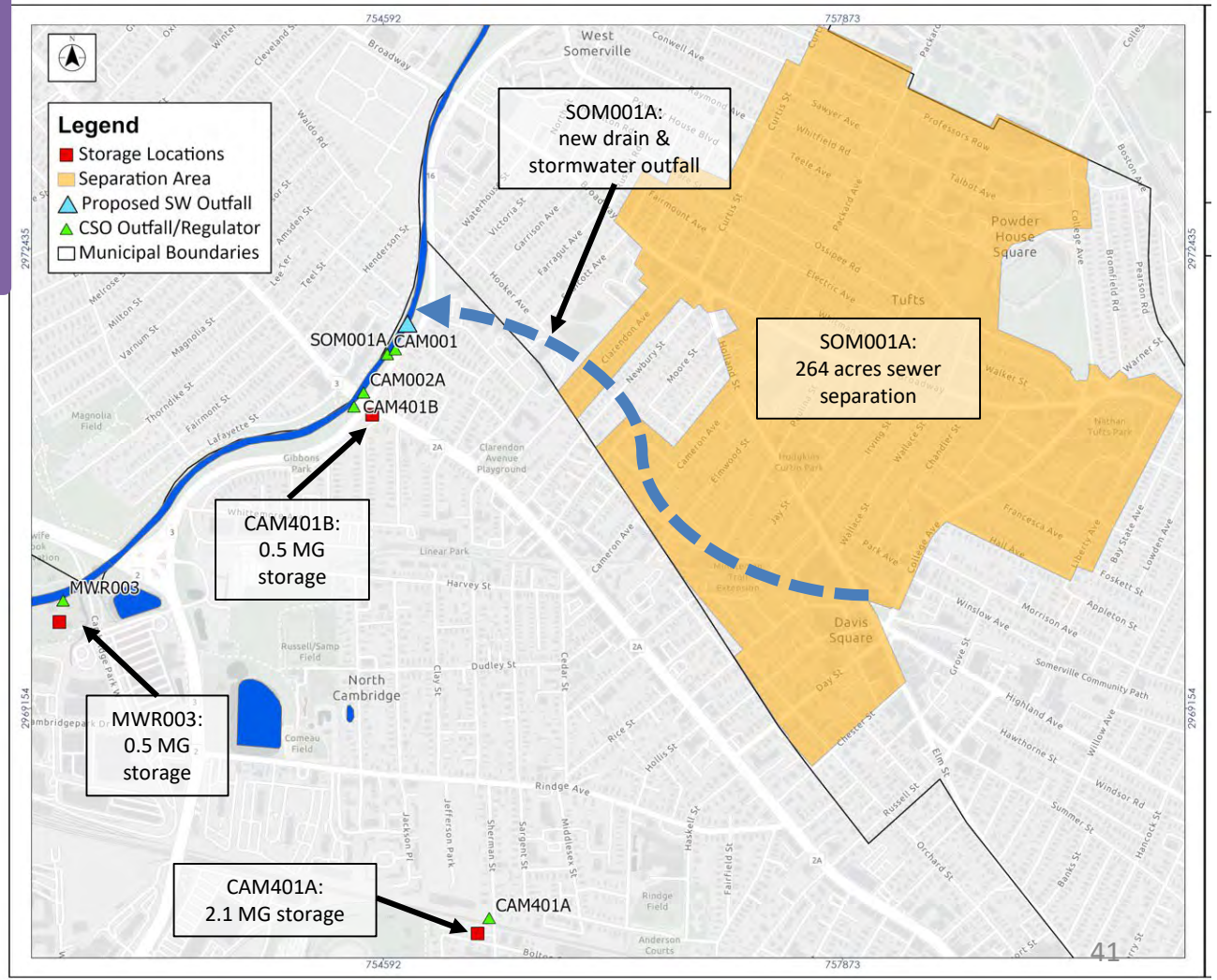
Prelim. Estimated Cost:
~$700 million *
Prelim. Timeline: ~40 yrs

*Costs include sewer separation of some areas tributary to both Alewife Brook and Mystic River. Costs estimated using 2024-dollar amounts and not escalated to construction period. Costs subject to refinement.

