

Executive Summary

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MWRA AT A GLANCE

Purpose

Provide wholesale water and sewer services to customer communities, funded primarily through rates and charges

Legal Status

Massachusetts public authority established by an enabling act in 1984 – Chapter 372 of the Acts of 1984 as most recently amended January 2019

Management

- 11-member Board of Directors (3 Governor appointees, 3 Mayor of Boston appointees, 1 City of Quincy appointee, 1 Town of Winthrop appointee, and 3 Advisory Board appointees)
- 1 Executive Director (5 divisions: Office of the Executive Director, Operations, Finance, Administration, Law)

Advisory Board

Established by the enabling act to make recommendations to the MWRA on the MWRA budget and programs and to serve as liaison to the customer communities

Service Area

- 61 customer communities (43 sewerage, 54 water)
- 3.0 million people (44% of MA population)
- 5,500 businesses

FY21 Operating Budget (\$ in millions)

Direct Expenses	\$252.2
Indirect Expenses	\$57.3
<u>Capital Finance</u>	<u>\$481.9</u>
Total Operating Budget	\$791.4
Revenues*	\$791.4

*97.2% of Revenues raised from rate assessments

Bond Ratings - General Revenue Bonds (senior/subordinate)

Moody's -	Aa1/Aa2
S&P -	AA+/AA
Fitch -	AA+/AA

Capital Improvement Program

- Total CIP spending: \$8.8 billion since 1984
- Total Current Indebtedness: \$4.8 billion
- FY21 CIP Budget: \$266.2 million

Water System

- 2 protected reservoirs
 - Quabbin
 - Wachusett
- 2 water treatment facilities
 - John J. Carroll
 - William A. Brutsch
- 350 miles of distribution infrastructure including aqueducts, deep rock tunnels, and pipeline
- 14 active storage reservoirs and standpipes
- 11 active pumping stations
- Average Daily flow: 200 mgd
- Safe yield: 300 mgd
- Treatment Capacity: 405 mgd
- Percentage of capacity utilized: 67%*
**based on safe yield*

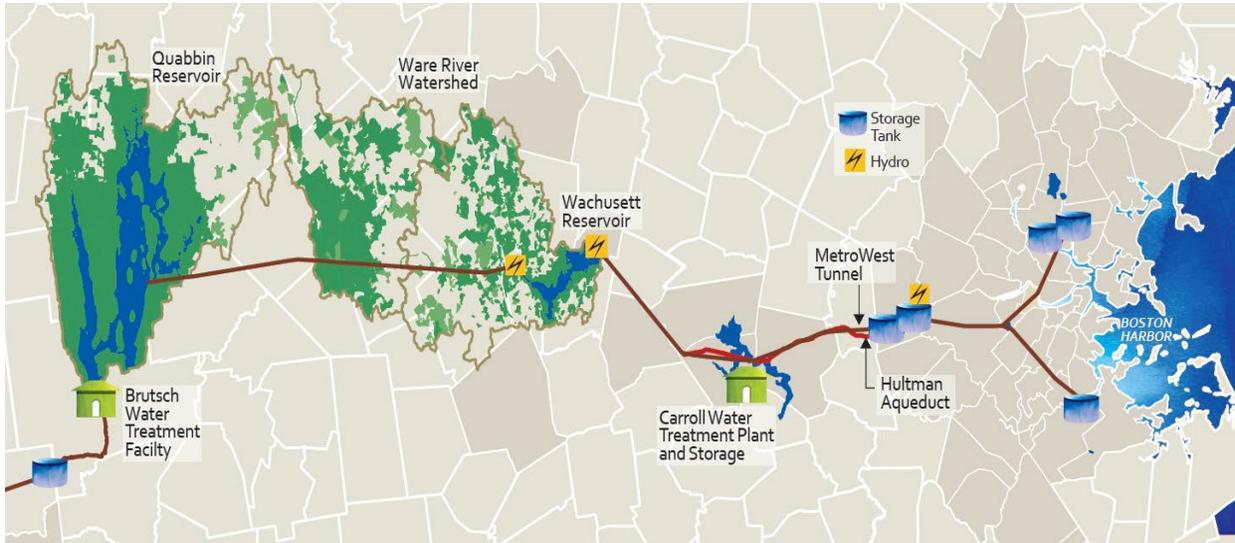
Wastewater System

- 240 miles of sewer pipelines and cross-harbor tunnels
- 13 pump stations
- 1 screening facility
- 1 gate house
- 6 CSO treatment/storage facilities
- 2 wastewater treatment plants
 - Deer Island Treatment Plant
 - Clinton Wastewater Treatment Plant
- 4 remote headworks
- 1 Pellet Plant for residuals processing
- Average daily flow: 365 mgd
- Peak wet weather capacity: 1,270 mgd
- Percentage of capacity utilized on average: 30%

Renewable Energy

Approximately 27% of MWRA's energy requirement was self-generated from renewable sources (biomass, hydro, wind, & solar assets) in FY20.

MWRA AT A GLANCE



MWRA's water comes from the Quabbin Reservoir, 65 miles west of Boston, and the Wachusett Reservoir, 35 miles west of Boston. The Quabbin alone holds a 4-year supply of water.

The reservoirs are filled naturally. Rain and snow fall onto watersheds (protected land around the reservoirs) and eventually turn into streams that flow into the reservoirs. This water comes into contact with soil, rock, plants and other material as it follows its path. This process helps to clean the water.

The Quabbin and Wachusett Reservoirs are protected. Over 85% of the watershed lands that surround the reservoirs are covered in forest and wetlands. About 75% of the total watershed land cannot be built on. The natural undeveloped watersheds help to keep MWRA water clean and clear. Because they are well-protected, the water in the Quabbin and Wachusett Reservoirs is of very high quality. The MWRA has won numerous awards for quality, taste, and sustainability.

