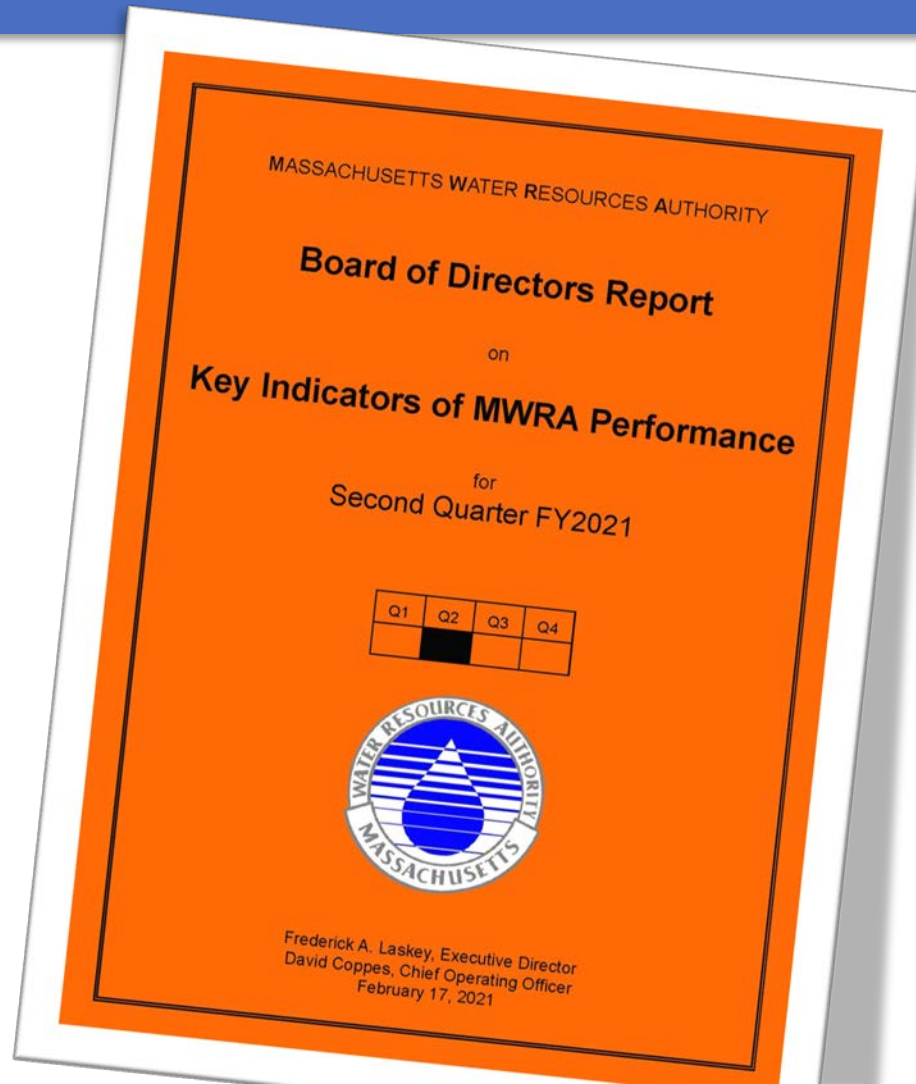




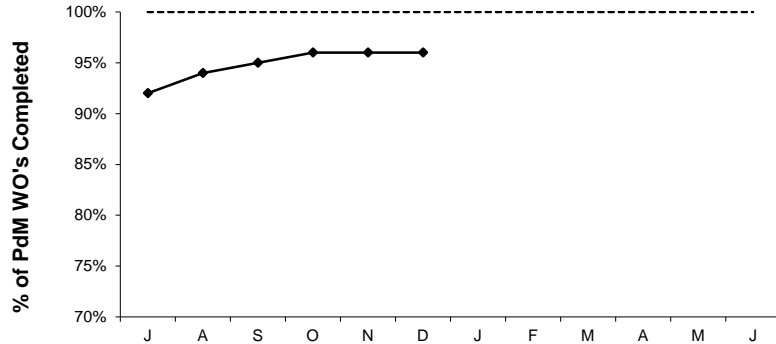
# Massachusetts Water Resources Authority