Alewife Integrated Alternative: 2050 Typical Year CSO Control

- CAM401A: 2.1 MG storage
- CAM401B: 0.4 MG storage
- MWR003: 0.5 MG storage
- SOM001A: 264 acres separated + inline storage with throttles

Prelim. Estimated Cost: ~$600 million

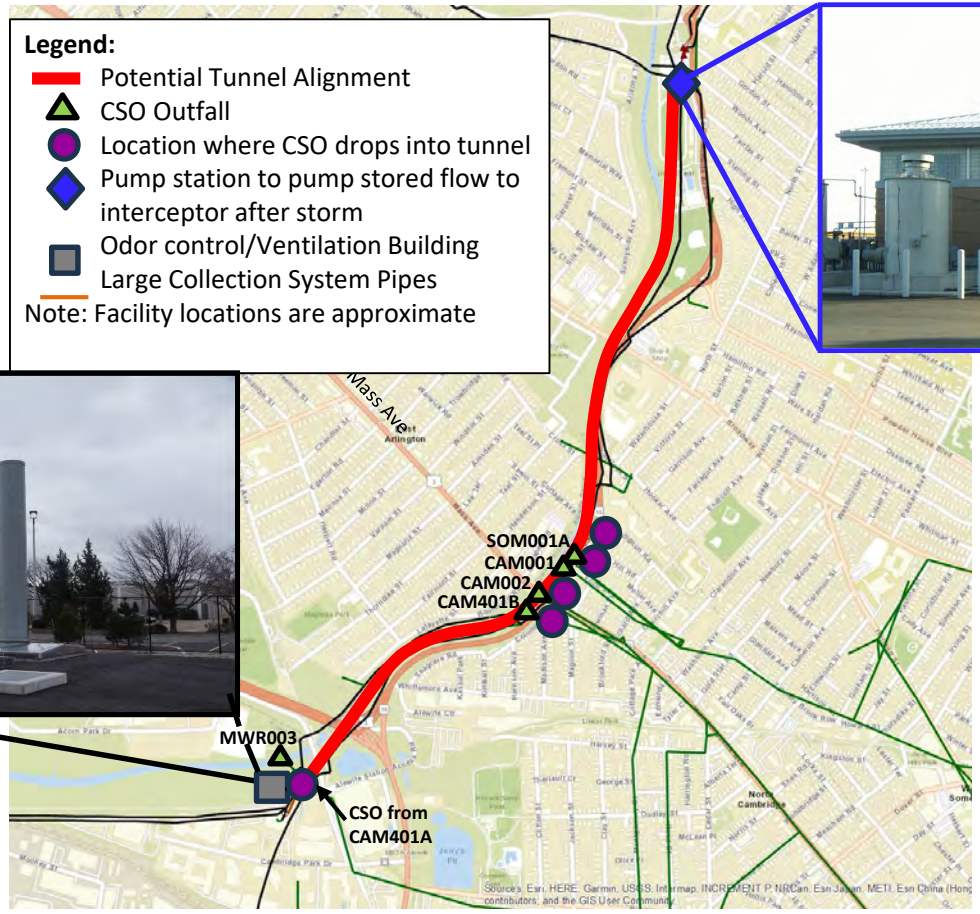


Alewife Brook Storage Tunnel Alternative

Legend:
- Potential Tunnel Alignment
- CSO Outfall
- Location where CSO drops into tunnel
- Pump station to pump stored flow to interceptor after storm
- Odor control/Ventilation Building
- Large Collection System Pipes