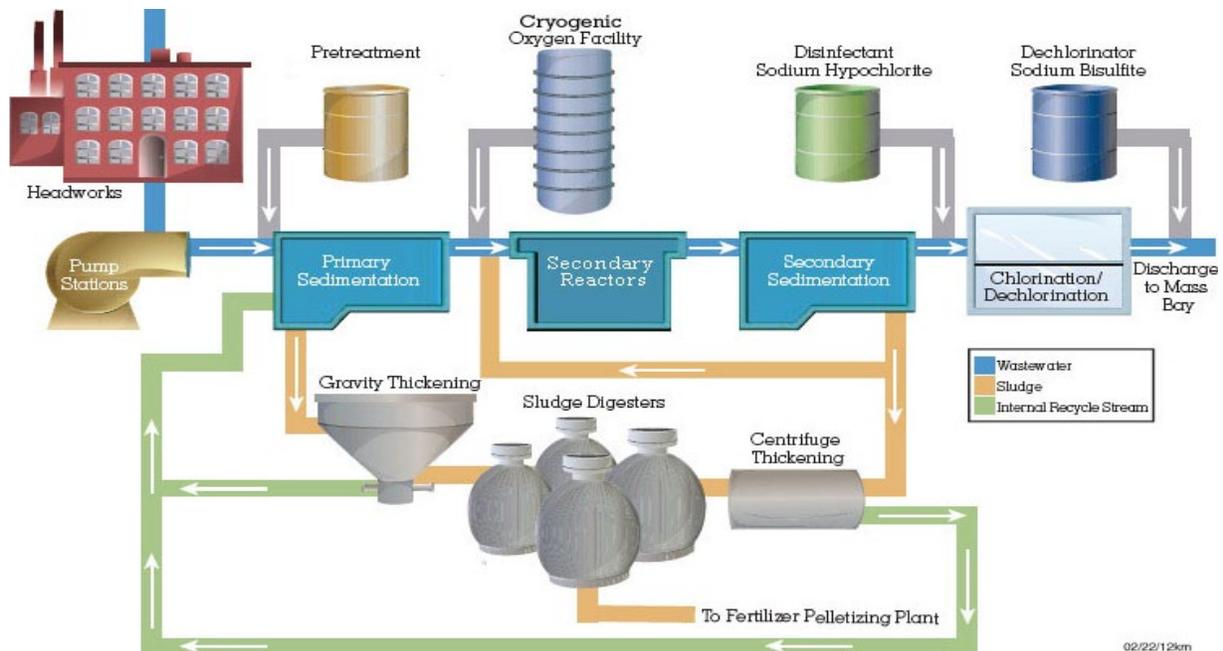
Water for most MWRA communities is treated at the Carroll Water Treatment Plant in Marlborough, Massachusetts. Water from the Quabbin and Wachusett Reservoirs enters the plant through the Cosgrove or Wachusett Aqueduct. The treated water leaves the plant through the MetroWest Water Supply Tunnel and the Hultman Aqueduct. Water from the Quabbin Reservoir for Chicopee, South Hadley Fire District #1 and Wilbraham is treated at the Brutsch Water Treatment Facility in Ware, Massachusetts, and leaves the plant through the Chicopee Valley Aqueduct.

For MetroWest and Metro Boston communities, treated water is sent through the MetroWest Water Supply Tunnel and the Hultman Aqueduct and is stored in covered tanks. From there it is drawn into distribution mains and many smaller community pipes. For Chicopee Valley Area Communities, treated water is sent through the Chicopee Valley Aqueduct to the local distribution mains and smaller community pipes. Water meters log the water entering each community.

Local pipes serve each street in the customer communities and eventually carry water into buildings. Meters installed by the local communities measure the amount of water delivered to each home or business.

To maintain and measure water quality, MWRA tests over 1,600 water samples per month, from the reservoirs all the way to household taps.

MWRA AT A GLANCE – Wastewater System



Water is flushed through a building's pipes into customer community sewers. These 5,100 miles of local sewers transport the wastewater into 227 miles of MWRA interceptor sewers. The interceptor sewers, ranging from 8 inches to 11 feet in diameter, carry the region's wastewater to two MWRA treatment plants. Most communities' wastewater flows to the Deer Island Treatment Plant with the Clinton Wastewater Treatment Plant serving the town of Clinton and the Lancaster Sewer District.

The following describes the Deer Island treatment process:

Collection and Pumping: Sewage is piped to headworks where bricks, logs and other large objects are screened out. Pumps draw the screened sewage through deep-rock tunnels under Boston Harbor to Deer Island.

Preliminary Treatment: Mud and sand settle in a tank called a grit chamber. This material, known as grit and screenings, is taken to a landfill for environmentally safe disposal.

Primary Treatment: The sewage then flows to primary settling tanks where up to 60% of the solids in the waste stream settle out as a mixture of sludge and water.

Secondary Treatment: Plant oxygen is added to the wastewater to speed up the growth of microorganisms. These microbes then consume the wastes and settle to the bottom of the secondary settling tanks. After secondary treatment, 80-90% of human waste and other solids have been removed.

The treated wastewater is disinfected before it is discharged to the Massachusetts Bay. The treated wastewater, known as effluent, travels through a 9.5-mile Outfall Tunnel bored through solid rock more than 250 feet below the ocean floor. The tunnel's last mile and a quarter include 55 separate release points known as "diffusers." With water depths up to 120 feet, this outfall provides a much higher rate of mixing and/or dilution than possible with discharges into the shallow waters of Boston Harbor.

Sludge from primary and secondary treatment is processed further in sludge digesters, where it is mixed and heated to reduce its volume and kill disease-causing bacteria. It is then transported through the Inter-Island Tunnel to the pelletizing plant in Quincy, Massachusetts where it is dewatered, heat-dried and converted to a pellet fertilizer for use in agriculture, forestry and land reclamation.

MWRA Capital Improvement Program Overview

In 1984, legislation was enacted to create the Massachusetts Water Resources Authority, an independent agency with the ability to raise its revenues from ratepayers, bond sales and grants. The primary mission was to modernize the area's water and sewer systems and clean up Boston Harbor. Since its establishment, the MWRA has invested over \$8.8 billion to improve the wastewater and waterworks systems serving its 61 customer communities with projected future spending of \$4.0 billion. The system serves 3.0 million people and more than 5,500 businesses.

Since 1985, MWRA has been subject to a Clean Water Act enforcement action to end years of wastewater pollution of Boston Harbor and its tributaries from the old Deer Island and Nut Island treatment plants and combined sewer overflows (CSOs). The enforcement case was initiated by the Conservation Law Foundation in 1983 and taken up by the U.S. Environmental Protection Agency in 1985. The Commonwealth of Massachusetts, the Boston Water and Sewer Commission, the City of Quincy and the Town of Winthrop are also parties to the case.

The Orders of the Court set forth the schedules of activities to be undertaken to achieve compliance with the law. Since 1985, MWRA has complied with 420 milestones which include the completion of extensive new wastewater treatment facilities at Deer Island in Boston and Nut Island in Quincy, a residuals facility in Quincy, and 35 CSO control projects in Boston, Cambridge, Chelsea and Somerville which comprise the long-term CSO control plan, the last of which were completed in December 2015.

As part of compliance with the Court's Orders, MWRA was required to file monthly compliance and progress reports on its ongoing activities through December 15, 2000 and quarterly compliance and progress reports through December 2016. MWRA is currently required to submit bi-annual compliance and progress reports through December 2020.

During the same time, MWRA complied with regulatory mandates to improve waterworks facilities. The mandated waterworks projects included the MetroWest Water Supply Tunnel, the Carroll Water Treatment Plant, and several covered water storage facilities.

The mandated projects account for most of the Capital Improvement Program (CIP) spending. The five initiatives below account for over \$6.0 billion or 70% of spending to date:

- Boston Harbor Project - \$3.8 billion
- Combined Sewer Overflow - \$913 million
- MetroWest Tunnel - \$697 million
- Carroll Water Treatment Plant - \$425 million
- Covered Storage Facilities - \$239 million

As the MWRA reaches maturity as an agency, the infrastructure modernization and new facilities construction phase is nearing completion, and, barring new mandates, most of the Authority's future capital budget will be designated for Asset Protection, Water System Redundancy, Pipeline Replacement and Rehabilitation, and Business System Support.