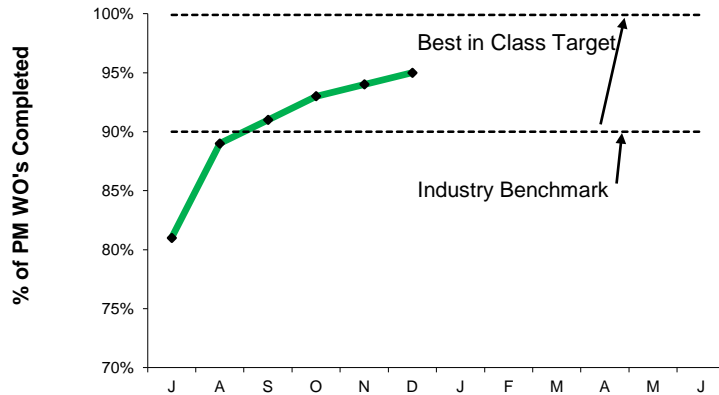


# Deer Island Maintenance

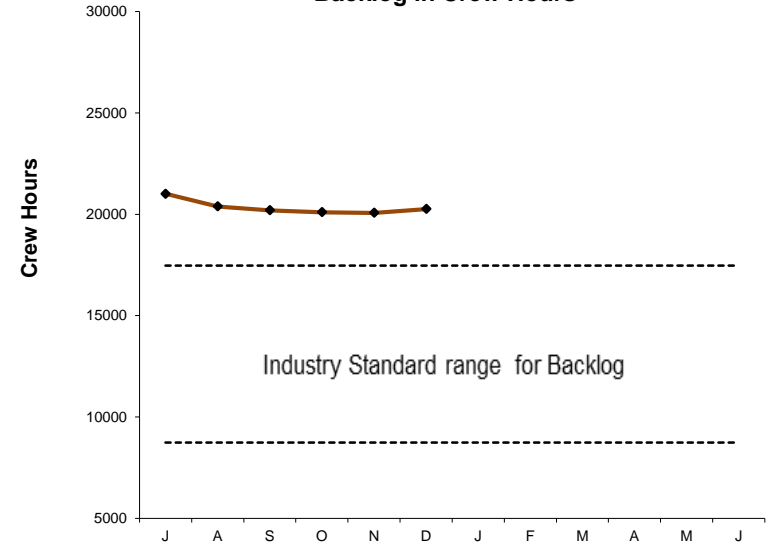
### Predictive Maintenance Compliance



### Preventive Maintenance Compliance



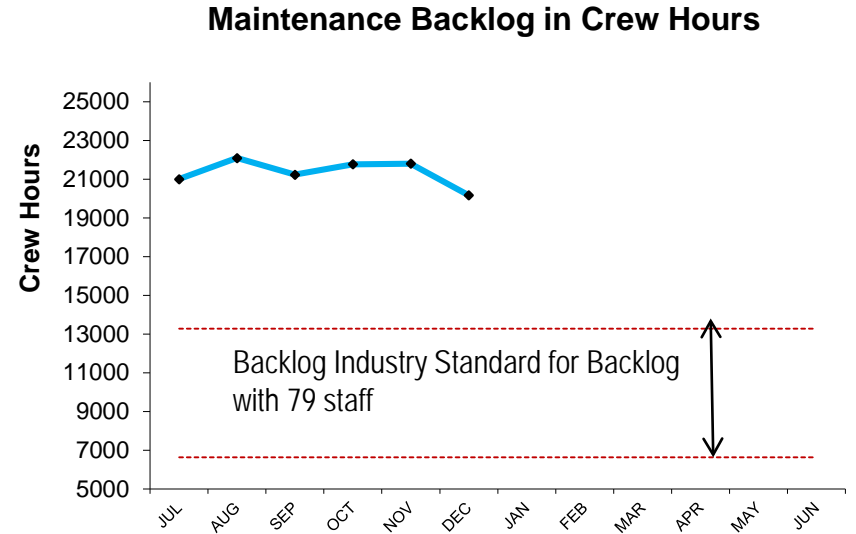
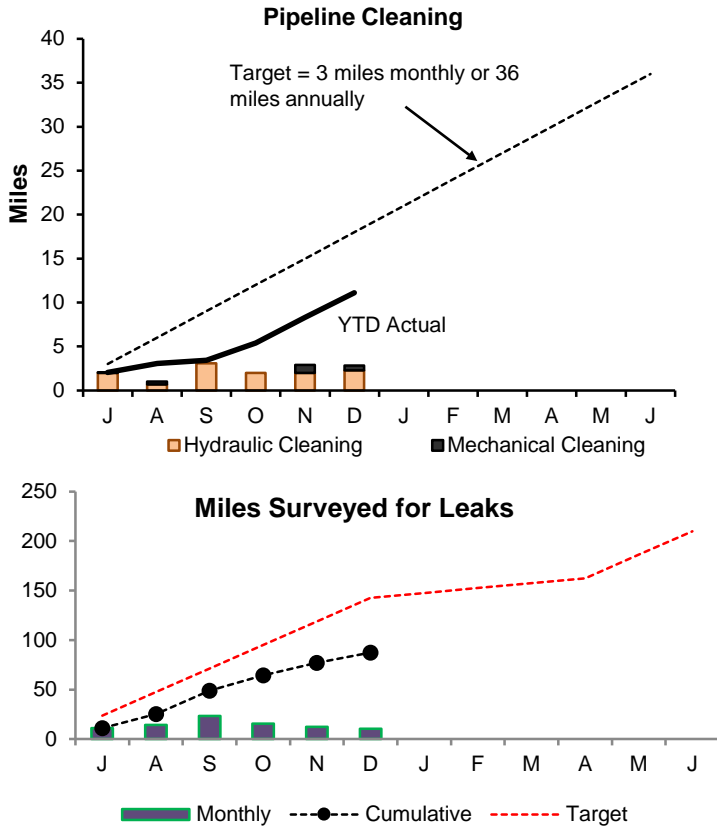
### Maintenance Backlog in Crew Hours



Due to COVID-19 and limited staffing prior to June 22, 2020, our percentage was below our goal of 100%, we anticipate meeting our goal within the next few months.



# Field Operations Maintenance

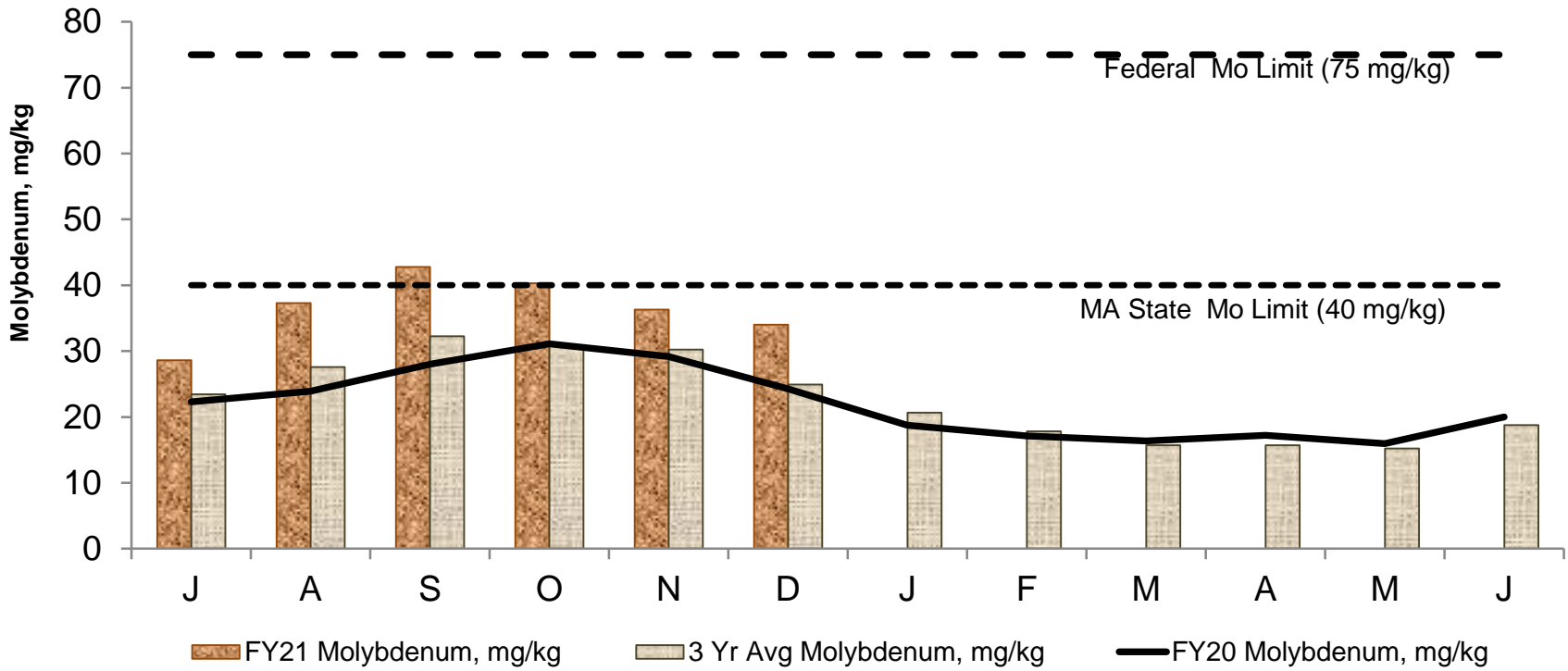


The total inspected for the fiscal year to date is 87.39; FY21-2Q, 38.53 miles of water mains were inspected.