Note: Facility locations are approximate

North Dorchester Bay Odor Control/ Ventilation Facility



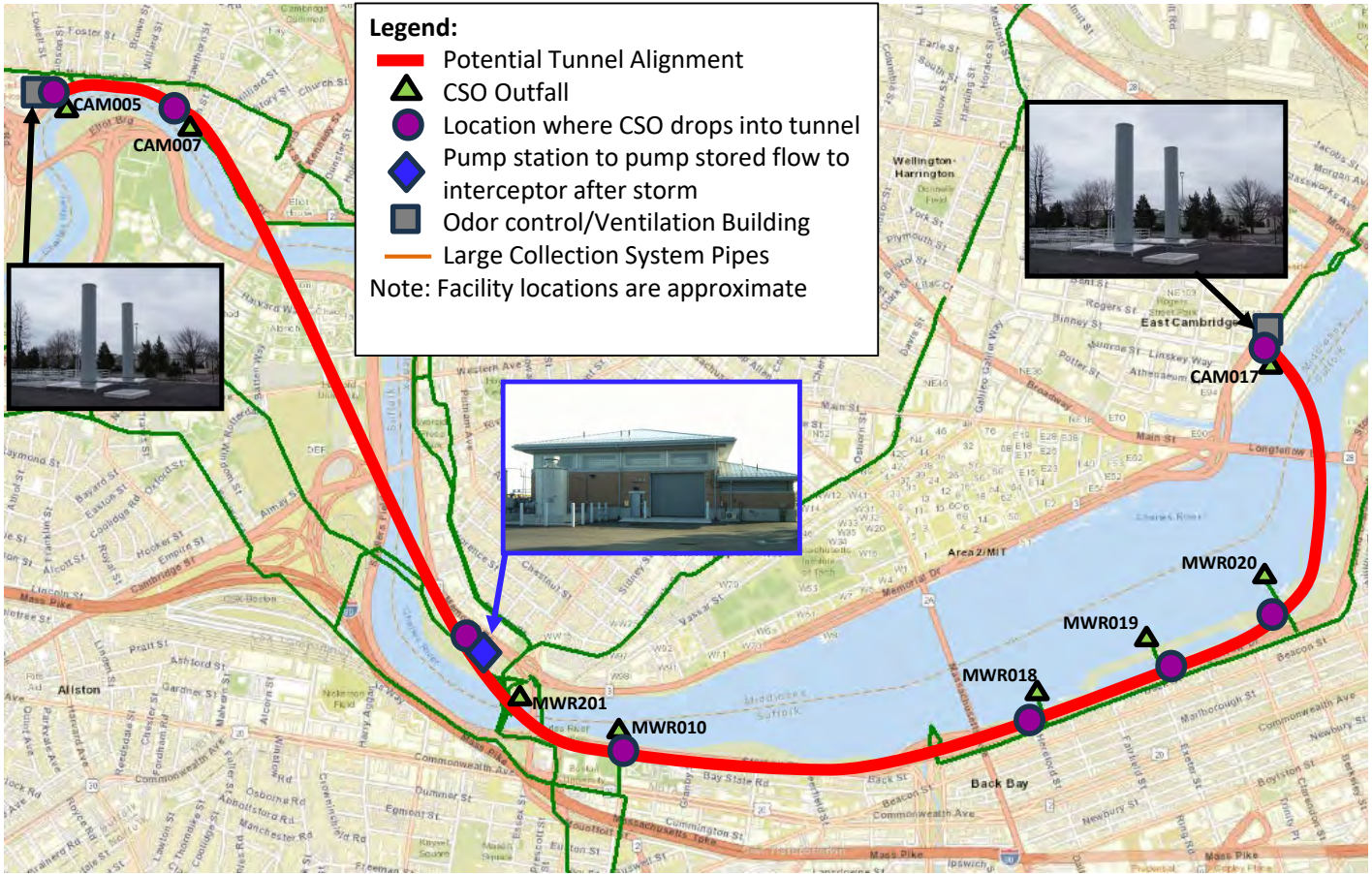
North Dorchester Bay Dewatering Pump Station

Alewife Brook Potential CSO Storage Tunnel Alternatives (Tunnel Length: 1.4 Miles)		
Level of CSO Control	**Storage Volume (MG)**	**Diameter (feet)**
2050 Typical Year	4.9	11
2050 5 Year	20.6	22
2050 25 Year	41.6	32

Preliminary Estimated Capital Costs Range from ~$700M to ~$1.7B*

*2024 dollars unescalated to construction period. Costs do not include land acquisition and may be further refined.

Charles River Storage Tunnel Alternative



Charles River Potential CSO Alternatives (Tunnel Length: 4.5 Miles)		
Level of Control	**Storage Volume (MG)**	**Diameter (feet)**
2050 Typical Year	17.8	12
2050 5 Year	71.9	24
2050 25 Year	132.1	32

Preliminary Estimated Capital Costs Range from ~$1.4B to ~$2.3B*

*2024 dollars unescalated to construction period. Costs do not include land acquisition and may be further refined.

DRAFT


Questions?

Presentation to

MWRA Board of Directors

HVAC Control System, Equipment and Fume Hood Replacement Preliminary Design, Final Design, Bidding and ESDC Deer Island Treatment Plant Contact 7110

February 12, 2025

Contract 7110 Improvements

- Design and Bidding, and ESDC Services to replace the following equipment:

  Three central chillers in the Administration/Laboratory Building

  - Thirty-one Fume Hoods
  - Plant Wide Central HVAC Control System (approximately 10,000 points)
  - Approximately 53 HVAC units and 97 Fan Coil Units with associated field instrumentation

- Existing equipment is at the end of its useful life and/or obsolete

HVAC Replacement History

- Original construction package advertised in 2018
  - Only one bid received which was approximately 80% higher than the engineer's Estimate
- Decision to split project into three separate contracts to increase competition
- Original designer proposal more than double original contract value
- Current scope developed. Based on previous design Issued in August 2024.