Asset Protection focuses on the preservation of the Authority's building facilities. Water System Redundancy aims to reduce the risks of service interruption and facilitate planned maintenance where major sections of the water delivery system assets can be taken off-line. Long-term water redundancy will be the largest single CIP initiative with estimated spending in excess of \$1.5 billion over 17 years. Pipeline Replacement and Rehabilitation focuses on the maintenance and replacement of water and sewer pipelines. Business System Support provides for the continuing improvement and modernization of technology and security systems.

The FY22 Proposed CIP reaffirms MWRA's commitment to the community financial assistance programs on both the water and wastewater side.

Capital initiatives to date have been primarily funded through long-term borrowings, and the debt service on these outstanding bonds represents a significant and growing portion of the Authority's operating budget. As of December 31, 2020, MWRA's total debt was \$4.8 billion. The Authority's capital finance (including debt service) obligation as a percent of total expenses has increased from 36% in 1990 to 60.9% in the Final FY21 Current Expense Budget.

The MWRA's credit ratings of Aa1 from Moody's, AA+ from S&P, and AA+ from Fitch, reflect strong management of financial performance, application of operating surpluses to early debt defeasance, satisfactory debt service coverage ratios, well maintained facilities, comprehensive long-term planning of both operating and capital needs, and the strong credit quality of its member service communities.

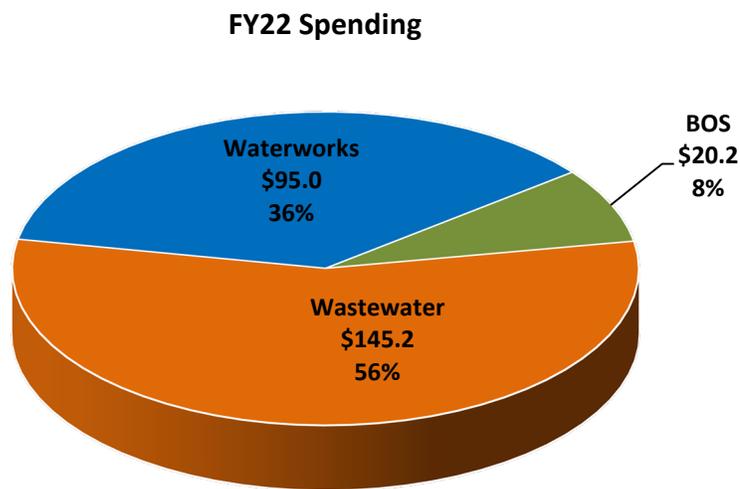
To arrive at the FY22 Proposed CIP, the Authority identified the needs of the capital programs taking into account the recommendations of the Master Plan. The long-term strategy for capital work is identified in the Authority's Master Plan which was published in 2006, updated in 2013, and in 2018. The Master Plan serves as a road map for inclusion of projects in the CIP in every budget cycle.

The FY22 Proposed CIP represents an update to the FY21 CIP approved by the MWRA Board in June 2020. The spending projections are the result of prioritizing the projects, establishing realistic estimates based on the latest information, striking a balance between maintenance and infrastructure improvements, and ensuring that there is adequate support for MWRA's core operations to meet all regulatory operating permit requirements.

FY22 Proposed CIP

FY22 Spending

The FY22 Proposed Capital Improvement Program projects expenditures of \$260.5 million for FY22, of which \$145.2 million supports Wastewater System Improvements, \$95.0 million supports Waterworks System Improvements, and \$20.2 million is for Business and Operations Support. Capital spending continues to target asset protection to preserve the integrity of the Authorities operating assets and the initial funding in preparation for the next major redundancy initiative.



The FY22 CIP includes \$38.6 million for community assistance programs, which are a combination of loan and partial grant programs, with net expenditures of \$23.2 million for the local Infiltration/Inflow program and net expenditures of \$15.3 million for the local water pipeline program.

The \$260.5 million in projected spending is driven by 46 active wastewater and water projects. Project contracts with spending greater than \$5 million in FY22, excluding local community assistance programs, total \$95.1 million and account for 36.5% of the total annual spending. These projects are presented in the following table:

Project	Subphase	FY22 \$s in Millions	% of Total
Corrosion & Odor Control	NI Odor Ctrl HVAC Improvement Construction Phase 2	\$22.9	8.8%
Deer Island Treatment Plant Asset Protection	Clarifier Rehab Phase 2 - Construction	\$21.8	8.4%
Facility Asset Protection	Prison Point Rehab - Construction	\$21.2	8.2%
Deer Island Treatment Plant Asset Protection	Fire Alarm System Replacement - Construction	\$7.8	3.0%
NIH Redundancy & Storage	Section 89 & 29 Replacement - Construction	\$5.8	2.2%
Metro Tunnel Redundancy	Preliminary Des & MEPA Review	\$5.4	2.1%
Metro Redundancy Interim Improvement	WASM 3 CP-1	\$5.2	2.0%
Central Monitoring System	CWTP SCADA Upgrade Construction	\$5.0	1.9%
Total Contracts > \$5 million		\$95.1	36.5%
Other Project Spending		\$165.3	63.5%
Total FY22 Spending		\$260.5	100.0%

A project description of some of the major FY22 spending projects are included below.

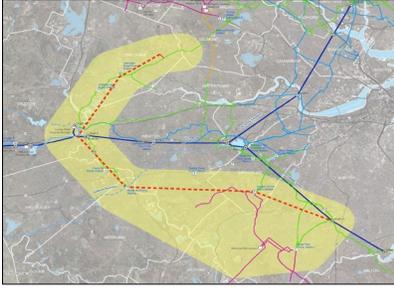
Nut Island Odor Control and HVAC Improvements - Construction Phase 2 - \$22.9 million (\$58.3 million total construction cost). Improvements to the Nut Island Headworks odor control, HVAC and energy management systems. These are the long-term improvement projects that arose following the January 2016 fire, and the evaluation contract of the odor control, HVAC, and energy management completed in February 2017.



Prison Point Rehabilitation Construction - \$21.2 million (\$42.5 million total construction cost). This rehabilitation will include upgrades to the facility including replacement of diesel pump engines, dry weather screens, wet weather screens, sluice gates, chemical tanks, updating of other facility equipment including electrical distribution and chemical disinfection systems, and repair/replacement of miscellaneous equipment. Improvement/installation of systems as appropriate for energy efficiencies, security, and fire alarm will also be included.

Northern Intermediate High Redundancy Section 89 and 29 Replacement Construction - \$5.8 million (\$28.9 million total construction cost). This is a redundancy project for MWRA's Northern Intermediate High service area. Section 89 will be replaced now that the redundant pipeline is completed.





Tunnel Preliminary Design & MEPA Review - \$5.4 million (\$15.7 million total cost) Preliminary design, geotechnical investigation, permitting and MEPA environmental review of the Northern and Southern Tunnels a part of the Metro Tunnel Redundancy project.

WASM 3 CP-1 - \$5.2 million (\$19.5 million total construction cost) construction of the WASM 3 rehabilitation This first construction contract includes rehabilitation of approximately 13,800 feet of 56-inch and 60-inch diameter water main in Arlington, Somerville and Medford. Construction will include cleaning and cement mortar lining, some sliplining and some pipe replacement. This is a key element of the Metro Redundancy Interim Improvement project.