# Wastewater Residuals - Molybdenum

## Molybdenum in Sludge Fertilizer Pellets





***MWRA Fiscal Year 2022  
Proposed Current Expense Budget***

February 17, 2021



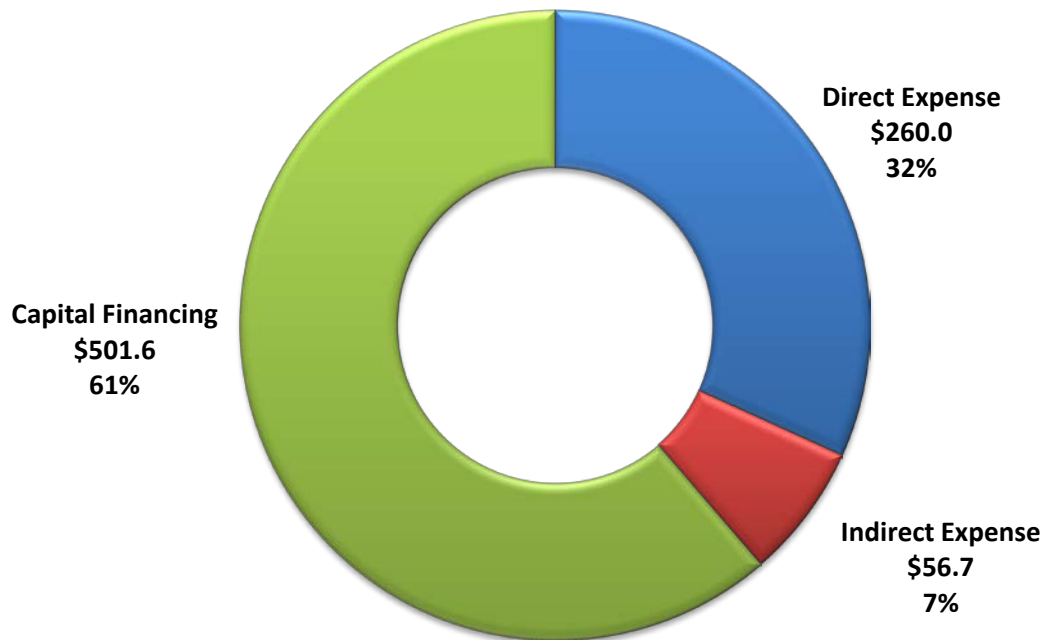
## FY22 Proposed CEB

- Deliver Sustainable and Predictable Assessments
- Continue Multi-Year Rates Management Strategy
- Covid-19: Impact to Community Shares/Assessments