Typical HVAC Unit

One Proposal Received

- Mott MacDonald proposed $8,274,489.37 vs Engineer's Estimate of $3,993,938
  - Significantly higher level of effort for design phase
  - Original design out of date: equipment and code changes
  - Bidding Services and ESDC within 10% of the engineer's estimate

- Alternatives to award considered
  - Do not anticipate better outcome

- Condition of equipment continues to degrade

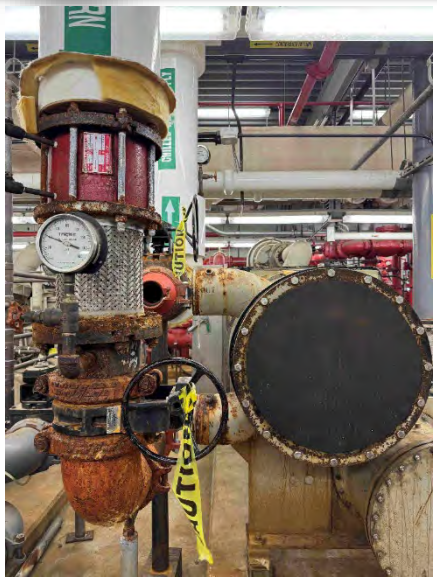
- Significant costs and difficulty maintaining operation

Administration / Lab Building Chillers

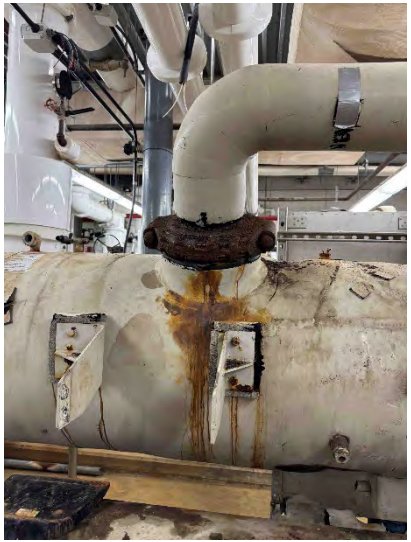
Existing Chillers

Rental Chiller

Administration / Lab Building Chillers



Corroded Chilled Water Piping



Side View Insulation Around Shell

Rear Header

Front Header

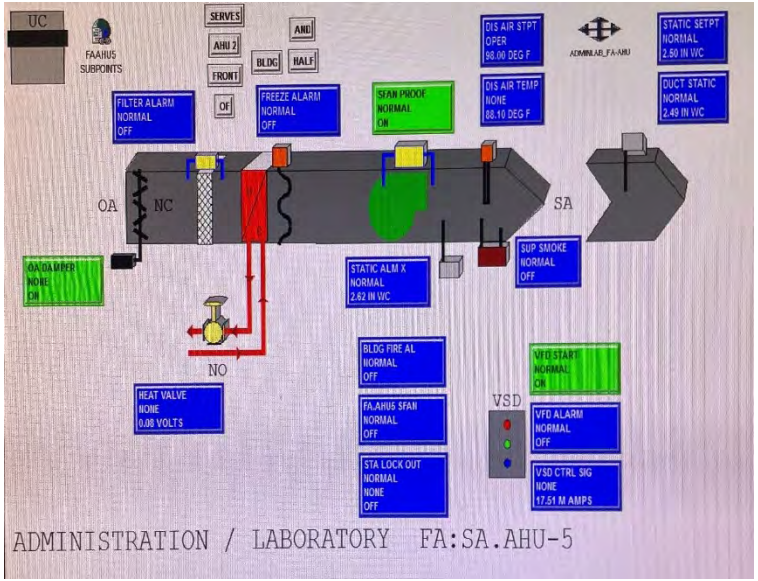
Administration / Lab Building Air Handling And Fume Hoods

Typical HVAC Unit

Typical Fume Hood

HVAC Control Panels

Local Control Panel



Control System Front End Screen

Local Control Panel

Contract 7110 Selection Committee Recommendation

- Staff recommend award to Mott MacDonald, LLC.
- Contract Price: $8,274,489.37
- Contract Duration: 78 months

Presentation to

MWRA Board of Directors

Digester Fixed Cover and Valve and Gate Replacement
Clinton Treatment Plant
Contract 7648

February 12, 2025

Digester Fixed Cover and Valve and Gate Replacement

Contract includes:

- Replacement of 40-foot diameter fixed concrete digester cover
- Replacement of existing stop plates and plug valves to each of the three clariflocculators
  - ➢ Concrete repair and coating work in the distribution box
- New influent sampler enclosure

Bid Results

Bidder	Bid Price
Engineer's Estimate	*$6,270,435*
Walsh Construction Company II, LLC	**$6,974,750***
Wes Construction Corp	$8,685,000*