Carroll Water Treatment SCADA Upgrade Construction - \$5.0 million (\$13.0 million total construction cost). This project includes the replacement of PLC's nearing their end of life with an updated PLC platform. New PLC's will provide enhanced security capabilities, continued vendors support and future reliability. Project will also include standardizing PLC logic and HMI graphics, and upgrading aging field instrumentation.

Deer Island Wastewater Treatment Plant Asset Protection and Residuals:

Clarifier Rehabilitation Phase 2 Construction - \$21.8 million (\$137.2 million total construction cost). This project will rehabilitate the sludge removal system in the primary tanks and the aeration/recirculation systems in the secondary tanks. The influent gates, effluent launders and aeration systems, and concrete corrosion in primary clarifiers will also be addressed and repaired.



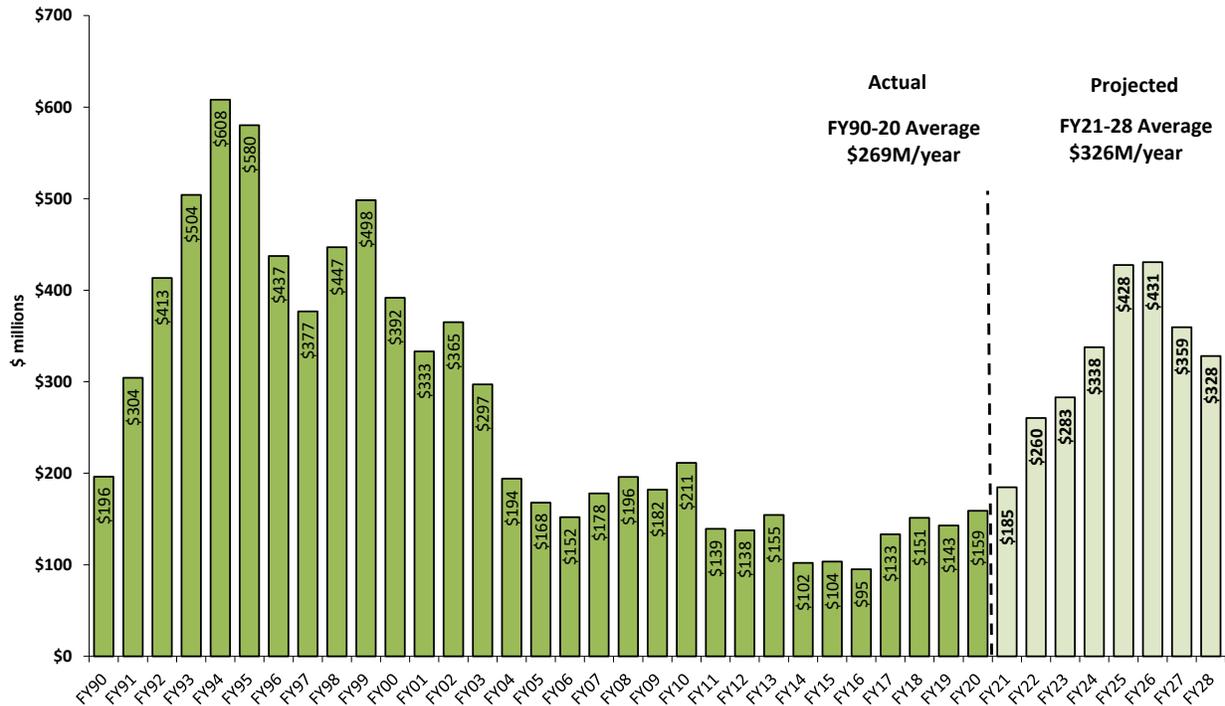


Fire Alarm System Replacement - \$7.8 million (\$28.8 million total construction cost) Project will replace obsolete fire alarm monitoring & control systems. Design awarded October 2015; construction phase to commence in FY21 and approximately every 20 years thereafter.

Historical and Projected Capital Spending

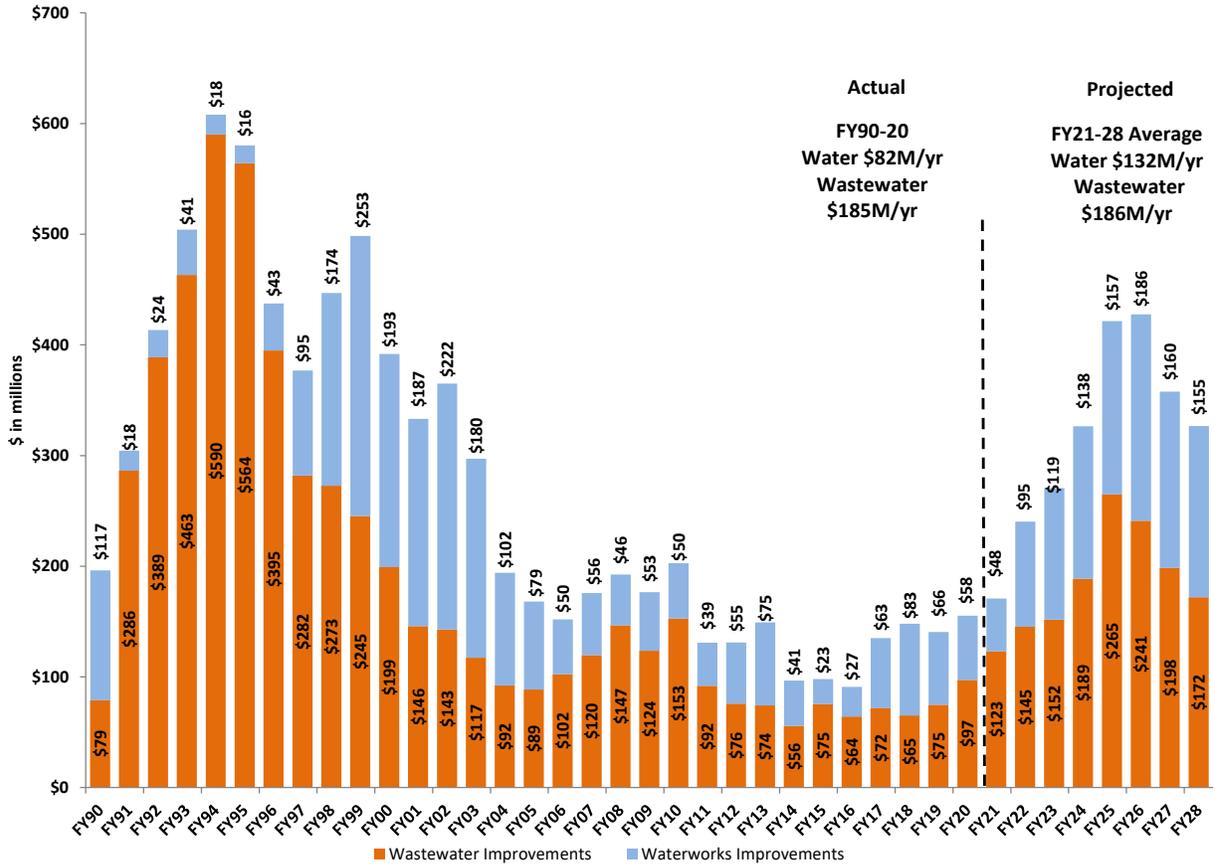
The chart below captures the historical CIP spending through FY20 and projects spending through FY23 based on the FY22 Proposed CIP. Average annual CIP spending through FY20 was \$269 million. Average annual CIP spending for the proposed FY21-28 period is projected to be \$326 million.