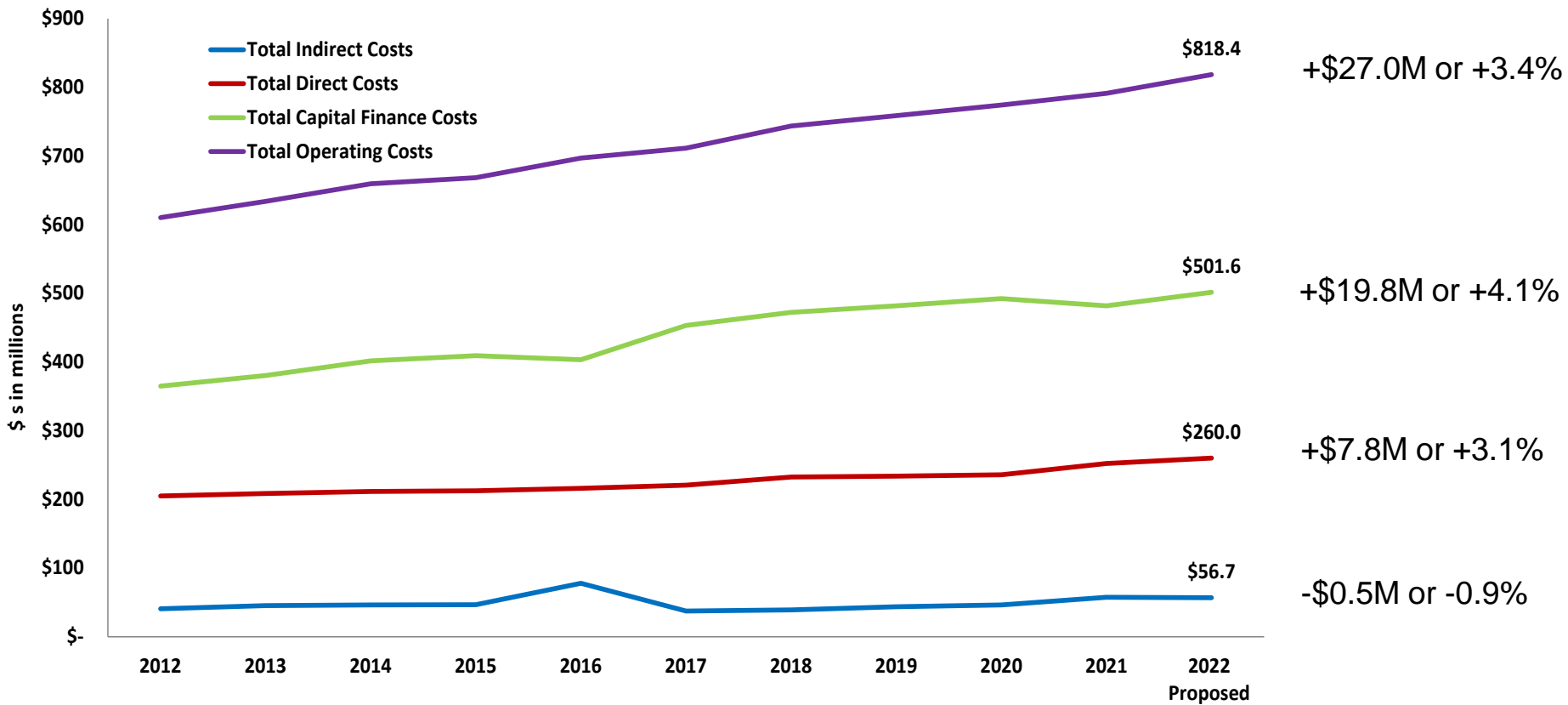
## FY22 Proposed Current Expense Budget

*(\$s in million)*





# Historical & Budgeted Spending

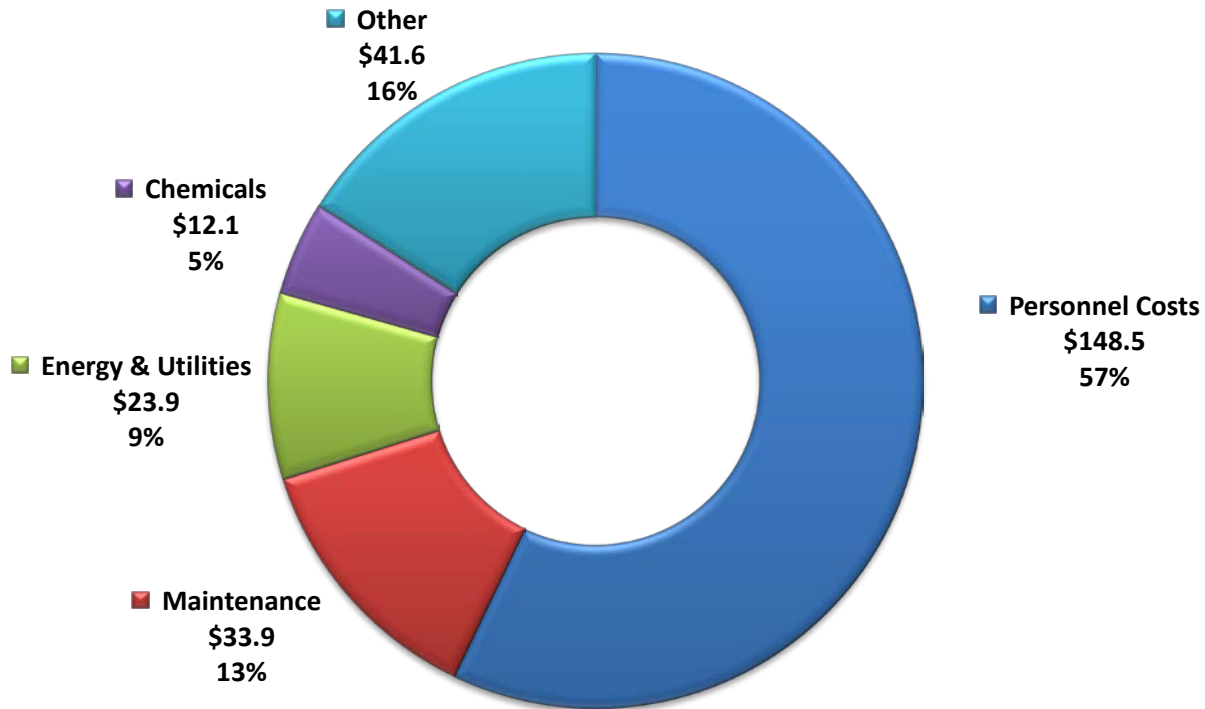






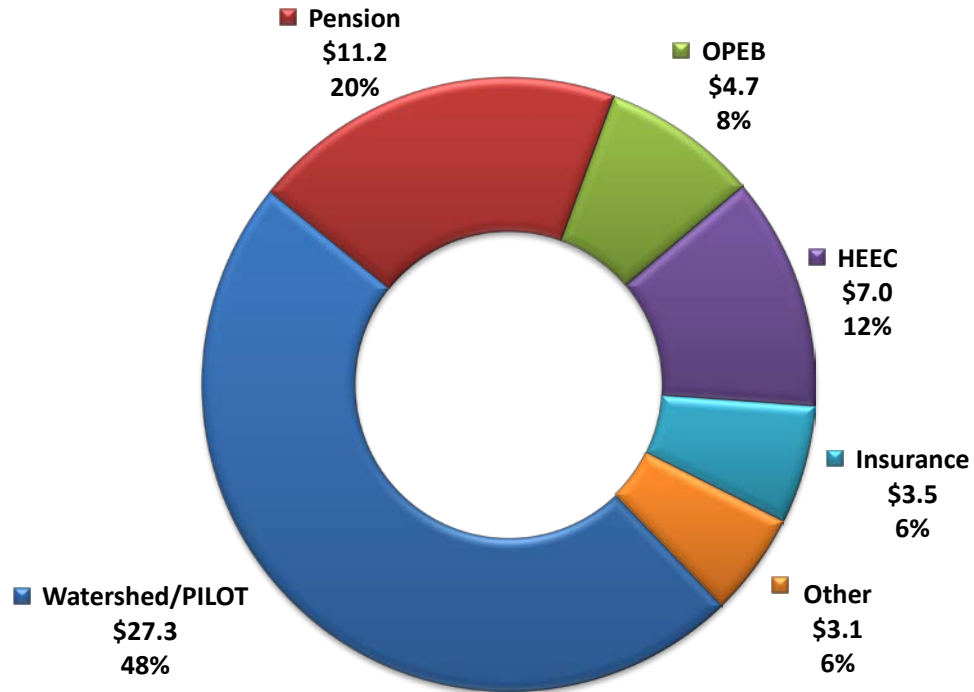
## Direct Expenses by Category

*(\$s in millions)*





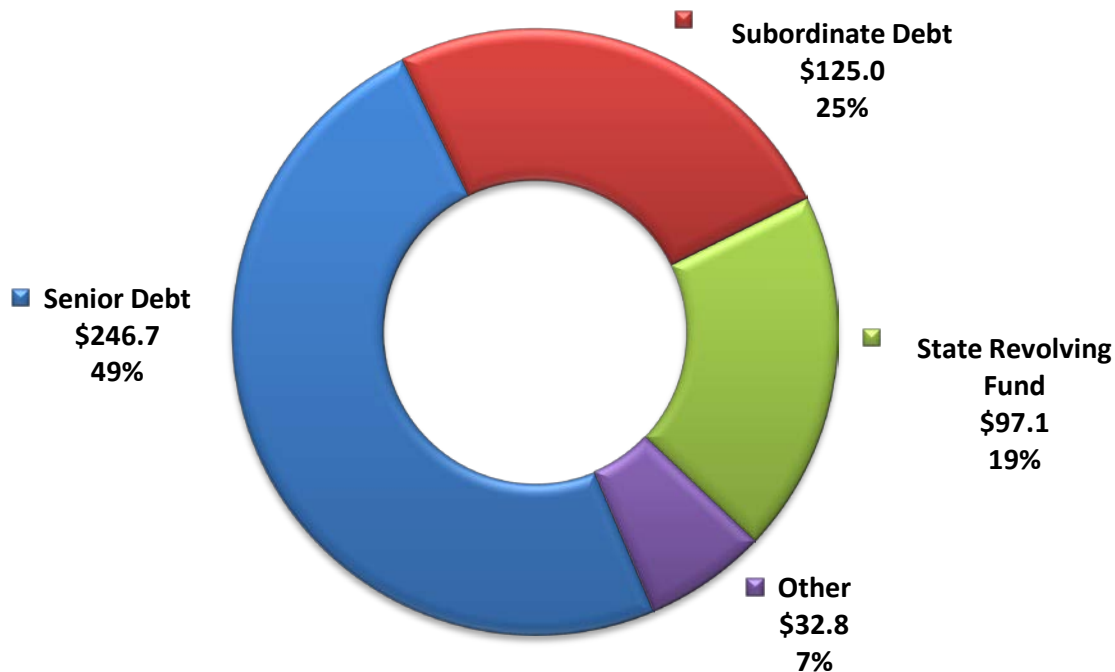
## Indirect Expenses by Category *(\$s in millions)*





## Capital Financing by Category

(\$s in millions)