- **Includes $500k allowance for waterproofing filed sub-bid**

- Contract Term: 540 calendar days
- Adjusted contract amount: $7,013,650
- Staff Recommend award to Walsh Construction Company II, LLC

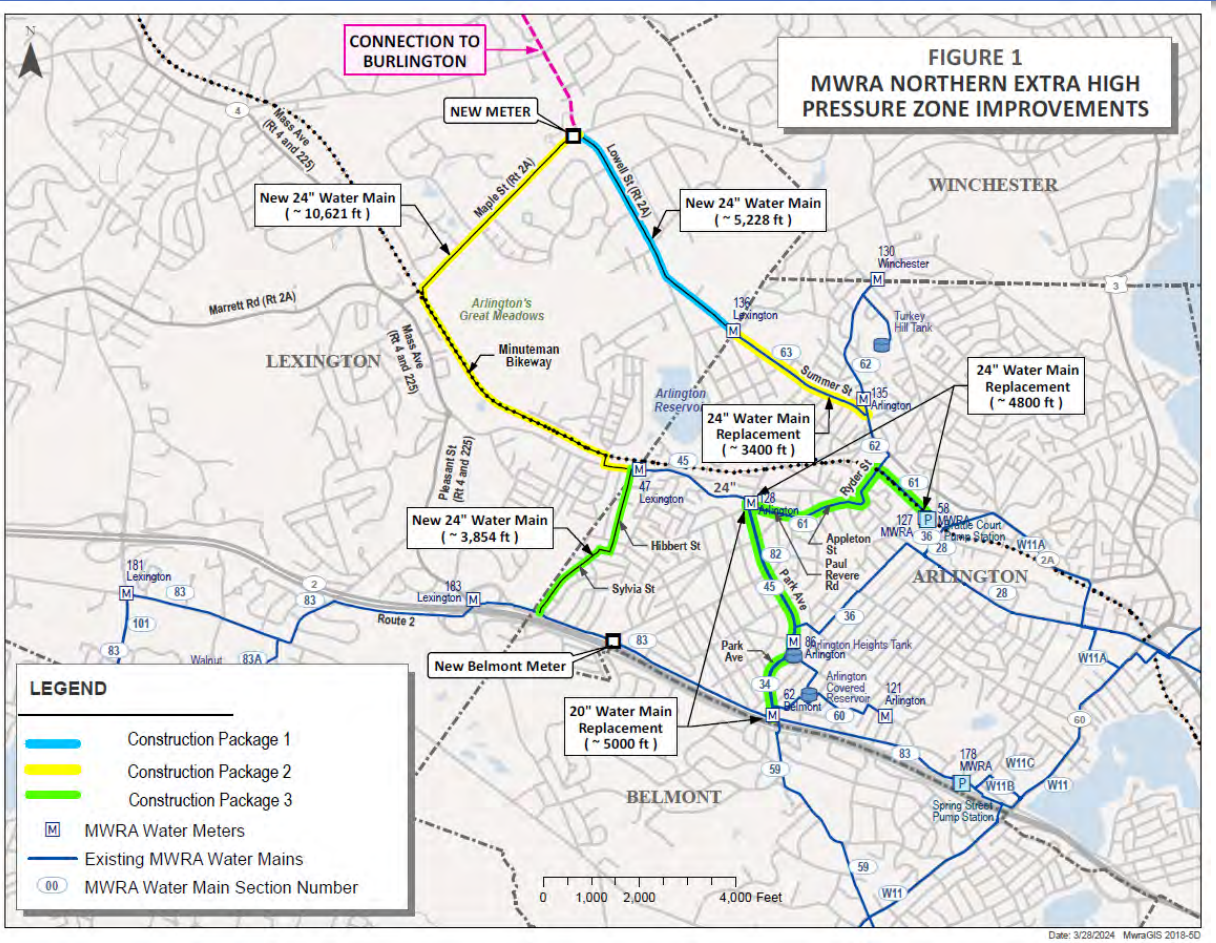
Presentation to:

MWRA Board of Directors

Northern Extra High Pressure Zone Improvements CP2, Arlington and Lexington), Contract 7725

February 12, 2025

Project Schematic



Contract 7725 Bid Results

Bidders	Bid Amount
Engineer's Estimate	*$22,833,825.00*
RJV Construction Corp.	$26,846,000.00
P. Gioioso & Sons Inc.	$27,445,000.00
Albanese D&S, Inc.	$27,844,000.00
Albanese Bros. Inc.	$33,954,590.00
D'Allessandro Corp.	$41,496,482.00