Annual CIP Spending



The following chart shows the historical CIP spending from FY90 through FY20 by utility with projections through FY28. Average annual CIP spending through FY20 was \$82 million for Waterworks and \$185 million for Wastewater. Average annual CIP spending for FY21-28 is projected to be \$132 million for Waterworks and \$186 million for Wastewater.

Annual CIP Spending by Utility



The spending projections set forth here include updates to the approved FY20 CIP with the latest cost estimates, revised schedules, and new projects.

FY19-23 Spending and the Five-Year Spending Cap

Spending during the FY19-23 timeframe is planned to be \$1.0 billion, including local community spending of \$149.2 million for the I/I loan and grant program and \$42.6 million for the water pipeline loan program. Spending under the Wastewater and Waterworks programs is projected at \$592.3 million and \$385.3 million, respectively, followed by Business and Operations at \$52.6 million.

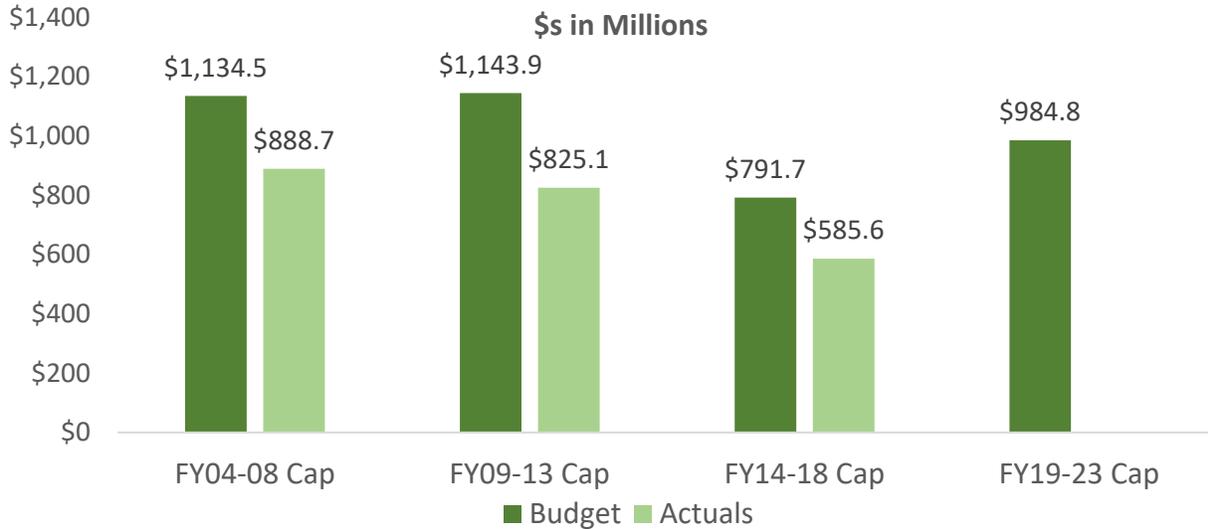
Yearly projected expenditures for the Proposed FY19-23 period by program are shown below in millions:

	Projected Spending Beyond FY20	FY19	FY20	FY21	FY22	FY23	Total FY19-23
Wastewater System Improvements	\$1,649.2	\$74.8	\$97.2	\$123.2	\$145.2	\$151.8	\$592.3
Interception & Pumping	582.0	23.1	33.1	50.7	65.9	47.8	220.6
Treatment	841.7	10.0	14.2	37.7	53.8	80.1	195.9
Residuals	90.3	0.8	13.4	1.5	0.1	0.8	16.5
CSO	7.7	1.2	1.3	5.2	2.3	0.1	10.0
Other Wastewater	127.7	39.6	35.2	28.1	23.2	23.0	149.2
Waterworks System Improvements	\$2,263.5	\$65.6	\$58.1	\$47.8	\$95.0	\$118.8	\$385.3
Drinking Water Quality Improvements	57.0	0.8	1.5	3.4	6.4	4.1	16.2
Transmission	1,721.2	9.9	12.8	20.1	39.7	52.7	135.2
Distribution & Pumping	525.1	36.6	26.6	15.3	24.6	53.6	156.7
Other Waterworks	-39.8	18.4	17.0	8.9	24.4	8.5	77.2
Business & Operations Support	70.0	2.4	3.7	13.9	20.2	12.4	52.6
Total MWRA	\$3,982.7	\$142.9	\$159.0	\$184.8	\$260.5	\$283.0	\$1,030.2

The concept of a five-year spending Cap was first introduced at the Advisory Board's recommendation in 2003 for the FY04-08 period. The Cap represents targeted spending levels to ensure adequate capital program funding and to serve as a guide for long-term planning estimates and community assessments. The graph below describes the history of the past three five-year caps and the Final FY19-23 Cap, both in terms of the Cap budget levels and actual spending.

The most recent Cap (FY19-23) of \$984.8 million is significantly higher than the prior Cap (FY14-18) of \$791.7 million for a variety of reasons including increased spending on asset protection and the initial phases of the long-term redundancy program.

Cap Spending Budget and Actual



Today, the Authority is better positioned to reinvest in rehabilitation and replacement of aging facilities as result of conservative fiscal management which includes judicious control of expenses, and the fact that MWRA has implemented the practice of utilizing available funds resulting from positive current expense budget variances for defeasances resulting in the reduction of future fiscal years debt service expense. MWRA projects an overall reduction in outstanding principal of debt during the FY19-23 cap period.

It is important to note that the spending on capital programs is largely determined by the nature, magnitude, and number of upcoming projects. In the prior five-year Caps, specifically FY04-08 and FY09-13, the majority of spending was driven by court-mandated projects and building new facilities. During the FY14-18 Cap, the Authority reached substantial completion on its court-mandated CSO Control Plan at an approximate total cost of \$912.0 million. The Authority's main focus going forward is asset protection and water system redundancy. The FY22 Final CIP includes approximately \$2.0 billion in future expenditures for asset protection and continues to fund the critical redundancy for the Metropolitan Tunnels System at approximately \$1.5 billion over a seventeen-year period. However, the FY19-23 period includes only \$23.0 million related to the tunnels.

Annual cash flows for the FY22 Proposed Cap period total \$888.1 million, \$96.3 million below the established CAP of \$984.4 million set in FY19.