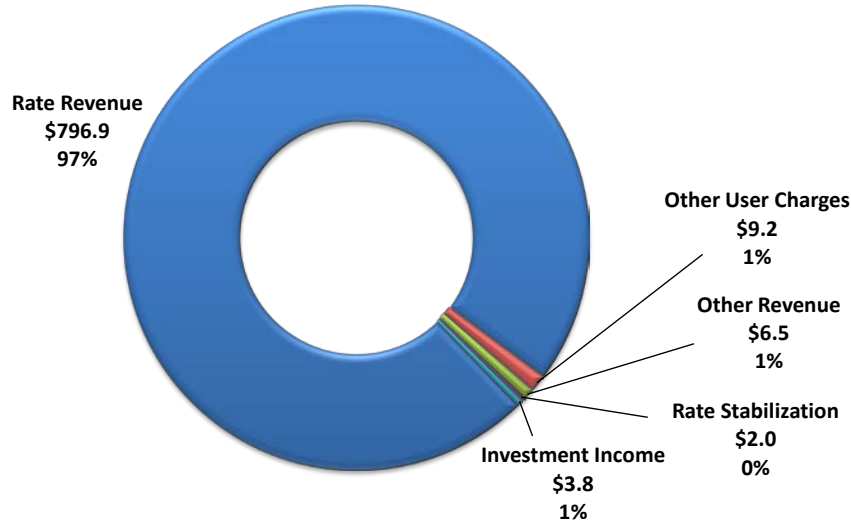




# FY22 Proposed CEB Budget Structure – Non-Rate Revenue

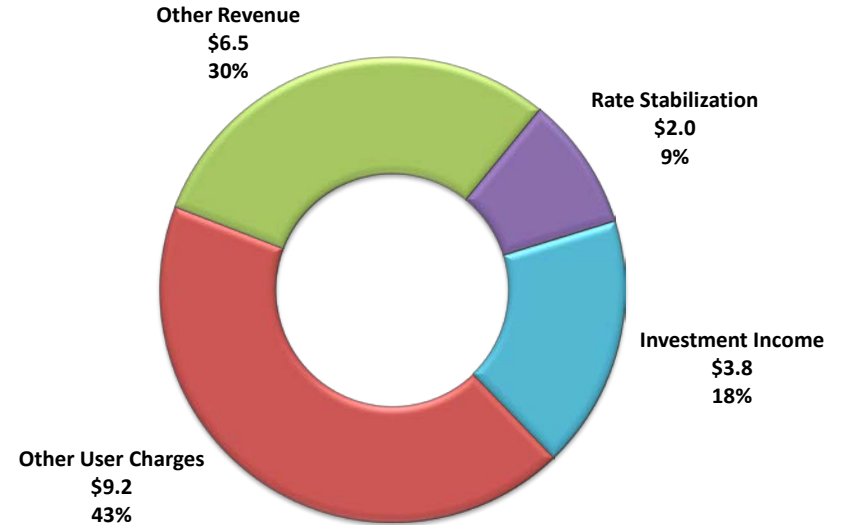
## Revenue

(\$s in millions)



## Non-Rate Revenue

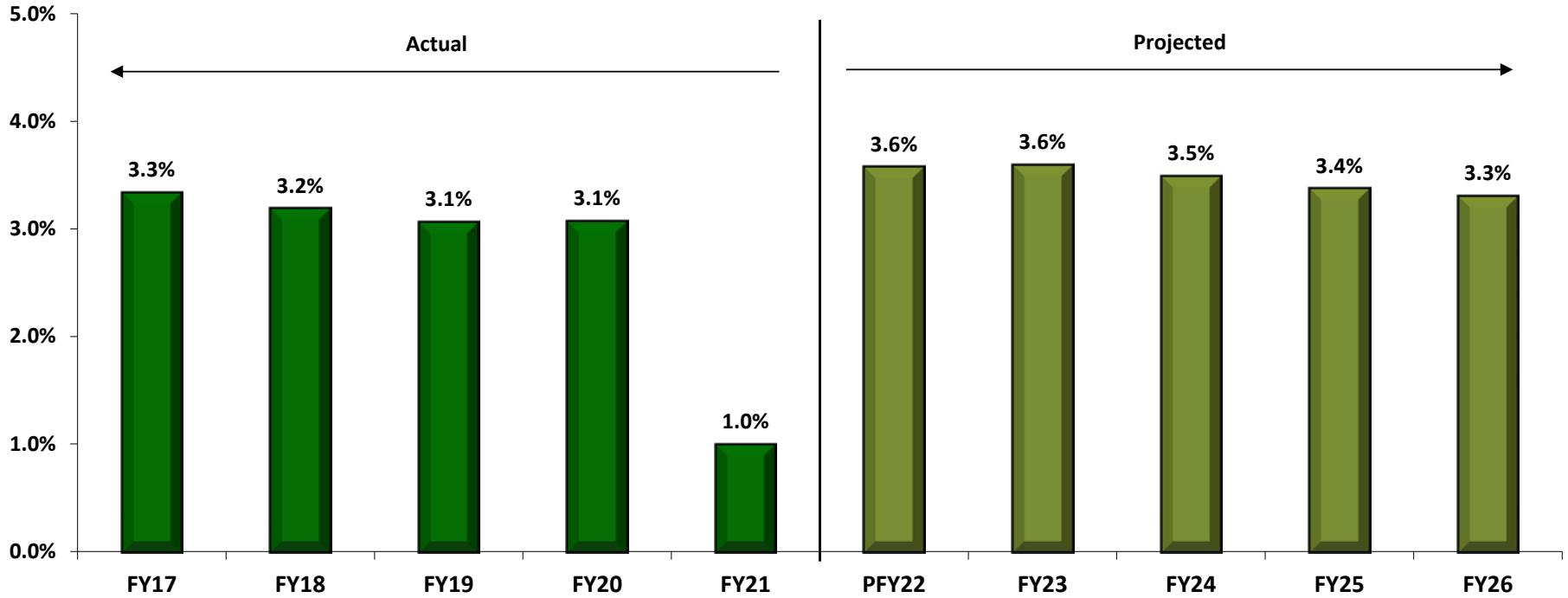
(\$s in millions)





# FY22 Proposed CEB – Rate Projections (Combined Utilities)

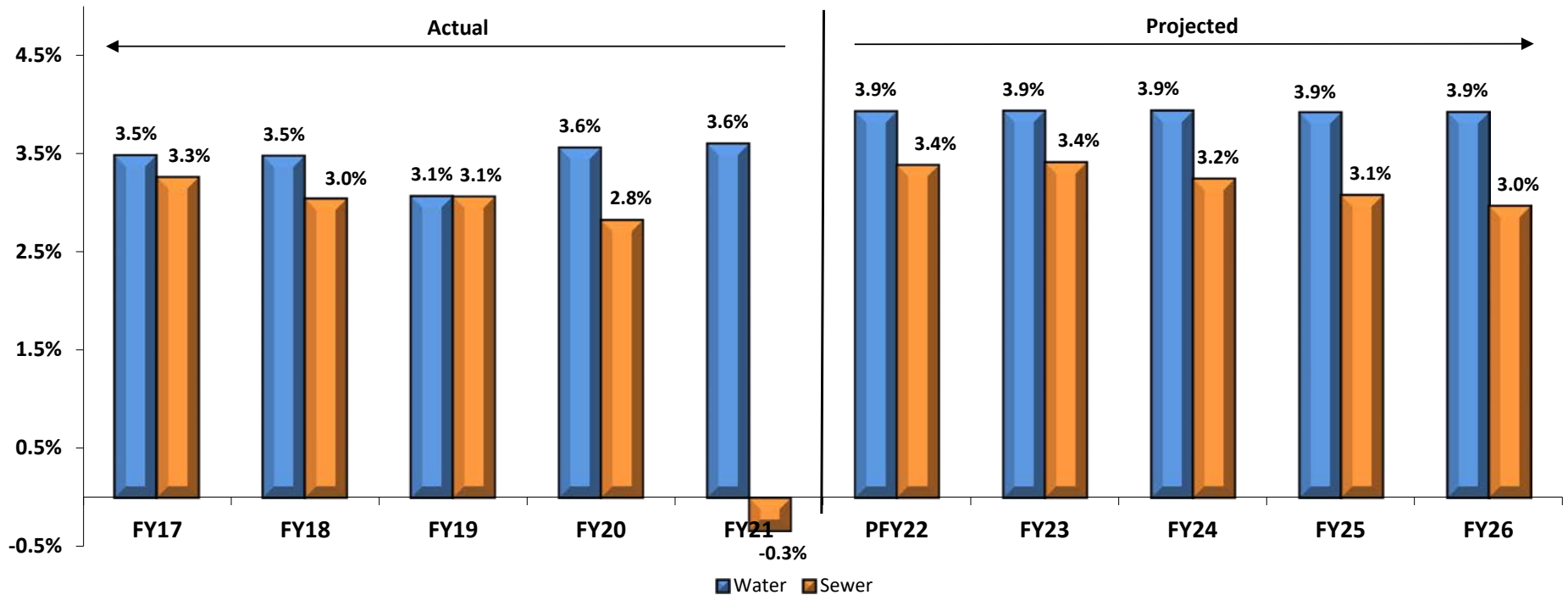
MWRA Combined Utilities  
Historical and Projected Rate Revenue Changes





# FY22 Proposed CEB – Rate Projections (By Utility)

## MWRA Water & Sewer Utilities Historical and Projected Rate Revenue Changes





## FY22 CEB Next Steps

- Transmit Proposed Budget to Advisory Board for 60 day review
- Public Hearing
- MWRA Board Hearing
- Staff will present Draft Final Budget in May
- Staff anticipate FY22 Budget adoption in June



***Thank You,  
Stay Well!***





*Combined Heat and Power Study,  
Deer Island Treatment Plant  
Contract 6963A, Amendment 2*

February 17, 2021



# Contract Overview

- Consultant: Black & Veatch Corporation
- Price: \$1,149,500
- Original Contract Term: 15 Months
- Notice to Proceed: June 7, 2019





## Contract 6963A Scope

- Evaluate long term supply and on-site generation alternatives
- Goals:
  - Maximize on-site energy generation
  - Improve/Increase Green Energy production
  - Decrease Emissions and use of fossil fuels
  - Reduce reliance on Utility Grid
- Produce a Life Cycle Cost Analysis/identify funding opportunities



Existing Steam Boiler

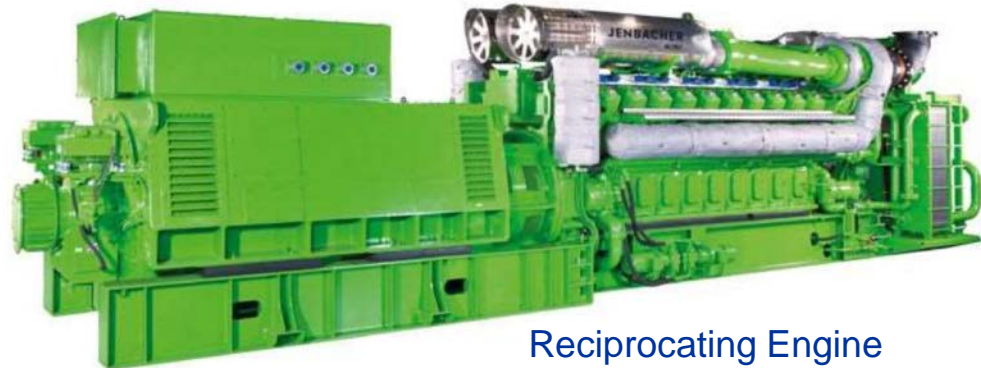


- Currently
  - 55-60% Green energy production
  - 22% of electricity produced from digester gas
  - Digester gas used to produce heat
  - Excess heat used to produce electricity
- New CHP could:
  - Increase to 75-85% off the grid
  - Increase to >50% electrical production
  - Digester gas used to produce electricity directly



# CHP Technology Recommendation

- Technology Evaluation Completed
- Recommend digester gas fueled reciprocating engine
  - Superior “part-load” performance means more electricity generated
  - Optimum regardless of heating season
  - Improved electrical generation efficiency > 50%
- Next step - 25-yr Models & Lif  
Cycle cost analysis



Reciprocating Engine



# Reasons for Proposed Time Extension

## Amendment 1: Approved under Delegated Authority

- Base evaluation of existing heat & power systems took longer than expected. This analysis was critical to remainder of study.
- COVID 19 Impacts and delays

## Amendment 2:

- Additional review and response during Technology Recommendation
  - Criticality of early decisions impact future work
- Anticipate similar review and response during alternative development
- Additional time if adjustments needed after recommendation to the Board of Directors
- No increase in cost