FY22 Proposed		FY19	FY20	FY21	FY22	FY23	Total FY19-23
	Projected Expenditures	\$142.9	\$159.0	\$184.8	\$260.5	\$283.0	\$1,030.2
	I/I Program	(39.6)	(35.2)	(28.1)	(23.2)	(23.0)	(149.2)
	Water Loan Program	(13.8)	(11.4)	(6.4)	(15.3)	4.4	(42.6)
	MWRA Spending	\$89.4	\$112.3	\$150.3	\$221.9	\$264.5	\$838.4
	Contingency	0.0	0.0	9.2	13.9	17.6	40.8
	Inflation on Unawarded Construction	0.0	0.0	0.0	2.1	6.8	8.9
	Chicopee Valley Aqueduct Projects	(0.0)	0.0	0.0	0.0	0.0	(0.0)
FY21 Final FY19-23 Spending	\$89.4	\$112.3	\$159.5	\$237.9	\$288.9	\$888.1	

The format of the Cap table is adjusted to account separately for MWRA spending, which excludes the local I/I grant and loan program and the local water pipeline loan spending which are both outside of MWRA's control. As in past Caps, contingency for each fiscal year is incorporated into the CIP to fund the uncertainties inherent to construction. The contingency budget is calculated as a percentage of budgeted expenditure outlays. Specifically, contingency is 7% for non-tunnel projects and 15% for tunnel projects. Inflation is added for unawarded construction contracts. Finally, the Cap excludes Chicopee Valley Aqueduct system projects.

It is important to emphasize that the majority of spending within the Wastewater and Waterworks programs is concentrated in several larger projects with significant spending in the FY19-23 timeframe. Project contracts with expenditures greater than \$14 million for the FY19-23 period total \$643.3 million, which includes local community assistance programs, and accounts for over 62.4% of total spending. Large construction initiatives include the Clarifier Rehabilitation at Deer Island and Nut Island Odor Control at \$75.3 million (\$137.2 million total cost) and \$58.3 million (\$58.3 million total cost), respectively between FY19-23. Net of the community loan programs and grants, the top construction related projects greater than \$14 million total \$331.9 million and account for over 32.2% of FY19-13 spending.

The table below highlights major project spending in the FY19-23 timeframe:

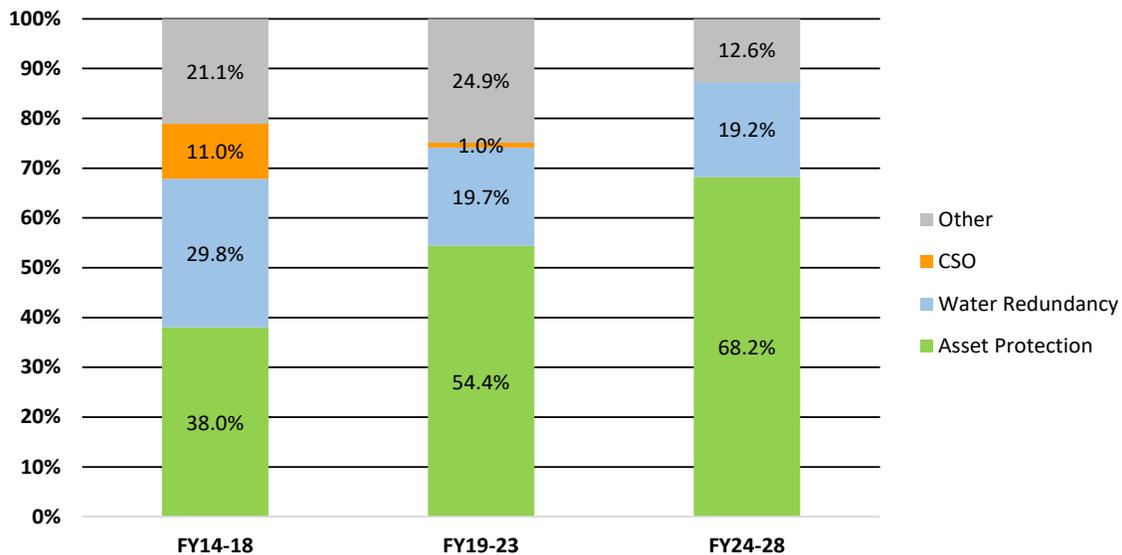
Project	Subphase	FY19-23 Spending \$s in Millions
Local Water Pipeline Improvement	LWSAP Phase 3 Distributions	\$85.6
Deer Island Treatment Plant Asset Protection	Clarifier Rehab Phase 2 – Construction	\$75.3
Local Water Pipeline Improvement	Local Water System Assistance Loans	\$59.9
Corrosion & Odor Control	NI Odor Ctrl HVAC Imp Construction Phase 2	\$58.3
Facility Asset Protection	Chelsea Creek Upgrades – Construction	\$51.9
I/I Local Financial Assistance	Phase XI Grants	\$44.6
Facility Asset Protection	Prison Point Rehab – Construction	\$42.5
I/I Local Financial Assistance	Phase X Grants	\$32.5
I/I Local Financial Assistance	Phase XII Grants	\$28.2
I/I Local Financial Assistance	Phase IX Grants	\$23.2
Local Water Pipeline Improvement	Lead Service Line Replace Loans	\$22.7
SEH Redundancy & Storage	Redundancy Pipeline Sect 111 - Construction 3	\$20.2

NIH Redundancy & Storage	Section 89 & 29 Redundancy Construction Phase 2	\$19.8
Deer Island Treatment Plant Asset Protection	Gravity Thickener Rehab	\$19.6
Deer Island Treatment Plant Asset Protection	Fire Alarm System Replacement - Construction	\$15.8
I/I Local Financial Assistance	Phase XI Loans	\$14.9
Metro Tunnel Redundancy	Prelm Des & MEPA Review	\$14.4
SEH Redundancy & Storage	Redundancy Pipeline Sect 111 - Construction 2	\$14.2
Total Contracts > \$14 million		\$643.3
% of 19-23 Spending		62.4%
Spending Excluding Community Loan Programs		\$331.9
% of 19-23 Spending		32.2%
Total Projected FY19-23 Spending		\$1,030.2

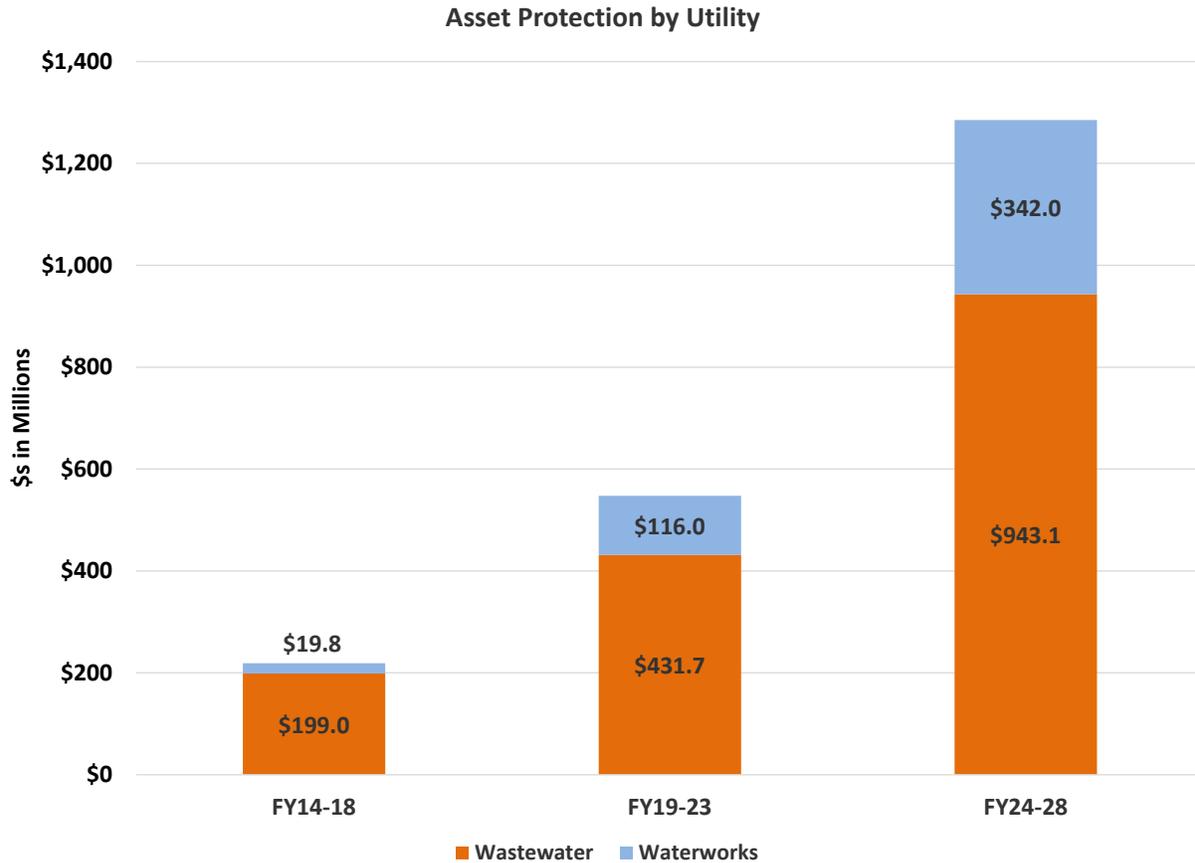
Asset Protection & Water System Redundancy

Asset Protection accounts for the largest share of capital expenditures for the FY19-23 period. The FY22 Proposed CIP includes \$560.6 million for asset protection initiatives, representing 54.4% of total MWRA spending in this timeframe. Asset protection spending by program is as follows: Wastewater (\$431.6 million), Waterworks (\$116.0 million), and Business and Operations Support (\$13.0 million). Deer Island Treatment Plant Asset Protection accounts for over \$187.3 million in spending. Spending for water system redundancy projects totals \$203.3 million in the same FY19-23 period, accounting for 19.7% of the total FY19-23 spending. Asset Protection as a percent of FY24-28 spending increases to 68.2% while Redundancy drops slightly to 19.2% of FY24-28 spending.

CIP Spending By Category
% of Total

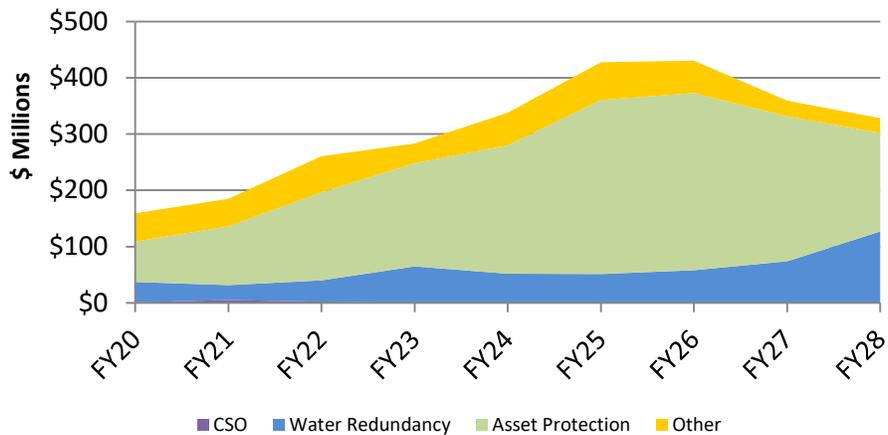


In terms of utility spending, wastewater asset protection accounts for 77.0% of the FY19-23 projected asset protection spending at \$431.7 million of which \$187.3 million is designated for the Deer Island Wastewater Treatment Plant and \$244.4 million for headworks and pipelines. The \$116.0 million targeted for waterworks asset protection includes \$57.1 million for water pipeline projects.



As illustrated by the following graph, the next two waves of spending over the FY19-23 Cap period and the FY24-28 Cap period will be for asset protection and water redundancy. This reflects MWRA’s commitment to maintaining its physical plant and addressing the need for water system redundancy in some critical service areas. Total asset protection spending for FY19-23 is projected at \$560.6 million or 54.4% of projected spending. Similarly, water redundancy spending for FY19-23 is projected at \$203.3 million or 19.7% of projected FY19-23 spending. For the FY24-28 spending window, total asset protection is projected at \$1.3 billion or 68.2% of projected spending. Similarly, water redundancy spending for FY24-28 is projected at \$361.4 million or 19.2% of projected FY24-28 spending.

**FY22 Proposed
Expenditure Forecast by Major Category**



FY22 Proposed CIP Future Expenditures

Every year, the MWRA updates its anticipated future spending. The FY22 Proposed CIP projects future spending of \$4.0 billion, including \$1.6 billion for Wastewater System Improvements and \$2.3 billion for Waterworks System Improvements. Projected spending totals \$1.0 billion for the FY19-23 period and \$1.9 billion for the FY24-28 timeframe. The project mix includes more wastewater spending, much of it asset protection projects, before pending tilts in favor of the Waterworks program as tunnel redundancy projects skew future spending.

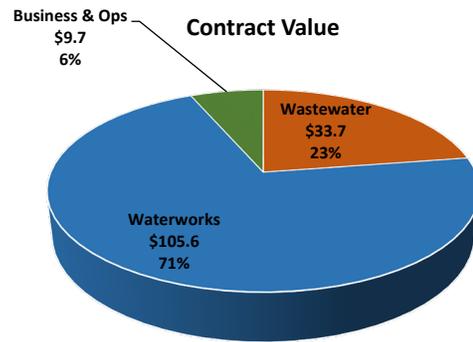
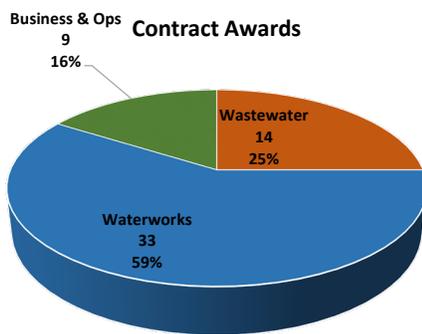
The table below represents the projected spending by the major project categories:

	Future Spending Beyond FY20	Total FY19-23	Total FY24-28	Beyond 28
Wastewater System Improvements	\$1,649.2	\$592.3	\$1,064.9	\$164.2
Interception & Pumping	582.0	220.6	332.9	84.7
Treatment	841.7	195.9	596.5	73.6
Residuals	90.3	16.5	22.2	65.7
CSO	7.7	10.0	0.1	0.0
Other Wastewater	127.7	149.2	113.2	(59.8)
Waterworks System Improvements	\$2,263.5	\$385.3	\$795.2	\$1,206.8
Drinking Water Quality Improvements	57.0	16.2	14.8	28.3
Transmission	1,721.2	135.2	320.1	1,288.7
Distribution & Pumping	525.1	156.7	369.3	62.3
Other Waterworks	-39.8	77.2	91.0	(172.5)
Business & Operations Support	70.0	52.6	23.5	-
Total MWRA	\$3,982.7	\$1,030.2	\$1,883.5	\$1,370.9

Major Planned Contract Awards for FY22:

In Fiscal Year 2022, 56 contracts totaling \$149.0 million are projected to be awarded. The largest ten projected contract awards total \$82.7 million and account for nearly 56% of expected awards and are presented in the following table.