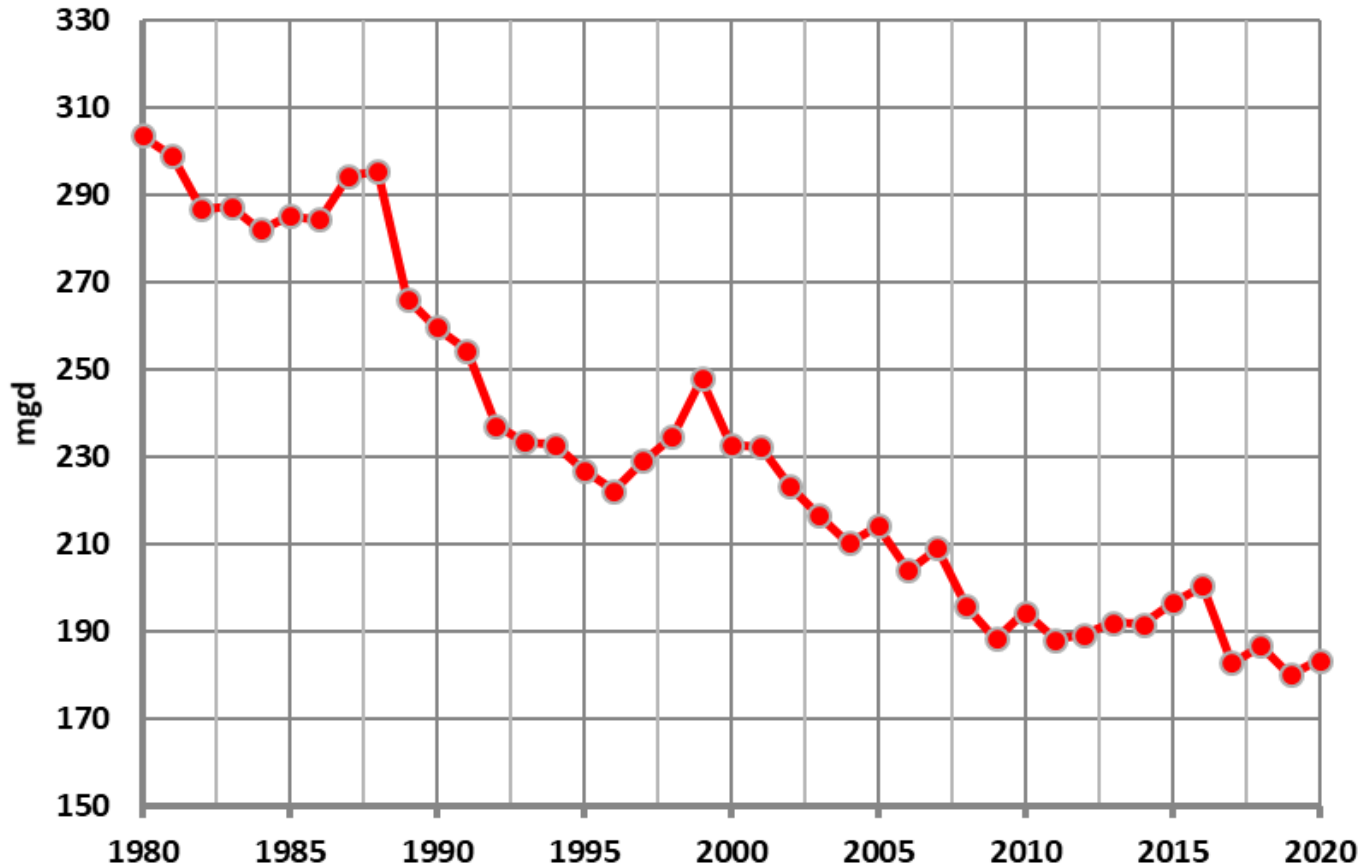


*Report on 2020 Water Use Trends and Reservoir  
Status*

February 17, 2021



# Total Consumption by MWRA Communities (1980 to 2020)

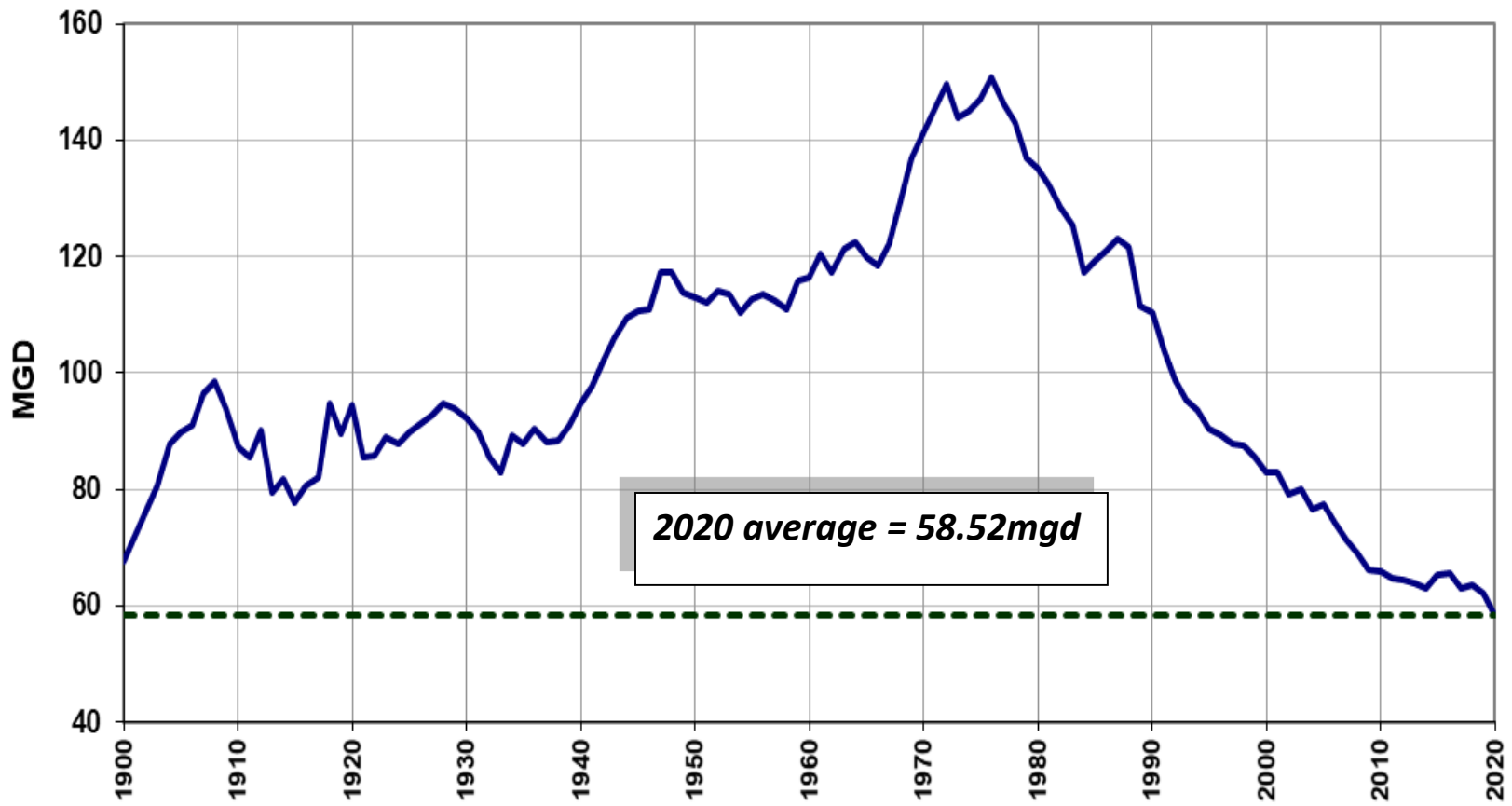


2020 --  
183.46 mgd



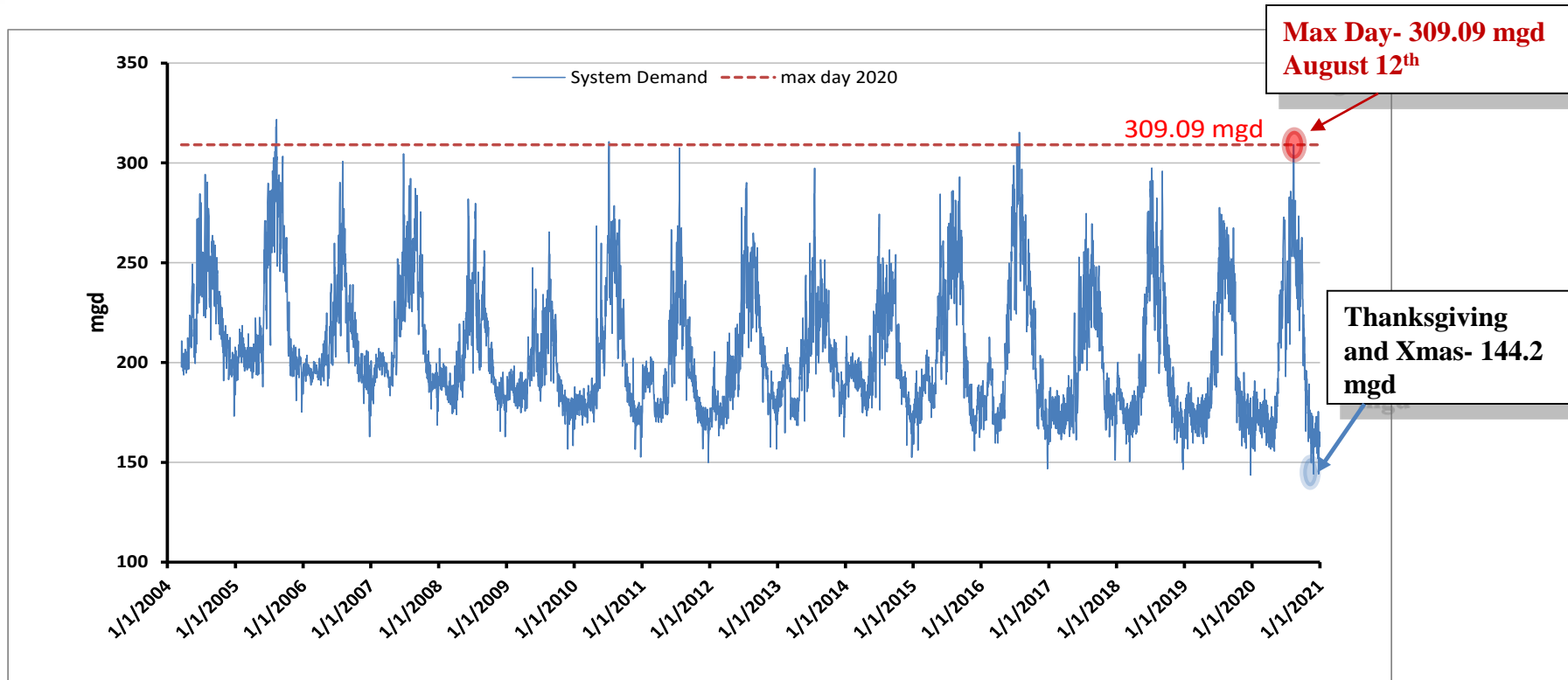


# Boston Water Use (1900 to 2020)



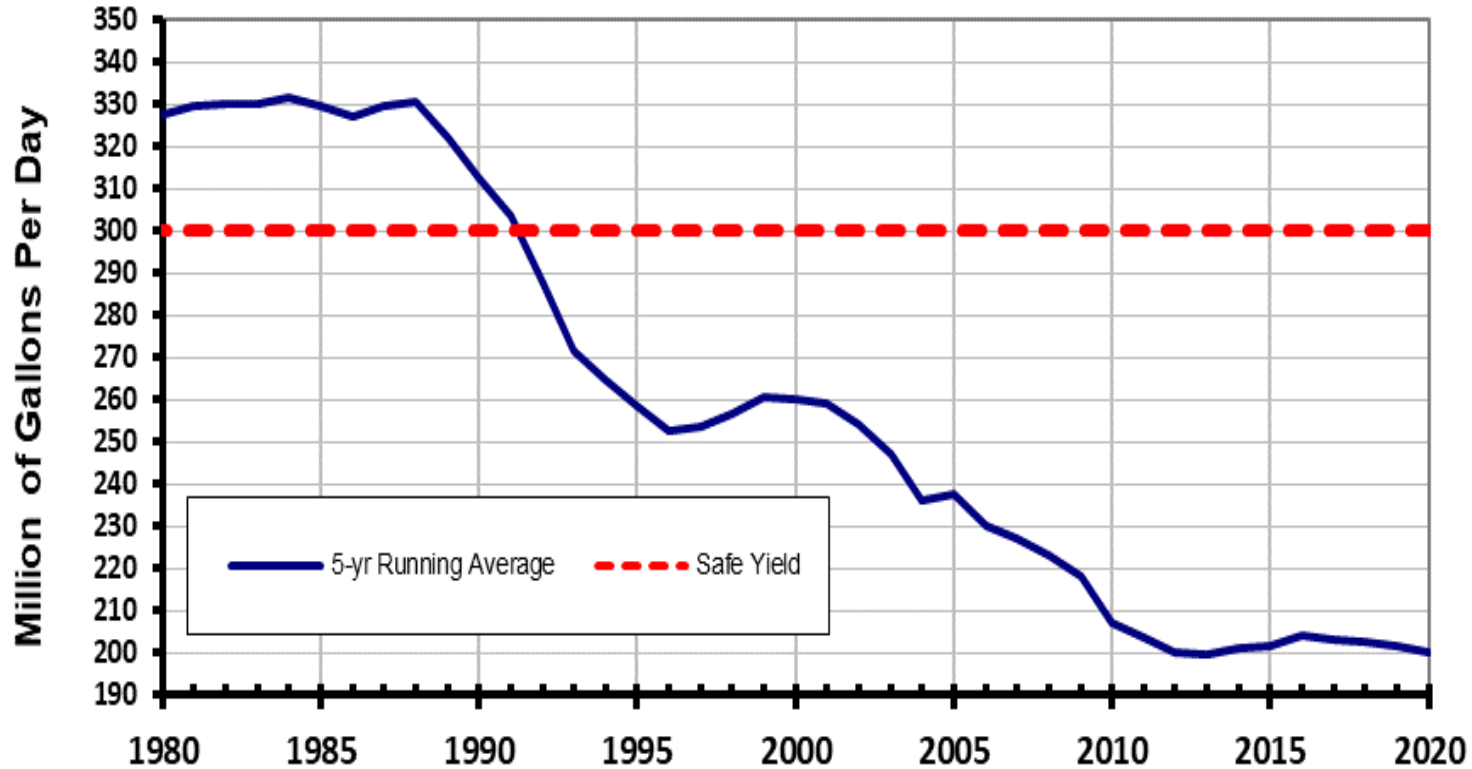


# Daily System Demand





# Reservoir Withdrawals – 5 Year Running Average



5-year average withdrawal = 200.12 mgd



# MetroBoston Quarterly Water Use Comparison (mgd)

Quarter	Metro Boston Total			Boston			Non-Boston		
	2020	2019	% change	2020	2019	% change	2020	2019	% change
Q-1	147.8	148.7	-0.6	57.6	58.6	-1.7	90.2	90.1	0.1
Q-2	163.0	158.7	2.7	56.2	61.0	-7.8	106.8	97.7	9.2
Q-3	194.4	188.6	3.1	65.7	69.0	-4.8	128.7	119.6	7.6
Q-4	147.7	151.7	-2.6	54.5	59.9	-9.0	93.2	91.8	1.5



*Presentation to*

**MWRA Board of Directors**

***Revised Lead and Copper Rule***

February 17, 2021



## Significant Community Requirements

- Service Line Inventories
- Annual Service Line Notices
- Lead Service Line Replacement Plan
- Changes in Sampling
- Public Notification Changes
- Find and Fix for Any Elevated Samples
- School and Childcare Facility Sampling



## Significant MWRA Impacts

- Support to Communities on:
  - Inventories
  - Replacement Plans
  - Find and Fix
  - Laboratory Services
- Corrosion Control Treatment Review
  - Pipe Loop Study
  - Stakeholder Panel
- Community Forum/Training



*Metropolitan Tunnel Redundancy  
Program Update  
Filing of Environmental Notification Form*

February 17, 2021





# Tunnel Program Study Area