Project	Subphase	Notice to Proceed	Total Contract Amount \$s in Millions
Metro Redundancy Interim Improvements	Waltham Water Pipeline Const	Feb-22	\$13.8
Metro Redundancy Interim Improvements	CHEPS Impr Construction	Jul-21	\$13.5
NHS - Revere & Malden Pipelines	Section 56 Replacement- Construction	Feb-22	\$9.8
Cathodic Protection of Distribution Mains	Cath Prot Metro System Des/CA	Jul-21	\$9.2
Braintree-Weymouth Relief	B/W Improvements - Construction	Jul-21	\$8.0
Northern Low Service Rehab Sec 8	Sec 50 & 57 Water Rehab	Jul-21	\$8.0
DI Treatment Plant Asset Protection	CHP Des/ESDC/REI	Jun-22	\$5.6
New Connect Mains-Shaft 7	Replace of Sect 25 - Const CP-2	Apr-22	\$5.3
Info Security Program ISP	MSSP/SIEM	Nov-21	\$5.2
Northern Extra High Service New Pipelines	CP-1 NEH Improvements	Apr-22	\$4.4
Top 10 Contracts			\$82.7
% of Total Planned Awards			55.5%
56 Contract Awards Planned			\$149.0



Community Loan Programs

The MWRA offers its water and wastewater communities loan and grant opportunities for infrastructure preservation. Support programs total \$191.8 million over the FY19-23 timeframe with \$38.6 million targeted for FY22. Community loans are interest-free and repaid to MWRA over a 5-year or a 10-year period. On the water side, the program's goal is to improve local water system pipeline conditions to help maintain high water quality distribution from MWRA's treatment plant through local pipelines to customers' taps. The water loan program was established in 1998 and over 546 miles of pipeline have been improved. Similarly, on the wastewater side, the local financial assistance program provides MWRA sewer communities funding to perform local infiltration and inflow "I/I" reduction and sewer rehabilitation. The I/I program was established in 1993 and funds are currently approved for distribution through Fiscal Year 2025. Unlike the water loan program, the I/I program is a partial grant program.

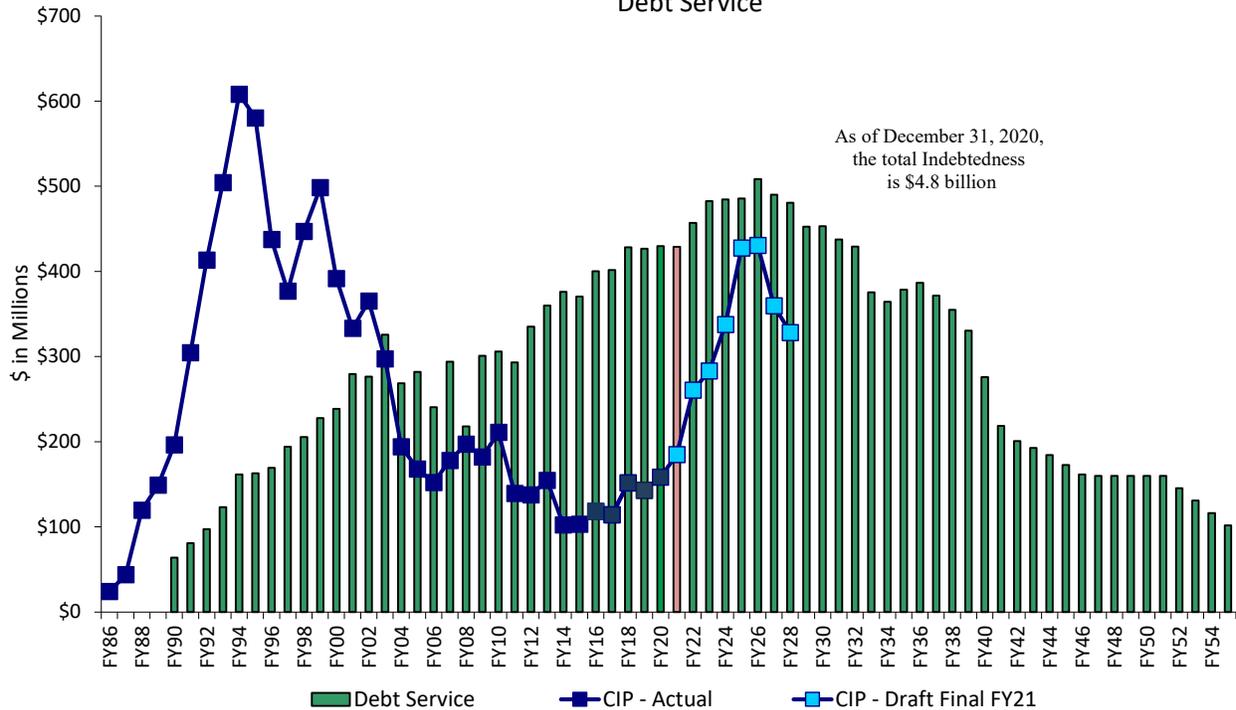
Over the FY19-23 timeframe \$149.2 million in funding is projected to be distributed to MWRA wastewater communities and \$42.6 million is projected to be distributed to MWRA water communities.

\$s in Millions	FY19	FY20	FY21	FY22	FY23	FY19-23
I/I Financial Assistance (Net of repayments)	\$39.6	\$35.2	\$28.1	\$23.2	\$23.0	\$149.2
Local Water System Assistance (Net of Repayments)	\$13.8	\$11.4	\$6.4	\$15.3	(\$4.4)	\$42.6
Total Community Loan Programs	\$53.5	\$46.7	\$34.5	\$38.6	\$18.5	\$191.8

MWRA Capital Improvement Spending and Debt Service Projected Thru 2023

As of December 31, 2020, MWRA's total debt is \$4.8 billion, which is \$89.9 million less than the MWRA's total debt as of December 31, 2019. While total outstanding debt is decreasing, debt service obligations continue to rise and are projected to increase in coming years.

MWRA Capital Spending & Debt Service



CIP Review and Adoption Process

The Advisory Board will have 60 days from the transmittal of the FY22 Proposed CIP to review the budget and prepare comments and recommendations. During the review period, Advisory Board and MWRA staff will continue to meet and discuss the changes to the capital budget. The Advisory Board will then transmit its comments and recommendations to MWRA in the spring after its review. Staff will prepare draft responses to the Advisory Board’s recommendations for discussion at the budget hearing. During the spring, MWRA will update the CIP to incorporate the latest information into the Final budget. In June, staff will present the FY22 Final to the Board for adoption.

Project Level Budget Summaries and Detail of Changes

Information on individual project budgets and detail of changes is provided in the supplemental appendices attached to this document.